VILNIUS UNIVERSITY
FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION

FINANCE AND BANKING
MASTER STUDY PROGRAMME

Liucyna Gimžūnė

FINAL MASTER THESIS

INOVATYVIEJI VERSLO MODELIAI IR STARTUOLIAI BEI JŲ ĮTAKA ESAMIEMS ĮMONIŲ FINANSINIAMS REZULTATAMS IR VERTINIMUI MAŽMENINĖS PREKYBOS SEKTORIUJE	INNOVATIVE BUSINESS MODELS AND STARTUPS AND THEIR IMPACT ON EXISTING COMPANIES FINANCIAL PERFORMANCE AND EVALUATON IN RETAIL INDUSTRY

Supervisor: Dr. Darius Saikevičius

Vilnius, 2023

CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

BVA	Book value of Assets
CAGR	Compound Annual Growth Rate
DiD	Difference-in-Difference methodology
EBIT	Earnings before interest and taxes
EBITDA	Earnings before interest, taxes, depreciation and amortization
EBT	Earnings before taxes
IFRS	International Financial Reporting Standards
NACE	Nomenclature of Economic Activities
ROA	Return on Assets
ROE	Return on Equity
ROS	Return on Sales

INTRODUCTION

Increasing digitalization and innovations are shaking companies to their core and changing many industries. The significant changes in the capital market were witnessed during the Covid-19 pandemic as some sectors recorded high performance while others declined even further. Retail has outperformed many other industries. During the pandemic, as shopping volumes increased globally, the market capitalization of the retail sector increased by 35% compared February 2020 to April 2021 (McKinsey, 2021). The pandemic has only accelerated these trends, while transformative changes in retail started even earlier. The retailers who were already worked on innovative business models before the pandemic were able to differentiate themselves from the competition afterwards (McKinsey, 2021).

The retail industry landscape is changing and accelerating due to disruptions such as e-commerce, omnichannel, artificial intelligence, changing customer expectations and pressure for higher margins and cost efficiencies. To be successful in the future, retailers must change quickly.

E-commerce could be a potentially effective way to increase business efficiency. It uses technology to reduce operating costs, expand markets and improve business efficiency and effectiveness. However, the impact of integration e-commerce on company's financial and operational performance may vary depending on the country's development, competitive environment, company size, or chosen strategy. The topic of e-commerce has been extensively studied in the academic literature, examining the various aspects of business performance, and using various research approaches to assess the implications for specific research problems.

The decision to investigate the impact of innovative business models, particularly e-commerce, on the financial performance of existing retail companies resulted from the significant growth of e-commerce in recent years in Lithuania. The Covid-19 pandemic, the war in Ukraine and the fierce retail competition in Lithuania accelerated the implementation of the innovative business model in retail. While the existing literature comprehensively examines the impact of e-commerce on industries and business outcomes and highlights the multiple benefits, there is a lack of studies that specifically focus on the Lithuanian retail sector.

The **main aim** of this thesis is to assess the impact of implemented innovative business models or startups on the financial performance of existing retail companies and provide valuable insights into the dynamics of the retail industry in the era of e-commerce disruption.

To support the aim of the paper the following **objectives** were set:

- Overview of concepts of innovative business model and start-up, main drivers, and results.

- Critically review the research studies and reports on the impact of e-commerce on retail industry and existing business performance.
- Assess the financial impact of implemented e-commerce in selected retail companies and compare financial metrics with the rest of the food retail market in Lithuania.
- Provide recommendations to existing retailers on how to navigate and thrive in the evolving retail landscape and address further research implications.

The thesis is structured into three parts.

The first part provides a theoretical framework of the work, including the revision of scientific articles, the analysis of scientific data, and industry reports. It begins with a discussion about the concepts of innovative business models and startups: their definitions, diversity, and similarities. Then is followed by a discussion about the drivers and results of innovative business models. Finally, an overview of the evolution of retail is provided, the main challenges and opportunities are discussed and an overview of the impact of e-commerce on market and business performance is provided.

In **the second part**, the methodology for collecting and analyzing the data is explained. As a research approach, two methods are presented and discussed: difference-in-difference analysis and comparative analysis based on the event study methodology. The methodological framework for each of these methods is further explained and an overview is provided. The comparative analysis methodology was chosen for further empirical analysis and the reasons are explained. Finally, the selection of data, target group, control group and the measures used in the further analysis are presented.

The third part of the paper contains the results of the comparative analysis of the impact of the e-commerce business on the operating performance of the exiting company. First, start with an overview of the retail market in Lithuania, followed by a detailed comparative analysis of measures such as sales growth, productivity, ROS, EBITDA adjusted, and ROA between two selected Target groups that have implemented e-commerce and Control groups. The section ends with a brief overview of the analysis.

In conclusion part valuable insights are provided into the impact of e-commerce on the financial performance of grocery retail companies in Lithuania. It suggests practical considerations for companies seeking to integrate innovative business models and calls for further research to address existing limitations and improve understanding in this evolving area.

1. THEORETICAL FRAMEWORK ON INNOVATIVE BUSINESS MODELS & STARTUPS AND THEIR IMPACT ON BUSINESS PERFORMANCE

This section provides a theoretical framework and context for the work. It begins with a discussion on the concepts of business model: its definition, diversity and importance in the current digital age, as well as the concept of startups: their business models, challenges and opportunities. This is followed by a discussion of the drivers and outcomes of innovative business models and startups. Finally, an overview of the development of retail industry is provided, the main challenges and opportunities is discussed and the overview of impact of e-commerce on market and business performance is provided.

1.1 Conceptualization of Innovative business models and Startups

1.1.1 Business model

In order to comprehensively examine the influence of innovative business models on the financial performance and valuation of existing trading companies, it is essential to define and review the terms of business model and innovative business model.

The term “business model” is relatively new, dating back to 1957. However, it began to be used more widely in the 1990s as the Internet emerged and technology companies grew (Osterwalder, Pigneur, & Tucci, 2005). Nowadays this term is widely used both by academics and practitioners as a useful instrument. The business model has the potential to secure or expand a company's competitive advantage or to revolutionize and reshape the market of an entire industry (Timo Böttcher S. H., 2021). For practitioners, “effective business model is a key of future success” (Djuraeva, 2021). However, there are different conceptualizations of the term “business model” in the academic literature.

Some business model concepts emphasize value creation, whereas others emphasize value appropriation. For instance, Teece (2010) described business model as an activity to deliver value to the customer and convert it into company’s profit. This definition also describes the customer's needs and ability to pay, as well as how companies should respond to their needs, provide them with value, preserve their money and convert that money into profit. Gambardella et al (2010) concluded that company which invests into innovative business models have the potential to lead in the development of new knowledge sharing industries and also gain long-term competitive advantage. Zott & Amit (2010) conceptualized the business model as a collection of interdependent activities that enable it to create value for customers and share it with its partners. Sorescu et al. (2011) business model described as a system of interconnected structures, activities

and processes that acts the organizing logic for a company' value creation for its clients and value appreciation for itself and its partners. The company's overall value creation increases its ability to provide added value to partners and customers, capture more market share, and strengthen its bargaining power within the value chain. Despite the wide range of definitions, most of them emphasize the main elements of the business model as value creation (e.g. meeting customer needs) and value capture (e.g. generating revenue, cost-effective).

Business models can also be viewed as an activity-based system that includes three basic components: value creation and delivery, value proposition, and value capture (Mostaghel, Oghazi, Parida, & Sohrabpour, 2022; Zott & Amit, 2010). This business model framework was originally presented by Richardson (2005) (see Table 1) and then widely used by others.

Table 1.

Business model framework

Value proposition	Value creation and delivery	Value capture
- Offering (product/service)	- Resourches and capabilities	- Revenue source
- Target customer	- Organzation and value chain	- Economic for business
- Basic strategy	- Positon in value network (suppliers, partners, customer)	

Source: Adopted from Richardson (2008)

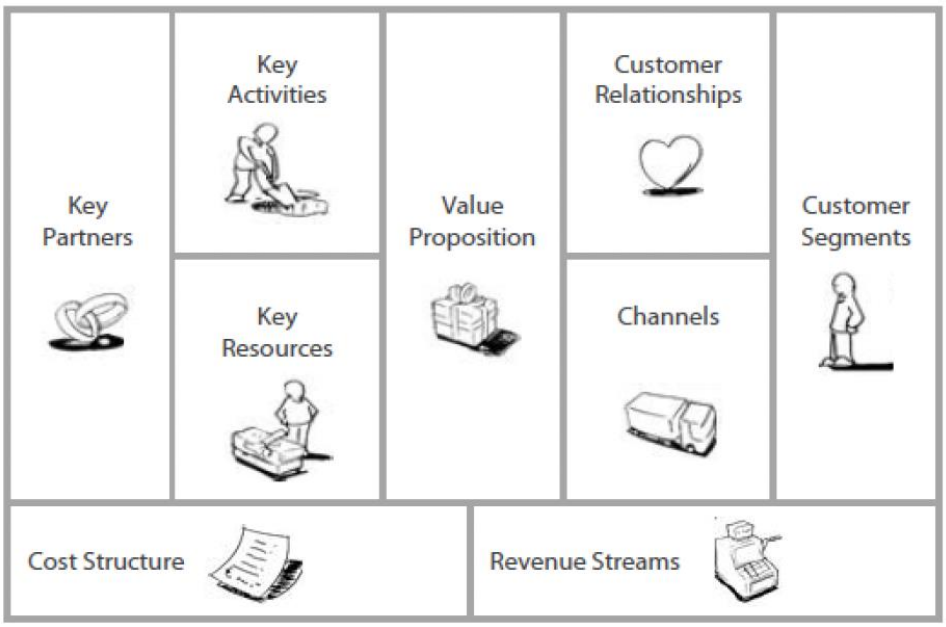
- *Value proposition* refers to why the customer finds the offering valuable and consists of processes and activities required to deliver the final product or services (Mostaghel, Oghazi, Parida, & Sohrabpour, 2022).
- *Value creation* is about understanding how a company creates value and what resources, capabilities, and processes are required to do so (Guo, Guo, & Ma, 2022). Strategic partnerships are usually formed with ecosystem partners to ensure the provision of a profitable offer (Parida, Sjödin, & 1, 2019; Mostaghel, Oghazi, Parida, & Sohrabpour, 2022).
- *Value capture* is about how a company builds its revenue model and/or cost structure to better allocate and capture the value created to customers (Teece, 2010; Guo, Guo, & Ma, 2022).

In 2008, Osterwalder and Pigneur designed a business model canvas, that includes all components of the business model framework invented by Richardson (2005), but also explains how an organization creates, delivers, and captures value provided by four business elements: Infrastructure, Customers, Offers, Financial Structure and nine blocks illustrated in Figure 1. This

business model tool is often used by practitioners as a blueprint for implementing strategies in organizations. Djuraeva (2021) explains that every decision regarding each four elements must solve customer problems and satisfy their needs.

Figure 1.

Business model canvas



Source: Djuraeva (2021)

Amit & Zott (2010) defined a business model as a system of interconnected activities and summarized them into two sets of design parameters: design element and design themes. A set, design element, consists of content, structure and governance and defines the business's organizing principles for the value creation and appreciation. Design themes consisting of novelty, lock-in, complementarities and efficiency, define important drivers of value creation. In this way, researchers explain that by linking each of these components, a business model can be properly built to achieve greater efficiency (Djuraeva, 2021). Over the next 10 years they continued their research on the business model and built a bridge to define an innovative business model (Djuraeva, 2021).

1.1.2 Innovative business model

Based on a holistic perspective, the business model can be defined as "how to do business", while an innovative business model can be defined as "how to do business in new ways" (Amit & Zott, 2020). The innovation itself of the product or service does not constitute an innovative

business model. However, the discovery of new ways in which value can be created or delivered to the customer is part of a new business model. For example, Amazon didn't invent bookselling, but it has created new value for customers by changing the way it sells books. Thus, an innovative business model could be defined as an extension of business model, including "the reinvention of elements in some or all dimensions" (Mostaghel, Oghazi, Parida, & Sohrabpour, 2022).

Spieth & Schneider (2016) revised the definition of business model proposed by Richardson (2005) and other scholars and added innovations to the dimensions. They conceptualized an innovative business model as a change in the firm's novelty in at least one of three dimensions of the business model: value proposition innovation, value creation innovation and value capture innovation (Spieth & Schneider, 2016):

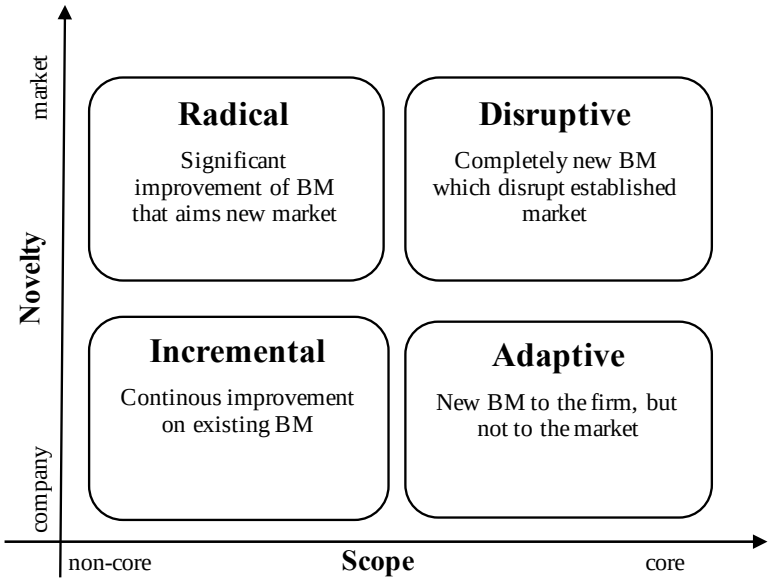
- *Value proposition innovation.* This involves creation of a new offering that either satisfies an existing, unmet customer need or creates a new demand that customers have not explicitly recognized. The value proposition defined by three elements (target customers, product and service offering, and positioning) explains how company can differentiate itself from the competition and to who benefit from it. (Spieth & Schneider, 2016).
- *Value creation innovation*. It is about discovering new uses or combinations of a company's resources and competencies or the resources and competencies within its partner network. Elements such as core competencies and resources, internal and external value creation and delivery describe the basis of a company's value proposition, the value creation activities within and outside the company, and the way offerings are delivered to customers. (Spieth & Schneider, 2016)
- *Value capture innovation*. It is about reinventing the way a company generates its revenue. Companies are developing new revenue generation and cost management strategies that meet customer needs while maximizing the return on their resources and skills. (Spieth & Schneider, 2016).

Each of them can occur independently, but changing one of them, can also change others. However, there is disagreement among scientists about "how much needs to change" to be defined as an innovative business model (Foss & Saebi, 2018). Foss and Saeib (2018) therefore suggest classifying innovative business models according to novelty and scope (see Figure 2). Four main changes are defined: incremental, adaptive, radical, and disruptive. Incremental changes mean continuous improvement of existing business models and processes. Adaptive means introducing new business models or processes into the company but is not necessarily new to the market. For example, brick-and-mortar retailers are expanding their sales from offline to online to respond to customers' needs and remain competitive in the market. In this case, it is new to the company but

not new to the market. Radical and disruptive changes to the innovative business model can bring new products or services to the market or even disrupt and change the landscape of the existing market (e.g. Uber changed the transportation industry or Airbnb changed the hotel industry). Consequently, an innovative business model can be technology-oriented, market-oriented or mixed.

Figure 2

Types of business model innovation



Source: Adapted from Foss & Saebi (2018) and Huang & Ichikohji (2023)

In addition, depending on the source, innovative business models can also be classified as original or imitative (Kim & Min, 2015). Company's original innovative business model is when the company itself develops new technologies or rebuilds its existing business models, while imitative innovative business models are technologies or business models invented by other companies. Therefore, an imitative innovative business model could be adopted (when the company replaces the old business model with a new one) or added (when the company complements the existing model) (Kim & Min, 2015).

However, it doesn't matter what "new way of doing business" the company chooses. Scholars agree that an innovative business model influences the fundamental business logic (Ancillai, Marinelli, & Pascucci, 2022), while the company's engagement in innovative business models is a process of experimentation and changing the existing business model (Gatautis, Vaiciukynaite, & Tarute, 2019).

1.1.3 Innovative business model in retailing

Researchers categorize innovative business models in different ways. This study is focused more on the retail sector. As a result, the conceptualization of the retail business model is reviewed. Innovative business models in retail are examined by Sorescu et al. (2011) and later by Mostaghel et al. (2022). Interestingly, both researchers examine the retail business model after the periods in which the economy was correspondingly shocked by the 2007-2008 financial crisis and the Covid-19 pandemic.

Sorescu et al (2011) argued that innovative business models are crucial for retailers to build sustainable competitive advantages in a rapidly changing market. The researchers designed a specific retail business model consisting of three interrelated elements and suggested six innovative ways retailers could improve their business model.

Retailing formats, activities and governance are the main elements of retail business model developed by Sorescu et al (2011).

- *The retailing formats* describe the way how retailing activities such as product assortment, pricing, location, and channel should be organized to fulfill customer needs. Nowadays, retailers are increasing the number of touch points with their customers via multichannel or omnichannel and provide them variety of shopping experience both online and offline.
- *The activities* represent the processes of good management (acquire, stock) and communication (display, exchange) which needed to fulfill customer experience. For instance, the experience of virtual store, shopping atmosphere, or branding can enhance the customer satisfaction.
- *The governance* refers to the actors (retailer, customer, supplier), the relationship between them and incentive structure which motivates them to fulfill their roles successfully. Today customer plays an active role as co-creator in retail environment by using self-checkouts, internet banking, or review websites.

An important aspect of this business model is that all three elements, retailing formats, activities, and governance, are interdependent. This means, that changing one of these will impact the other two, as innovative retail business models should apply system wide. Sorescu et al (2011) emphasize that the purpose of this model is to increase value creation and appropriation and proposed a framework of six themes that helps understand how retailers could gain competitive advantage or change the rules of the game in the market. These six themes are listed in Table 2 below, including examples of how retailers are transforming their traditional way of doing business into a new one.

The increasing digitalization, which was particularly accelerated after the Covid-19 crisis, inspired Mostaghel et al. (2022) to re-examine the retail business model and find out how this radical technological change affected the model dimensions. After analyzing 170 articles, researchers created a holistic framework for the characteristics of the digitally driven retail business model (see Figure 3).

Table 2.

Design themes of innovative retail business model

	Design theme	Implemented traditionally as..	Implemented in a new way as..	Example
Value approciation	Operational efficiency	Streamlined store environment and back end operations	Fast fashion model	Zara used reduced assortment with fast turning inventory, which created exclusivity effect and cut down on the need for excessive markdowns
	Operational effectiveness	Vendor management; Inventory management; Market research studies	Leverage complementarities	Apple store offered a unique enviroment for customers, where customers are not only buy a product but can get one-on-one tutorials, get their compuer repairs, or can participate in workshops
	Customer lock-in	Subscription-based model	Leverage exclusive products	Trader's Joe ensured their customer loyalty via offering exclusive, high-quality assortment of private label (80% of them) at fair price.
Value creation	Customer efficiency	Multiple locations; product displays, sales support, and so forth	Innovative format which facilitates the shopping experience	Store within stores concept. Sephora opened their stores in JC Penny and reached new customer segments and boosted their sales despite small format store compared to regular stand alone . Alternatively JC Penny gained access to Sephora main customer.
	Customer effectiveness	Depth of assortment	Rely on stakeholders to determine the optimal depth of assortment and supporting services	Customer co-creation concept. NikeID systems allows build own personalized sport shoes
	Customer engagement	Reliance on advertising	Rely on added value tie-ins	Walmart positioned itself as sustainable retailer with three goals. This focus impacted not only Walmart assortment, but alsi variuos other activities as sourcing, internal operations other. Also based on this approach Walmart seek to increase loyalty and positive association that customer have vis-a-vis its barnd

Source: Adopted from Sorescu et al. (2011)

The increasing digitalization, which was particularly accelerated after the Covid-19 pandemic, inspired Mostaghel et al. (2022) to re-examine the retail business model and find out how this radical technological change affected the model dimensions. After analyzing 170 articles, researchers created a holistic framework for the characteristics of the digitally driven retail business model (see Figure 3).

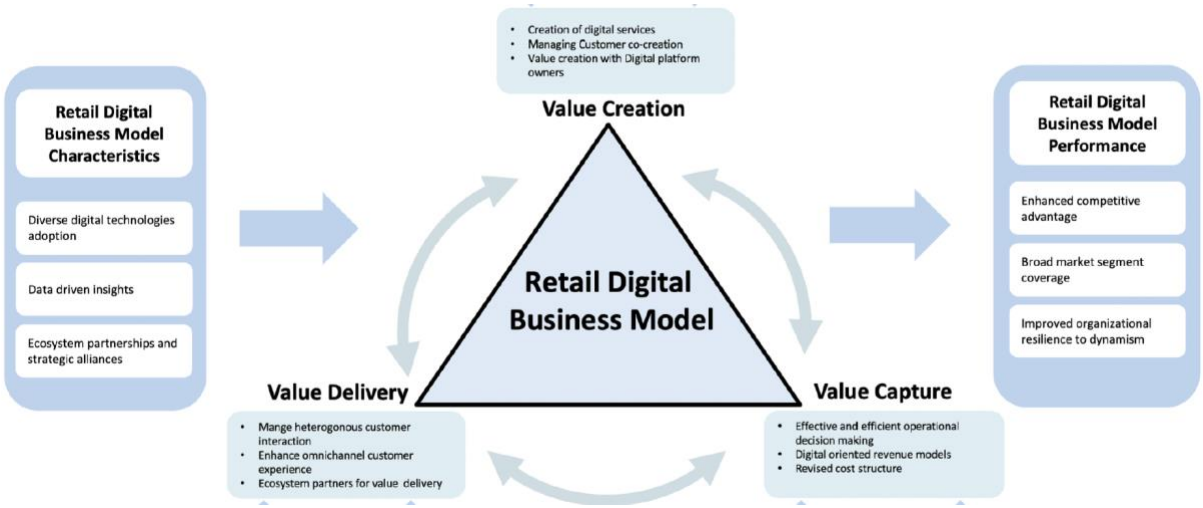
The following features of the digitally driven retail business model are highlighted in the findings: 1) Retail is adopting a wide range of digital technologies such as Internet of Things (IoT), Augmented Reality (AR), Robots, etc., 2) Digitalization is enabled by Big Data provides useful data-driven insights for decision making. 3) The transformation of digital technologies has changed ecosystem partnerships and strategic alliances and enabled collaboration between competitors (Mostaghel, Oghazi, Parida, & Sohrabpour, 2022).

In addition, all dimensions of the retail business model such as value creation, value proposition and value capture have been revised and adapted to the digitalization factor.

Mostaghel et al. (2022) emphasize that to *create value* for customers in the digital era, retailers need to include more digitalized solutions in their service portfolio, such as: Create service excellence or become a digital platform owner.

Figure 3.

Framework of digital driven retail business model



Source: Mostaghel et al. (2022)

Value proposition must be supported by Big Data, IoT and Analytics. Digitalization in this area helps retailers collect and analyze huge amounts of data from their customers through various channels. If retailers have sufficient data about what customers want to buy, how they shop, or pay for products (Ancillai, Marinelli, & Pascucci, 2022), they could improve their experience, loyalty, and satisfaction by offering better promotions and personalized offers, or new service. Another way to transform value creation is through collaboration and partnership. Collaboration with financial services or logistics partners to differentiate themselves from the competition could provide diversity in delivery (Mostaghel, Oghazi, Parida, & Sohrabpour, 2022). For example, to meet increased customer needs during the Covid-19 pandemic retailers have engaged delivery companies with home delivery.

Lastly, implementation of innovative technologies in retail also affected *value capture*, particularly the most important element of the business model, which ensures that the time and resources invested in value creation and value proposition are profitable (Parida, Sjödin, & 1, 2019). Basically, digitalization leads to a change in the cost structure in the company. On the one hand, digitalization leads to effective and efficient decision making toward cost reduction, on the other hand, buying new technologies, competencies, or data could increase current costs (Ancillai,

Marinelli, & Pascucci, 2022; Mostaghel, Oghazi, Parida, & Sohrabpour, 2022). Moreover, digitalization and data-driven solutions could enable new revenue model, e.g. applying dynamic pricing, subscriptions and others (Ancillai, Marinelli, & Pascucci, 2022).

Despite the enormous potential of digitalization, such as effectiveness, cost reduction, new revenue streams or the creation of new markets, companies still struggle with the benefits (Mostaghel, Oghazi, Parida, & Sohrabpour, 2022). The main problem seems to be that new, digitally driven business models are not yet ready for implementation. This results in: 1) lack of competent employees who could understand the possibilities of new technologies, 2) lack of technical infrastructure and unclear maintenance costs, 3) data protection (GDPR), 4) data security, 5) uncertainty about the return on investment and potential benefits (Mostaghel, Oghazi, Parida, & Sohrabpour, 2022).

In any case, increasing digitalization plays an important role in retail. Modern retail is no longer just defined by stationary retail. Innovations such as e-commerce or m-commerce have already gained market share, which means that the traditional retail business is at risk of being replaced (Timo Böttcher S. H., 2021). It is also the perfect time for small new businesses, commonly referred to as start-ups, to take advantage of this economic shift and gain market share.

1.1.4 Startups and their business model

Similar to the business model, the term startup is also quite new. However, there is no uniform definition of startup (Bortolini, Cortimiglia, & Danilevicz, 2021). Startups are often associated with Silicon Valley, which had a large concentration of technology companies in the 1970s but did not boom until the 1990s. A look into the past shows that most technology-based companies only emerged in the 2000s. Companies like Google, Facebook, Tesla, Uber and Airbnb have fundamentally changed our lives, our work and our communication. Enabled by rise of Internet, they re-shaped many industries and captured a market share from traditional businesses.

Ries (2011) defines "startups as human institutions designed to develop new products or services under extreme uncertainty". He highlights several important parts of this definition as institution, innovation and context. By "institution," the author means that a successful startup employs creative, talented people who coordinate business activities and shape a corporate culture. "New" means innovation, which is seen as the heart of business success. Startups exploit a variety of innovations, including innovative scientific breakthroughs, repurposing existing technologies for a new purpose, creating a new business model to unlock hidden value, or simply introducing a good or service to an undiscovered market. Ultimately, context is what matters most. It

distinguishes startups from existing companies because startups operate their business in extreme uncertainty (Ries, 2011).

Slavik (2019) described a startup as a very small company that offers founders space for experimentation, self-realization and the implementation of unusual risky ideas with enormous potential for extraordinary growth but, also uncertainty and possible failure. The startup constantly tries to prove its existence in extremely limited and tense conditions and is expected to generate market acceptance for its product and an attractive return for investors (Slávik, 2019). However, statistics show that 90% of startups fail (Konya-Baumbach, Schuhmacher, Kuester, & Kuharev, 2019). According to Bloomberg analysis, 8 out of 10 startups fails in first 18 months (Wagner, 2013). Management inexperience or incompetence (Picken, 2017) in financial planning, inability to expand into new markets, lack of fundraising, inadequate business modeling and planning (Slávik, 2019) are the most frequently cited reasons for startup failure. According to European startup Monitor report the biggest three challenges for startups are profitability (86.2%), cashflow / liquidity (72.3%) and customer acquisition/sales (55.9%) (Steigertahl & Mauer, 2018). The lack of financial resources forces startups to look for external partners for financing or collaboration at various stages of development (Usman & Vanhaverbeke, 2017). It is not enough to have a crazy unique idea. Behind this, visionaries must have a clear picture of their business model and strategy in order to attract investors for financing they need. Therefore, startups must find ways to ensure growth, create a unique value proposition and differentiate themselves from the competition (Rahardjo, 2023).

The importance of the business model for startups in the early stages of their business is also highlighted by researchers in academic reviews. Picken (2017) published the article with guidelines on the essential actions required to create a scalable business, emphasizing that the success of a startup depends on the right business concept, a competitive and attractive positioning, good management, the development of effective processes and the financial management. Similar highlights can also be found in the research of Slavik (2019). He explains that a startup's success depends on "its business model, team and strategy". A successful investor McClure says that the five most important investment criteria are product, sales, market, strategy, and team (Slávik, 2019). With the exception of the last one (team), the first four are part of the successful foundation of the business model (Slávik, 2019).

Compared to established companies, startups more often face challenges in implementing their business models due to no historical data, high uncertainty, and limited resources (Bortolini, Cortimiglia, & Danilevicz, 2021). However, they can mitigate these challenges through continuous learning and experimentation. Therefore, the main goal for startup is not to pursue a business model (Slávik, 2019), but to look for repeatable and scalable business model (Bortolini,

Cortimiglia, & Danilevicz, 2021; Slávik, 2019). For instance, Lean Startup methodology encourage startups to build a minimum viable product (MVP), test it in the market, collect feedback, and iterate based on the feedback (Bortolini, Cortimiglia, & Danilevicz, 2021). Each iteration of the entire Lean Startup cycle brings startups closer to a more effective and sustainable model. Implementing the findings for them is more an opportunity than a challenge (Amit & Zott, 2020). It's like a playing field where the new rules of the game must be determined.

Compared to the definition of an innovative business model, the startup concept is very similar and could be classified as a radical or disruptive business model. Startups as innovators of a new business model look for new innovative ways that go beyond existing products, processes, and technological innovations (Madhavan, Sharafuddin, & Chaichana, 2022) and aim to gain market share or disrupt and change the existing market landscape. Today they are seen as extremely agile, fast, and adaptable innovators who challenge the survival of existing companies.

1.1.5 Innovative business model: from concept to collaboration

An innovative business model is a new way of creating, delivering, and capturing value. It can be applied to established companies that want to adapt their existing business model to changing market conditions or gain a competitive advantage. On the other hand, it can be applied also to startup companies, because startups often aim to bring a unique, new product or service to market and may include the development of an innovative business model as part of their strategy. While the unified business model combined of startup and existing company could lead to new business model innovation which could improve the innovation system as a whole (Fabrício, da Silva, Simões, Galegale, & Akabane, 2015).

The similarities between innovative business models in existing company and startups lie in their shared commitment to foster innovation and adapt to dynamic market conditions. Both companies value a customer-centric approach and recognize the importance of understanding and meeting the changing needs of their target audience. Startups and companies that introduce innovative models are characterized by entrepreneurial spirit and are characterized by a willingness to take risks, experiment with new ideas and pursue ambitious goals. Despite similarities an innovative business model in an existing company and an innovative startup refer to different aspects of a company. Both differ in scalability, resources, risk profile and market position (Fabrício, da Silva, Simões, Galegale, & Akabane, 2015). Therefore, the collaboration via open innovation or acquisition of startup to enhance existing company performance and foster innovations can be chosen as a strategy of existing company.

Dekova, Krcmar, & Böttcher (2023) analyzed 124 startup acquisitions by retail existing companies and identified six reasons why existing companies are doing this. The output is grouped into 3 concepts: technology, people, and market. The main reason why established companies acquire startups are the access to technologies and patents. For instance, the robotic company Dispatch was acquired by Amazon in order to develop a new product for automated deliveries (Dekova, Krcmar, & Böttcher, 2023). The second reason is technical skills, which existing companies usually needs more time and resources to gain compared to entrepreneurial startup company. The third reason is to increase market share. For example, local startup Milo was acquired by eBay to expand its online business into the offline retail market (Dekova et al., 2023). Similar to this , German bookseller Thalia bought Textunes, a company that develops electronic book applications, to extend its digital business (Dekova et al., 2023).

The literature on open innovations reveals the potential for collaboration between entities, leading to mutually beneficial outcomes. The researchers Usman M. & Vanhaverbeke (2017) using explanatory case study analysis explain the mechanisms through which startups organize and manage open innovation with large companies. They focused on two main open innovation models: inbound and outbound. Inbound open innovation involves external ideas or technology flowing into an organization, while outbound open innovation involves an organization's internal ideas being used by another organization for further development and commercialization. Inbound open innovation involves start-ups collaborating with external partners to gain new ideas or technologies, while outbound open innovation involves start-ups acting as technology providers to large companies.

According to the Accenture report (2015), “Collaboration is the engine that accelerates digital innovation.” The survey of 1.000 start-ups and 1.000 large companies shows that large companies expect to generate an additional 12 percent of total revenue in five years by collaborating with start-ups in the field of digital technologies and the development of new services and products (Accenture, 2015; Usman & Vanhaverbeke, 2017). In addition, 82 percent of large companies believe that they can learn from startups how to become digitally innovative, while 71 percent of large companies already report successful collaboration with startups. (Accenture, 2015). According to the study, there is a strong connection between collaboration, growth and innovation between large companies and startups in all G20 countries.

Bigliardi, Ferraro, Filippelli, & Galati (2020) analyzed 77 articles and 4 reviews on open innovation and firm performance and concluded that the collaboration has a positive impact on company performance and competitive advantages. Similarly, to innovative business model, open innovation is defined as a tool for creating new patents, developing new goods and services, and expanding markets. It also facilitates the flow of knowledge. In addition, it can enable more

effective use of unused resources to increase business performance (Bigliardi, Ferraro, Filippelli, & Galati, 2020).

Therefore, the implementation of innovative business model solutions in existing or new companies to achieve competitive advantage and improve company performance could be expressed through four different approaches:

a) internal investments into innovative business model solutions in existing companies.

b) investments into innovative startup company with an innovative business model strategy

c) collaboration between entities, i.e. startup companies and large companies

d) acquisitions

There are distinct benefits associated with each of these approaches. Agile and disruptive thinking are the key to the success of a startup. Established companies can invest in innovation by leveraging their size and resources. Open innovation promotes collaboration and knowledge sharing between different ecosystems, while acquisitions make it possible to gain a competitive advantage, expand the market and exploit beneficial synergies. The right decision about which approach to use depends on how well it fits the company's goals, available resources and the operating environment. However, if the chosen approach creates, delivers and captures value in new ways, it can be defined as an innovative business model.

1.2 Drivers and outcomes of innovative business model and startups

1.2.1 Drivers

The relation between innovative business model and company performance is a complex topic and has not been thoroughly researched by scholars (Huang & Ichikohji, 2023). Existing frameworks for innovative business models point to several potential benefits: competitive advantage, knowledge creation, sustainable performance, etc. (Pucihar, Lenart, Kljajic Borštnar, Vidmar, & Marolt, 2019). However, not all innovative business models are successfully implemented. More than 60% of innovative business model efforts failed and did not reach expected results (Latifi, Nikou, & Bouwman, 2021; Ammirato, Linzalone, & Felicetti, 2021) due to different reasons e.g. not properly handled, or not well designed. Therefore, it is a great challenge for practitioners to know what are the main drivers of a successful innovative business model. However, there is no single answer. Even if two companies have the same assets, resources, and technologies, they can have completely different business performance because of different business models (Ammirato, Linzalone, & Felicetti, 2021).

The term driver in business dictionary means important condition, resource which influence successful business performance. In academic literature it can be named also as factor, parameter, condition, suggestion, criteria (Ammirato, Linzalone, & Felicetti, 2021). In this study, „innovative business model performance drivers are conditions related to various dimensions (i.e. processes, resources, market, etc) that, when fulfilled, allow the innovative business model to have higher performance" (Ammirato, Linzalone, & Felicetti, 2021).

Typically, drivers are classified into external and internal. Also, can be categorized as micro and macro, qualitative and quantitative, static, and dynamic, etc. (Ammirato et al., 2021). Tian et al (2019) identified seven main drives which has impact on innovative business model: pressure from market, governmental policies, entrepreneurial orientation, organizational culture and strategy, advancement of technology, resources, and organizational capabilities. All of them were grouped into external, internal and guarantee factors. This study focuses on two factors: external and internal. Guarantee factors such as resources, organizational capabilities and culture are classified as internal.

In the context of external, previous studies identified the following drivers: technological development, shift in competition, network position, policy changes, stakeholder demands, crisis or change of customer behavior (Pucihar, Lenart, Kljajic Borštnar, Vidmar, & Marolt, 2019; Gatautis, Vaiciukynaite, & Tarute, 2019). Tian, Zhang, Yu, & Cao (2019) analysis of case study results shows that competition and customer needs led the company to identify market gaps, invest in research and development, and innovate its business model to improve competitiveness and respond to market dynamics, while government supporting policy (as funding and tax reduction) allowed to acquire needed resources and invest to new technologies that helped the company to reposition production and logistic processes, enabled cross-border resource integration and reduce the response time across the whole value chain. Latifi et al (2021) analyzed the relation between the revenue growth mechanism and overall company performance. The revenue growth is defined as mediator which drive company‘s revenue through new market, new customers, new value propositon and service budling (Latifi, Nikou, & Bouwman, 2021). The result showed positive impact on overall companys‘s performance. It means that innovative business model can increase a company's revenue and improve the company's overall performance through new economic channels, partnership models and novel business model components (such as bundling/unbundling services or servitization) (Latifi, Nikou, & Bouwman, 2021). Despite positive results from provided studies, it is important to understand that various or sometimes the same external drivers can have both positive and negative impact on performance, thus businesses must plan and act accordingly. Recent studies have shown mixed result on innovative business model performance

driven by external factors, some of them show positive correlations, others weak or no correlation at all (Pucihar et al, 2019).

Internal drivers represent organizational capabilities including resources, innovativeness, entrepreneurial orientation, or organizational culture. According to Ferreras-Mendez et al. (2021) entrepreneurial orientation is crucial because it enables companies to identify and seize new opportunities through continuous environmental analysis and thus promote early market entry with innovative products or services. Additionally, it promotes dynamic capabilities for advanced product innovation, stimulates the use of technologies more effectively, and encourages a proactive attitude toward resource exploitation. All of these factors contribute to the creation of an environment that is favorable for radical innovation (Ferreras-Mendez, Olmos-Penuela, Salas-Vallina, & Alegre, 2021). Ferreras-Mendez et al (2021) study results have shown that entrepreneurial orientation positively impacts new product development both directly and indirectly. Tian et al., (2019) findings indicate that the company's development direction, behavior and resource allocation are guided by its integrated strategy and culture that promotes innovative practices. Its dynamic capabilities allow it to adapt to changing market conditions, reallocate resources, and innovate through experimentation and knowledge sharing. Furthermore, a company's talents, motivated through appropriate mechanisms, directly contributes to innovation, entrepreneurial orientation and successful business model outcomes. In addition, Latifi et al, (2021) study shows that efficiency-oriented, innovative business model has a positive effect on the company's overall performance.

Ammirato, Linzalone, & Felicetti (2021) collected 35 innovative business model performance drivers which fulfillment has positive impact on innovative business model performance. Notably, that not all of them can be applied to the specific business model. The key drivers can change within changing market conditions or technologies, thus should be reviewed, and updated accordingly. In addition, the drivers for large companies, small companies or startup's can be different.

Intuitively, the business performance drivers of startup business model are similar to the drivers of the innovative business models in established companies. However, the study results presented by Pugliese et al. (2022) do not provide any useful information. The researchers identified 66 growth drivers from 316 studies and grouped them into six categories: individual and team related, marketing and strategy related, context related, industry and market related drivers, resources and capabilities and past performance (Pugliese, Bortoluzzi, & Balzano, 2022). However, there is very weak evidence that these drivers have a positive impact on performance. Only 11 out of 66 drivers are identified as potential drivers, but further research is needed to validate this selection.

1.2.2 Outcomes

Innovative business model could be a powerful tool. In case of its successful implementation, it can produce a range of outcomes: improved performance, competitive advantage, innovativeness, or sustainability (Huang & Ichikohji, 2023; Gatautis, Vaiciukynaite, & Tarute, 2019).

The performance is probably the most important outcome of innovative business model. According to Venkatraman & Ramanujam (1986) company performance can be measured by financial indicators, non-financial indicators (also known as operational) or combined both. Based on data sources they can be divided into primary (if data collected directly from company) or secondary (if data collected from public records). In combination of data sources and types of indicators the authors identified ten basic alternatives to measure business performance.

The most recent studies have confirmed positive relationship between innovative business models and company performance (Bouwman et al. 2018; Pucihar et al. 2019; Zott & Amit, 2007). Bouwman et al. (2018), after an empirical study of 338 small and medium enterprises in the Europe and the review of four case studies, proved that innovative business models driven by social media and big data have direct positive effects on company performance. In addition, Ferreras-Mendez et al., 2021, noted that an innovative business model transforms the company's entrepreneurial orientation in its innovation processes, leading to the successful execution of new product development. Zott and Amit (2007) analyzed 190 publicly traded entrepreneurial companies in Europe and the USA to understand how the business models developed in these companies affect their performance. Their study results show that the business model is an independent variable and has a positive and stable relationship with company performance despite environmental changes.

In contrast, startups like Uber or Airbnb did not revolutionize any new product or service. They become multibillion dollar companies due to invented new ways of value creation and value capture. The same, Google or Amazon, they are just breaking the rules and stereotypes of existing business model and changing fundamental block of their business. Innovative products or service are not valuable as unique innovative business model. The results of BCG (2009) analysis showed that returns delivered by innovative business model are more sustainable and are four time higher than product or service innovation. The study by IBM (2006) also provided similar results, there operating margin growth for business model innovators over five years was about five times higher than for other types of innovations.

On the other hand, it is worth noting that not all studies show direct positive effects on performance. For instance, Latifi et al. (2021) underlined that innovative business model does not directly improve company performance, but it works through three mediating factors: efficiency growth, revenue growth and organizational capability.

Another important outcome of innovative business model or startup is competitive advantage. According to the findings of a survey done by Economist Intelligence Unit (2012) with more than 4.000 executive managers, it was emphasized that executives gave their preferences to innovative business model as a competitive advantage rather than to the development of new products and services. Furthermore, a previous study by IBM (2006) highlighted that high-level management is shifting its focus and interest towards business model innovation due to strong global pressures. Additionally, it was mentioned that companies that outperformed their competitors focused on successfully implementing innovative business models and experienced higher growth. Nowadays, to gain a competitive advantage is become extremely important. According to Accenture (2023) global disruption index, which measure the impact of economic, social, climate, geopolitical, consumer and technological challenges, increased by 200% from 2017 to 2022. In contrary, the disruption level was only 4% in previous period from 2011 to 2016. It means that current environment is changing so fast that the companies' leaders must deal with several challenges at the same time. Moreover, current Accenture research states that "a strong digital core is primary enabler of competitive advantage". The companies with strong technological and resources capabilities gains up to 11%pts in productivity (Ashraf, et al., 2023).

Innovativeness is one more important outcome from innovative business model. A company's ability to introduce new products, services, or processes is referred to as its innovativeness (Gatautis, Vaiciukynaite, & Tarute, 2019). Hence, innovative business model is like a source of innovation which can facilitate the development of open innovation. The literature on open innovations reveals the potential for collaboration between entities, leading to mutually beneficial outcomes. The main advantages of collaboration with large companies for startups are knowledge, valuable resources, expand to new markets. On the other hand, it is also beneficial for established company in terms of new technical competencies, patents, or new assets that helps to solve their problems (Dekova, Krcmar, & Böttcher, 2023).

Lastly, sustainability is becoming very important outcome of innovative business model. Companies which would aim to support Sustainable Development Goals according to United Nation 2030 Agenda would need to boost their innovations or would need to change their current business processes. Sustainability-oriented innovation can be defined as the transformation of an organization's values and core principles, as well as its products, services, or processes, to create and deliver not only economic but also environmental and social benefits (Hansen & Grosse-Dunker, 2012). According to Hansen & Grosse-Dunker (2012) the target dimension and the life-cycle dimension are two components that describe the result of sustainability-oriented innovation. The target dimension refers to the concept of the triple bottom line, which expands the traditional focus on economic profits to include ecological and social responsibility. This approach

recognizes the interdependence of economic, social, and environmental systems and emphasizes the importance of balancing these aspects within the finite constraints of our planet, rather than optimizing one at the expense of others. The life cycle dimension in sustainability-oriented innovation focuses on the entire life cycle of a product, from raw materials to end of life, including supply chain, production, packaging/distribution, use and disposal. This approach goes beyond optimizing the core functional features of a product and aims to address sustainability issues at every stage of the product life cycle, including environmental and social impacts, to ensure a comprehensive approach to sustainability throughout the life of the product (Hansen & Grosse-Dunker, 2012).

To sum, current studies shows that outputs from implement innovative business models are not limited to quantitative and measurable results as economic profit, but also could have much broader meaning (Huang & Ichikohji, 2023). For instance, innovations could reduce uncertainty, promote women ‘s empowerment, improve healthcare, or include sustainability aspects into company’s strategies. (Huang & Ichikohji, 2023).

1.3 Overview of retail industry and importance of e-commerce

1.3.1 Evolution of retail industry

The retail industry has changed significantly over the years, mostly driven by changing of customer behavior, standards of living, technological booms and shifts in market dynamics. However, the retailing mission stayed the same through all the time. Christensen & Tedlow (2000) defined four main elements of essential mission of retailing: “getting the right product in the right place at the right price at the right time”. The way retailers fulfill their mission has evolved due to series of disruptive technologies. Valuable lessons could be learned from previous disruptive innovations in retail. Disruptive technologies allow innovative companies to develop new business models and change the economy of scale (Christensen & Tedlow, 2000)

Looking to the past, the retail industry experienced in four major disruptions, named as *Retail 1.0*, *Retail 2.0*, *Retail 3.0* and *Retail 4.0*. (Har, Rashid, Chuan, Sen, & Xia, 2022). Each of them was driven by technological shifts, and each led to fundamental changes in shopping experience.

- *Retail 1.0*. The first retail disruption began in the mid-18th century and ended in the mid-19th century with the introduction of electrification and mass production. Before this, people worked exclusively with their hands, creating handcrafted objects like weapons, clothing, and tool. (Har et al., 2022).

- *Retail 2.0*. The second retail disruption began in the early 20th century and ended with automation in the late 20th century. The Industrial Revolution 2.0 brought mass production, producing inexpensive products on a large scale. Department stores such as Macy's and Sears in the USA and John Lewis in Great Britain entered the market. Department stores were typically located under one roof, were large, organized into "departments" with similar product types, and offered self-service shopping carts. The fixed-price strategy ensured transparency and consistency in pricing, while the money-back guarantee increased customer trust in stores, fostered loyalty and shaped service expectations. The expansion of transportation facilitated urban migration and the development of suburban shopping centers. In the 1960s and 1980s, retail companies such as Walmart, Target, Kroger and Safeway (known as "big boxes") spread rapidly across the United States. They began to specialize and focus on high-turnover, low-cost business model. Additionally, the introduction and widespread use of credit cards encouraged higher consumer spending, while loyalty card programs provided retailers with valuable insights into consumer purchasing patterns (Har et al., 2022).
- *Retail 3.0.* In 1990s internet with e-commerce ahead changed the landscape again. Such giants as Amazon, eBay, Alibaba (at that time startups) changed the way of selling and buying the things in the market. Online technological innovations and online payment systems have enabled consumers to access a worldwide range of goods, often at lower prices than local retailer (Har et al., 2022). The level of this disruption was significant, "seven of the eight largest USA retailers in 1980 had filed for bankruptcy, been acquired, or lost their major players in 2000" (Hagel III, Brown, Samoylova, & Kassey M. Lobaugh, 2015). Later, Facebook, Twitter and other social media changed the way how people connect and communicate.
- *Retail 4.0*, known as digitalization, represents the latest transformation in the retail industry, harnessing the power of Industry 4.0 technologies such as Artificial Intelligence (AI), Big Data Analytics, Internet of Things (IoT), and other to catch the customer needs. This integration of technology, innovation, and human expertise has led to significant advancements in data analytics, with a particular focus on AI. Notably, the e-commerce market has witnessed substantial growth, with a 45.8% increase in online sales globally over the past two years, and this trend is expected to continue (Har et al., 2022). Mobile e-commerce sales have also surged, accounting for a significant portion of total e-commerce sales. In Addition, the Covid-19 pandemic has accelerated the shift from physical stores to online shopping, effectively advancing this transformation by approximately five years (Har et al., 2022). Moreover, the IoT industry has seen remarkable growth. Retailers have

adapted by implementing self-service kiosks to limit in-person interactions and enhance customer satisfaction. (Har et al., 2022), According to Har et al. (2022) Retail 4.0 has not improved business performance, but enhanced customer journey, ensuring retail remain competitive.

1.3.2 Challenges and opportunities

Today, retail industry is on the other transformation path. According to different retail reports, it seems that retail industry currently facing a lot of challenges. Growing e-commerce and m-commerce changing the structure of retail market. According to eMarketer (2023), retail e-commerce sales will growth by 8.9% in 2023 and same trend will continue in the next 3 years, while retail sales will growth only close to 4% (Cramer-Flood , 2023). In addition, the retail margins of European retailers are under increasing pressure. According to KPMG (2022) report, the retail margin squeezed by 2.4%p, from 7.7% in 2012 to 5.3% in 2020 (Ernst&Young, 2022). It means, that most of retailers will need optimize their costs structure in near future. Customer shopping behavior and expectation also is changing. Their “want pay less for more and will search until they find a solution” (KPMG, 2021). All these changes are driven by the customer’s shift to digital, pandemic and raising customer expectation.

On the other hand, the challenges also are opportunities. The last Covid-19 pandemic brought rapid changes to the retail market. Many brick-and-mortar business were struggling and in short time must discover the new ways to reach the customers. And they found them. For instance, Tesco introduced a one-hour home delivery service called "Whoosh" due to the increased need for online orders. After a successful pilot, it has been rolled out to multiple locations across the United Kingdom (Ernst&Young, 2022). Or, ICA Gruppen accelerated online shop rollout and added to click and collect service (Timo Böttcher H. K., 2022). These several examples show how important is to react and change the traditional retailing way based on rapidly changed market conditions.

To be competitive and ensure sustainable growth retailers must constantly adapt their existing business model (Timo Böttcher H. K., 2022) and accelerate their efforts into creation of innovations, looking for new partnerships, or looking for synergies through acquisitions.

1.3.3 Importance of e-commerce and its impact on retail industry and business performance

Currently, more and more companies are expressing interest in integrating e-commerce as a strategic tool to increase business efficiency. It is becoming a crucial part of doing business that can add significant value to the company and other entities within the value chain.

Retail has completely changed due to e-commerce and numerous large international corporations have benefited greatly from this phenomenon and have been able to grow. Numerous positive outcomes, including increased sales, cost efficiency, improved availability and innovation in both products and business practices, are enabled by e-commerce. Customer behavior is also changing, thus innovative retailers usually act immediately to these changes or provokes new behavior. On the other hand, even if the impact of the implemented e-commerce solution is minimal or negative, today e-commerce is more of a necessity than a short-term competitive advantage, which helps avoid negative long-term problems and lagging behind competitors (Baršauskas, Šarapovas, & Cvilikas, 2008).

E-commerce is changing entire industries, fundamentally changing market capitalization and distributing billions on the market. It gave companies a new way to collaborate with partners, customers and stakeholders and also enabled easier business growth without borders to a specific country or region. General data from various previous studies and research show that in 2007, the market capitalization of the retail industry accounted for 76% of the value created by the innovative business models of Amazon, Walmart, and Target, generating over $300 billion in value (Djuraeva, 2021). Another example could be iPod and iTunes, which were introduced by Apple in 2003. Within three years, new products not only created a new market and revolutionized the entertainment industry, but also changed the existing company's sales model, reaching 50% of Apple's total sales (Mark W. Johnson, 2008). By the end of 2007, Apple's market capitalization had increased from about $1 billion in early 2003 to over $150 billion (Mark W. Johnson, 2008). These were just a few examples from the past. E-commerce is still growing and reshaping retail. In 2023, it is expected to reach $6.3 trillion, meaning 21.2% of total retail sales will occur online and will continue to grow (Keenan, 2023).

E-commerce has also attracted attention for its impact on employment. (Americo & Veronico, 2018) found that e-commerce has a negative impact on retail employment. They conclude that e-commerce could destroy more jobs than it creates, but on the other hand a strong and fairly stable growth in retail sales has been noted. It means that number of jobs are not necessarily decreasing in the market.

Despite the significant impact to the market, e-commerce also has impact on existing company performance. According to the research of Baršauskas, Šarapovas & Cvilikas (2008),

the implementation of e-commerce has positive effects on existing business efficiency. Their qualitative and quantitative analysis in supply chain management shows that the cost items (labor, inventory, and maintenance) that directly depend on the introduction of e-commerce tend to undergo significant changes, which has a positive impact on business efficiency. The costs associated with the change in supply chain management led to an increase in efficiency of 57.8 percent and an overall increase in efficiency of 3 percent in the company analyzed. (Andonov, Dimitrov, & Totev, 2021) also support those costs for transaction, operational costs as storing, transportation, administration costs can be reduced in case of e-commerce business model.

In the study by Martini et al. (2023), it was found that e-commerce has a significant positive impact on the financial performance of micro and small enterprises as measured by sales, profits and return on assets. The results also show that financial performance after e-commerce implementation depends on company size. The higher results were achieved in companies with fewer employees than in companies with more employees.

Interesting findings are found in Gallino & Moreno (2014) study, there the increase of sales was noticed in physical store after the implementation of business model "buy online pick-up in store". This result was explained by two concurrent phenomena: first, cross-selling effect, meaning that customer uses "buy online pick-up in store" functionality is making additional purchase in physical store and second is costumer conversion from online channel to brick-and-mortar business.

Despite a large literature that states that e-commerce has a positive impact on business performance, there are also statements and analyzes that the adoption of e-commerce does not have a positive impact on performance. These findings are particularly noteworthy when analyzing the research results from countries where the implementation of e-commerce business still causes problems, or the level of e-commerce is very low. According to Alsulaimany & Almaktoom (2020), citizens of Saudi Arabia still prefer more face-to-face transactions rather than online interaction. Therefore, they were not surprised that their results showed no relationship between implemented e-commerce and organizational performance in a Saudi Arabian company.

Šaković et al. (2020) determined that the value of e-commerce is better explained by the mediating approach than by the direct effects model. Therefore, in the study they investigated the mediating role of three specific types of Internet sales channels - namely websites, online marketplaces, and search engines - in the relationship between e-commerce and business performance (Šaković et al., 2020). Their analysis was based on the hypothesis that different Internet channels have direct connections to specific categories of customers and are likely to have different impacts on business. The results showed that the relationship between firm performance

and adopted e-commerce is negative, although some Internet channels such as websites and online markets serve as positive mediators.

In conclusion, e-commerce has many advantages, but it's crucial to note that not every business will experience them all. Different benefits may arise in different industries, countries, and business models. As Stockdale and Standing (2004) note, there is a gradual process involved in reaching and realizing these benefits. E-commerce is probably going to provide long-term benefits, which emphasizes the need of being patient and persistent in pursuing these advantages.

To sum up, innovative business model is a process of strategic decisions, which are influenced by disruptive technologies, aggressive competition, threats, or pure performance. Also, it is a tool to gain competitive advantage, entry new markets, change the game rules in the market, or increase profitability.

Notably, that the last two retail disruptions and current focus on innovative business model significantly changed the landscape of retail market, changed customer behavior, changed our living conditions. Despite the numerous studies regarding impact of e-commerce on financial performance, the findings are sometimes misleading and opposite. In addition, there are no studies found how e-commerce as innovative retail business model encouraged by Retail 3.0 revolution is changing Lithuanian retail industry and what impact on the retail sector and exiting companies' performance in Lithuania is already made. The answer on this question, as the main aim of this thesis will be explored in detailed in further sections of this paper.

2. DIFFERENCE-IN-DIFFERENCE AND COMPARATIVE ANALYSIS METHODOLOGIES

This section explains in detail the method used to collect and analyze the data. First, two methods are presented and discussed as a research approach. The methodological framework for each of these methods is further explained and an overview is provided. Second, the sample data, the selection of the control group, and the measures used in further analysis are presented.

2.1 Research approach

The main aim of this thesis is to evaluate the impact of implemented innovative business models and start-ups on the financial performance of existing company. The topic of e-commerce, the transition from online sales to offline sales or, conversely, from offline sales to online sales, has been extensively studied. However, there is limited research on the impact of the e-commerce business model on companies' financial performance for non-listing companies. To the best of the author's knowledge, there are no studies examining the impact of e-commerce on food retail in Lithuania. By adopting the e-commerce business model, the company expands its revenue stream by acquiring new customers or facilitating online sales for existing customers (Kumar, Mehra, & Kumar, 2019). To assess the impact of this new business model on company performance, it is important to determine the event (the timing of launch) and compare the results over time and against benchmarks or control group. There are two methods in the scientific literature that may be most suitable for assessing the impact on business performance caused by the event: 1) Difference-in-Difference (DiD) methodology, discussed by Fredriksson & de Oliveira (2019) and Hesarzadeh (2020), and 2) Comparative analysis of the event study by Barber & Lyon (1996) and Martynova et al. (2006).

The DiD methodology was first developed by epidemiologist John Snow in 1855 but has become increasingly popular in various fields such as public policy, health research, management, economics, and public health. The method combines comparisons of outcomes between treatment and control groups over time in an intuitive way (Fredriksson & de Oliveira, 2019) and is therefore ideal for estimating the effects of intervention such as implementation of novelty at the group level rather than at the level of individual groups (Rothbard, Etheridge, & Murray, 2023).

Comparative analysis of the event study is also based on comparisons over time and a benchmark group but is more focused on an accounting-based assessment of operating performance and is typically used in the financial sector to analyze the impact of mergers and acquisitions as of the event date (Barber & Lyon, 1996), but could also be used for other analyzes to assess the effects caused by an event.

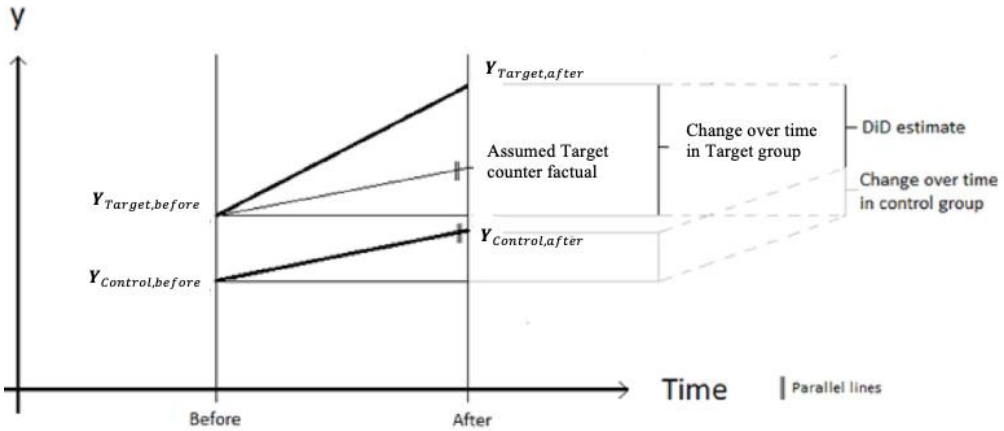
Both methods can be found in studies examining the effects of e-commerce implementation. For example, Subramani & Walden (2001) used the event study methodology to evaluate the returns of e-commerce novelties to companies, while Gallino & Moreno (2014) applied the DiD methodology to evaluate the impact of implementing pickup services as "buy online, pick up in store". However, it is worth noting that in general, the event study methodology is typically used for listed companies and is conducted based on stock price data or accounting-based data, while the DiD methodology is flexible and can be adapted to different research designs. Therefore, the combination of these two methods can be used to estimate the impact of e-commerce on unlisted companies.

2.2 Difference-in-difference methodology

The Difference-in-difference (DiD) is one of the most frequently used methods in economics, management, and other fields to identify specific intervention, such as introduction of new law, application of new treatment, implementation of new services (e.g. "buy online, pick-up in store"). The appeal of the DiD methodology lies in its simplicity and effectiveness in addressing numerous endogeneity issues that often arise when comparing different subjects (Hesarzadeh, 2020).

DiD is a quasi-experimental design that is used to examine differences in the target group that impacted by intervention such as novelty (before and after) and compare them with the difference in the control group (group that was not impacted by the same novelty). If the trend over time between the target and control groups had been the same in the absence of the intervention, DiD offers objective effect estimates (Hesarzadeh, 2020). Figure 4 shows how DiD estimate is constructed.

Figure 4.
Illustration of construction of DiD estimate



Source: Adopted from Fredriksson & de Oliveira (2019)

To capture the DiD effect from Figure 4, linear regression analysis is used:

$Y = \beta_0 + \beta_1 P + \beta_2 T + \beta_3 (P * T) + \varepsilon$, where β_0 is the intercept of the regression, P is a dummy variable equal to 1 for After period (otherwise 0), T is the dummy variable equal to 1 for the target group (otherwise 0), $P*T$ is an interaction term, ε is an error term. The coefficients β could be presented in a 2x2 table with additional row and column showing differences in target-control, before-after and DiD effect (Figure 5).

Figure 5

DiD coefficients 2x2 table

	(1) Target group (T=1)	(2) Control Group (T=0)	Difference (1) - (2)
(a) After Period (P=1)	$\beta_0+\beta_1+\beta_2+\beta_3$	$\beta_0+\beta_1$	$\beta_2+\beta_3$
(b) Before Period (P=0)	$\beta_0+\beta_2$	β_0	$\beta 2$
Difference (a) - (b)	$\beta 1+\beta 3$	$\beta 1$	$\beta 3$

Source: prepared by author

Hesarzadeh (2020) and Fredriksson & de Oliveira (2019) offer several advantages by using the DiD methodology for impact assessment and empirical research. DiD facilitates causal inferences by comparing changes in outcomes over time between target and control groups, particularly when randomized controlled trials are impractical. Because fixed effects are included, endogeneity issues are addressed and time-invariant differences are controlled while accounting for different settings and subgroups. DiD is a useful and respected tool in many different areas, helping researchers make informed decisions with understandable results because it is customizable, based on pre-existing data, and provides a longitudinal perspective.

On the other hand, it is important to note that this methodology also has limitations and relies on certain assumptions. Fredriksson & de Oliveira (2019) provides several important assumptions that must be met in order to correctly interpret the results. The most important assumption of the DiD method is the parallel trends, which indicate that the target group and control group would have followed the same trend over time without the implementation of innovations. Violating this assumption can lead to biased estimates. If the target group and the control group had different trends before the introduction of the novelty, it becomes difficult to attribute the observed differences to the novelty alone. Another important requirement is that there is no spillover or contamination. It is assumed that the novelty only affects the target group and does not transfer its effect to the control group and that there is no contamination of the control

group by the novelty. Any spillover effects or contamination may undermine the validity of DiD estimates.

2.3 Comparative analysis of the event study

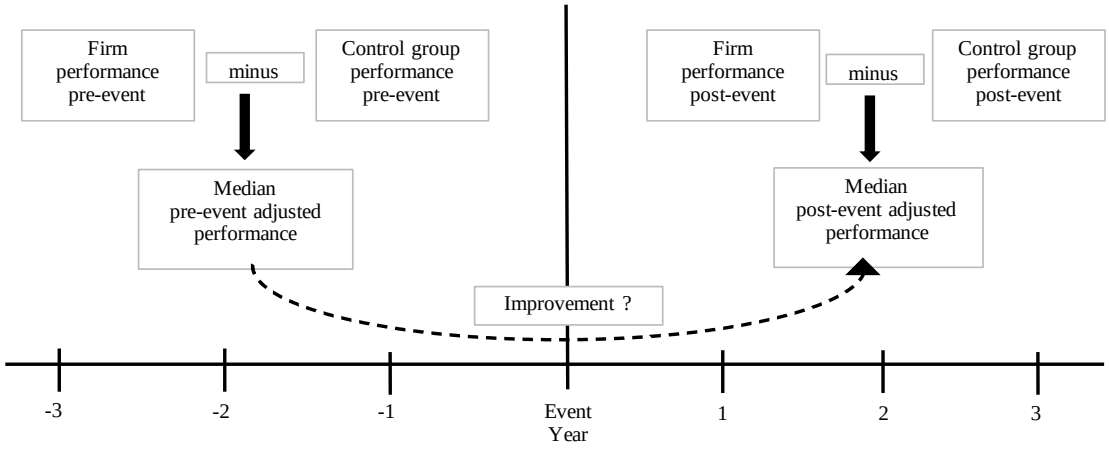
Event study methodology provides a technique for evaluating company performance following management decisions or corporate events. Several studies have employed this methodology to examine how company decisions, like IT investments, corporate acquisitions, the formation of joint venture or launching new products affect the financial value of the company. The traditional event study methodology, which relies on stock price movement analysis, is primarily applicable to listed companies. Therefore, it may not be directly applicable to unlisted or private companies. However, there are alternative methods and approaches that can be used to determine the impact of events on the financial performance of companies. Some studies suggest the use of comparative analysis of operational performance metrics which provides insights into a company's financial performance compared to its industry peers before and after a specific event (Barber & Lyon, 1996; Martynova, Oosting, & Renneboog, 2006). Operating performance measures used in comparative analyzes are based on accounting data and are typically approved by company managers and auditors. Since metrics are typically evaluated in relation to an industry benchmark, they can be comparable across industries and across time. On the other hand, this method also has its limitations. Data availability, industry differences, or different accounting methods applied in financial statements could mislead the comparison. Therefore, the interpretation of the results must consider the broader context of internal and/or external influences. Despite these limitations, this method allows assessing the impact of the event in question for unlisted companies whose open data is limited only to financial statements. Therefore, comparative analysis provides a benchmark for assessing the significance of the event and provides a perspective on whether observed changes are of interest specific to the event or are part of general market trends. It helps to mitigate potential confounding variables and increases the reliability of the results.

Martynova et al. (2006) provide the visual framework of the event study comparative analysis method for assessing changes in operational performance after an event (Figure 6). The logic of this model is very similar to a difference-in-difference (DiD) approach that applies the event-related differences between time and the control group's performance. Despite their similarities in the construction of differences, each of them takes a different approach to data requirements, construction of control group.

Typically, comparative analysis methodology covers periods of six years, three years before the event and three years after the event. Furthermore, the *firm performance* consists of multiple companies' performance which are triggered by the same event. This thesis analysis *firm performance* combines the performance of a brick-and-mortar company and the performance of an e-commerce company or/and e-commerce business model, further named as ECOMM.

Figure 6

The structure of comparative analysis of the event study



Source: Adopted from Martynova (2006)

To evaluate the impact of an event on operational performance using comparative analysis, Barber & Lyon (1996) suggest the following three steps: 1) identify and select the operational performance measures, 2) determine a control group with which the selected measures will be compared, 3) select an appropriate statistical test to demonstrate significance.

2.3.1 Measures of operating performance

To determine the impact of e-commerce adoption on existing businesses it is necessary to identify measures that will be used in a comparative analysis. Various accounting-based metrics have been used to assess post-event performance in academic literature: operating profit (Barber & Lyon, 1996), cash flow (Martynova, Oosting, & Renneboog, 2006), or sales growth (Ghosh, 2001).

According to Barber & Lyon (1996), return on assets is the most commonly used measure in previous research analyzing company operating performance triggered by company events or management decisions. Therefore, their study mainly focuses primarily on profitability related

metrics such as operating income and operating assets. The return on asset they defined as "operating income divided by average of beginning and end period book value of total assets" (Barber & Lyon, 1996). In the selection of operating performance measures the authors highlights the importance to choose "pure" performance indicators as operating profit, excluding all non-operating performance related income and expenses, or operating assets, excluding cash and marketable securities. In total they focused on five metrics summarized in Table 3.

According to a study by Martynova et al (2006) the operating cash flow measure is typically used to avoid different accounting methods for depreciation and non-operating activities such as interest and taxes. Therefore, they mainly focused on cash flow metrics such as EBITDA, i.e. earnings before interest, taxes, depreciation and amortization, and EBITDA adjusted by change in working capital (WC). WC is the difference between current assets (e.g. cash, accounts receivable, inventories) and current liabilities (e.g. current liabilities and accounts payable). To compare cash flow metrics with control group companies, they also used two key metrics such as sales and book value of assets (BVA).

In addition, Ghosh (2001) expanded the list of measures by separately including sales and operating costs as the most important components of cash flow, as well as the number of employees per sales as one of the sources of subsequent reduction in operating costs after the mergers and acquisitions. The latter could also be used if the company introduces a new business model aimed at saving labor costs.

All measures used in studies are summarized in Table 3.

Table 3.
Measures for operational performance used in prior studies.

Barber and Lyon (1996)	Martynova et al (2006)	Ghosh (2001)
1. ROA[1] = EBIT/BVA[2] 2. ROA cash-adjusted = EBIT / $BVA_{adjusted}$[3] 3. ROS = EBIT / Sales 4. ROMVA[4] = EBIT / BMVA[5] 5. Cash-flow ROA=(EBITDA - ΔWC)/ BVA	1. (EBITDA - ΔWC) / BVA 2. (EBITDA - ΔWC) / Sales 3. EBITDA / BVA 4. EBITDA / Sales	1. Sales growth 2. OE=Operating expenses/Sales 3. Number of employees/sales

Source: Adopted from Barber & Lyon (1996), Martynova et al. (2006) and Ghosh (2001)

[1] ROA equals to Operating income (EBIT) divided by BVA
[2] BVA is average of beginning and end period book value of total assets
[3] BVAadjusted is BVA adjusted by cash and marketable securities
[4] ROMVA means return on market value assets
[5] BMVA is average of market value of assets

2.3.2 Selection of control group

The selection of control group is one more important step to conduct comparative analysis and provide sufficient insights of results. To assess changes in operating performance following a company event, it is important to compare realized performance with benchmark performance - the performance that would have resulted if the event had not occurred. However, it is important to remember that other internal/external factors can also impact operational performance and should therefore be taken into account when comparing.

Barber & Lyon (1996) suggest selecting the control group based on the best match criteria of the "statistical classification of economic activities". The European statistical classification is named NACE. Control group could be selected based on:

1. Two-digit NACE code, which refers to the specific industry section and division. For instance, two-digit NACE code G47 refers to total retail sales, including retail sale of grocery, automotive fuel, information and communication, other households (textile, carpets, electrical household), culture and recreation (books, games, porting equipment), other goods (clothing, chemist, medical equipment, cosmetics, etc) in specialized and non-specialized stores, also retail via stalls and market.
2. Four-digit NACE, which refers to specific industry, division, group, and class. For example, NACE code G4711 refers to retail sales in non-specialized stores, with a focus on food, beverages and tobacco. This level is the most detailed as it is possible to find statistical data for comparison. However, it is important to note that there is no accounting data available for this level of classification.
3. Two-digit NACE code and similar size company, which refers to the same industry and division companies where book value of equity is similar. It means that it is possible to distinguish small, medium and large store and then compare with them accordingly.
4. Four-digit NACE code and similar operating performance before the event year. Similar performance typically is based on operating income.

Martynova et al (2006) extended this list of criteria by adding four-digit industry code, similar company size and performance.

2.4 Comparison of DiD and Comparative analysis methodologies

The overview of both methodologies DiD and Comparative analysis of the event study, which may be used for the analysis the assessing the impact the event is provided in the table 4.

While both methodologies DiD and comparative analysis aiming the same goal - to identify the impact of event, novelty, or any other new implementation on an outcome variable and methodologies involves the use of control groups for comparison and comparing outcomes before and after a specific event, their differ in terms of research focus, data requirements, control group construction.

Table 4

Overview of DiD and Comparative analysis of the event study

	Difference-in-difference	**Comparative analysis**
Aim	To identify the impact of event, new policies, new business model implementation, etc	
Purpose	To capture the difference between target (impacted by specific event) and control group (not impacted by the same event)	To understand how a specific event impacts the company's performance and trend in comparison with benchmark
Measures	Wide range of measures, including economic, social, and helth-related	Usually accounting-based, moving stock prices
Construction of control group	Selected based on characteristics similar to the target group, and the parallel trends assumption is crucial	Selected based on two- or four- digit NACE code and/or similar performance, size
Applications/ Usage	Finds more applications in medical studies, social sciences, macroeconomics, and other.	Mostly used in the finance sector

Source: prepared by author

As mentioned above, both methods could be applied to evaluate the impact of the launched e-commerce business, which is the main aim of this thesis, however for the event study comparative analysis was chosen instead of DiD, mainly for the following reasons:

1. Retail is very competitive, so it is quite difficult to find a similar control group not affected by launched e-commerce business in the market.

2. The retail industry is very volatile. Therefore, to find the accurate comparison period and to ensure that control group results are on parallel baseline is challenging.

2.5 Data selection and description

This study uses financial and statistical data over six years from 2017 to 2022 collected from the Lithuanian Center of Registers, Lithuanian Statistics and SODRA databases. The companies are chosen based on their branch of business, defined by three-digit NACE code G471 retail sales in non-specialized stores. The launch of e-commerce business was chosen as innovative

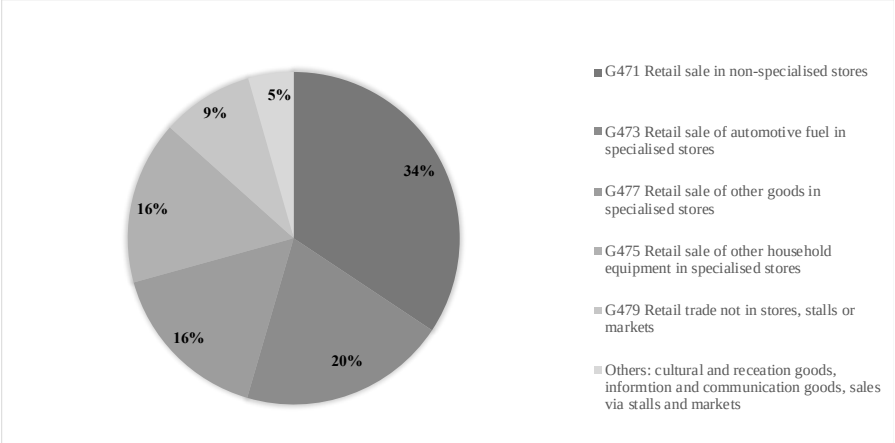
business model implemented by grocery retailers. The year 2020 has been identified as an event year for the emergence of retail e-commerce in the food market.

Lithuania was chosen as the scope of the study for several reasons. First, it is growing country in terms of innovative solutions and startup ecosystem. In one year, Lithuania's position in the Global Innovation index, which evaluates the development of the innovation ecosystem in 132 countries, jumped by 5 places from 34th in 2022 to 39th in 2023. It is a significant change for small country which allows Lithuania to grow and compete not only in national but also in the global context. According to the European Innovation Scoreboard (2023), Lithuania is considered a moderate innovator 17%-points below than the EU average but recorded the highest growth of 16.7%-points compared to the EU average, which grew by only 8.5%-points in the period 2016-2023. Secondly, Lithuania is expected to have the ninth highest internet penetration rate in Eastern Europe by 2027, rising from 86% in 2021 to 94% (Euromonitor International, 2023). This represents a huge opportunity for retail e-commerce to grow even further. Lastly, Lithuania already has a high food retail penetration rate compared to other Eastern European countries, and major players there are still growing. It means, that competition in the country is very high, the pressure to keep the market share and profitability is huge.

Grocery retailers in non-specialized stores were chosen to represent the brick-and-mortar retailers, because they have the biggest sales share in whole Lithuanian retail trade industry, except motor vehicle and motorcycles (34,3% share in sales in 2022). The second highest division is automotive fuel in specialized stores amounted to 20,2% share in 2022. The total structure of G47 retail trade, except of motor vehicle and motorcycle market in Lithuania is presented in Figure 7. Maxima, IKI, Norfa, Rimi and Lidl are TOP5 grocery retailers together generating 77% of retail sales in non-specialized stores in 2022.

Figure 7.

Sales shares in % of retail trade market, except of motor vehicle and motorcycle, in Lithuania



Source: prepared by author from Lithuanian Statistics, 2023

E-commerce as an innovative business model for existing food retailers was chosen for several reasons: 1) Retail e-commerce sales were booming in Lithuania in 2020 when the Covid-19 pandemic started, 2) the financial performance of e-commerce food business could be analyzed in separate annual financial statements. Overall, there are the three best-known representatives of food e-commerce on the market: Barbora, E-Rimi and LastMile. Barbora was launched by Maxima as a grocery e-commerce in 2013. Despite significant sales growth in Barbora's first years of operation, grocery e-commerce sales growth only boomed in 2020 when the Covid-19 pandemic started. Furthermore, in 2020 March Barbora announced that it would accelerate the expansion of e-commerce to other Lithuanian regions, becoming available in 38 cities (LRT, 2020). At the same time, the startup LastMile launched its e-commerce business in the last quarter of 2019 in collaboration with IKI. After two years of business, LastMile was acquired by IKI. While Rimi announced to launch its e-commerce business in the first quarter of 2020 as part of their existing business model (Vizbariene, 2020). Barbora and LastMile operate their e-commerce business separately, but e-commerce sales are part of Maxima and IKI sales. While E-Rimi is part of the Rimi business and operates its e-commerce business as part of an established company.

2.5.1 Selection of target and event date used in analysis

For the analysis of the impact of e-commerce on the performance of existing companies two Target groups are choosen:

- *Group I.* Barbora was chosen as a representative of e-commerce and Maxima as a representative of brick-and-mortar business.
- *Group II.* LastMile and Barbora was chosen as a representative of e-commerce, Maxima and IKI as a representative of brick-and-mortar business. Additionally, Rimi was chosen as representative of brick-and-mortar business which extended its offline sales to online.

Group I was chosen as the most representative group of grocery e-commerce companies in the market. Maxima as the market leader in grocery retail and Barbora as Maxima's e-commerce partner and market leader in grocery e-commerce are the main objective of evaluating e-commerce companies compared to the rest of the market. In addition, it avoids one-time costs for e-commerce implementations that could impact the performance of the e-commerce business, as Barbora's operations started earlier but e-commerce sales boomed significantly only in 2020.

Group II was selected to validate the first group result, including all main competitors who started e-commerce business at the same time. It is worth noting that all three e-commerce

companies Babora, LastMile and E-Rimi have different business models and different relationships with the main retailers Maxima, IKI and Rimi in the analyzed period.

The year 2020 can be chosen as an event year for the integration of e-commerce business for all companies: Maxima, IKI and Rimi. IKI and Rimi started their business in early 2020. Meanwhile, Maxima started the e-commerce business model earlier than in 2020, however, e-commerce sales also increased significantly in 2020, and it was also announced in early 2020 that it would be launching its e-commerce business to more cities in Lithuania. Therefore, it also could be stated, that e-commerce business model extended in year 2020.

2.5.2 Selection of measures of operating performance used analysis

Considering the measures and argumentations from previous studies and taking into account that one of the main drivers of innovative business models in retail are sales, the following operating performance measures were chosen for the comparative analysis, for company *i* in year *t*:

$$SALES\ growth_{i,t} = \frac{SALES_{i,t}}{SALES_{i,t-1}} \quad [1]$$

$$PROD_{i,t} = \frac{SALES_{i,t}}{Average\ of\ employees_{i,t}} \quad [2]$$

$$ROS_{i,t} = \frac{EBIT_{i,t}}{SALES_{i,t}} \quad [3]$$

$$EBITDA\_adjusted_{i,t} = \frac{EBITDA\_adjusted_{i,t}}{SALES_{i,t}} \quad [4]$$

$$ROA_{i,t} = \frac{EBIT_{i,t}}{BVA\_average_{i,t} - assets\ from\ lease} \quad [5]$$

$$ROE_{i,t} = \frac{EBIT_{i,t}}{BVE\_average_{i,t}} \quad [6]$$

All measures except [2] are expressed in percent. Measure [2] is expressed as a value in euros and used as growth in the analysis. Measures [1], [5] and [6] as well growth of measure [2] are calculated only from year -2 since they use data from year -3. The first key figure of operating performance represents the sales growth factor. The second measure shows how much sales each employee generates. The third key figure shows how much operating profit the company can generate from its sales. The fourth key figure indicates how much cash is generated for every euro of sales, with cash flow being defined as earnings before interest, taxes, depreciation, and

amortization (EBITDA). This metric is often used by other scientists. However, it is worth noting that for comparison with entire groups, EBITDA was additionally adjusted for depreciation from leases for companies that report their financial results based on IFRS. The fifth key figure indicates how much operating income is generated from assets adjusted by IFRS16 impact. Following previous research observations and taking into account the fact that there have been significant changes in the accounting of leases, which, however, were not applicable to all companies included in the comparison, the author proposes to recalculate the ROA ratios in addition to adjust effects from lease on assets. The last metric refers to return on equity, which shows how a company is able to convert equity investments into profits. However, this metric cannot be used in comparison to other companies that have negative profit or equity (Fernando, 2023). Therefore, the comparison of this metric will be limited.

The financial measures for comparative analysis are taken based on previous research, which were mainly focused on sales, profitability, cash flow and/or ROA, also based on available data retrieved from official Lithuanian databases, which are also limited, therefore are not always comparable. For instance, EBITDA was adjusted by IFRS 16 impact due to changes in lease accounting (IFRS16 standard) during the reporting period, which had a significant impact on companies reporting on IFRS basis, because level of lease cost was significant.

2.5.3 Selection of control group used in analysis

Following the above suggested criteria for selecting the control group by Barber & Lyon (1996) and the available open data collected for analysis, two approaches were used in this study to gain an understanding of e-commerce impact:

1. Benchmarking against peer group, focused on comparison among direct competitors.
2. Benchmarking against the industry, based on three-digit NACE code G471. Three-digit NACE code is the lowest NACE code available for accounting-base data in Lithuanian statistical database for public, private companies, state, municipal enterprises, etc., except for individual enterprises and natural persons, and closed to grocery industry.

The all collected data are sorted into groups 3 groups:

1. “Firm” according to Figure 4 represents performance of Group I and Group II defined in analysis part as ECOMM_1 an ECOMM_2 accordingly.
2. “Control group” was selected based on benchmarks provided in section 2.4.1. For *Group I* was chosen:
    a. Peer group (direct Maxima competitors): IKI, Rimi, Norfa and Lidl, defined in analysis part as PR.

b. Retail grocery sector based on NACE code G471 except Maxima, defined in analysis part as RSECTOR_1.

For *Group II* retail grocery sector based on NACE code G471 except Maxima, IKI and Rimi was chosen and defined in analysis part as RSECTOR_2.

To sum up, the two applicable methodologies were reviewed to assess the impact from launched e-commerce on existing company performance. Due to retail industry specifics as high volatile and aggressive competitiveness, which could not ensure parallel baseline for comparison with control group, the event study comparative analysis was chosen for further analysis. The selection of data, measures and control group was further provided and explained in detailed. Table 5 summarizes the selection of Target, Control Group and Measures used in further analysis:

Table 5.

Selection of Target, Control Group and Measures

	Group I	***Group II***
TARGET	**ECOMM_1** = Maxima + Barbora	**ECOMM_2** = Maxima + Barbora + IKI + LastMile + Rimi
CONTROL GROUP(S)	**RSECTOR_1** = NACE G471 excluding Maxima	**RSECTOR_2** = NACE G471 excluding Maxima, IKI and Rimi
	PR = IKI + Rimi + Lidl + Norfa **PR1** = IKI + Rimi **PR2** = Lidl + Norfa	
EVENT YEAR	**Year 1** = 2020	**Year 1** = 2020
MEASURES	SALES growth, % PROD growth, % ROS, % EBITDA_adjusted, % ROA, % ROE, %	SALES growth, % PROD growth, % ROS, % EBITDA_adjusted, % ROA, % ROE, %

Source: prepared by author

3. ANALYSIS OF E-COMMERCE IMPACT ON BUSINESS PERFORMANCE IN GROCERY RETAIL SECTOR IN LITHUANIA

This section presents the results of the comparative analysis of the impact of the e-commerce business on the operating performance of the exiting company. First, start with an overview of the retail market in Lithuania, followed by a detailed comparative analysis of measures such as sales growth, productivity, ROS, EBITDA adjusted, and ROA between Target groups (Group I and Group II) that have integrated e-commerce and Control groups. The section will end with a brief overview of the analysis.

3.1 Retail market overview in Lithuania

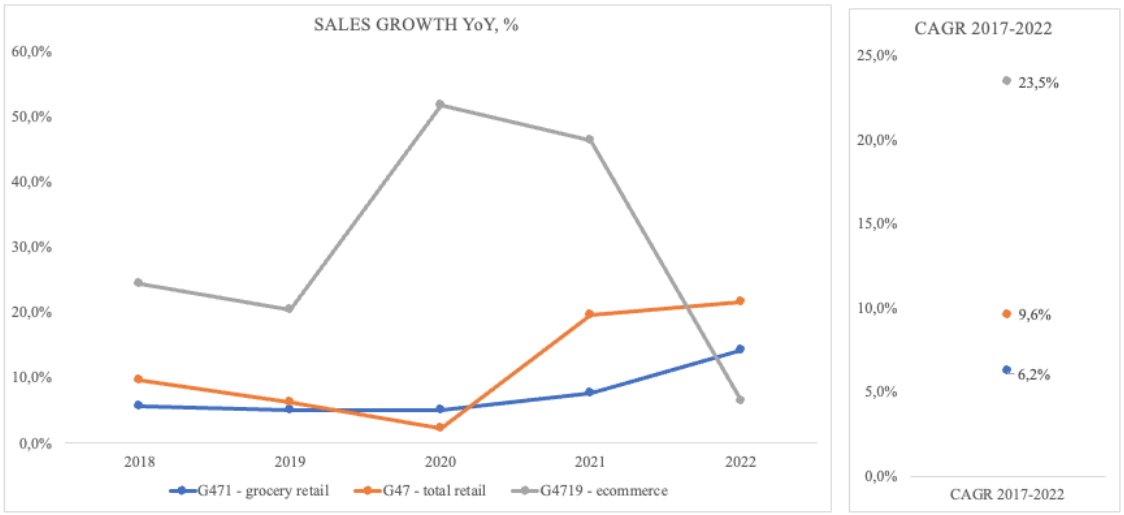
Before introducing the result of comparative analysis, first the financial performance in different retail branches (grocery and e-commerce) development will be examined. The purpose of this is to describe the current situation of grocery retail in Lithuania, the competitiveness among retailers and how important is to innovate and looking for new solutions to survive in turbulence environment.

As already mentioned, the data for the analysis is collected from 2017 to 2022. On the one hand, a period of six years could be considered too short to assess the impact, but on the other hand, it is too long as retail is very dynamic, year-to-year (YoY) fluctuations are quite large. Therefore, it is quite difficult to capture the real impact of the new business model implementation in this industry by analyzing financial reports only. Figure 8 displays the sales growth YoY, % and a compound annual growth rate (CAGR) for 2017-2022 of total retail according to NACE code G47, grocery retail according to NACE code G471 and e-commerce according NACE code G4791.

Until the Covid-19 pandemic and the war in Ukraine, which significantly affected retail, overall retail sales growth was also not stable, fluctuating between 6% and 9% year on year. This fluctuation can be explained by the fact that the different retail sectors with different sales shares within the market grew at different rates. Grocery retail sales growth has been fairly stable at around 5% every year, but after 2020 the situation changed. In 2022, YoY sales growth was significantly higher, up to 14.3%, mainly due to inflation, while the sales share in % fell more than 4% points. However, retail e-commerce recorded the highest sales growth in 2020 (more than 50% compared to 2021), capturing additional 3% points of the total retail market. The percentage of total retail industry revenue from grocery, e-commerce, and other retail verticals is shown in Figure 9.

Figure 8.

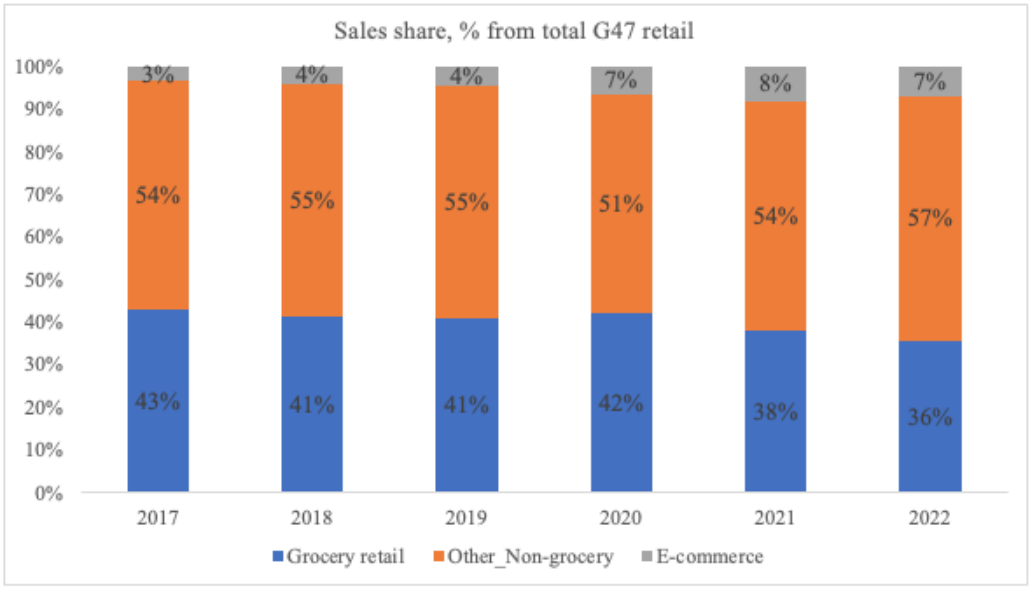
Sales development of total retail industry and different branches 2017-2022



Source: prepared by author from Lithuanian Statistics, 2023

Figure 9.

Sales share, % from total retail industry of grocery, e-commerce and other in 2017-2022



Source: prepared by author from Lithuanian statistics, 2023

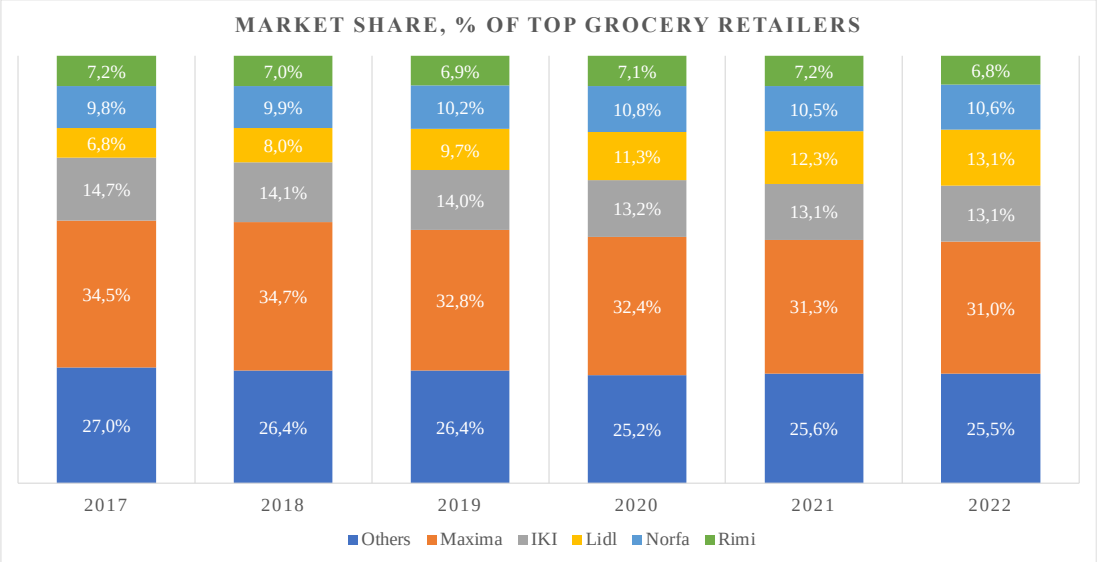
According to Euromonitor International (2023), the Ukraine conflict has had a significant impact on Lithuanian food retailers, resulting in higher food prices and a growing consumer base due to the increased number of refugees. This has increased the sales of Lithuanian stores as the demand for food and non-food goods has increased. The energy, fuel and cost of living crisis has also led to Lithuania experiencing the highest inflation in Europe, which affects consumption habits and leads to rational purchases of essential products (Euromonitor International, 2023). Therefore, the sharp increase in the share of other non-food sales in % can be attributed to the

significantly higher sales of automotive fuel in specialized retailers. The share of other non-food sales in % increased by around 3% points in 2022 compared to 2021.

Competition between traditional grocery retailers is also quite fierce. In 2016, the well-known European retail discounter Lidl entered the Lithuanian market. Within more than six years, this chain grew from 25 outlets at the end of February 2017 to 68 outlets at the end of February 2023 and gained around 13% market share at the end of 2022. Its competitive pricing, extensive product selection, and convenient locations have helped it establish itself as a customer favorite (Euromonitor International, 2023). Only Norfa was able to grow in terms of market share, however Maxima and IKI are two retailers from which Lidl mainly gained market share. Figure 10 presents total grocery market share, % between Top 5 grocery retailers and others in the period from 2017 to 2022. Worth to mentioned that Lidl financial year differs from fiscal year. In the figure below Lidl financial year equals to fiscal year.

Figure 10.

Market share of TOP food retailers, % of total food retail in the period 2017-2022



Source: prepared by author from Lithuanian statistics, 2023, and financial statements of TOP food retailers (Maxima, IKI, Lidl, Norfa, Rimi)

Euromonitor International (2023) notes that in the future of Lithuanian food retail, consumers are expected to remain cautious, prioritize essential goods and emphasize price as an important decision-making factor. Despite slow retail sales growth, retailers are planning to expand their presence. Discounters, especially Lidl, are poised to drive the development of grocery retail by offering consumers a cost-effective option in times of economic crisis and expanding their expansion to benefit shoppers in smaller cities. Additionally, the forecast assumes an increase

in self-checkout services driven by technological advances and consumer demand for efficiency and convenience. Larger retailers such as Maxima and Rimi have increased the number of self-checkouts, responding to the popularity of contactless shopping during the pandemic. The scan-and-go system, which allows consumers to scan and pay instantly, is expected to become more widespread to accommodate the projected increase in consumer adoption of self-checkout services over the forecast period. Meanwhile, IKI is also investing in self-checkout service to not only expand the number of self-checkouts but also introduce autonomous stores for customers, where customers can find the groceries, they need 24 hours a day (Balčiūnienė, 2023).

Additionally, the number of online retailers and brands, the country's ever-expanding locker network, a range of delivery options, easy and secure payment methods, and an expanding customer base are all contributing to Lithuania's booming e-commerce market, which is predicted to grow at CAGR of 10% until 2027 (Euromonitor International, 2023). According to a review by Euromonitor (2023) of retail e-commerce in Lithuania, the increasing integration of digitalization into consumers' daily lives provides significant opportunities for retailers to improve their e-commerce capabilities, including features such as virtual clothing fitting rooms and shoes or zooming in on food retail products. This trend is expected to lead to increased investments by e-commerce players looking to increase their attractiveness to customers during the forecast period.

3.2 E-commerce impact on financial performance based on comparative analysis

3.2.1 E-commerce impact on financial performance – Group I

The following sub-section of this analysis focuses on the impact of e-commerce on Maxima's financial results as opposed to its key competitors and the rest of grocery market. Maxima and Barbora, collectively referred to here as ECOMM_1, have been identified as the central entities within E-Commerce Group I. This segment seeks to evaluate the performance of ECOMM_1 in comparison to a peer group, hereinafter referred to as PR, as well as the retail sector excluding Maxima, hereinafter referred to as RSECTOR_1. The evaluation includes various metrics listed in section 2.5.2.

3.2.1.1 Sales growth compared to control group

Sales growth compared to peer group

By implementing a new revenue stream, an increase in sales is usually expected. Several previous studies have already shown that expanding the channel from offline to online and vice

versa leads to an additional increase in sales and customer flow. Therefore, comparing sales growth with the benchmark is meaningful and is consistent with previous studies that included measure of sales growth as an important component of cash flow (Ghosh, 2001). Compound annual sales growth (CAGR) is expressed in % and is calculated using the following formula:

$$CAGR_{i,t} = \left(\frac{SALES_{i,t=n}}{SALES_{i,t=1}}\right)^{1/n} - 1$$, where *i* is company, *t* – year, *n* – number of years

Table 6 summarizes the results of year-on-year sales growth and CAGR of ECOMM_1 companies (Maxima plus Barbora) and PR companies (IKI, Lidl, Norfa, Rimi). The results show that ECOMM_1's sales growth was lower than PR sales growth in all years. The calculated differences in $CAGR_{pre}$ and $CAGR_{post}$ between ECOMM_1 and PR were also negative -2.1% and -2.6%, respectively. This means that despite tremendous growth in e-commerce sales in 2020 compared to 2019, ECOMM _1 was unable to maintain at least the same growth compared to the peer group. The sudden decline in first-year sales growth at ECOMM_1 could be explained by restrictions on brick-and-mortar business during the Covid-19 pandemic in 2020. Stores operating in shopping centers or stand-alone stores with sales area more than 1,500 square meters had to ensure that the flow of customers met regulatory requirements in terms of sales area in square meters per customer and "Green Pass" holder. At Maxima, there were approximately 20% of all stores in which these "hard" restrictions were applied, considering that 50% of Maxima XX's sales area, 100% of Maxima XXX's sales area and 100% of Maxima XXXX's sales area are more than 1.500 sq.m. or operates in shopping centers. These stores most likely lost sales to their closest competitor, where restrictions were more lenient. On the other hand, e-commerce sales increased about 93% in 2020, but that was not enough to offset the loss.

Table 6.

Comparison of sales growth, % before and after event year with PR

Year around event	ECOMM_1 growth, % YoY	PR growth, % YoY	Differrence (ECOMM_1 - PR)
-2	6,0%	6,9%	-1,0%
-1	4,4%	9,8%	-5,4%
1	-1,1%	9,1%	-10,1%
2	4,2%	9,4%	-5,2%
3	12,7%	15,5%	-2,8%
$CAGR_{pre}$: years -3, -2, -1	3,4%	5,5%	-2,1%
$CAGR_{post}$: years 1, 2, 3	5,5%	8,1%	-2,6%
Δ Sales Growth_1	2,1%	2,6%	-0,5%

Source: prepared by author

E-commerce impact on sales, Δ Sales growth for launched e-commerce business by Maxima is estimated by taking the difference between $CAGR_{post}$ and $CAGR_{pre}$ which is -0.5%. Due to different sales growth between different competitors, the results were checked with reduced number of competitors in peer group, divided into two sub-groups: PR1 (IKI and Rimi) and PR2 (Norfa and Lidl). IKI and Rimi were grouped together mainly due to two reasons: 1) both companies expanded their business to online sales around 2020, 2) after adverse decision from competition council regarding IKI acquisition by Rimi, both companies strengthened their strategies on expansion.

Table 7 summarizes the results compared to the subgroups. It can be seen that the difference between $CAGR_{post}$ and $CAGR_{pre}$ and between ECOMM_1 and PR1 was negative -2.3%. The two companies IKI and Rimi opened 34 outlets between 2020 and 2022, and both companies also started the e-commerce business including a pickup service for customers ("Buy online, pick up in store"). It appears that by expanding from offline to online PR1, sales growth was higher than ECOMM_1 and new competitors from Barbora, as LastMile and E-Rimi also captured their e-commerce market share. The PR2 CAGR of sales is similar when comparing *pre* and *post* periods. Norfa and Lidl, similar to PR1, expanded their network by 31 stores between 2020 and 2022, but did not launch e-commerce. However, PR2 shows significantly high revenue growth of 9.6% at $CAGR_{post}$. This high growth could be supported by KMPG analysis statements that discounters are the second fastest growing channel after e-commerce.

Table 7

Comparison of sales growth, % before and after event year PR1 and PR2

Year around event	ECOMM_1 growth, % YoY	PR1 growth, % YoY	Differrence (ECOMM_1 - PR1)	PR2 growth, % YoY	Differrence (ECOMM_1 - PR2)
-2	6,0%	1,9%	4,1%	13,5%	-7,5%
-1	4,4%	4,2%	0,2%	16,4%	-12,0%
1	-1,1%	1,8%	-2,8%	16,7%	-17,7%
2	4,2%	7,8%	-3,6%	10,8%	-6,6%
3	12,7%	11,8%	0,9%	18,8%	-6,1%
$CAGR_{pre}$: years -3, -2, -1	3,4%	2,0%	1,4%	9,7%	-6,3%
$CAGR_{post}$: years 1, 2, 3	5,5%	6,4%	-0,9%	9,6%	-4,1%
Δ Sales growth_1	2,1%	4,4%	-2,3%	-0,1%	2,2%

Source: prepared by author

Considering that Δ sales growth from Table 4 is slightly negative at -0.5%, while Δ sales growth of ECOMM_1 compared to PR1 and PR2 is exactly opposite at -2.3% and 2.2%, respectively, it cannot be said that e-commerce has either positive or a negative impact on their sales. However, since the Δ sales growth is positive compared to PR2 and it is known that PR2

has not adopted e-commerce, it could be that e-commerce has a positive impact but needs to be tested with a broader group. Therefore, the entire grocery section was selected for further analysis.

Sales growth compared to entire grocery sector RSECTOR_1

The result of sales growth compared to entire grocery section are opposite to peer group. Table 8 summarizes the results of YoY the sales growth and CAGR of ECOMM_1 and RSECTOR_1 companies (all grocery retail companies based on NACE code G471 excluding Maxima). The difference in sales growth YoY between ECOMM_1 and RSECTOR_1 are negative in all years, similar to difference between ECOMM_1 and PR. However, the calculated difference of $CAGR_{pre}$ and $CAGR_{post}$ between ECOMM_1 and PR was -2.6% and -2.1%, respectively, resulted to +0.5% in Δ sales growth. If from RSECTOR_1 companies exclude additionally PR1 group, which launched e-commerce around 2020, the Δ sales growth would be even higher, equal to 2.3% which is in line with comparison to PR2. It could support our hypotheses that company integrated e-commerce has positive impact on sales growth. Also, it is consistent with insights from (Gallino & Moreno, 2014).

Table 8

Comparison of sales growth, % before and after event year with RSECTOR_1

Year around event	ECOMM_1 growth, % YoY	RSECTOR_1 growth, % YoY	Differrence (ECOMM_1 - RSECTOR_1)
-2	6,0%	6,8%	-0,8%
-1	4,4%	11,6%	-7,2%
1	-1,1%	9,4%	-10,5%
2	4,2%	8,1%	-3,9%
3	12,7%	15,2%	-2,4%
$CAGR_{pre}$: years -3, -2, -1	3,4%	6,0%	-2,6%
$CAGR_{post}$: years 1, 2, 3	5,5%	7,6%	-2,1%
Δ Sales growth_1	2,1%	1,6%	0,5%

Source: prepared by author

3.2.1.2 Productivity compared to control group

Productivity, measured as net sales divided by the average number of employees, shows how much sales each employee generates. It could be measured and compared between ECOMM_1 and the control group as year-on-year growth, but also as a static number. However, it is worth noting that supermarkets, convenience stores, small shops and discount stores may not have comparable productivity, so only productivity growth is compared to the control groups.

Table 9 provides the overview of productivity growth, % compared to PR group and RSECTOR_1 group. The Δ Productivity Growth results are opposite compared to Δ Sales Growth as ECOMM_1 Δ Sales Growth was positive for PR and negative for RSECTOR_1. It shows that ECOMM_1 has managed to increase productivity more than its main competitors, but less compared to the rest of the market. This could indicate that smaller companies with fewer employees were able to achieve higher sales growth than large retailers. Additionally, strict pandemic regulations could have a greater impact on larger retailers than smaller ones. This results in RSECTOR_1 achieving a CAGR of 8.2% in the post-period, while PR Group and ECOMM_1 achieved 6.4% and 7.8% respectively.

Table 9

Comparison of productivity growth, % before and after event year with PR and RSECTOR_1

	ECOMM_1	PR	Difference	RSECTOR_1	Difference
Year around event	growth, % YoY	growth, % YoY	(ECOMM_1 - PR)	growth, % YoY	(ECOMM_1 - RSECTOR_1)
-2	7,7%	9,4%	-1,8%	4,1%	3,6%
-1	7,0%	9,0%	-2,0%	10,1%	-3,1%
1	4,8%	11,4%	-6,6%	8,9%	-4,1%
2	5,4%	6,8%	-1,4%	12,2%	-6,7%
3	18,9%	12,9%	6,0%	13,0%	6,0%
$CAGR_{pre}$: years -3, -2, -1	4,8%	6,1%	-1,2%	4,6%	0,2%
$CAGR_{post}$: years 1, 2, 3	7,8%	6,4%	1,4%	8,2%	-0,4%
Δ Productivity Growth_1	3,0%	0,4%	2,6%	3,6%	-0,6%

Source: prepared by author

3.2.1.3 Return on sales compared to control group

Return on sales compared to peer group

Return on sales (ROS) is defined as operating profit, also known as EBIT (earnings before interest and taxes), divided by net sales and is used as a key figure for evaluating operational performance. This key figure provides information about how much profit is generated per sales value. ROS is useful metrics for comparison of results between different periods, or between the companies in the same industry over the period. Additionally, a comparative analysis of ROS could determine which component drives profit: sales, cost of goods sold, or other selling, general and administrative expenses. This analysis examines the answer to the question of how much profit a company that has introduced e-commerce sales generates.

The results from Table 10 show that the ROS of ECOMM_1 increased from 4.1% in 2017-2019 to 5.1% in 2020-2022. At the same time, there was an increase in PR from 2.1% to 3.4% over the same period. More importantly, the consistent increase in deviations shows that both

ECOMM_1 and PR generate more profit per sales compared pre- and post- periods, but at the end Δ ROS is negative by 0.3%. It means that ECOMM_1 adopted e-commerce underperform PR companies over post- years. The results are similar to studies which indicating that despite the enormous potential of new revenue streams, companies still struggle with the benefits (Mostaghel, Oghazi, Parida, & Sohrabpour, 2022).

Table 10

Comparison of ROS before and after event year with PR

	ECOMM_1	PR	Differrence (ECOMM_1 - PR)
Year around event	%	%	
-3	3,9%	1,4%	2,5%
-2	4,0%	2,3%	1,8%
-1	4,3%	2,5%	1,8%
1	5,9%	3,6%	2,4%
2	5,1%	3,5%	1,6%
3	4,4%	3,3%	1,1%
$Average_{pre}$: years -3, -2, -1	4,1%	2,1%	2,0%
$Average_{post}$: years 1, 2, 3	5,1%	3,4%	1,7%
Δ ROS_1	1,1%	1,4%	-0,3%

Source: prepared by author

Just looking at Barbora's financial results, it is clear that Barbora's operating profit has been negative since the beginning of the business. Despite significant year-on-year sales increases, the e-commerce business still struggles with very high costs, especially labor costs, which account of 53% of all costs. In order to be competitive and attract new employees for product pickup and delivery, they must offer attractive salaries compared to traditional grocery retailers, or at least the same as other retailers. The average salaries per employee were 1.15 times higher in the period from 2017 to 2019 compared to the PR group, while as of 2020 they are almost at the level of all other food retailers, where the average salaries increased by 1.5 times. In addition, no improvement in labor cost efficiency was observed throughout the period: total labor costs increased by 27% (CAGR), while Barbora's net sales increased by 24% (CAGR) over the period from 2017 to 2022. It can be concluded that the income from commissions and the additional income from deliveries and marketing were still not enough to cover all costs. However, Barbora's operating results cannot provide a complete picture as net sales are part of Maxima's results and Barbora only receives commissions from the services of its related parties. This means that part of the profit achieved flows into the Maxima result. It is therefore important to analyze both companies together.

Return on sales compared to entire grocery sector RSECTOR_1

The results from Table 11 show the ROS of ECOMM_1 compared to the entire grocery sector. Despite the increase in average ROS from 3.4% to 3.9% in the periods before and after, the entire grocery market ROS grew 1 percentage point less than just its main competitors. The highest ROS performance was 5.9% for RSECTOR_1 and was observed in year -1, corresponding to 2019, and the lowest was observed in year -3 at 0.9%. It is worth mentioning that the statistical data for the entire grocery sector (G471) is aggregated and is recalculated twice due to changes in the aggregation of companies, therefore a detailed explanation is not possible. In addition, there is no data on extraordinary losses/gains, so the calculated EBITA (EBT less results from financial and investing activities) could also include the result from extraordinary results. In any case, ROS $Average_{pre}$ and $Average_{post}$ are very similar, however Δ ROS is positive by 0.6% and is an opposite result compared to the PR results.

Table 11

Comparison of ROS before and after event year with RSECTOR_1

	ECOMM_1	RSECTOR_1	Differrence (ECOMM_1 - RSECTOR_1)
Year around event	%	%	
-3	3,9%	0,9%	3,0%
-2	4,0%	3,4%	0,6%
-1	4,3%	5,9%	-1,6%
1	5,9%	3,9%	2,0%
2	5,1%	4,1%	1,0%
3	4,4%	3,8%	0,6%
$Average_{pre}$: years -3, -2, -1	4,1%	3,4%	0,6%
$Average_{post}$: years 1, 2, 3	5,1%	3,9%	1,2%
Δ ROS_1	1,1%	0,5%	0,6%

Source: prepared by author

Since the results were contradictory, two main cost lines are also analyzed: depreciation and salaries. The results of both are positive, which means that ECOMM_1 has higher distribution costs compared to PR and RSECTOR_1. This could result in TOP retailers earning a higher gross margin due to higher purchasing power compared to the rest of the market. However, gross margin data is not comparable because different accounting methods are used for the cost of goods sold, thus could not be check in detailed.

3.2.1.4 Cash flow compared to control group

The results of Table 12 show that the cash flow for ECOMM_1 increased from 4.9% in the pre-period to 6.2% in the post- period. A similar increase was recorded in the PR group: adjusted EBITDA rose from 4% to 5.3%. Therefore, the difference between ECOMM_1 and PR is 0%. More importantly, the company operating e-commerce in the wake of the Covid-19 pandemic outperformed the overall grocery retail market RSECTOR_1 by 0.7 percentage points. The adjusted EBITDA results are very similar to the ROS, therefore it can be assumed that the depreciation of assets does not change significantly in either the ECOMM_1 group, PR or RSECTOR_1.

Table 12

Comparison of EBITDA before and after event year with PR and RSECTOR_1

	ECOMM_1	PR	Differrence (ECOMM_1 - PR)	RSECTOR_1	Differrence (ECOMM_1 - RSECTOR_1)
Year around event	%	%		%	
-3	4,7%	3,4%	1,3%	2,2%	2,5%
-2	4,9%	4,2%	0,8%	5,3%	-0,4%
-1	4,9%	4,3%	0,6%	7,9%	-3,0%
1	7,0%	5,6%	1,4%	5,8%	1,2%
2	6,1%	5,3%	0,8%	6,0%	0,2%
3	5,4%	5,0%	0,4%	5,6%	-0,2%
$Average_{pre}$: years -3, -2, -1	4,9%	4,0%	0,9%	5,1%	-0,3%
$Average_{post}$: years 1, 2, 3	6,2%	5,3%	0,9%	5,8%	0,4%
Δ EBITDA_1	1,3%	1,3%	0,0%	0,6%	0,7%

Source: prepared by author

In general, the EBITDA_adjusted development of ECOMM_1 is higher in the post period than in the pre period. However, just looking at Barbora's EBITDA result, it becomes clear that the e-commerce business in general is absolutely negative in both EBIT and EBITDA (cash flow). It was only in 2020 that Barbora was able to generate a slightly positive EBITDA result of 1.3% from sales. At that time, brick-and-mortar business was limited by government restrictions. From this can be concluded that the operating costs of e-commerce alone, excluding depreciation, are still very high, which is why the expansion from offline to online sales does not yet bring a positive result, since the overall share of e-commerce sales is still not very high.

3.2.1.5 Return on assets compared to control group

Return on assets is probably the most popular metric for measuring company profitability relative to assets. The ROA for Goup I was compared with peer group and rest of grocery market, and results presented in table 13.

Table 13

Comparison of ROA before and after event year with PR and RSECTOR_1

Year around event	ECOMM_1 %	PR %	Differrence (ECOMM_1 - PR)	RSECTOR_1 %	Differrence (ECOMM_1 - RSECTOR_1)
-2	8,0%	6,7%	1,3%	4,2%	3,8%
-1	9,0%	7,2%	1,9%	4,6%	4,4%
1	11,6%	9,8%	1,7%	3,0%	8,5%
2	10,5%	10,1%	0,4%	3,3%	7,2%
3	10,7%	9,8%	1,0%	2,9%	7,8%
$Average_{pre}$: years -3, -2, -1	8,5%	6,9%	1,6%	4,4%	4,1%
$Average_{post}$: years 1, 2, 3	10,9%	9,9%	1,0%	3,1%	7,8%
Δ ROA_1	2,4%	2,9%	-0,5%	-1,3%	3,7%

Source: prepared by author

When comparing ROA ECOMM_1 results with PR, the difference varies between 0.4% and 1.9% from year to year. In the period pre-, the difference between ECOMM_1 and PR was even greater than in the period post-, although the ROA itself was higher in the period post- than in the period pre-. ECOMM_1 was able to maintain its assets at the same level over the entire period from 2017 to 2022, while operating profit increased significantly. This led to an increase in ROA from 8.5% in the pre- period to 10.9% in the post-period. PR also increased ROA over the same period, from 6.9% in the pre- period to 9.9% in the post- period. It indicates that both ECOMM_1 and PR are growing at a consistent and efficient rate. However, Δ ROA_1 is negative and was -0.5%. This suggests that ECOMM_1 is not increasing profits in the same trend as other competitors in relation to assets, meaning that ECOMM_1 ability generate profit is lower than PR for compared periods.

If we compare Δ ROA_1 with the entire food sector, the result is the opposite and is 3.7%. It is very similar to the Δ ROS results already discussed. Despite the challenge of outperforming its main competitors, ECOMM_1's result is much better compared to the entire food sector. On the other hand, it is noticeable that the ROA result of RSECTOR_1 is generally more than twice as low as that of ECOMM_1, which means that ECOMM_1 was able to generate profits relative to assets, but also performed twice better than the whole Grocery market.

3.2.1.6 Return on equity compared to control group

Return on equity (ROE) is one of the most commonly used metrics for measuring equity impact because ROE evaluates a company's use of equity capital. Following previous studies on ROA adjustments, that used operating profit instead of net income, and avoided non-operating expenses as dividend payments, the ROE ratio is calculated as EBIT divided by average of equity, and expressed in %. Additionally, EBIT was used instead of net income for the denominator because Maxima's ROE results fluctuate significantly year-over-year due to inconsistencies in net income due to dividends paid. Furthermore, the comparison with the entire food sector is also misleading, as the ROE of ECOMM_1 is on average five times higher than that of RSECTOR_1. The table 14 summarize the results of ROE for ECOMM_1, PR and RSECTOR_1.

Table 14

Comparison of ROE before and after event year with PR and RSECTOR_1

	ECOMM_1	PR	Differrence (ECOMM_1 - PR)	RSECTOR_1	Differrence (ECOMM_1 - RSECTOR_1)
Year around event	%	%		%	
-2	23,5%	13,6%	9,9%	6,5%	17,0%
-1	26,2%	15,1%	11,1%	7,0%	19,2%
1	29,9%	21,2%	8,7%	4,5%	25,4%
2	27,1%	23,9%	3,2%	4,7%	22,4%
3	33,2%	26,9%	6,3%	4,1%	29,1%
$Average_{pre}$: years -3, -2, -1	24,9%	14,4%	10,5%	6,8%	18,1%
$Average_{post}$: years 1, 2, 3	30,1%	24,0%	6,1%	4,4%	25,6%
Δ ROE_1	5,2%	9,6%	-4,4%	-2,3%	7,5%

Source: prepared by author

It is obvious that the highest ROE has the market leader Maxima including Barbora. The results of Δ ROE contradicts in comparison with PR group and RSECTOR_1, where the difference between ECOMM_1 and PR is -4.4% while between ECOMM_1 and RSECTOR_1 is 7.5%. Negative deviation of Δ ROE in comparison with PR group mainly is due to significant increase of ROE in Norfa and Lidl, there the average equity remains the same while operating profit grew significantly. It means that ECOMM_1 underperformed in comparison with discounters.

However, the results from comparison with RSECTOR_1 are absolutely different and have to be analyzed with caution, because RSECTOR_1 data are aggregated of all the rest companies, which has different results both positive and negative, in both components of ROE EBIT and equity. Therefore, the results in comparison with RSECTOR_2 is avoided in further analysis.

3.2.2 E-commerce impact on financial performance – Group II

As stated in Section 2.4.1, Maxima, IKI, Rimi, Barbora and LastMile (hereinafter referred to as ECOMM_2) were selected as the target of E-Commerce Group II. The objective of this segment is to assess the performance of ECOMM_2 compared to the rest of the retail sector excluding Maxima, IKI and Rimi, hereinafter referred to as RSECTOR_2, and to compare the results with Group I. The assessment includes the same metrics as specified in Section 2.4.2. as for group I.

3.2.2.1 Sales growth compared to control group

ECOMM_2's annual sales growth was positive, except for year 1, which corresponds to 2020, when the Covid-19 pandemic began. It shows that despite expanding revenue streams and adding e-commerce to the business, major retailers still struggled with sales growth this year, meanwhile other retailers' sales rose 13.2% in year 1. Large retailers as Maxima, IKI and Rimi were affected by government restrictions in year 1 and 2, but the results in table 15 suggest that integration of the e-commerce did not attract the same number of customers to offset the loss from the limited brick-and-mortar business in first year. However, the difference between $CAGR_{pre}$ and $CAGR_{post}$ was positive for ECOMM_2 and negative for RSECTOR_2. This resulted in Δ Sales Growth_2 being positive by 3.2%, meaning that despite a sales growth drop in year 1, overall sales growth performance I was higher in post period in ECOMM_2 than the rest of market (Table 15). This result is also consistent with Group I.

Table 15

Comparison of sales growth before and after event year with RSECTOR_2

Year around event	ECOMM_2 growth, % YoY	RSECTOR_2 growth, % YoY	Differrence (ECOMM_2 - RSECTOR_2)
-2	4,4%	9,7%	-5,3%
-1	4,3%	15,6%	-11,3%
1	0,0%	13,2%	-13,2%
2	5,6%	8,2%	-2,6%
3	12,4%	16,7%	-4,3%
$CAGR_{pre}$: years -3, -2, -1	2,9%	8,2%	-5,3%
$CAGR_{post}$: years 1, 2, 3	5,9%	8,1%	-2,2%
Δ Sales Growth_2	3,0%	-0,2%	3,2%

Source: prepared by author

It is noteworthy that the sales growth of ECOMM_2 is below RSECTOR_2 throughout the analyzed period. This means that despite integrating e-commerce, major retailers also face other issues keeping their market share in the grocery sector. The expansion of Lidl and the change in customer behavior led to high sales growth at the two other retailers Norfa and Lidl.

On the other hand, by integrating e-commerce and expanding the business model from offline to online, major retailers were not only able to grow faster than the rest of the market in the comparable period, but also reach their customers through the lockdown period and generate additional sales Online sales. Otherwise the result would most likely have been different.

3.2.2.2 Productivity compared to control group

Productivity growth was positive for both ECOMM_2 and RSECTOR_2 in all periods and positive when comparing pre- and post- periods within the target and control groups. This means that both groups, regardless of whether they implemented e-commerce or not, were able to increase their productivity over the period examined. However, the difference between ECOMM_2 and RSECTOR_2 is negative in both $CAGR_{pre}$ and $CAGR_{post}$. It is slightly different compared to Group I, where only the difference of $CAGR_{post}$ compared to RSECTOR_1 was seen the Δ Productivity Growth_2 is also negative -1.1%. This means that, despite increasing sales, the companies that have integrated e-commerce have not managed to grow at the same pace as the rest of the market.

Table 16

Comparison of productivity growth before and after event year with RSECTOR_2

Year around event	ECOMM_2 growth, % YoY	RSECTOR_2 growth, % YoY	Differrence (ECOMM_2 - RSECTOR_2)
-2	6,9%	3,8%	3,2%
-1	6,0%	13,3%	-7,4%
1	6,6%	8,9%	-2,3%
2	5,8%	14,6%	-8,8%
3	15,5%	13,9%	1,6%
$CAGR_{pre}$: years -3, -2, -1	4,2%	5,5%	-1,3%
$CAGR_{post}$: years 1, 2, 3	6,9%	9,3%	-2,4%
Δ Productivity Growth_2	2,7%	3,8%	-1,1%

Source: prepared by author

3.2.2.3 Return on sales compared to control group

The results from Table 17 show that the fluctuation of ROS in ECOMM_2 is not significant in the analyzed period, only the results in year 1 are different. At that time, ECOMM_2's sales growth was 0%, companies that integrated e-commerce were able to earn more profit. It should be noted that in year 1, corresponding to calendar year 2020, the two e-commerce companies Barbora and LastMile had the highest ROS in % throughout the analyzed period, corresponding to -2.0% and -5.5%. While in the years before and after, the ROS result for both Barbora and LastMile was even worse, around -25%. Also, Maxima recorded the highest ROS in % in year 1, amounted to 6%, while in periods -3, -2 and - on average was 4.2%, in year 2 and 3 5.3% and 4.8% accordingly.

Table 17

Comparison of ROS before and after event year with RSECTOR_2

Year around event	ECOMM_2 %	RSECTOR_2 %	Differrence (ECOMM_2 - RSECTOR_2)
-3	2,8%	0,8%	2,0%
-2	3,3%	4,2%	-0,9%
-1	3,2%	8,2%	-5,0%
1	4,6%	4,6%	0,0%
2	3,8%	5,1%	-1,3%
3	3,1%	4,8%	-1,7%
$Average_{pre}$: years -3, -2, -1	3,1%	4,4%	-1,3%
$Average_{post}$: years 1, 2, 3	3,8%	4,8%	-1,0%
Δ ROS_2	0,7%	0,4%	0,3%

Source: prepared by author

The results of RSECTOR_2 are very similar to those of RSECTOR_1. This means that eliminating IKI and Rimi from RSECTOR_1, which generates an average of 21% market share, did not significantly change the results of the rest of the food market. On the other hand, the difference between ECOMM_2 and RSECTOR_2 is negative, while in group I the difference was positive. The results showed that companies those have integrated e-commerce have lower overall ROS results compared to the rest of the grocery market. This finding is to be expected because, according to previous studies, innovative business models do not always bring the expected benefits. It is clear from Barbora and LastMile's financial statements that the e-commerce business is loss-making and the highest results were achieved only in the first year, when sales growth was the highest. On the other hand, the final difference Δ ROS_2 is positive +0.3%. The similarities in the results with Group I suggest that despite the negative profits of e-commerce companies, companies that have integrated e-commerce and expanded their sales flows from offline to online are able to generate higher percentage ROS than the rest of the market.

3.2.2.4 Cash flow compared to control group

Table 18 provides the results of EBITDA_adjusted of ECOMM_2 compared to RSECTOR_2. ECOMM_2 EBITDA is lower in period pre- by 0.5% points and lower by 0.9% points in period post in comparison with ECOMM_1. While RSECTOR_2 EBITDA increased by 0.7% points and 0.7% points in the same periods in comparison with RSECTOR_1. It means that combined profitability of IKI, LastMile and Rimi is lower in comparison with ECOMM_1 and RSECTOR_2. Notable that differences between ECOMM_2 and RSECTOR_2 also are more negative than in Group I, however Δ EBITDA_2 is slightly positive +0.2%. It suggests that despite the lower cash flow profitability in ECOMM_2, the overall performance is better by 0.2% after e-commerce integration period comparing the same period and development of cash profitability in RSECTOR_2. Furthermore, the results of Group II are consistent with Group I in comparison with the rest of the grocery market.

Table 18

Comparison of EBITDA_adjusted before and after event year with RSECTOR_2

	ECOMM_2	RSECTOR_2	Differrence (ECOMM_2 - RSECTOR_2)
Year around event	%	%	
-3	4,2%	1,5%	2,7%
-2	4,7%	5,9%	-1,2%
-1	4,4%	10,1%	-5,7%
1	6,1%	6,3%	-0,2%
2	5,3%	6,8%	-1,4%
3	4,6%	6,5%	-1,9%
$Average_{pre}$: years -3, -2, -1	4,4%	5,8%	-1,4%
$Average_{post}$: years 1, 2, 3	5,3%	6,5%	-1,2%
Δ EBITDA_2	0,9%	0,7%	0,2%

Source: prepared by author

3.2.2.5 Return on assets compared to control group

The result of Δ ROA_2 compared to RSECTOR_2 is 3.1% and is very similar to Δ ROA_1 which is 3.7% compared to RSECTOR_1. IKI and Rimi were generally found to have an average 3.6% lower ROA compared to other retailers. Therefore, $Average_{pre}$ and $Average_{post}$ of ECOMM_2 is lower than ECOMM_1, while RSECTOR_1 and RSECTOR_2 in $Average_{pre}$ and $Average_{post}$ are not much different, so Δ ROA_2 is equal to Δ ROA_1 and was -1.3%. This means that companies that additionally operate e-commerce businesses use economic resources - assets

- more productively and efficiently. The Table 19 summarize the results of ROA of ECOMM_2 compared to RSECTOR_2

Table 19

Comparison of ROA before and after event year with RSECTOR_2

Year around event	ECOMM_2 %	RSECTOR_2 %	Differrence (ECOMM_2 - RSECTOR_2)
-2	7,9%	3,8%	4,1%
-1	7,9%	4,6%	3,3%
1	10,7%	2,7%	8,0%
2	9,5%	3,1%	6,4%
3	8,8%	2,8%	6,0%
$Average_{pre}$: years -3, -2, -1	7,9%	4,2%	3,7%
$Average_{post}$: years 1, 2, 3	9,7%	2,8%	6,8%
Δ ROA_2	1,7%	-1,3%	3,1%

Source: prepared by author

3.3 Overview of results and discussion

An overview of the retail market in Lithuania showed that food retail sales growth and overall retail market share were quite stable until the Covid-19 pandemic and the war in Ukraine. After 2020, the Lithuanian retail market changed. Retail sales were significantly impacted by high inflation, e-commerce took some market share, and the retail market landscape began to change. E-commerce gained at least 3% of market share in 2020-2022 and was around 7% at the end of 2022, while it was only 3% in 2017. Customer behavior has also changed, discounters such as Lidl and Norfa are becoming increasingly popular with customers and are showing high results in terms of sales, market share and profitability. In addition, it is worth noting that Lidl entered the Lithuanian market in 2016, launching an aggressive expansion across Lithuania and launching the discount store business model. At the beginning, market shares between major retailers were changed, while the overall grocery market did not change significantly, however situation changed after Covid-19 pandemic.

At the beginning of year 2020 major retailer IKI an Rimi launched e-commerce business model into the existing business, while Maxima accelerated the expansion of e-commerce to wider locations in Lithuania in order to mitigate the restriction of brick-and-mortar business during Covid-19 pandemic. Therefore, year 2020 was chosen as the break or event year in terms of implementation of e-commerce.

The results of the impact of integrated e-commerce show that both Maxima assigned to Group I and all three major retailers with integrated e-commerce (Maxima, IKI and Rimi) assigned to Group II have higher growth and results compared to the periods before and after e-commerce implementation and compared to the rest of the food retail market same periods. Table 10 provides an overview of the comparative analysis carried out.

Table 10

Overview of financial metric results based on comparative analysis

Target:	Group I	Group I	Group II
Contol group:	PR	RSECTOR_1	RSECTOR_2
Δ SALES growth	-0,5%	0,5%	3,2%
Δ PROD growth	2,6%	-0,6%	-1,1%
Δ ROS	-0,3%	0,6%	0,3%
Δ EBITDA_adjusted	0,0%	0,7%	0,2%
Δ ROA	-0,5%	3,7%	3,1%

Source: prepared by author

Group I was compared with two control groups: the peer group and the rest of the food market. The results between PR and RSECTOR_1 in some financial metrics are contradictory. However, the comparison with RSECTOR_1 is more representative because the PR group includes the two retailers IKI and Rimi, which integrated their e-commerce business model at the same event date and therefore have impact on received results.

The results in Table 10 show that Group I and Group II overperformed the rest of grocery market in financial indicators in sales growth, ROS, EBITDA, ROA, and underperformed in productivity growth. The results of ROE were calculated for Group I only and further refused due to lack of detailed data which could cause misleading results. The results suggests that integration of e-commerce into existing business in general has positive impact on financial performance and could be consistent with previous studies which received positive results on business performance.

It was found that the financial performance of standalone e-commerce companies was unprofitable during the analyzed period. This is consistent with previous observations that achieving overall benefits from an e-commerce business model may require a longer time frame. On the other hand, collaboration between large companies and e-commerce startups or acquisitions is suggested as a potential way to improve performance.

CONCLUSION

This section provides an overview of the theoretical and empirical analysis carried out. Based on the findings, answers to the research questions are presented. At the end, limitations and recommendations for further studies are noted.

The main purpose of this master's thesis was to examine the impact of innovative business models on the financial performance of the existing company. Specifically, the research question focused on what impact the introduction of e-commerce makes on the financial performance of existing traditional food retail companies compared to the rest of the food retail market in Lithuania.

The inspiration behind this comes from the incredible growth of e-commerce in the food sector in Lithuania in recent years, especially during the Covid-19 pandemic. E-commerce has become an essential tool for retailers to reach their customers and mitigate the impact of restrictions in place during the Covid-19 pandemic. Retailers those were already working on innovative business solutions accelerated their implementation and introduced new business models to their customers such as online sales and delivery or buy online and pick up in store in a short time.

In addition, it is widely recognized in the existing academic literature that innovative business models, including e-commerce, offer various advantages, such as improved competitiveness, improved business performance, innovativeness, or sustainability. To evaluate the results of the implemented new business model impacts, some studies used mediators instead of the direct effect model. However, others reported no significant influence between the implementation of innovative business models and business performance. The impact of e-commerce on business performance is also not clearly assessed. In general, the reviewed literature remains ambiguous and contradictory, with different findings regarding the direct effects from implementation of innovative business model. Furthermore, there was lack of studies that specifically focused on the Lithuanian retail market and implemented innovative solutions.

In order to achieve the research main objective a comparative analysis of financial metrics such as sales growth, productivity, EBITDA, ROS, ROA was carried out between companies that have introduced e-commerce business and the rest of the food market in Lithuania. The financial data was taken from official Lithuanian databases. The results of the comparative analysis indicate positive impacts on most of the selected financial measures. This means that companies those integrate e-commerce into their existing business model achieve better performance in sales and ROA, and slightly better in ROS and EBITDA than the rest of the food retail sector. Only the

development of productivity is negative compared to the rest of the food market. Despite the positive result of combined existing large companies and e-commerce startups and business models in comparison with the rest of market, the financial performance of alone e-commerce startup company is not profitable during analyzed period. Therefore, it is consistent with Stockdale & Standing (2004) who noted that the process of gaining the overall benefit from e-commerce business model could be long. On the other hand, the findings also show, that collaboration of large companies with e-commerce startups or acquisition could lead for better performance.

Contribution and Recommendations

From a practical perspective, the results highlight that despite negative outcomes of the business model itself, the combined outcome can be positive when the new business model is integrated into the existing business model. Additionally, analyzes from industry reports and academic researchers show the importance of exploring and experimenting with new business models, particularly in retail, which is on a path of accelerated transformation. In addition, a comprehensive analysis of innovative business models provides valuable insights into what the key drivers are and what results and effects can be expected from the implementation of a new business model in retail. The overview of several methods provides information about how the results of implemented innovative business models can be measured in practice.

In addition, during data collection for the empirical analysis, it was discovered that the Lithuanian statistical database lacks balance sheet data. Comments were made by telephone, missing data were updated within a few days and confirmed by email. Updated data in Lithuanian statistical database reduced the extent of data discrepancies in further analysis.

Limitations and further research

This thesis has some limitation that may influence its generalization of the results and require additional research.

Firstly, the data are collected on annual basis from official financial statements for five major retailers and two e-commerce companies for the purpose to evaluate the e-commerce performance in comparison with the rest of market. The author did not have the access to the detailed operational measures on more detailed level for each of companies, thus the results could also include the impact not only from e-commerce performance but also the impacts from other initiatives and innovative business models implemented by retailers during analyzed period. Future analysis should consider alternative data collection methods and more detailed data level to validate the results. Furthermore, the data utilized in this work was sourced from Lithuanian

Statistical database, which also may have limitations as missing, incomplete data, or potential errors. Thus, these discrepancies also could have impact on the results.

Secondly, the analysis is specific to Lithuanian grocery retail market and may not necessarily being applied to other industries or countries.

Third, the timeframe is limited according to available data from 2017 to 2022, which captures a specific period. The findings are influenced by Covid 19 pandemic, energy crisis due to war in Ukraine and other economic conditions, thus may not necessarily reflect the long-term impact.

Finally, it was recognized that the retail business is very volatile. Therefore, to maintain its market share and survive dynamically, the retailer must constantly innovate. Implementing e-commerce capabilities is just one part of a broader business model. To accurately capture the impact of e-commerce, future analysis should focus more on short time windows with specific detailed data.

LIST OF REFERENCES

Accenture. (2015). *Harnessing the power of entrepreneurs to open innovation.* Istanbul: G20 Young Entrepreneurs Alliance Summit.

Alsulaimany, N., & Almaktoom, A. (2020). The impact of implementing e-commerce on organizational performance. *PJAEE 18 (16)*, 293-298.

Americo, A., & Veronico, A. (2018). The Effect of E-commerce on Employment in Retail Sector. *Università degli Studi di Torino*.

Amit, R., & Zott, C. (2020). *Business Model Innovation Strategy: Transformational Concepts and Tools for Entrepreneurial Leaders.* Hoboken, New Jersey: Wiley.

Ammirato, S., Linzalone, R., & Felicetti, A. (2021). Business model innovation drivers as antecedents of performance. *Measuring Business Excellence Vol.26, No 1*, 6-22.

Ancillai, C., Marinelli, L., & Pascucci, F. (2022). Digital-Driven BusinessModel Innovation: The Role of Data in Changing Companies' Value Logic. In M. Ratajczak-Mrozek, & P. Marszałek, *Digitalization and Firm Performance, Examining the Strategic Impact* (pp. 73-98). Switzerland: Palgrave Macmillan.

Andonov, A., Dimitrov, G., & Totev, V. (2021). Impact of E-commerce on Business Performance. *TEM Journal Vol 10, No. 4*, 1558-1564.

Ashraf, M., Azagury, J., Bedi, A., Brueckner, M., Castagnino, T., & Torreira, M. (2023). *Reinventing for resilience: A CEO's guide to achieving long-term profitable growth.* Accenture.

Balčiūnienė, R. (2023, 01 11). *Pirmas blynas neprisvilo: „Iki" atidaro antrą autonominę parduotuvę*. Retrieved 2023-12-14, from Verslo žinios: https://www.vz.lt/prekyba/2023/01/11/pirmas-blynas-neprisvilo-iki-atidaro-antra-autonomine-parduotuve

Barber, B., & Lyon, J. (1996). Detecting abnormal operating performance: The empirical power and specification of test statictics. *ournal of Financial Economics 41*, 359-399.

Baršauskas, P., Šarapovas, T., & Cvilikas, A. (2008). The evaluation of e-commerce impact on business efficiency. *Baltic Journal of Management Vol. 3 No 1*, 71-91.

Basker, E. (2005b). Selling a cheaper mousetrap: Wal-Mart's effect on retail prices. *Journal of Urban Economics, 58*, 203-229.

Basker, E. & Noel, M. (2009). The evolving food chain: Competitive effects of Wal-Mart's entry into the supermarket industry. *Journal of Economics & Management Strategy, 18*, 977–1009.

BCG. (2009). *Business Model Innovation. When the Game Gets Toygh, Change the Game.* n.d.: Boston Consoltung Group, Incl.

Beck, R. (2013, August). *Nowhere to Run for Retailers: How New Business Models Can Crack the Big Box Dilemma*. Retrieved 2023-10-11, from Innosight: https://www.innosight.com/insight/nowhere-to-run-for-retailers-how-new-business-models-can-crack-the-big-box-dilemma/

Bigliardi, B., Ferraro, G., Filippelli, S., & Galati, F. (2020). The influence of open innovation on firm performance. *International Journal of Engineering business manegement 12*, doi:10.1177/1847979020969545.

Bortolini, R., Cortimiglia, M., & Danilevicz, A. (2021). Lean Startup: a comprehensive historical review. *Management decision Vol 59 No.8*, 1765-1783.

Böttcher, T., Floetgen, R. J., Phi, D. A., & Weking, J. (2021). What Makes an Innovative Business Model? Evidence From the 70 Most Innovative Firms. *Americas Conference on Information Systems (AMCIS).*

Bouwman, H., Nikou, S., Molina-Castillo, F., & de Reuver, M. (2018). The impact of digitalization on business models. *Digital policy, regulation and governance Vol.20 No.2*, 105-124.

Christensen, C. M., & Tedlow, R. S. (2000). Patterns of Disruption in Retailing. *Hardvard Business Review*, 42-45.

Cramer-Flood , E. (2023, October 13). *Global Retail Ecommerce Forecast 2023*. Retrieved 2023-10-26, from insiderintelligence.com: https://www.insiderintelligence.com/content/global-retail-ecommerce-forecast-2023

Dekova, A., Krcmar, H., & Böttcher, T. (2023). Shopping for digital innovation - The role of startup acquisitions for digital innovation in incumbents. *Conference paper: Twenty-ninth Americas Conference on Information Systems*.

Djuraeva, L. (2021). Importance of the Innovative Business Models for the future Success of the Company. *SHS Web of Conference.* EDP Science.

Ernst&Young. (2022, July 13). *How to generate retail growth through alternative revenue streams*. Retrieved 2023-10-11, from EY.com: https://www.ey.com/en_kz/consumer-products-retail/retail-growth-through-alternative-revenue-streams

Euromonitor International. (2023). *Passport. Grocery Retailers in Lithuania.* Euromonitor International.

Euromonitor International. (2023). *Passport. Retail e-commerce in Lithuania - analysis.* Euromonitor International.

Euromonitor International. (2023). *Passport. Retail Lithuania.* Euromonitor International.

Fabrício, R., da Silva, F., Simões, E., Galegale, N., & Akabane, G. (2015). Strengthening of Open Innovation Model: using startups and technology parks. *IFAC-PapersOnLine 48-3*, 014-020.

Fernando, J. (2023, 12 22). *Return on Equity (ROE) Calculation and What It Means*. Retrieved 2023-12-26, from https://www.investopedia.com: https://www.investopedia.com/terms/r/returnonequity.asp

Ferreras-Mendez, J., Olmos-Penuela, J., Salas-Vallina, A., & Alegre, J. (2021). Entrepreneurial orientation and new product development performance in SMEs: The mediating role of business model innovation. *Technovation 108*, 102325.

Foss, N., & Saebi, T. (2018). Business models and business model innovation: Between wicked and paradigmatic problems. *Long Range Planning 51*, 9-12.

Fredriksson, A., & de Oliveira, G. (2019). Impact evaluation using Difference-in-Differences. *RAUSP Management Journal Vol. 54 No 4*, 519-532.

Gallino, S., & Moreno, A. (2014). Integration of Online and Offline Channels in Retail: The Impact of Sharing Reliable Inventory Availability Information. *Management Science Vol. 60, No. 6*, 1434-1451.

Gambardella, A., & McGahan, A. (2010). Business-Model Innovation: General Purpose Technologies and their Implications for Industry Structure. *Long Range Planning 43*, 262-271.

Gatautis, R., Vaiciukynaite, E., & Tarute, A. (2019). Impact of business model innovations on SME's innovativeness and performance. *Baltic Journal of Management Vol.14 No 4*, DOI 10.1108/BJM-01-2018-0035.

Geissdoerfer, M., Vladimirova, D., & Evans, S. (2018). Sustainable business model innovation: A review. *Journal of Cleaner Production 198*, 401-416.

Ghosh, A. (2001). Does operating performance really improve following corporate acquisitions? *Journal of Corporate Finance 7*, 151-178.

Guo, H., Guo, A., & Ma, H. (2022). Inside the black box: How business model innovation contributes to digital start-up performance. *Journal of innovation & Knowledge*.

Hagel III, J., Brown, J. S., Samoylova, T., & Kassey M. Lobaugh, N. G. (2015). *The retail transformation: Cultivating choice, experience and trust.* Deloitte University Press.

Hansen, E., & Grosse-Dunker, F. (2012, December 19). *Sustainability-Oriented Innovation*. Retrieved 2023-10-26, from S. O. Idowu, N. Capaldi, L. Zu, & A. Das Gupta (Eds.), Encyclopedia of Corporate Social Responsibility: Heidelberg, Germany; New York: Springer, Forthcom: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2191679

Har, L., Rashid, U., Chuan, L., Sen, S., & Xia, L. (2022). Revolution of Retail Industry: From Perspective of Retail 1.0 to 4.0. *Procedia Computer Science 200*, 1615-2625.

Hesarzadeh, R. (2020). Difference-in-differences Design and Propensity Score Matching in Top Accounting Research: A Short Guide for Ph.D. Students in Iran. *Iranian Journal of Accounting, Auditing and Finance 4(3)*, 35-47.

Huang, W., & Ichikohji, T. (2023). A review and analysis of the business model innovation literature. *Heliyon 9*, e17895.

IBM. (2006). IBM's global CEO report 2006: business model innovation matters. *Strategy & Leadership Vol 34 No 5*, 34-40.

Keenan, M. (2023, August 27). *Global Ecommerce Statistics: Trends to Guide Your Store in 2024*. Retrieved 2023-12-10, from www.shopify.com: https://www.shopify.com/enterprise/global-ecommerce-statistics

Kim, S. K., & Min, S. (2015). Business model innovation performance: When does adding a new business model benefit an incumbent? *Strategic Entrepreneurship Journal 9*, 34-57.

Konya-Baumbach, E., Schuhmacher, M., Kuester, S., & Kuharev, V. (2019). Making a first impression as a start-up: Strategies to overcome low initial trust perceptions in digital innovation adoption. *International Journal of Research in Marketing 36*, 385-399.

KPMG. (2021). *Future of Retail.* n.d.: KPMG.

Kumar, A., Mehra, A., & Kumar, S. (2019). Why Do Stores Drive Online Sales? Evidence of Underlying Mechanisms from a Multichannel Retailer. *Information system research Vol. 30, No. 1*, 319-338.

Latifi, M.-A., Nikou, S., & Bouwman, H. (2021). Business model innovation and firm performance: Exploring causal mechanisms in SMEs. *Technovation 107*, 102274.

LRT. (2020, 03 25). *„Barbora“ plečiasi į regionus, skelbia sąrašą, kokiuose miestuose veiks nauja paslauga*. Retrieved 2023-12-05, from www.lrt.lt: https://www.lrt.lt/naujienos/verslas/4/1154994/barbora-pleciasi-i-regionus-skelbia-sarasa-kokiuose-miestuose-veiks-nauja-paslauga

Madhavan, M., Sharafuddin, M., & Chaichana, T. (2022). Impact of Business Model Innovation on Sustainable Performance of Processed Marine Food Product SMEs in Thailand—A PLS-SEM Approach. *Sustainability*, 14, 9673. https://doi.org/10.3390/ su14159673.

Mark W. Johnson, C. M. (2008, December). *Reinventing Your Business Model*. Retrieved 2023-12-15, from Hardvard Business Review: https://hbr.org/2008/12/reinventing-your-business-model

Martini, Setiawan, D., Adhariani, D., Harymawan, I., & Widoko, M. (2023). E-commerce and micro and small industries performance: The role of firm size as a moderator. *Journal of Open inovation: Technology, Market and Complexity 9*.

Martynova, M., Oosting, S., & Renneboog, L. (2006). The long-term operating performance of European mergers and acquisitions. *International M&A Activity Since 1990: Recent Research and Quatitative Analysis. G. Gregoriou, L. Renneboog (eds.), Massachussets: Elsevier, 2007. 79-116. 126. Martynova M., Renneboog L. (2006). Mergers and Acquisitions in Europe. ECGI – CentER Discussion*.

McKinsey. (2021, July 8). *Why retail outperformers are pulling ahead*. Retrieved 2023-10-07, from Mckinsey&Company: https://www.mckinsey.com/industries/retail/our-insights/why-retail-outperformers-are-pulling-ahead

Mostaghel, R., Oghazi, P., Parida, V., & Sohrabpour, V. (2022). Digitalization driven retail business model innovation: Evaluation of past and avenues for future research trends. *Journal of Business Research*, 134-145.

Parida, V., Sjödin, D., & 1, W. R. (2019). Reviewing Literature on Digitalization, Business Model Innovation, and Sustainable Industry: Past Achievements and Future Promises . *Sustainability*.

Picken, J. (2017). From startup to scalable enterprise: Laying the foundation. *Kelley Scool of Business, Indiana Universtity*. Elverier.

Pucihar, A., Lenart, G., Kljajic Borštnar, M., Vidmar, D., & Marolt, M. (2019). Drivers and Outcomes of Business Model Innovation—Micro, Small and Medium-Sized Enterprises Perspective. *Sustainability 11*, 344.

Pugliese, R., Bortoluzzi, G., & Balzano, M. (2022). What drives the growth of start-up firms? A tool for mapping the state-of-the-art of the empirical literature . *European Journal of Innovation Management Vol. 25 No.6*, 242-272.

Rahardjo, S. (2023, February 28). *The Importance of Business Model Innovation for Startups*. Retrieved 2023-10-09, from Unfolded venturra: https://unfolded.venturra.com/the-importance-of-business-model-innovation-for-startups/#:~:text=Business%20model%20innovation%20is%20important,and%20create%20new%20revenue%20streams

Richardson, /. (2008). The business model: an integrative framework for startegy execution. *Strategic Change*, 133-144.

Ries, E. (2011). *The lean startup.* New York: Crown Business.

Rothbard, S., Etheridge, J., & Murray, E. (2023). *A Tutorial on Applying the Difference-in-Differences Method to Health Data.* -: Cuurent Epidemiology Reports.

Šaković Jovanović, J., Vujadinović, R., Mitreva, E., Fragassa, C., & Vujović, A. (2020). The Relationship between E-Commerce and Firm Performance: The Mediating Role of Internet Sales Channels. *Sustainability 12(17)*, 6993; https://doi.org/10.3390/su12176993.

Slávik, Š. (2019). The Business Model of Start-Up—Structure and Consequences. *Administrative Science*, doi:10.3390/admsci9030069.

Sorescu, A., Frambach, R., Singh, J., Rangaswamy, A., & Bridges, C. (2011). Innovations in Retail Business Models. *Journal of Retailing 87S*, S3-S16.

Spieth, P., & Schneider, S. (2016). Business model innovativeness: designing a formative measure for business model innovation. *J Bus Econ 86*, 671-696.

Steigertahl, L., & Mauer, R. (2018). *EU startup Monitor.* ESCP Europe Jean-Baptiste Say Institute for Entrepreneurship.

Stockdale, R., & Standing, C. (2004). Benefits and barriers of electronic marketplace participation: an SME perspective. *Journal of Enterprise Information Management, Vol. 17 No. 4*, 301-311.

Subramani, M., & Walden, E. (2001). The Impact of E-Commerce Announcements ont he Market Value of Firms. *Informtaion System Research Vol 12 no 2*, 135-154.

Teece, D. J. (2010). Business Models, Business Strategy and Innovation. *Long Range Planning*, 172-194.

Tian, Q., Zhang, S., Yu, H., & Cao, G. (2019). Exploring the Factors Influencing Business Model Innovation Using Grounded Theory: The Case of a Chinese High-End Equipment Manufacturer. *Sustainability* , 11, 1455; doi:10.3390/su11051455.

Timo Böttcher, H. K. (2022). The Good, the Bad, and the Dynamic: Changes to Retail Business Models During COVID-19. *Conference paper.*

Timo Böttcher, S. H. (2021). Escape from Dying Retail by Combining Bricks and Clicks: A Taxonomy of Digital Business Models in Retail. *PACIS 2021 Proceedings.* Association for Information Systems.

Usman, M., & Vanhaverbeke, W. (2017). How start-ups successfully organize and manage open innovation with large companies. *European Journal of Innovation Management*.

Venkatraman, N., & Ramanujam, V. (1986). Measurement of Business Performance in Strategy Research: A Comparison of Approaches. *The Academy of Management Review Vol 11, No.4*, 801-814.

Vizbariene, R. (2020, March 13). *https://www.vz.lt/prekyba/2020/03/13/rimipradeda-e-prekyba*. Retrieved 2023-11-01, from Verslo zinios: https://www.vz.lt/prekyba/2020/03/13/rimipradeda-e-prekyba

Wagner, E. (2013, 09 12). *Five reasons 8 out of 10 Businesses Fail*. Retrieved 2023-10-20, from Forbes.com: https://www.forbes.com/sites/ericwagner/2013/09/12/five-reasons-8-out-of-10-businesses-fail/

Zott, C., & Amit, R. (2007). Business Model Design and the Performance of Entrepreneurial Firms. *Organization Science Vol. 18 No. 2*, 181-199.

Zott, C., & Amit, R. (2010). Business Model Design: An Activity System Perspective. *Long Range Planning 43*, 216-226.

SUMMARY

INNOVATIVE BUSINESS MODELS AND STARTUPS AND THEIR IMPACT ON EXISTING COMPANIES FINANCIAL PERFORMANCE AND EVALUATON IN RETAIL INDUSTRY

Liucyna GIMŽŪNĖ

Master thesis

Finance and banking master study programme

Vilnius University, Faculty of Economics and Business Administration

Supervisor – Dr. Darius Saikevičius

Vilnius, 2024

72 pages, 20 tables, 10 figures, 82 references

The main purpose of this master thesis is to examine the impact of innovative business models, especially the implementation of e-commerce, on the financial performance of existing traditional food retail companies in Lithuania. The inspiration for this study comes from the significant growth of e-commerce in the grocery sector, especially during the Covid-19 pandemic, and the fierce competition in the market.

The research question focused on impact of the integration of e-commerce on the business performance of traditional food retail companies compared to the rest of the grocery retail market in Lithuania. The existing literature recognizes the potential benefits of innovative business models, including enhanced competitiveness, improved business performance, and innovation capabilities. However, conflicting results remain regarding the direct effects of implementing such models. Furthermore, there was lack of studies that specifically focused on the Lithuanian retail market and implemented innovative solutions.

To address this issue, the study conducts a comparative analysis of financial indicators (sales growth, productivity, EBITDA, ROS, ROA) between companies with e-commerce integration and the rest of the grocery market in Lithuania. Financial data from official Lithuanian databases are used. The results indicate a positive impact on most financial metrics for companies that incorporate e-commerce, indicating better performance in sales, EBITDA, ROS and ROA compared to the rest of the food retail sector. However, productivity shows a negative trend.

Notably, the financial performance of standalone e-commerce startup companies is not profitable during the analyzed period, suggesting that it may take time to realize overall benefits

of e-commerce business models. Conversely, collaboration between large companies and e-commerce startups or acquisitions appears to result in better performance.

The study also addresses limitations, including data discrepancies and the need for more detailed operational measures. It emphasizes the specificity of the analysis for the Lithuanian grocery retail market, the impact of external factors, and the need for continuous innovation in the volatile retail business.

In conclusion, this thesis provides valuable insights into the impact of e-commerce on the financial performance of traditional food retail companies. It suggests practical considerations for companies seeking to integrate innovative business models and calls for further research to address existing limitations and improve understanding in this evolving area.

Keywords: innovative business model, e-commerce, performance, retail

SANTRAUKA

INNOVATIVE BUSINESS MODELS AND STARTUPS AND THEIR IMPACT ON EXISTING COMPANIES FINANCIAL PERFORMANCE AND EVALUATON IN RETAIL INDUSTRY

Liucyna GIMŽŪNĖ

Magistro baigiamasis darbas

Finansai ir bankininkystė magistro studijų programa

Vilniaus Universitetas, Ekonomikos ir Verslo Administravimo Fakultetas

Darbo vadovas – Dr. Darius Saikevičius

Vilnius, 2024

72 puslapių, 20 lentelių, 10 paveiklų, 82 šaltiniai

Pagrindinis šio magistro darbo tikslas - ištirti inovatyvių verslo modelių, ypač elektroninės prekybos diegimo, įtaką Lietuvoje veikiančių mažmeninės prekybos įmonių finansiniams rezultatams. Įkvėpimo šiam tyrimui suteikė didelis e. prekybos augimas, ypač Covid-19 pandemijos metu bei arši konkurencija prekybos sektoriuje.

Tyrimo klausimas buvo sutelktas į tai, kokį poveikį padarė e. prekybos verslo modelio integravimas pasirinktų įmonių veiklos rezultatams lyginant su likusia mažmeninės prekybos rinka Lietuvoje. Nagrinėtoje literatūroje pripažįstama potenciali inovatyvių verslo modelių nauda, įskaitant didesnį konkurencingumą, geresnius verslo rezultatus ir inovacinius gebėjimus. Tačiau išlieka prieštaringų rezultatų dėl tiesioginio tokių modelių diegimo poveikio. Be to, trūko tyrimų, kuriuose būtų konkrečiai nagrinėjama Lietuvos mažmeninės prekybos rinka ar įdiegtų inovatyvių sprendimų įtaka Lietuvos įmonėms.

Siekiant atsakyti į tyrimo klausimą, atlikta finansinių rodiklių (pardavimų augimo, produktyvumo, EBITDA, veiklos pelningumo, turto pelningumo) lyginamoji analizė tarp įmonių, integravusių e.prekybą, ir likusios Lietuvos mažmeninės prekybos rinkos. Naudoti finansiniai duomenys buvo surinkti iš oficialių Lietuvos duomenų bazių. Rezultatai rodo, kad e. prekybą integravusios įmonės pasiekė geresnius finansinius rodiklius per lyginamąjį tyrimo laikotarpį, negu likusios mažmeninės prekybos. Teigiami rezultatai fiksuoti šiuose rodikliuose: pardavimuose, EBITDA, veiklos pelningumo ir turto pelningumo. Tačiau produktyvumo rodiklis buvo prastesnis.

Pažymėtina, kad atskirų e. prekybos veiklą pradedančių bendrovių finansiniai rezultatai analizuojamu laikotarpiu nėra pelningi, o tai rodo, kad gali prireikti laiko, kol bus realizuota bendra e. prekybos verslo modelių nauda. Kita vertus, pažymėtina, kad didžiųjų bendrovių bendradarbiavimas su e. prekybos pradedančiosiomis įmonėmis arba e. prekybos įmonių įsigijimai lemia geresnius įmonės veiklos rezultatus.

Tyrime taip pat aptariami apribojimai, įskaitant galimus duomenų neatitikimus bei išsamesnių duomenų poreikį analizuojant inovatyvių modelių įtakas. Taip pat pabrėžtinas Lietuvos mažmeninės prekybos rinkos specifiškumas bei išorinių veiksnių įtaka, kuri gali daryti įtaką tyrimo rezultatams.

Apibendrinant, šiame darbe pateikiama vertingų įžvalgų apie e. prekybos poveikį mažmeninės prekybos įmonių finansiniams rezultatams. Jame siūlomi praktiniai aspektai įmonėms, siekiančioms integruoti inovatyvius verslo modelius, ir raginama atlikti tolesnius tyrimus, siekiant sumažinti minėtus apribojimus bei pagerinti supratimą apie innovatyvių sprendimų įtaką finansiniams įmonių rezultatams.

Raktiniai žodžiai: inovatyvūs verslo modeliai, e.prekyba, finansiniai rezultatai, prekyba

ANNEXES

Annex 1 Financial Data

Net sales in TEUR

	2017	2018	2019	2020	2021	2022
G471	4 129 580	4 396 454	4 786 668	5 055 816	5 398 190	6 176 078
Maxima	1 546 879	1 638 384	1 709 698	1 689 164	1 759 492	1 984 944
IKI	642 891	649 422	677 932	672 684	718 964	819 403
Lidl	298 263	368 313	469 430	578 338	673 166	819 350
Norfa	439 669	469 142	505 486	559 074	587 313	678 507
Rimi	313 218	324 547	336 920	360 212	394 993	425 993
Other	888 660	946 645	1 087 202	1 196 344	1 264 262	1 447 880
Barbora	5 963	8 824	11 356	22 573	24 822	22 063
LastMile	-	-	91	3 128	3 686	9 367
ECOMM_1*	1 548 452	1 640 590	1 712 821	1 694 478	1 765 764	1 990 651
PR	1 694 041	1 811 425	1 989 768	2 170 308	2 374 436	2 743 254
RSECTOR_1	2 582 701	2 758 070	3 076 970	3 366 652	3 638 698	4 191 134
PR1	956 109	973 969	1 014 852	1 032 896	1 113 957	1 245 396
PR2	737 932	837 455	974 916	1 137 412	1 260 479	1 497 857
ECOMM_2**	2 504 561	2 614 559	2 727 696	2 728 177	2 880 668	3 238 452
RSECTOR_2	1 626 592	1 784 101	2 062 118	2 333 756	2 524 741	2 945 738

growth vs previous year

	2017	2018	2019	2020	2021	2022
G471		6,5%	8,9%	5,6%	6,8%	14,4%
Maxima		5,9%	4,4%	-1,2%	4,2%	12,8%
IKI		1,0%	4,4%	-0,8%	6,9%	14,0%
Lidl		23,5%	27,5%	23,2%	16,4%	21,7%
Norfa		6,7%	7,7%	10,6%	5,1%	15,5%
Rimi		3,6%	3,8%	6,9%	9,7%	7,8%
Other		6,5%	14,8%	10,0%	5,7%	14,5%
Barbora		48,0%	28,7%	98,8%	10,0%	-11,1%
LastMile		#DIV/0!	#DIV/0!	3345,0%	17,8%	154,2%
ECOMM_1*		6,0%	4,4%	-1,1%	4,2%	12,7%
PR		6,9%	9,8%	9,1%	9,4%	15,5%
RSECTOR_1		6,8%	11,6%	9,4%	8,1%	15,2%
PR1		1,9%	4,2%	1,8%	7,8%	11,8%
PR2		13,5%	16,4%	16,7%	10,8%	18,8%
ECOMM_2**		4,4%	4,3%	0,0%	5,6%	12,4%
RSECTOR_2		9,7%	15,6%	13,2%	8,2%	16,7%

* excluded received commisions in Barbora's net sales

** excluded received commisions in Barbora's net sales and exclude Intercompany sales in IKI for years 2021-2022, and recalculated e-commerce sales for period 2020 and 2021 Jan-Oct, based on the same intercomany sales shares

EBITDA without IFRS16 in TEUR

	2017	2018	2019	2020	2021	2022
G471	132 173	229 740	327 772	313 048	328 931	349 148
Maxima	74 584	83 080	85 152	117 658	111 906	114 685
IKI	28 973	36 719	21 584	32 356	33 692	35 271
Lidl	12 382	23 854	36 567	54 999	58 812	72 427
Norfa	11 870	10 397	14 589	17 893	20 019	22 297
Rimi	4 122	4 510	13 232	16 241	12 670	8 228
Other	242	71 180	156 648	73 901	91 831	96 241
Barbora	- 1 463	- 1 962	- 1 009	303	- 3 847	- 6 714
LastMile	-	-	- 54	- 172	- 906	- 2 332
ECOMM_1	73 121	81 118	84 143	117 961	108 059	107 971
PR	57 347	75 480	85 972	121 489	125 194	138 222
RSECTOR_1	57 589	146 660	242 620	195 390	217 025	234 463
PR1	33 095	41 229	34 816	48 597	46 362	43 499
PR2	24 252	34 251	51 156	72 892	78 831	94 724
ECOMM_2	106 216	122 347	118 906	166 387	153 516	149 138
RSECTOR_2	24 494	105 431	207 804	146 793	170 663	190 964

% from sales

	2017	2018	2019	2020	2021	2022
G471	3,2%	5,2%	6,8%	6,2%	6,1%	5,7%
Maxima	4,8%	5,1%	5,0%	7,0%	6,4%	5,8%
IKI	4,5%	5,7%	3,2%	4,8%	4,7%	4,3%
Lidl	4,2%	6,5%	7,8%	9,5%	8,7%	8,8%
Norfa	2,7%	2,2%	2,9%	3,2%	3,4%	3,3%
Rimi	1,3%	1,4%	3,9%	4,5%	3,2%	1,9%
Other	0,0%	7,5%	14,4%	6,2%	7,3%	6,6%
Barbora	-24,5%	-22,2%	-8,9%	1,3%	-15,5%	-30,4%
LastMile	#DIV/0!	#DIV/0!	-59,3%	-5,5%	-24,6%	-24,9%
ECOMM_1	4,7%	4,9%	4,9%	7,0%	6,1%	5,4%
PR	3,4%	4,2%	4,3%	5,6%	5,3%	5,0%
RSECTOR_1	2,2%	5,3%	7,9%	5,8%	6,0%	5,6%
PR1	3,5%	4,2%	3,4%	4,7%	4,2%	3,5%
PR2	3,3%	4,1%	5,2%	6,4%	6,3%	6,3%
ECOMM_2	4,2%	4,7%	4,4%	6,1%	5,3%	4,6%
RSECTOR_2	1,5%	5,9%	10,1%	6,3%	6,8%	6,5%

EBIT in TEUR

	2017	2018	2019	2020	2021	2022
G471	85 537	163 944	258 917	232 719	242 684	253 717
Maxima	61 944	68 861	76 184	100 839	93 898	94 812
IKI	13 545	23 015	7 716	16 432	16 166	16 485
Lidl	4 361	13 912	24 898	37 897	44 226	54 150
Norfa	8 512	7 278	11 992	15 345	17 447	19 336
Rimi	- 2 906	- 2 952	5 686	7 860	4 163	- 321
Other	81	53 830	132 440	54 346	66 784	69 254
Barbora	- 2 037	- 2 756	- 1 939	- 456	- 4 186	- 7 102
LastMile	-	-	- 54	- 172	- 906	- 2 332
ECOMM_1	59 907	66 105	74 245	100 383	89 712	87 710
PR	23 512	41 253	50 293	77 534	82 002	89 651
RSECTOR_1	23 593	95 083	182 733	131 880	148 786	158 905
PR1	10 639	20 063	13 402	24 292	20 329	16 164
PR2	12 873	21 190	36 890	53 242	61 673	73 486
ECOMM_2	70 546	86 168	87 593	124 504	109 135	101 542
RSECTOR_2	12 954	75 020	169 331	107 588	128 457	142 741

% from sales

	2017	2018	2019	2020	2021	2022
G471	2,1%	3,7%	5,4%	4,6%	4,5%	4,1%
Maxima	4,0%	4,2%	4,5%	6,0%	5,3%	4,8%
IKI	2,1%	3,5%	1,1%	2,4%	2,2%	2,0%
Lidl	1,5%	3,8%	5,3%	6,6%	6,6%	6,6%
Norfa	1,9%	1,6%	2,4%	2,7%	3,0%	2,8%
Rimi	-0,9%	-0,9%	1,7%	2,2%	1,1%	-0,1%
Other	0,0%	5,7%	12,2%	4,5%	5,3%	4,8%
Barbora	-34,2%	-31,2%	-17,1%	-2,0%	-16,9%	-32,2%
LastMile	#DIV/0!	#DIV/0!	-59,3%	-5,5%	-24,6%	-24,9%
ECOMM_1	3,9%	4,0%	4,3%	5,9%	5,1%	4,4%
PR	1,4%	2,3%	2,5%	3,6%	3,5%	3,3%
RSECTOR_1	0,9%	3,4%	5,9%	3,9%	4,1%	3,8%
PR1	1,1%	2,1%	1,3%	2,4%	1,8%	1,3%
PR2	1,7%	2,5%	3,8%	4,7%	4,9%	4,9%
ECOMM_2	2,8%	3,3%	3,2%	4,6%	3,8%	3,1%
RSECTOR_2	0,8%	4,2%	8,2%	4,6%	5,1%	4,8%

Assets in TEUR

	2017	2018	2019	2020	2021	2022
G471	1 742 053	4 412 841	5 132 016	5 259 677	5 427 384	6 956 590
Maxima	808 443	834 770	790 849	919 706	754 573	843 113
IKI	184 017	205 432	216 259	231 986	220 798	288 638
Lidl	266 851	307 609	396 991	434 819	420 284	525 430
Norfa	62 648	64 251	71 818	84 248	91 769	127 926
Rimi	69 770	69 169	71 983	69 625	76 539	83 098
Other	350 324	2 931 610	3 584 117	3 519 294	3 863 421	5 088 385
Barbora	6 620	7 177	8 719	18 191	16 671	20 436
LastMile	-	-	102	415	641	1 418
ECOMM_1	815 063	841 947	799 568	937 897	771 244	863 549
PR	583 286	646 461	757 050	820 677	809 390	1 025 092
RSECTOR_1	933 610	3 578 071	4 341 167	4 339 971	4 672 811	6 113 477
PR1	253 787	274 601	288 242	301 611	297 337	371 736
PR2	329 499	371 860	468 809	519 067	512 053	653 356
ECOMM_2	1 068 850	1 116 548	1 087 911	1 239 923	1 069 222	1 236 703
RSECTOR_2	679 823	3 303 470	4 052 925	4 038 360	4 375 474	5 741 741

Average of Assets in TEUR

	2017	2018	2019	2020	2021	2022
G471		3 077 447	4 772 429	5 195 847	5 343 531	6 191 987
Maxima		821 607	812 810	855 278	837 140	798 843
IKI		194 725	210 846	224 123	226 392	254 718
Lidl		287 230	352 300	415 905	427 552	472 857
Norfa		63 450	68 034	78 033	88 008	109 848
Rimi		69 469	70 576	70 804	73 082	79 819
Other		1 640 967	3 257 864	3 551 705	3 691 357	4 475 903
Barbora		6 899	7 948	13 455	17 431	18 553
LastMile		-	51	258	528	1 029
ECOMM_1		828 505	820 757	868 732	854 571	817 396
PR		614 873	701 755	788 864	815 034	917 241
RSECTOR_1		2 255 841	3 959 619	4 340 569	4 506 391	5 393 144
PR1		264 194	281 421	294 926	299 474	334 537
PR2		350 680	420 334	493 938	515 560	582 705
ECOMM_2		1 092 699	1 102 229	1 163 917	1 154 572	1 152 962
RSECTOR_2		1 991 647	3 678 198	4 045 643	4 206 917	5 058 607

ROA (EBIT/ Average of assets), %

	2017	2018	2019	2020	2021	2022
G471		5,3%	5,4%	4,5%	4,5%	4,1%
Maxima		8,4%	9,4%	11,8%	11,2%	11,9%
IKI		11,8%	3,7%	7,3%	7,1%	6,5%
Lidl		4,8%	7,1%	9,1%	10,3%	11,5%
Norfa		11,5%	17,6%	19,7%	19,8%	17,6%
Rimi		-4,2%	8,1%	11,1%	5,7%	-0,4%
Other		3,3%	4,1%	1,5%	1,8%	1,5%
Barbora		-40,0%	-24,4%	-3,4%	-24,0%	-38,3%
LastMile		#DIV/0!	-105,6%	-66,6%	-171,6%	-226,6%
ECOMM_1		8,0%	9,0%	11,6%	10,5%	10,7%
PR		6,7%	7,2%	9,8%	10,1%	9,8%
RSECTOR_1		4,2%	4,6%	3,0%	3,3%	2,9%
PR1		7,6%	4,8%	8,2%	6,8%	4,8%
PR2		6,0%	8,8%	10,8%	12,0%	12,6%
ECOMM_2		7,9%	7,9%	10,7%	9,5%	8,8%
RSECTOR_2		3,8%	4,6%	2,7%	3,1%	2,8%

Average number of employees

	2017	2018	2019	2020	2021	2022
G471	44196	44 597	44 617	43 597	42 067	42 038
Maxima	14747,08333	14 378	14 002	12 835	12 428	11 815
IKI	6 707	6 390	6 438	5 767	5 669	5 758
Lidl	1 581	1 644	1 840	2 131	2 368	2 612
Norfa	3 240	3 189	3 117	3 201	3 199	3 205
Rimi	3 144	3 113	3 047	3 040	3 249	3 245
Other	14 777	15 883	16 173	16 622	15 155	15 403
Barbora	330	455	471	828	1 077	986
LastMile			5	9	13	26
ECOMM_1	15 077	14 834	14 473	13 664	13 504	12 801
PR	14 672	14 335	14 441	14 140	14 485	14 820
RSECTOR_1	29 449	30 219	30 615	30 762	29 639	30 223
PR1	9 851	9 503	9 485	8 807	8 918	9 004
PR2	4 822	4 832	4 957	5 333	5 567	5 817
ECOMM_2	24 928	24 337	23 963	22 479	22 434	21 830
RSECTOR_2	19 598	20 715	21 130	21 955	20 722	21 220

change in % vs previous year

2017	2018	2019	2020	2021	2022
	0,9%	0,0%	-2,3%	-3,5%	-0,1%
	-2,5%	-2,6%	-8,3%	-3,2%	-4,9%
	-4,7%	0,8%	-10,4%	-1,7%	1,6%
	3,9%	11,9%	15,8%	11,1%	10,3%
	-1,6%	-2,3%	2,7%	-0,1%	0,2%
	-1,0%	-2,1%	-0,2%	6,9%	-0,1%
	7,5%	1,8%	2,8%	-8,8%	1,6%
	37,8%	3,4%	75,9%	30,0%	-8,4%
	#DIV/0!	#DIV/0!	75,0%	43,8%	103,3%
	-1,6%	-2,4%	-5,6%	-1,2%	-5,2%
	-2,3%	0,7%	-2,1%	2,4%	2,3%
	2,6%	1,3%	0,5%	-3,6%	2,0%
	-3,5%	-0,2%	-7,1%	1,3%	1,0%
	0,2%	2,6%	7,6%	4,4%	4,5%
	-2,4%	-1,5%	-6,2%	-0,2%	-2,7%
	5,7%	2,0%	3,9%	-5,6%	2,4%

Productivity: sales/ average number of employees

	2017	2018	2019	2020	2021	2022
G471	**93**	**99**	**107**	**116**	**128**	**147**
Maxima	105	114	122	132	142	168
IKI	96	102	105	117	127	142
Lidl	189	224	255	271	284	314
Norfa	136	147	162	175	184	212
Rimi	100	104	111	118	122	131
Other	60	60	67	72	83	94
Barbora	18	19	24	27	23	22
LastMile	#DIV/0!	#DIV/0!	18	357	293	366
ECOMM_1	103	111	118	124	131	156
PR	115	126	138	153	164	185
RSECTOR_1	88	91	101	109	123	139
PR1	97	102	107	117	125	138
PR2	153	173	197	213	226	258
ECOMM_2	100	107	114	121	128	148
RSECTOR_2	83	86	98	106	122	139

change in % vs previous year

2017	2018	2019	2020	2021	2022
	5,5%	8,8%	8,1%	10,7%	14,5%
	8,6%	7,2%	7,8%	7,6%	18,7%
	6,0%	3,6%	10,8%	8,7%	12,2%
	18,8%	13,9%	6,3%	4,8%	10,3%
	8,4%	10,2%	7,7%	5,1%	15,3%
	4,6%	6,1%	7,1%	2,6%	8,0%
	-0,9%	12,8%	7,1%	15,9%	12,7%
	7,4%	24,4%	13,0%	-15,4%	-3,0%
	#DIV/0!	#DIV/0!	1868,6%	-18,1%	25,0%
	7,7%	7,0%	4,8%	5,4%	18,9%
	9,4%	9,0%	11,4%	6,8%	12,9%
	4,1%	10,1%	8,9%	12,2%	13,0%
	5,6%	4,4%	9,6%	6,5%	10,7%
	13,2%	13,5%	8,4%	6,2%	13,7%
	6,9%	6,0%	6,6%	5,8%	15,5%
	3,8%	13,3%	8,9%	14,6%	13,9%

Average of wages

	2017	2018	2019	2020	2021	2022
IKI LIETUVA, UAB	606	697	950	1 024	1 110	1 250
MAXIMA LT, UAB	559	595	845	924	1 014	1 138
UAB "GREITUOLIS" (LastMile)			1 413	2 103	2 538	2 984
UAB BARBORA	765	819	1 195	1 123	1 159	1 337
UAB LIDL LIETUVA	861	990	1 412	1 467	1 501	1 595
UAB NORFOS MAŽMENA	632	733	1 054	1 201	1 321	1 388
UAB RIMI LIETUVA	606	663	924	991	1 019	1 116

source: https://atvira.sodra.lt/imones/detaliai/index.html?code=3406055
equal to *numInsured*

Average of wages

	2017	2018	2019	2020	2021	2022
TOP 5 retailers	653	736	1 037	1 121	1 193	1 297
Barbora and LastMile	765	819	1 275	1 613	1 849	2 160

source: https://atvira.sodra.lt/imones/detaliai/index.html?code=3406055
equal to *numInsured*

Source: G471 data from Lithuanian Statistics; Maxima, IKI, Lidl, Norfa, Rimi, LastMile, Barbora data from Financial Statements; Average number of employees and average of salaries from SODRA

Annex 2 Screen shot of e-mail

Gmail

Liucyna Gimžūn[redacted]l.com>

FW: Dėl balansiniu duomenų pasitikslinimo
11 messages

Birutė Stolytė <Birute.Stolyte@stat.gov.lt>
To: [redacted]mail.com>

Mon, Nov 20, 2023 at 9:32 AM

Sveiki, paskambinkite tel. Įmonių sk. vedėjai Antaninai Valiulienei šnd. **11.30 val. tel. +370 685 37844**

Aš su ja jau kalbėjau ir nusiųsiu jūsų laišką.

Pagarbiai

Birutė Stolytė
Statistikos sklaidos ir komunikacijos skyriaus specialistė

Tel. + 370 689 76 725
Valstybės duomenų agentūra
Gedimino pr. 29, 01500 Vilnius
www.stat.gov.lt

VALSTYBĖS DUOMENŲ AGENTŪRA

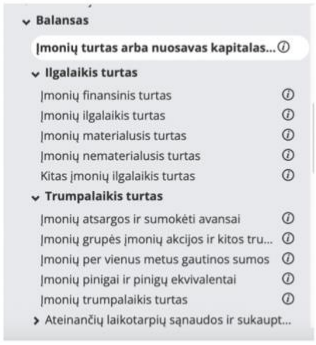
Sveiki,

kaip kalbėjome telefonu, mane domina, kaip ištraukti visą balansą ĮVRK G471, pagal pagrindinius jo straipsnius., pvz : trumpalaikis, ilgalaikis turtas, pinigai ekvivalentai, ateinančių laikotarpių sąnaudos ir sukauptos pajamos ir pan.

Žr. Verslo statistika -> Verslo struktūra ir finansai -> Įmonių finansiniai rodikliai (AB, UAB..) -> Balansas.

Jei sudedu iš atskirų lentelių ilgalaikį turtą, trumpalaikį turtą ir pan, neišeinu į skaičių pateiktą **Įmonių turtas arba nuosavas kapitalas ir įsipareigojmai.**

Tas pats su Nuosavu kapitalu ir įsipareigojimais.



Ar gali būti, kad ne visos dedamosios yra pateiktos atskirai? O gal turite ir galite pasidalinti pilnu balansu, kad nereikėtų rinkti ir sumuoti po lentelę? :) Idealu būtų, jei tai būtų visos įmonės pagal ĮVRK G471,o ne tik įmonės (AB, UAB, ir pan.).

Esu labai dėkinga Jums už pagalbą. Tikiuosi pavyks rasti sprendimą nuotolinei konsultacijai.

Ačiū ;)

Linkėjimai,

Liucina

FW:parengta info Del balansiniu duomenų pasitikslinimo Inbox ×

Birutė Stolytė <Birute.Stolyte@stat.gov.lt>
to me

Fri, Nov 24, 2023, 11:41 AM

Translate to English

Sveiki, Liucina, parengė kolegės informaciją ,

gražaus savaitgalio

Pagarbiai

Birutė Stolytė
Statistikos sklaidos ir komunikacijos skyriaus specialistė

Tel. + 370 689 76 725
Valstybės duomenų agentūra
Gedimino pr. 29, 01500 Vilnius
www.stat.gov.lt

VALSTYBĖS DUOMENŲ AGENTŪRA