



**VILNIUS UNIVERSITY  
BUSINESS SCHOOL**

**SUSTAINABLE CORPORATE FINANCE AND INVESTMENTS**

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**MASTER THESIS**

TVARI VERSLO PLĖTRA IR JOS POVEIKIS ĮMONĖS AKCIJŲ KAINAI NASDAQ BALTIC VERTYBINIŲ POPIERIŲ BIRŽOJE	SUSTAINABLE BUSINESS DEVELOPMENT AND ITS EFFECT ON COMPANY'S SHARE PRICE IN NASDAQ BALTIC STOCK EXCHANGE
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**Vilnius, 2023**

## SUMMARY IN ENGLISH

VILNIUS UNIVERSITY BUSINESS SCHOOL  
SUSTAINABLE CORPORATE FINANCE AND INVESTMENTS PROGRAMME  
STUDENT NIDA AUŠRINĖ STASELYTĖ  
SUSTAINABLE BUSINESS DEVELOPMENT AND ITS EFFECT ON COMPANY'S  
SHARE PRICE IN NASDAQ BALTIC STOCK EXCHANGE

Supervisor – Prof. Dr. Tadas Gudaitis  
Master thesis written – 2023 y., Vilnius  
Total number of pages – 77 p.  
Total number of tables – 6.  
Total number of figures – 21.  
Total number of references – 156.

Sustainable business development encourages improvement in technology and the pursuit of innovative solutions for social, ecological and economic environments. It is essential for a company's growth and profitability to align with sustainable practices, contributing to sustainable environment and resourceful business activities.

Thesis main aim through the analysis of scientific literature to develop the Sustainable Business Development Scoring model and utilize this model to assess if sustainable business development has an effect on stock prices of listed companies in Nasdaq Baltic stock exchange market. To fulfil thesis main aim the following main objectives established (i) Analyse scientific and regulatory literature about sustainable business development its theory, framework and transformation, (ii) Develop model which evaluates sustainable business development of a company and (iii) Evaluate sustainable business development and its effect on companies' share price in Nasdaq Baltic.

The research methodology encompasses the creation of a Sustainable Business Development Scoring model and the collection of statistical data by publicly available information and "FactSet" database. The study focused on a sample size comprising nine companies listed on the Nasdaq Baltic stock exchange. Data analysis employed quantitative descriptive statistics, analysis is conducted to explore the relationship between sustainable business development and share prices including other various factors according theory part that has impact on share prices. This analysis is executed using the RStudio package.

Research results show that sustainable business development does not have a statistically significant impact on analysed company's share prices in the Nasdaq Baltic stock exchange. This

research result proposes that future studies should incorporate more industry-specific factors in assessing sustainable business development.

## SUMMARY IN LITHUANIAN

VILNIUS UNIVERSITETO VERSLO MOKYKLA  
TVARŪS VERSLO FINANSAI IR INVESTICIJOS PROGRAMA  
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TVARI VERSLO PLĖTRA IR JOS POVEIKIS ĮMONĖS AKCIJŲ KAINAI NASDAQ  
BALTIC VERTYBINIŲ POPIERIŲ BIRŽOJE

Darbo vadovas – Prof. Dr. Tadas Gudaitis

Darbas parengtas – 2023 m. Vilnius

Darbo apimtis – 77 puslapiai.

Lentelių skaičius darbe – 6 vnt.

Paveikslų skaičius darbe – 21 vnt.

Literatūros ir šaltinių skaičius – 156 vnt.

Tvari verslo plėtra skatina tobulinti technologijas ir ieškoti inovatyvių sprendimų socialinei, ekologinei ir ekonominei aplinkai. Įmonės augimui ir pelningumui svarbu verslo veiklą derinti su tvaria praktika, prisidedant prie tvarios aplinkos ir išradingos verslo veiklos.

Pagrindinis baigiamojo darbo tikslas, analizuojant mokslinę literatūrą, sukurti tvaraus verslo plėtros balų vertinimo modelį ir šiuo modeliu įvertinti, ar tvari verslo plėtra turi įtakos listinguojamų įmonių akcijų kainoms Nasdaq Baltic biržos biržoje. Baigiamojo darbo pagrindiniam tikslui įgyvendinti keliami šie pagrindiniai uždaviniai: (i) išanalizuoti mokslinę ir norminę literatūrą apie tvarią verslo plėtrą jos teoriją, pagrindą ir transformaciją, (ii) sukurti modelį, įvertinantį tvarų įmonės verslo vystymąsi ir (iii) įvertinti tvarią verslo plėtrą ir jos poveikį įmonių akcijų kainai Nasdaq Baltic.

Tyrimo metodika apima Tvaraus verslo plėtros balų modelio sukūrimą ir statistinių duomenų rinkimą iš viešai prieinamos informacijos ir „FactSet“ duomenų bazės. Tyrimo metu daugiausia dėmesio buvo skiriama imties dydžiui, kurią sudaro devynios bendrovės, kotiruojamos Nasdaq Baltic biržoje. Duomenų analizėje panaudota kiekybinė aprašomoji statistika, analizė atliekama siekiant ištirti tvaraus verslo plėtros ir akcijų kainų ryšį, įskaitant kitus įvairius veiksnius pagal teorijos dalį, turinčią įtakos akcijų kainoms. Ši analizė atliekama naudojant „RStudio“ paketą. Tyrimo rezultatai rodo, kad tvari verslo plėtra neturi statistiškai reikšmingos įtakos analizuojamoms bendrovės akcijų kainoms Nasdaq Baltijos biržoje. Šis tyrimo rezultatas siūlo, kad būsimuose tyrimuose, vertinant tvarią verslo plėtrą, būtų įtraukta daugiau konkrečiai pramonės šakai būdingų veiksnių.

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## A LIST OF ABBREVIATIONS

<b>ABBREVIATIONS</b>	<b>FULL MEANING</b>
CSR	Corporate social responsibility
CSRD	Corporate Sustainability Reporting Directive
EBITDA	Earnings before interest, taxes, depreciation and amortization
ESG	Environmental, social and governance
ESPR	Eco-design for Sustainable Products Regulation
EU	European Union
GDP	Gross domestic product
GHG	Greenhouse gas
GnSBM	Green and Sustainable Business model
IPO	Initial public offering (or stock launch)
ISO	International organization for standardization
LSEG	London stock exchange group
M&A	Mergers and acquisitions
MDGs	Millennial Development Goals
NDC	Nationally Determined Contributions
NGEU	Next Generation European Union
NYSE	New York stock exchange
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
ROE	Return on equity
SBDS	Sustainable Business Development Score
SBM	Sustainable Business Model
SDG	Sustainable Development Goals
SMEs	Small and Medium Enterprises
UN	United Nations



## INTRODUCTION

One of the key factors for future development in global equity markets is sustainability. With positive developments being made in the area of sustainability and goals for a more sustainable life everyone has to adjust and change their habits, ways of living and/or operating to become more inclined to make sustainable decisions. Implemented sustainable decisions create a more resilient and prosperous society, whilst protecting the planet and its nature for the future.

Business plays an integral role in everyone's life – the economy is powered by businesses all around the world. Like the circular flow of income, business plays a significant part by employing human capital to produce goods and services, also paying salaries to employees, dividends or interest to creditors, rent to tenants, etc. Therefore, business and its activity have an impact on individuals, labour, natural resources, capital and economic growth. Sustainable business development is intended for the integration of environmental, social, governance (ESG) as well as economic considerations into the strategy, operations, and decision-making processes of a company. This approach aims to create long-term value for the business, its stakeholders, and the world. With a growing public interest in achieving financial stability via different forms of investing, a rapid growth in the number of retail investors and significant improvement in financial literacy rates, businesses must be transparent about their activities and comply with sustainable governance and social responsibility to grow their investor base and business potential.

**Thesis object** – Listed companies on Nasdaq Baltic stock exchange, their sustainable business development and effect on share prices.

**Thesis relevance** – Sustainable business development and its practices are being increasingly adopted by businesses worldwide, aiming to promote both economic growth and overall business advancement. Sustainable governance and social responsibility for human capital and natural resources increases confidence in companies, therefore it can improve financial performance and increase investments into the company. Investors are now more inclined to opt for “sustainable finance” and make such decisions by analysing annual financial and compliance reports to establish whether the companies are actually dedicated to sustainable business development. Alternatively, investors are now more likely to invest in the companies that demonstrate their commitment to sustainability and social responsibility.

This thesis aims to contribute empirical insights into the relationship between sustainable business development and performance of share prices in the context of the Nasdaq Baltic stock

exchange. There is a lack of research in the Baltic stock market regarding sustainable business development practices and their effects on share prices. Nasdaq has voluntary requirements for ESG reporting by listed companies on Nasdaq Baltic about corporate governance and ESG factors, which are evaluated on “comply or explain” basis. With the presence of these non-mandatory requirements it is relevant to understand if listed companies and their implemented sustainable practices have an effect on share price. In the economic overview this topic is relevant to understand that sustainable business practices can present economic benefits such as business growth, reduced costs, increased efficiency by improving internal processes, motivating and managing human capital, digitalization and use of new technologies. Analysed data provides Baltic region businesses with trends of possible economic benefits when implementing sustainable business development. Identification of a relationship between sustainable business development and share prices can also provide results of sustainability regulations impact in the region. Possible outcome could evaluate if governments and other regulatory bodies of the European Union should encourage and promote sustainable business development.

**Thesis novelty justification** – Lack of fulfilment in analysing whether sustainable business development has an impact on share price in Nasdaq Baltic stock exchange. This thesis gives the opportunity to assess whether there is a positive correlation between the implementation of sustainable business development practices and share prices. The Baltic capital markets have lately enjoyed sustainable growth and a solid increase in total volume of IPOs, which gives a unique comprehension of how sustainability is understood and applied in Estonia, Latvia, and Lithuania. The Baltic region has a strong commitment to sustainability, as evidenced by the United Nations Sustainable Development Goals (SDGs) and the EU’s green deal towards sustainable development. Global trends of sustainability implementation are adapted universally, whilst this research demonstrates whether following generally accepted guidelines are suitable for the Baltic region.

**Thesis problem** – Despite the growing interest in sustainable business practices and their potential impact on a company’s financial and share price performance, there is a lack of research on the topic in the Baltic region and its relation to stock exchange. Therefore, it is important to investigate the relationship between sustainable business development and share prices of companies listed on the Nasdaq Baltic stock exchange. This problem is particularly relevant given the increasing pressure on companies to adopt sustainable business practices, as well as the

growing importance of socially responsible investing in the financial markets. The Nasdaq Baltic stock exchange market is relatively young compared with its global peers, such as NYSE, LSEG, and NASDAQ. Determining whether global trends of sustainable business development positively impacts businesses in the Baltic region holds significant importance. Therefore, this thesis aims to address the effect of sustainable business development on the share prices of companies listed on the Nasdaq Baltic Stock Exchange.

**Thesis purpose** – Through the analysis of scientific literature develop the Sustainable Business Development Scoring model and utilize this model to assess if sustainable business development has an effect on share prices of listed companies in Nasdaq Baltic stock exchange market.

**Tasks that will help to achieve the objective of thesis:**

- 1) Analyse scientific and regulatory literature about sustainable business development its theory, framework and transformation;
- 2) Identify which factors have an effect on a publicly listed company's share price;
- 3) Develop model which evaluates sustainable business development of a company;
- 4) Present an overview of Nasdaq Baltics stock exchange market, its and listed companies in the market performance;
- 5) Evaluate sustainable business development and its effect on companies' share price in Nasdaq Baltic.

**Thesis structure:**

- **Theoretical part** – Three main objectives are distinguished in the theoretical part: (i) global and EU sustainability framework and its transformation, overview of the Baltic region, (ii) presentation of sustainable business development and its components, (iii) identification of factors that impact share price of listed companies. All objectives accomplished by analysing literature (scientific articles, researches, reports, international agreements and initiatives, legal acts, Nasdaq requirements, market regulation, and etc.). Theory presented by comparative method to have an objective point of view.
- **Methodological part** – Presents the research problem and objectives, outlining the research design detailing the criteria for selecting companies. Also presents the methodology for sustainable business development scoring, and discusses the quantitative research methods that will be employed, specifying the data sources and methods of analysis. Following formulation

of hypotheses for anticipated research outcomes. Provides an overview of the data collection process, including the sources and the time span under analysis.

- **Research (analytical) part** – Three main parts are distinguished in order to analyse sustainable business development and its effect on share prices: (i) overview of Nasdaq Baltic stock exchange market, (ii) Sustainable Business Development Score (SBDS) evaluation overview (iii) evaluation of sustainable business development effect on share price.
- **Conclusions** – Conclusions involve providing an overview of the tasks raised and their respective completion status. Conclusions and recommendations are presented by obtained research results.

**Importance of thesis** – Sustainable business development is a strategic decision-making for business growth, fostering an efficient work environment and better working conditions, enhancing social and environmental responsibility, and promoting sustainable product or service design, contributing to economic growth. This thesis explores the concept of sustainable business development, emphasizing its significance, challenges, opportunities, and impact on share prices. The research outcomes offer insights into the current state of sustainable development in the Baltic region, highlighting essential measures to increase and promote sustainable business in the area.

## **1. THEORETICAL APPROACH OF SUSTAINABLE BUSINESS DEVELOPMENT AND SHARE VALUE**

Sustainable development is becoming an inevitable path towards social, environmental and economical balance. As the demand continues to grow sustainability is not a new approach in today's world. The initial concept of sustainable development was introduced in 1972 and quickly gained recognition as a visionary approach that acknowledges the affiliation between social, economic, and environmental concerns (Asian Development Bank, 2012). As written in the report by the World Commission on Environment and Development "...the ability to make development sustainable is to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs." (the World Commission on Environment and Development, 1987). This development method takes into account the strategy for addressing worldwide challenges related to climate change, biodiversity loss, social inclusion, and the principle of "leaving no one behind." It offers pathways for future actions and proposes solutions to overcome potential obstacles.

One of the reality checks about how humankind's environment is changing was described in the 1960's by Rachel Carlson in her book *Silent Spring*. The book overviewed environmental, economic and social challenges that the world was facing at that time. One of the main identified problems was that the world is contaminated with chemicals which has a negative impact on wildlife, nature and population. While analysing raised problems one of the interesting observations was that while people do not feel direct consequences of pollution and other social problems, they do not feel the need to change their mindset and take actions to live in a more sustainable world (Rachel Carson, 1962). This reflection is an argument for the need for sustainable development implementation worldwide within countries, businesses and society. Although identification for sustainable development needs emerged in the late 1960s, looking into the year 2023, the world is still in the process of understanding the true essence and principles of sustainability. For some time now countries have been developing plans and strategies that are based on the mutually approved sustainability goals in pursuance to avoid irreplaceable fate of inequality, economic instability, pollution and destruction of nature. In order to achieve those goals globally businesses being one of the main components as a driving force of the economy also need to implement sustainable development methods.

### **1.1. Sustainability framework**

Sustainable development requires a solid foundation and guidelines that assist countries for their impact on a global scale and helps businesses to identify the necessary steps towards sustainable business development by assessing business activities, operations and governance. These guidelines provide a framework for countries and businesses by integrating environmental, social, and economic considerations into growth strategies and decision-making processes. International agreements and initiatives that are related to sustainability are important because they provide a framework for global cooperation, promote innovation, establish goals and targets, and encourage sustainable business development. Moreover, it is crucial to emphasize the significance of international agreements in stimulating initiatives that generate positive impacts. Without such agreements focusing on sustainability and circularity, numerous advancements achieved at both the international and national levels might not have been materialized (Rodríguez-Antón et al., 2022). The agreements consist of agreed goals which are explained in detail with introducing their targets, presenting action plans which provide appointed deadlines and described wanted outcomes. Sustainability goals are complex and usually need a long period of time to be achieved, that is why it is important to track achievement progress over time. Goals have necessary indicators that are provided to help and track progress and identify what changes should be required in the process of achieving them. In sustainability related regulations, reporting systems and evaluations there are two main international agreements that are used as a framework or key metrics: Sustainable Development Goals (SDGs) and The Paris Agreement.

The Paris Agreement is an internationally binding treaty that addresses climate change and its mitigation measures. The Paris Agreement is the first universal, legally binding global climate agreement which was signed by 195 Parties at the UN Climate Change Conference in December 2015 and replaced the Kyoto Protocol (EUR-lex, 2016). The Agreement was ratified by the European Union in October 2016 (EUR-lex, 2016). One of the key points of this agreement is related to global temperature. “Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to the 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change” (Paris Agreement, 2015). The agreement includes commitments from countries that signed the treaty to reduce greenhouse gas emissions and to regularly report on their progress. In 2020 global greenhouse gas emissions amounted to roughly 47.51 billion metric tons

of carbon dioxide equivalent (GtCO<sub>2e</sub>) and biggest contributors by sector to global GHG emissions were: electricity and heat – 32 %, transportation 15,3 %, manufacturing / construction – 13, 1 %, agriculture – 12,3 %, fugitive emissions - 6,8 % (I. Tiseo, 2023). In order to achieve transition to 1.5-degree pathway until 2050 five major shifts would need to be made in business, economy and society. These main shifts consist of encompassing food and forestry, large-scale electrification, industrial adaptation, clean-power generation, and carbon management (K. Henderson et al., 2020). In order to achieve the Paris agreement goal it requires significant economic incentives for companies to invest rapidly and at a large scale in decarbonization efforts (K. Henderson et al., 2020). Improvement in reducing GHG emissions requires all countries, public and private business sectors engagement and change of mindset and lifestyle within society.

In 2012 at the Rio de Janeiro summit, the United Nations started developing Sustainable Development Goals (SDGs) which derived from Millennium development goals (MDGs). Millennium development goals focused only on developed countries and the framework consisted of 8 topics that were developed and integrated at a bigger scale in SDGs (United Nations, 2015). At the summit MDGs were reviewed and adopted to create universal sustainable development goals as a framework for all countries, businesses and society. SDGs are hugely incorporated in most of the international agreements, sustainability reporting systems and are followed by organizational initiatives to make a more sustainable future. SDGs were adopted in 2015 by the general assembly of the UN. In parallel the UN established the 2030 Agenda for Sustainable Development (EUR-lex, n.d.). Sustainable development goals are composed of 17 goals which define 169 associated targets that need to be achieved by 2030. Goals can be grouped in three higher-level factors that have an impact on sustainability – social, economic and environmental. “These three pillars are considered to be of varying importance in different countries.” (Kleespies & Dierkes, 2022). The tasks of sustainable development – ensure material human well-being and security, social inclusion and justice, environmental sustainability, and global cooperation to secure peace and sustainable development (United Nations, 2023a). All goals are developed in order to “leave no one behind” and to make a world a better place for future generations. Sustainable development goals presented in figure 1.



Figure 1. Sustainable development goals (SDGs)

Source: compiled by the author based on (United Nations, n.d.-a)

In order to secure a future that aligns with Sustainable development goals of economic well-being, social justice, and environmental sustainability, the global community needs to allocate a greater share of its present resources to the development of enduring capital assets. It is crucial to not only redirect existing investment strategies but also boost the overall investment inflow, ensuring the effective deployment of these sustainable capital resources.

The 2030 Agenda for Sustainable Development provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. (United Nations, n.d.-a). The 2030 Agenda relies on SDGs by giving a deadline till 2030 to achieve outlined goals with intention to provide the sense of urgency to act on a global level. Presented indicators were established to measure progress toward these targets, allowing for monitoring and assessment. Agenda is designed to be applied globally regardless of the level of development of a country. The harsh truth is that as the world reaches the midpoint of the 2030 Agenda, the SDGs are significantly off track. On a global scale, considering all countries, there is no SDG projected to be achieved by 2030, global cooperation has weakened amid escalating geopolitical tensions (United Nations, 2023a). As full attention in recent years was given to recover from COVID-19 pandemic consequences and in the midst of geopolitical unrest started with a new war in Ukraine. To maximize the achievement of agreed goals, it is essential to review the global financial architecture, in order to ensure ongoing efforts toward sustainable objectives. “To achieve these goals, it is necessary that future decision-makers and stakeholders in society consider these goals to be important.” (Kleespies & Dierkes, 2022). There should be clear acknowledgment for the need of leaders, decision-makers, stakeholders that would recognize SDGs as an important factor in business



development and would initiate certain actions. It is also important that goals should be understood fundamentally. “In addition to educating the next generation of decision-makers, which is most likely the most important factor, universities also make an important contribution to achieving the SDGs through research, public engagement or university policy” (Kestin T et al., 2017). By integrating sustainability into curricula, governance, external leadership, and research, universities can prepare future leaders that would address pressing social and environmental challenges and would contribute to the well-being of local and global communities. The shift towards sustainability, technological advancements, alterations in supply chains, and evolving consumer expectations are collectively driving the need for fresh employment opportunities across various industries and geographic regions, these changes are imperative for achieving climate targets (World economic forum, 2023). That is why it is very important to implement sustainability topics in schools and universities for youth to understand sustainability, its purpose, goals and to learn how to develop business.

Similar to any framework that originates from a fundamental notion of a problem and its assessment, the sustainability framework emerged around the 1960s. This period coincided with society experiencing the consequences of the industrial revolution, realizing the impact of lifestyle on environmental pollution, societal inequality, and economic instability. As tangible outcomes became evident, there was a growing awareness of the necessity for more sustainable global development.

#### 1.1.1. Sustainability transformation by United Nations

The United Nations is one of the first organizations that started initiating international agreements on a global scale with intentions to have a sustainable environment in the world. One of the first international agreements regarding sustainability was the Stockholm Declaration on the Human Environment. This agreement was adopted during the United Nations Conference on the Human Environment, which was held in Stockholm, Sweden in 1972 (United Nations, 1972). It identified environmental protection as a fundamental human right and called on the international community to take action to address environmental challenges.

In 1992 Rio Declaration on Environment and Development was signed. It concluded the need for a better global environmental and social development. As stated by the declaration “States should cooperate to promote a supportive and open international economic system that would lead

to economic growth and sustainable development in all countries, to better address the problems of environmental degradation.” (United Nations, 1992). Following agreement was made to establish an obligation for countries to reduce emissions. The Kyoto Protocol to the United Nations Framework Convention on Climate Change was adopted in Kyoto, Japan, in December 1997 and entered into force on 16 February 2005 (United Nations Framework Convention on Climate Change, 2008). “Main focus is on reducing greenhouse gas emissions. This protocol shares the objective of the Convention to stabilize atmospheric concentrations of greenhouse gases – enable such a global response to climate change” (United Nations Framework Convention on Climate Change, 2008). Objectives in agreements were designed to initiate changes within countries and their economies. In the 2000s, the United Nations launched a voluntary initiative that encouraged businesses and organizations to adopt sustainable and socially responsible policies and practices. Following in 2003 Ten Principles of the UN Global Compact were introduced with the intent for companies to implement those principles into the work environment, business strategies and policies. Establishing a culture of integrity, companies are not only upholding their basic responsibilities to people and planet, but also setting the stage for long-term success (Kingo Lise, n.d.). All principles are categorized in four main groups: human rights, labour, environment and anti-corruption. The Ten Principles of the United Nations Global Compact are derived from several foundational documents, including the Universal Declaration of Human Rights, the International Labour Organization’s Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption. These principles provide a comprehensive framework for businesses to align their practices with universally recognized values in the areas of human rights, labour, environment, and anti-corruption (United Nations, n.d.-b). Businesses around the world are encouraged to act by these ten principles that protects basic human rights, motivates a better work environment, encourages equal rights for employees, stimulates to operate and grow in a more sustainable way.

The United Nations stands out as a key entity dedicated to advancing global sustainability. Through international agreements and initiatives, this organization has laid the groundwork for concrete objectives such as the SDGs, their targets, and development plans aimed at a more sustainable future. One of the first United Nations agreements for sustainability – The Stockholm

Declaration is widely recognized as a pivotal moment in the evolution of sustainability and environmentalism.

### 1.1.2. Sustainability framework in European Union

The European Union (EU) is an economic and political union that consists of 27 countries, which are located in Europe's continent. In 2004 the Baltic region (Estonia, Latvia and Lithuania) joined the EU as member states. As the treaty on the EU declares – member countries have to have the same values as EU represents, which are respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights (European Union members, 2012). All member states follow the same policies and requirements formed by the EU when making changes within the country. The EU outlines all-inclusive priorities and plans designed to enhance the quality of life, stimulate economic growth and ensure equality and safety across its member countries. Regarding sustainable development any member of the EU follows sustainability regulations, policies, and initiatives adopted by the Union. The EU strategic agenda for 2019–2024 has four main priorities, one of which is to build climate-neutral, green, fair and social Europe (European Council, 2018). This priority affects people, planet and prosperity by ensuring geopolitical, social, economic, climate, energy, water and food security. Europe needs to take action and manage climate change, embrace technological evolution and globalisation while making sure that no-one is left behind (European Council, 2022). It includes ensuring that EU policies align with the Paris agreement and other global agreements for sustainable development that EU member states are a part of. The Strategic Agenda also encourages to accelerate transition to renewables and increase energy efficiency, to improve quality of its air and water, to promote sustainable agriculture, to implement the European pillar of social rights. Furthermore, as all EU countries are independent members of the United Nations, and it is imperative to support and promote SDGs and implement the 2030 Agenda.

Parallel with the strategy for the EU in 2019 the European Commission launched The European Green deal. The European Green Deal is the main framework dedicated to sustainability development and transition to climate neutrality. It highlights the necessity of a comprehensive and cross-sectoral approach, where all relevant policy areas contribute to the ultimate climate-related goal (European Commission, 2023c). Green deal is constructed by main initiatives that target various sustainable goals presented in annex 1.

All initiatives are intended to fight climate change, grow a circular and competitive economy and protect well-being of EU citizens. The Green Deal package is regularly monitored, with new proposals frequently being introduced. The European Commission submits its proposals and initiatives published under the Green Deal to the Council of the EU, and to the European Parliament (European Commission, 2023c). The relevant EU institutions and the Member States shall also ensure that adaptation of this Green deal in the Union and in Member States are coherent, mutually supportive, provide co-benefits for sectoral policies, and work towards better integration of adaptation to climate change in a consistent manner in all policy areas, including relevant socioeconomic and environmental policies and actions, where appropriate, as well as in the Union's external action (Regulation (EU) 2021/1119: European Climate Law, 2021). All initiatives are, in one way or another, linked to each other's objectives.

Nearly every initiative within the EU Green Deal has a direct or indirect connection to business. Main subject-matters are circular economy and taxation which also changes in regulations and laws. Introduction of sustainable product policy promotes new business models and sets minimum requirements to prevent environmentally harmful products from being placed on the EU market (The European Green Deal, 2019). Eco-design will slowly start to force companies (starting from large companies) to overview their business models and activities, processes, governance, etc. Companies will also have to overlook one of the biggest parts in product-service creation and provision – the supply chain and all its components. Another important part for businesses is EU taxonomy regulation intended for sustainable finance framework. The EU taxonomy is a classification system that defines criteria for economic activities that are aligned with a net zero trajectory by 2050 and the broader environmental goals other than climate and is in line with the European Green Deal objectives (European Commission, 2023b). This tool encourages businesses and investors to re-orient their investments towards sustainable economy by providing a “green list”. To offer essential information on a sustainable economy and guide businesses in the right direction, the EU introduced the Climate Delegated Act. Climate delegated act's aim is to support sustainable investment by making clear which economic activities most contribute to EU's environmental objectives (Directorate-General for Financial Stability, 2021). An investment is considered “green” when it contributes to climate change mitigation and adaptation, protection and restoration of biodiversity, sustainable use and protection of water and marine resources, transition to circular economy, pollution prevention and

control without harming others. For investors, consumers, public institutions, and other stakeholders to assess the sustainability performance of a company and whether it aligns with EU taxonomy and EU Green Deal initiatives, in January 5<sup>th</sup>, 2023 the Corporate Sustainability Reporting Directive (CSRD) came into effect with the adoption of a new reporting standard phased in by 2024. This new directive adopts various reporting systems by making one reporting framework which strengthens the rules concerning the social and environmental information that companies have to report (European Commission, 2023a). EU legislation mandates that all large and listed companies must disclose information regarding environmental issues and the impact of their business activities on both people and the environment. CSRD will ensure consistent and comparable reporting on Environmental, Social and Governance (ESG) performance of all large and listed companies. The reporting process encompasses fundamental principles, disclosures (covering strategy, governance, and materiality assessment), and ESG standards in the areas of environment, social, and governance.

The EU has a strategy for financing the transition to a sustainable economy. Mainly this strategy relies on the United Nations agenda for sustainable development and the European Green Deal. The strategy includes initiatives such as a classification system for sustainable investments, disclosure requirements for companies regarding their sustainability practices, and support for sustainable finance (European Commission, 2021b). Sustainable finance framework will play a key role in meeting these targets and supporting a sustainable recovery from the COVID pandemic. Europe will need an estimated EUR 350 billion in additional investment per year over this decade to meet its 2030 emissions-reduction target in energy systems alone, alongside the EUR 130 billion it will need for other environmental goals (European Commission, 2021a). In assessing the requirement for investments, the EU is actively working to promote sustainable finance. This effort includes the implementation of a proposal for European Green Bonds, aimed at elevating the environmental ambitions within the green bond market. Of the EUR 750 billion allocated for Next-Generation-EU, 30% will be raised through issuance of NGEU green bonds (European Commission, 2021a). With financial perspectives focusing on future generations and laying the groundwork for sustainable financial markets.

The European Green Deal serves as the primary framework for achieving sustainable development, with its goals directed towards securing global agreements. The package encompasses initiatives spanning climate, environment, energy, transport, industry, agriculture,

and sustainable finance, recognizing the strong interconnections among these elements. The initiatives of the European Green Deal are designed for the benefit of all member states within the European Union and all member states are committed to fulfil raised requirements.

### 1.1.3. Sustainability in Baltic region

As member states of the European Union – Estonia, Latvia and Lithuania (Baltic countries) are guided by general EU regulations and are committed to achieve common goals set for the Union. All Baltic countries are members of the United Nations and are invested to achieve SDGs. In 2015 Baltic countries among other UN members signed the 2030 Agenda for sustainable development which looks forward to all member countries to implement sustainable development plans, policies and programs. In 2022 OECD has done an overview by measuring the distance met to SDGs. Estonia, Latvia and Lithuania were comparatively similarly evaluated. Indicated strengths in the Baltic region was that all countries have a fast-growing economy and are making progress in reducing environmental pressures by implementing EU environmental directives and making major investments (OECD, 2022c, 2022b, 2022a). Main challenges that the Baltic region face in the sustainability field are high poverty rate and poor health outcomes in Lithuania and Latvia. According to the diagnostic done by European central bank poverty levels remain quite elevated, especially for vulnerable groups, such as the elderly, and at regional level, especially outside the capital cities. Estonia's challenges are indicated as poor distribution of benefits of economic growth and that more of those benefits could be directed to sustainability initiatives and commitments (OECD, 2022c, 2022b, 2022a). Structural unemployment is relatively high in Latvia and Lithuania, despite record labor-market participation. Inequality, including at regional level, is more pronounced than the EU average (European Bank for Reconstruction and Development, 2022a). In the global context the Baltic region has a comparatively good performance track of SDGs. Global ranks put Lithuania in 37, Latvia in 14 and Estonia in 10 places out of 166 countries. All Baltic countries have achieved 15<sup>th</sup> SDG which stands for life on land and separately Estonia has achieved 4<sup>th</sup> SDG – quality education (United Nations, 2023b). These results that are monitored yearly show that the Baltic region has comparatively similar strengths and challenges, although some countries perform better than the others. With similar progress in sustainability, field countries in the Baltic region can share their good practices and lessons in order to achieve set targets and goals.

Since declaring independence from the 1990s Baltic countries are still relatively dependent on the energy grid from Russia. With the EU deal, Paris agreement, SDGs and other initiatives one of the main goals is to increase renewable energy consumption and divest natural gas which has an impact on climate change. All three countries have been acknowledged as making improvement on green scores which mainly were evaluated according to reduction of greenhouse gas (GHG) emissions from agriculture and the heating of buildings, increasing uptake of renewable energy technologies and more substantial commitments as part of countries' NDCs (European Bank for Reconstruction and Development, 2022b). The main strategic goal of the Baltic region with regard to the energy sector is to synchronize operations with the European continental grid by 2025 (European Bank for Reconstruction and Development, 2022a). Becoming energetically independent will help the region to initiate projects to sustainable energy consumption and meet the goals set by the EU.

A study conducted by AB Swedbank shows that at least half of companies in the Baltic region feel a real need for change in the field of sustainability already or believe that such a need will arise in the next two years. In addition, businesses are looking at sustainability changes not only as a requirement-driven obligation, but also as a way to better respond to changing consumer expectations and a way to stay competitive in the market (K. Semionovaitė, 2023). Study has shown that a percentage of companies: 21 % in Lithuania, 32 % in Estonia and 42 % in Latvia already feel the need for sustainable development within the company and their market. Large companies face stricter regulations in the field of sustainability reporting by the EU, non-binding requirements to comply with ESG if they are listed in Nasdaq Baltic stock exchange. Global supply chain also brings expectations for companies to maintain sustainable management of the company. Small and medium-sized enterprises (SMEs) dominate the Baltic region economy, but their innovation and digitalization potential, particularly in Latvia, remains below the European Union (EU) average (European Bank for Reconstruction and Development, 2022a). Lack of sustainable business development in the region consists of SMEs domination. SMEs do not face regulations and (or) requirements for sustainability therefore do not feel an urgent need to implement any changes regarding that topic. In all three countries the circular economy is below the EU average, in 2020 by resource productivity all countries were way below the EU average as well as the circular material use rate in which only Estonia was above the EU average (The World Bank, 2022). These statistics show that the private sector in Baltic countries is not growing sustainably

therefore they need to invest in their supply chains and products or services to make them reusable or recycled and suitable for a circular economy. The Baltic region is very export oriented and has increased domestic production due to higher foreign demand for their agricultural, manufacturing and services products, more than 40 per cent of domestic value added in the Baltic countries is exported (European Bank for Reconstruction and Development, 2022a). In a global export chain, there are increasing expectations not only for sustainable end product, but also for sustainable supply chain. All three countries are below their 2020 targets for R&D spending which has an effect for lack of innovations and adaptation to more sustainable business growth. With a fast-growing economy in the region and wide knowledge with highly qualified experts, the Baltic region has possibilities to allocate and use resources intended for sustainable business development. Drawing attention to SMEs and finding the right tools to educate and promote sustainable business growth is an important goal for the Baltic region.

The sustainability framework serves as a crucial foundation for addressing climate change, inequality, and economic instability. Beginning with a growing awareness of the necessity for change in the late 1960s, the world gradually identified problems and started to assess potential solutions and action plans to address these challenges. The United Nations assumed a pivotal role as the driving force for change, initiating international agreements and constructing a sustainability framework aimed at fostering positive transformations towards a more sustainable world. Another significant milestone in the development of the sustainability framework is The Paris Agreement, whose primary objectives include reducing GHG emissions and limiting the temperature increase to 1.5°C. This internationally binding treaty plays a pivotal role in advancing global sustainability efforts. The Baltic countries adhere to global agreements, yet, as rapidly growing economies, they possess greater potential to achieve their goals, despite facing certain challenges. Like many other nations, the Baltic countries encounter challenges such as a shortage of financing, limited R&D and a lack of materials to comprehend sustainable development and its significance.

## **1.2. Sustainable business development**

The pursuit of sustainable business development requires finding a balance where business activity, its governance and strategy integrates environmental, economic, social and governmental aspects as coordinated priorities. It also necessitates a shift in the mindsets, attitudes, and behaviours of stakeholders to align with sustainable principles (Asian Development Bank, 2012).



Unfortunately, a big part of companies worldwide views sustainable business development as a marketing solution considering trends of sustainability or understand it very superficially. There is always an agenda of why businesses make a choice to carry through some changes. According to Nada R. Sanders & John D. Wood, 2020 there are five motives to implement sustainable business development: profit, philanthropy, marketing, control and responsibility.

Business main goal is economic profit and without development in organization, its' operations in competitive market it would be hard to stay afloat and gain more profit yearly. Profit motivation arises by making investment decisions on portfolio based on sustainability, reducing operational costs, improving sustainable value chains (S. Bonini & S. Swartz, 2014). Firms may want to pursue a sustainability business strategy as it is a promising strategy to increase profits (Biely & van Passel, 2022). Businesses are also motivated to comply with increasing requirements and regulations to avoid restrictions to operate or to have reputational damage which would have a direct impact on profits.

One of the most popular and visible motives is marketing which as a tool has two sides to it. Sustainable marketing is useful for enhancing brand image which encourages customer engagement and heightens the attraction of sustainable purchase intentions (Gong et al., 2023). Unfortunately, most companies nowadays use sustainability topics as a marketing trick to mislead customers into believing that a company is operating sustainably and that by buying their products or services people are contributing to sustainability. Term for this type of behaviour is "Greenwashing" – behaviour or activities that make people believe that a company is doing more to protect the environment than it really is (*Cambridge Dictionary*, n.d.). Under the cumulative pressure of shareholders and environmentalists, some corporations adopt greenwashing behaviour to develop an environmentally friendly image and/or reputation (Yang et al., 2020). Another side to marketing shows that by making key efforts in the sustainability field companies tend to market their achievements or promote their new products that are sustainable and stand out in the market.

Further motivation for sustainability is control of the company which is a continuous dynamic process that dictates organizational direction by forming company strategy, setting short / long – term goals and creating organizational culture. Management of the company is an intermediate between stakeholders and company's needs that can implement sustainability related strategic goals and practices considering global and (or) industry tendencies and company's growth. Control of the company directly corresponds to corporate social responsibility (CSR).

CSR refers to business activities that go beyond the law in incorporating social, environmental, ethical, and consumer concerns into their business operations to create stakeholder value (Newman et al., 2020). Responsible business is also one of the key motivations for sustainable business development adaptation in the companies. Transparent business models help companies to reach bigger audiences and compose reliable appearances in the market. Responsibility of a company can occur through innovative solutions for products and services, improvement of labour conditions and initiatives for social and environmental goals.

The best of both worlds is for a company to achieve bigger profit by making sustainable business development. “The goal of development is continuous and exponential economic growth, which should increase innovation and efficiency; economic growth is not associated with a negative impact on the environment” (Blinova et al., 2022). While economic growth results in wealth and profits for businesses it also results in social inequality and environmental degradation. Paradoxically, the relentless pursuit of economic growth is gradually eroding the capacity of the Earth’s atmosphere and biosphere to sustainably support economic and social development (Edwards, 2021). While social responsibilities and sustainability should be key considerations in the strategic planning of many companies, it is essential for companies to comprehend what they can actually do regarding a more sustainable environment and social responsibility. To identify the demand of business transformation to sustainable development – macro trends can be reliable indicators.

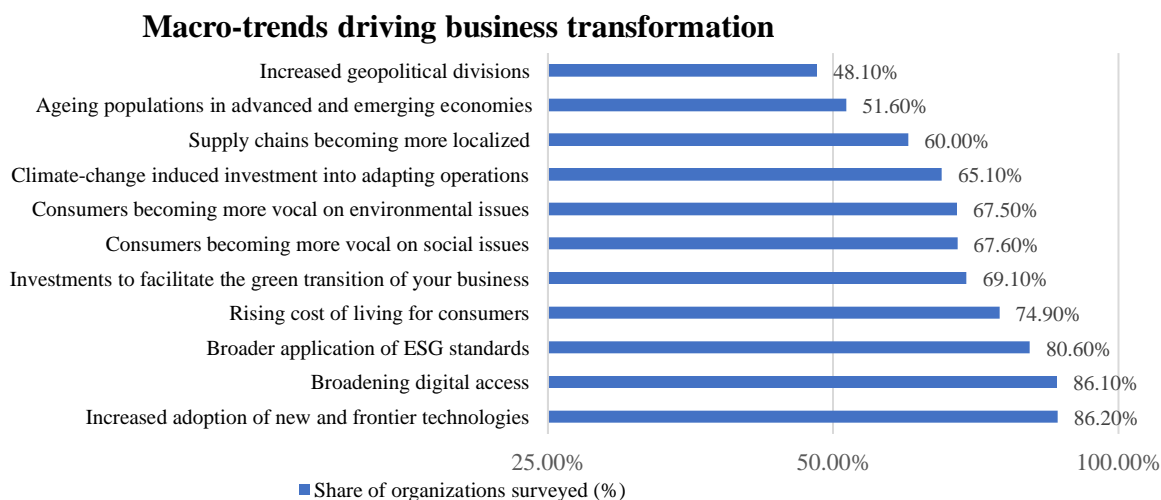


Figure 2. Macro trends driving business transformation. Trends ranked by share of organizations surveyed that identified this trend as likely or increasingly in the next 5 years

Source: compiled by the author, based on (World economic forum, 2023)

First top three trends are; increased adoption of new technologies and frontier technologies, broadening digital access and broader application of ESG standards. All provided macro trends are one of key factors to take into consideration when executing sustainable business development.

Business development is a stage when a company searches for potential ways to grow and increase profit. Quantitative growth of business pertains to an increase in profit, sales, share price, ROI, while qualitative growth signifies the advancement and innovation of a business by driving its activities and purposes, providing competitive and collaborative advantages for strategic success for a company (Edwards, 2021). A sustainable growth strategy must assess and be founded on not only economic growth but also environmental and social progress. It requires a holistic approach that considers the interconnectedness of economic, environmental, and social factors for long-term viability and success. Sustainability strategies function as both drivers and catalysts for the advancement of sustainability innovations. Additionally, there is compelling and robust evidence indicating that environmental innovations have a positive impact on both perceived and objective firm performance measures, including value creation, risk reduction, and cost reduction (Hermundsdottir & Aspelund, 2022). The company's sustainability growth focuses on two primary priorities: environmental responsibility and social inclusion. Based on these priorities, companies formulate strategies to achieve set goals that align with their business activities and areas where the business has influence.

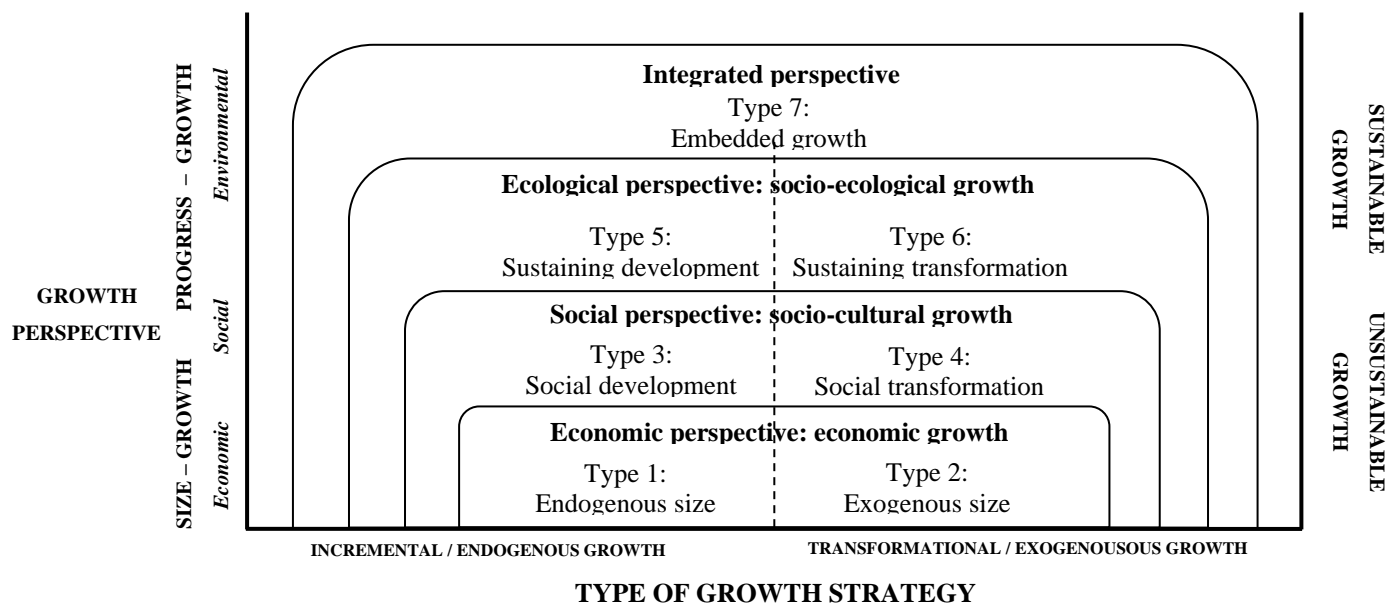


Figure 3. An integrative typology for firm-level growth strategies

Source: compiled by the author, based on (Edwards, 2021)

This typology made by Mark G. Edwards shows how economic, social and ecological pillars are integrated in business strategy and development in order to have sustainable business growth. Economic perspective shows the main business goal to achieve maximum profit. Type 1 is measured by profitability, market share, sales because it is concentrated to endogenous growth (Edwards, 2021). The green transition offers various business opportunities and innovations that can potentially offset the associated costs, although it does not guarantee immediate profitability (Hermundsdottir et al., 2022). Type 2 is measured by company size growth, external – focused activities like mergers, acquisitions and takeovers (Edwards, 2021). Type 3 implementation involves integrating socio-cultural development within the organization itself, considering the perspectives and interests of various stakeholders of the business as diversity, improving working conditions. Type 4 creates transformation in organizational culture and values which corresponds to a sustainable approach (Edwards, 2021). This perspective considers stakeholders' standpoint, explores partnership possibilities, searches for business model innovations that would help social perspective realization. It helps to create innovative ideas and shifts human capital to human development management. Ecological perspective focuses on sustainable growth of the company by putting social and environmental issues as one of business development priorities. Type 5 is directly intended for sustainable development as in innovations, technology advancement, sustainable finance and more. Environmental innovation encompasses a wide range of practices, including enhanced circular economy initiatives, actions driven by CSR, the shift towards renewable energy, and practices related to 'eco-innovation' and 'green innovation.' These practices involve enhancing efficiency and developing new products that contribute to cleaning, healing, and recovery (Hermundsdottir et al., 2022). Type 6 includes organization initiatives and efforts forwards solutions of social and environmental problems (Edwards, 2021). Both of these types are designed to implement solutions for sustainable development, to incorporate them into the company's strategy and decision-making process, to transform them into actionable initiatives. Last type indicates a regenerative economy which implies profit through regenerating the biosphere. Typology reviews pivotal aspects of sustainability: social, environmental and economical. Throughout the types of businesses development are given key features for sustainable growth and how to implement it in business. The sustainability performance rate increases from type 1 (unsustainable) to type 7 (strong sustainability performance). Interest in transforming business models into green and sustainable ones can be explained from two

perspectives. Firstly, the institutional view shows that global pressures stemming from political, regulatory, and environmental factors compel businesses to adopt such models. This is driven by concerns such as stakeholders' demand for sustainability, addressing social inequalities, and insufficient value co-creation (Najmaei & Sadeghinejad, 2023). Secondly, the technological view suggests that advancements like blockchain, digital sharing platforms, and renewable energy have facilitated the design of new Green and Sustainable Business Models (GnSBMs) or the transformation of existing business models into green and sustainable ones (Najmaei & Sadeghinejad, 2023). Both internal and external forces are propelling businesses toward a green transition in their business strategies and operations.

The emphasis on sustainable business growth revolves around the integration of environmental and social considerations into daily operations and organizational culture, intending to contribute value to the circular economy. Investments in technology and novel innovations are made to decrease costs and enhance profitability.

#### 1.2.1. Sustainable design

The current actions undertaken by businesses are insufficient in addressing the present challenges due to climate change, social inclusion and loss of biodiversity. "The world needs innovative new products, services, and business models that create value for consumers in new ways while substantially reducing environmental impacts" (Michael Lenox & Aaron Chatterji, 2018). Sustainable business development is not only about compliance and good public opinion, it is about a company's social and environmental responsibility, creating new ideas and innovations in order to find more efficient ways to achieve SDGs and contribute to society. Sustainable design was recognized as an area of major importance in the journey towards more responsible and sustainable production and consumption models (Bhamra & Hernandez, 2021). Sustainable design plays a significant role in stimulating a circular economy by creating products or services that can be reused or recycled. Within a circular economy, the reduction of waste is achieved through the deliberate design of products and industrial processes. This design ensures that resources circulate perpetually, and any unavoidable waste or residues are recycled or recovered (European Investment Bank, 2023). Technological advancements and digital progress demonstrate remarkable efficiency and continuation to evolve constantly on a daily basis. To keep pace with emerging technologies and the services they offer, it is imperative to promote innovation

in order to fully capitalize on the potential of technology. “Sustainable design theory is functional to advance the understanding of how the sustainability transition may be realized by transforming products, people’s behaviors, commercial services, cities and eventually the entire socio-economic system” (Baldassarre et al., 2020). It is necessary to have structural sustainable design before implementing any actions or plans into the business. While planning a sustainable development strategy company’s designed directions and actions should be considered by the business sector, activities, products / services, stakeholders, technologies that are used and their potential, etc. Design for sustainability approaches are categorised in four different innovation levels shown in figure 4.

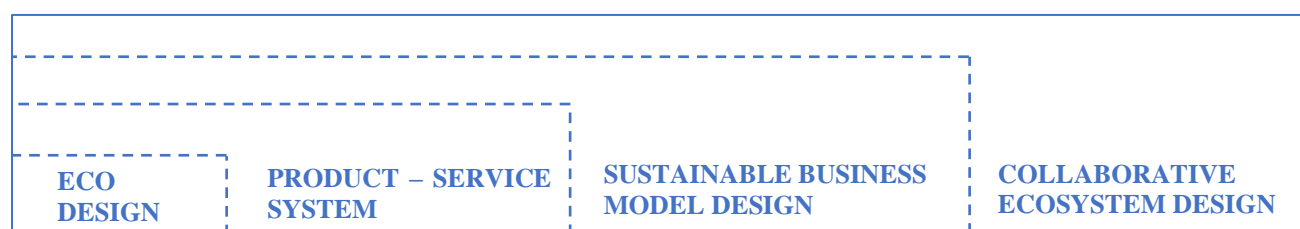


Figure 4. Four levels of design for sustainable innovation.

Source: compiled by the author, based on (Baldassarre et al., 2020)

Main aim is to find innovative solutions to improve existing products. “Eco-design methods and tools for developing sustainable – also referred to as “green” – products, in order to balance economic and environmental benefits” (Baldassarre et al., 2020). Innovation can not necessarily make something new but could change current products or services and make them more efficient, included in a circular lifeline. “Eco-design Directive 2009/125/EC adopted by the European Commission mandates life-cycle assessments to be undertaken in association with environmental management systems, eco-design has become a primary focus for companies, especially for those producing energy using products” (Ceschin & Gaziulusoy, 2016). In order to make changes in the EU – government bodies such as the European Commission have presented regulations that give direct instructions regarding eco-design, product recycling, carbon and environmental footprints with the intention of executing circular economy plans. The proposed Eco-design for Sustainable Products Regulation (ESPR) was introduced in 2022 by presenting the approach to more sustainable and circular products. Instructions carry the requirements that Eco-design would extend product life cycle, reduce carbon emissions, ensure that products would be fit for circular economy and would uptake a minimum amount of recycled materials. To facilitate

the implementation of innovative ideas and choices, companies need to establish a structured model that outlines the process of introducing innovations and describe the decision-making process. M. Lenox and A. Chatterji argue about what businesses can do more in order to “save the earth” and to have more influence in sustainable business development. They have proposed a model of innovation as a system which could help businesses to develop innovations and have well-planned progress. Innovators, when presenting their ground-breaking ideas, should receive support from investors who believe in and agree with these new concepts. Subsequently, managers are tasked with developing, commercializing, and disseminating innovations based on customer demand and satisfaction. All stakeholders in business activities must align their roles to ensure the production of a high-quality end product for eco-designed products or services. This system helps to understand the process and requirements for innovative thinking and bringing ideas to life (Michael Lenox & Aaron Chatterji, 2018). As it is stated in the book a very small part of all ideas comes to a reality, but it is still important to understand the needs of the market and try to find ways to actualize those innovative ideas.

In the realm of product-service system design, business concepts are not solely focused on products themselves but also encompass the services that revolve around them (Baldassarre et al., 2020). Product-service design includes not only an internal development it also requires analysing the whole supply chain. “This innovation level is focused beyond individual products towards integrated combinations of products and services (e.g. development of new business models)” (Ceschin & Gaziulusoy, 2016). According Ceschin and Gaziulusoy one of the environmental benefits of a product-service system-oriented business model is its potential to decouple economic value from material and energy consumption (Ceschin & Gaziulusoy, 2016). To make an efficient product–service system it is important not only to design a sustainable product but to overlook the business model and operational plans and supply chain for the future.

Business concepts in sustainable business model design are thus related not only to products and services but also to the overall business strategy around them (Baldassarre et al., 2020). Following sustainable business model ideas, improving strategy and implementing social responsibility to the stakeholders and environment, transparent reporting and coherent governance can lead not only innovative solutions for products and services but also to sustainable business development. Enterprises that declare a sustainable business model are more likely to implement sustainability-related actions than those enterprises that have not implemented such models (Ziolo

et al., 2020). By re-designing business models, production processes and products, by making products last longer or optimising their use, and by participating in a well-functioning market for secondary raw materials, businesses can significantly reduce their costs for materials, energy and waste management and improve their resilience (European Commission, 2022). Solutions also should include environmental considerations into business operations, such as adopting sustainable production and consumption practices, reducing waste and using renewable resources. Model should also concentrate not only on the solutions but on the results and the most relevant results for companies are – financial results and profit.

Collaborative eco-system design path is intended for collective transition to sustainability from all parties in the economy. In the context of collaborative ecosystem design, business concepts are no longer confined to individual firms but extend to encompass the broader industries and markets in which they operate (Baldassarre et al., 2020). While reviewing Baldassarre et al. research theoretical part distinguishes the need of systemic change on an economic, institutional, socio-cultural, organizational and technological levels. In order for businesses to evaluate possible areas for improvement there should be an overview of economic, social and environmental tendencies. Additionally, companies have to take into consideration every step in their supply chain to ascertain whether their partners conduct their business sustainably. This involves evaluating operations and strategies employed by partners and assessing their compliance with sustainable reporting standards.

Sustainable design is an approach to create products or services with a focus on sustainability. It encompasses several elements that assess business operations, seeking innovative solutions to transform the final product or service. The term "eco-design" specifically refers to sustainable products aligned with circular economy principles. Subsequently, a new sustainable business model is crafted, encompassing daily operations, governance, strategy, supply chain, and other critical business components. To affect this transition, collaboration and an assessment of macroeconomic trends are essential to transform the market into a more sustainable one.

### 1.2.2. Environmental social and governance (ESG) factors

Sustainability has dispersed scopes that in general cover the environment that surrounds us from earths, people, nature, animals' point of view. To have centralized metrics by which business could indicate their influence on sustainability and (or) implement changes the UN in 2004



introduced Environmental social and governance. ESG represents a distinct set of focus areas and metrics that are shaped by objective realities, market demand, and/or societal perspectives. (Ernst & Young Baltic UAB, 2022). According to stakeholder theory, it is important for companies to cultivate strong relationships with their stakeholders and recognize their accountability not only towards shareholders but also towards society. ESG initiatives serve as a means to address the expectations of both shareholders and stakeholders, equipping them with the necessary knowledge to assess and evaluate business practices (Daugaard & Ding, 2022). ESG is widely known for assessing sustainability matters in a company starting with environment, social responsibility and corporate governance can also be referred as a framework for businesses linked to innovation, efficiency, strategy and business opportunities. Each factor has an important impact for a company and its development. The environmental (E) factors tackle climate change and scarcity of natural resources, which put a strain on societies as well as on businesses specifically by impacting the supply chain, asset valuations, and access to capital. The social (S) factors address inequality and exclusion problems that negatively affect the well-being of talents and community. The governance (G) factors promote Board effectiveness, enterprise risk management, and transparency towards the stakeholders, etc. Corporate governance establishes a framework that describes the rights, roles, and responsibilities of different groups within an organization, including management, the board of directors, controlling shareholders, and minority or non-controlling shareholders (CFA Institute, 2018). In general, it is considered that all other pillars would not be efficiently executed without proper governance.

Non-compliance with ESG considerations weakens the organization's position in the market (Ernst & Young Baltic UAB, 2022). These pillars have a wide range of issues that are relevant in the decision-making process shown in annex 2. Special attention should be given to identifying areas where the business can instigate change and have a positive impact and chosen factors should be incorporated into a company's strategy, performance reports, organizational culture, and management. ESG is built upon three central pillars that signify a company's dedication, performance, and effectiveness in the realm of sustainability (Daugaard & Ding, 2022). Corporate decisions encompass a range of aspects, including pricing, working conditions, location, tax strategies, and more. These decisions can significantly influence consumers, citizens, employees, shareholders, and other relevant stakeholders (Claassen, 2023). When implementing sustainable business development governing bodies of a company have to establish metrics and

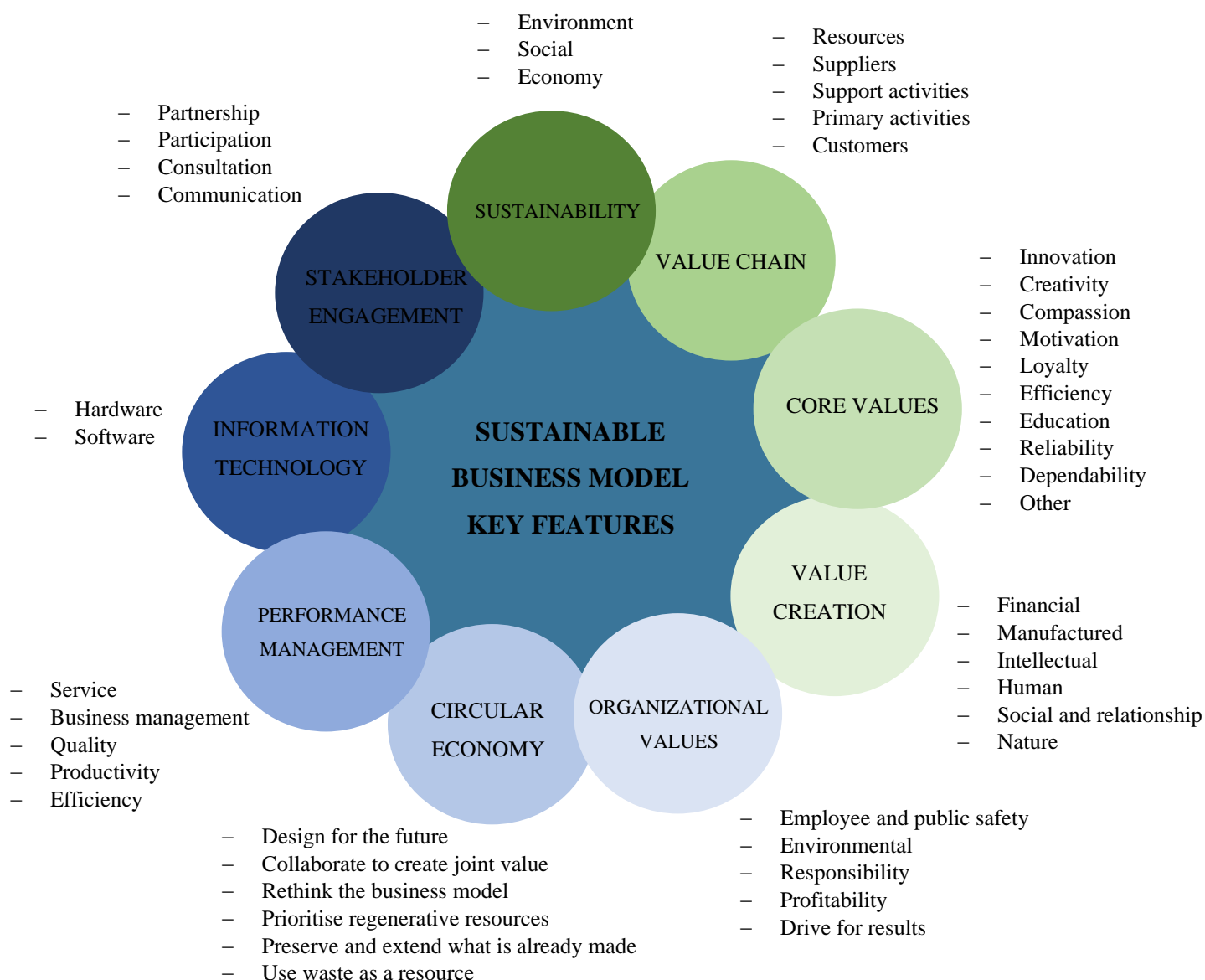
frameworks to measure their environmental and social performance. Sustainability measurement and transparent reporting is one of governance responsibilities. Also, regular monitor, evaluation and reporting of the company's sustainability efforts, shows transparency and accountability. As custodians of the company's strategic direction, boards have a crucial role to play in driving long-term value creation by embedding ESG considerations into the company's strategic and operational activities. By delivering value to a broad range of stakeholders beyond just shareholders, boards contribute to the overall health and prosperity of the company (Ernst & Young Baltic UAB, 2022). In the current era of intense global market competition, it is imperative to actively compete for both top talent (human capital) and customers, as heightened competitiveness becomes increasingly crucial. "Businesses predict the strongest net job-creation effect to be driven by investments that facilitate the green transition of businesses, the broader application of ESG standards" (World economic forum, 2023). ESG factors are also important from other stakeholders – society perspectives. In the present, the business image and reputation have the potential to undergo significant transformations, making societal expectations one of the main aspects when examining ESG issues and making materiality assessments.

ESG factors can also provide financial values such as improving a company's value through revenue generation, cost optimization, and capital structure. Maintaining a good corporate reputation, attracting and retaining talent continue to be cited most often as ways that ESG programs improve financial performance (L. Delevingne et al., 2020). While transitioning to a green economy will disrupt labour markets over the next decade it will also create significant new job opportunities (World economic forum, 2023). For this reason, it is important for businesses to have leaders who have developed necessary skills and knowledge for sustainability implementation on strategies, requirements by agreements on a global / continental scale. Also implementing ESG framework can bring more investors to the company. "“ESG investing” stands for any investment strategy that emphasizes a firm's governance structure or the environmental or social impacts of the firm's products or practices" (Max Schanzenbach et al., 2020). Individual investors seek to invest in a company that complies with the ESG framework and supports underlying issues of ESG. This social push for ESG implementation in the companies has put a pressure on institutional, retail investors or other investment fiduciaries to take into consideration ESG strategies.

For the successful advancement of environmental and social issues, a strong corporate governance framework is essential, enabling clear direction and decisive decision-making. The presence of a strong governance framework is imperative for the success of ESG integration in the company.

### 1.2.3. Sustainable business model

The Sustainable Business Model (SBM) provides a framework for businesses – how to implement sustainable features according to a company’s possibilities. The main concept of SBM is to transform the traditional business model by integrating sustainability into the value chains of an organization.



*Figure 5. The key features and elements of the sustainable business model concept*

*Source: compiled by the author, based on (Goni et al., 2021)*

Due to the broad scope of the sustainable development concepts companies are compelled to transform their business models into more sustainable ones in order to align with the economic, social, and environmental goals of sustainable development (Ziolo et al., 2020). This model entails incorporating environmental and social considerations throughout the entire lifecycle of products or services, from sourcing raw materials to distribution, consumption, and disposal. The aim is to create a business model that not only generates economic value but also contributes to the well-being of society and the environment (Goni et al., 2021). This model is not a universal system for every company, it is more like a framework to choose which features companies need to strengthen. SBM innovations recognizes the importance of social and environmental value and also economic value. It expands beyond a customer and shareholder focus to embrace a multi-stakeholder perspective that considers the interests of various societal stakeholders (Bocken & Geradts, 2020). By doing so, SBM innovation aims to foster business models that create positive outcomes not only for shareholders and customers but also for the broader society and the environment.

SBM is not a one-size-fits-all system applicable to every company. Instead, it serves as a framework that allows companies to assess and identify the specific features, they need to strengthen in order to enhance their sustainability performance. It provides a flexible approach that can be tailored to the unique characteristics and circumstances of each organization, enabling them to prioritize and implement sustainable practices in alignment with their own strategic objectives. When implementing a sustainable strategy, company's promote sustainability management standards and decision-making, support regulatory data requirements, and meet the information demands of stakeholders needs a mechanism that would evaluate performance of these business solutions (Mio et al., 2022). For an efficient SBM, it is essential to incorporate a measurement mechanism that can measure whether the SBM is progressing as planned and proving successful, or if it requires further enhancements.

The growth of businesses relies on economic activities that, in turn, contribute to air and water pollution, climate change, and the loss of biodiversity. There is a growing imperative to modify business models and operations to contribute value to the circular economy, increase

societal value, and address shareholders' needs within the company's capabilities. The transition to a SBM involves a comprehensive review of the entire business cycle, from business processes to the final product or service, human capital, and establishing social and environmental responsibility. Sustainable design serves as a facilitator for companies to embrace the transformation toward greater sustainability. SBM represents a framework for companies to transform their business operations. It aims to create value in the market, establish more efficient supply chains, satisfy stakeholders, enhance quality performance management, leverage technology and innovative solutions, and contribute to the principles of a circular economy. In the research done by McKinsey global survey around 83 percent of C-suite leaders and investment professionals say they expect that ESG programs will contribute more shareholder value in five years than today (L. Delevingne et al., 2020). At the present time sustainable business development does not necessarily bring profit right away, but it assures future dividends for the company.

### **1.3. Stock exchange markets**

Stock exchange market is a place for exchange of shares of publicly listed companies. The primary function of stock exchanges is to facilitate the matching of buyers and sellers of securities while providing a mechanism for discovering price information. In fulfilling this role, exchanges enhance economic performance by granting companies the opportunity to raise capital at reduced costs, thereby reducing dependence on internal and bank financing (Ben Slimane, 2012). As buyers acquire company shares, various indicators play a crucial role in influencing their decision on whether to proceed with the purchase and which shares to consider. Currently, the trend of companies investing in sustainability is emerging as a significant indicator that influences decisions to buy or sell shares.

#### **1.3.1. Publicly listed companies**

Publicly listed companies are entities that have made the decision to make their shares available for trading on a public stock exchange. By doing so, they allow investors to buy and sell shares of their company, providing an opportunity for individuals and institutional or retail investors to become partial owners and participate in the company's success. Investors are interested in a company to succeed and to bring financial profit. Listed companies have their shares traded on stock exchange markets which are regulated marketplaces where buyers and sellers come

together to trade stocks. One of the biggest stock exchange markets are; NYSE, LSEG, NASDAQ, Tokyo stock exchange.

Starting from the initial phase of a start-up, which typically involves angel investors, followed by venture capital and private equity, a company progresses towards a stage known as "later-stage." At this point, companies often initiate initial public offerings (IPOs), marking their transition from a privately held entity to a publicly traded company. Many "later-stage" companies choose to "go public," which may, among other things, provide a greater pool of capital, enhanced liquidity, and reputational benefit (SEC, 2023). Once the firm generates a profit, it distributes returns to the limited partners who invested in its fund. Additionally, the firm may realize a profit by selling a portion of its shares to another investor through the secondary market. The decision to go public entails both benefits and costs provided in figure 6.

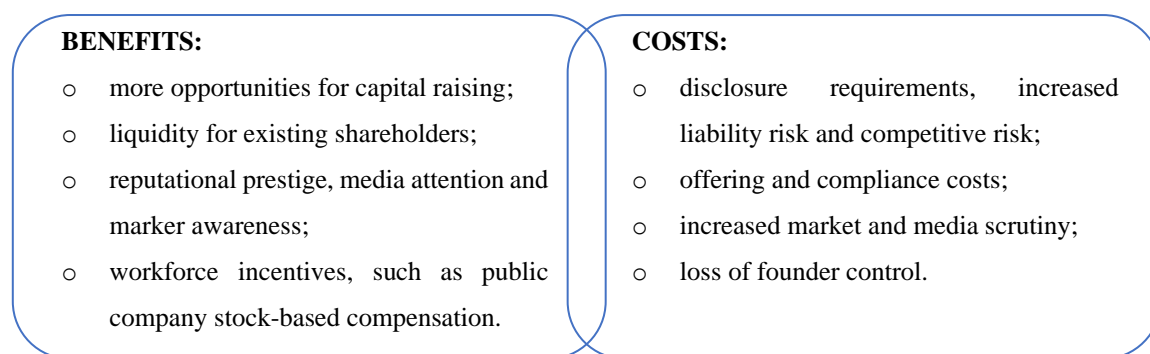


Figure 6. Benefits and costs of becoming publicly listed company

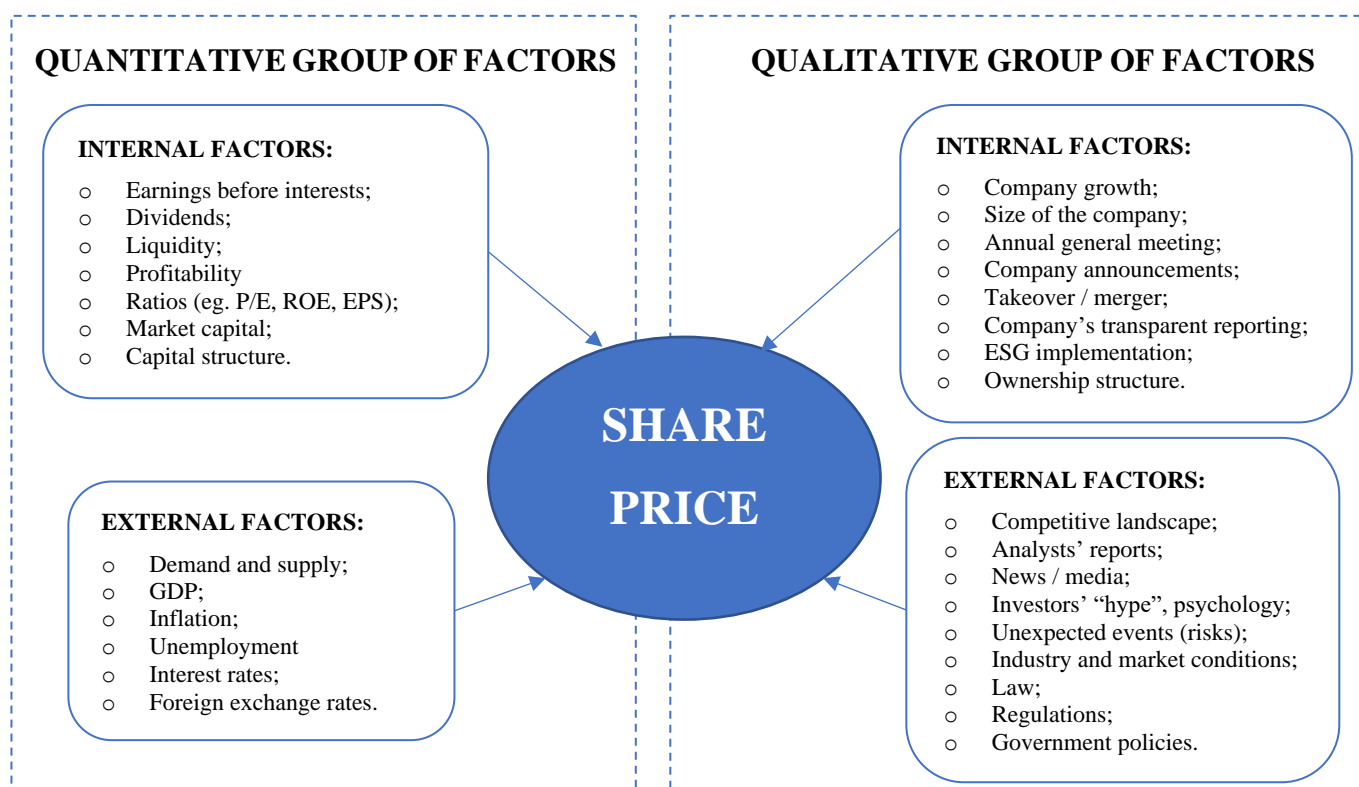
Source: compiled by the author, based on (SEC, 2023)

While there may be additional motivations for going public, such as internal stakeholder aspirations or company strategies, the listed benefits and costs generally apply to all entities considering such a move. When launching an IPO, there is a meticulous process in the chosen stock exchange market to ensure compliance with all requirements, which typically include the following: financial requirements (earnings, capitalization, cash flow, revenue, assets with equity), liquidity requirements, corporate governance requirements, etc (Nasdaq, 2023). Naturally, various stock exchange markets may have different thresholds for requirements, but the fundamental topics remain consistent across them with emerging requirements to comply with ESG. Publicly listed companies are typically subject to higher standards of corporate governance. In the daily operation of companies, production, operation and management are particularly important, and the strict degree of company management will have a direct impact on the economic benefits and efficiency

of enterprises (Sun & Hong, 2021). They are expected to have proper 1-tier or 2-tier board structures, independent directors, audit committees, and internal control mechanisms to ensure transparency, accountability, and protection of shareholders' interests. Publicly listed companies are subject to more stringent reporting requirements and regulations compared to private companies. They are required to disclose financial statements, earnings reports, and other material information to the public and regulators. This transparency helps investors make informed decisions about investing in the company.

### 1.3.2. Factors that have an effect on share price

The share price is the value of shares in the capital market expressed in the currency when buying and selling occurs on the stock exchange (Siregar et al., 2023). It is important to recognize that stock markets exhibit diversity, and the variations in stock prices throughout the year are influenced not solely by investor sentiment but also by the seasonal patterns in a company's activities (Norvaisiene & Stankeviciene, 2022). The share price is formed during the interaction between sellers and buyers of shares based on each party's desire to profit (Siregar et al., 2023). Stock prices are affected by a number of factors and events, some of which influence stock prices directly and others that do so indirectly (Ilyas Sindhu Mohammad Ali et al., 2014). Due to these factors share price can change significantly in any period of time.



*Figure 7. Factors that have impact on share price*

*Source: compiled by the author, based on (Almashaqbeh et al., 2021; Ilyas Sindhu Mohammad Ali et al., 2014; Siregar et al., 2023; Sun & Hong, 2021)*

Share prices of listed companies are subject to volatility due to various factors. Quantitative factor group consists of financial (internal) and economic (external) factors. Financial factors are mainly dependent on a company. Undoubtedly, a company's financial performance is influenced by various factors that impact its share price. However, when evaluating financial performance for an impact on share price, crucial data is derived from the company's mandatory financial statement reporting (reporting is mandatory for listed companies on stock exchange). Earnings, profitability (net profit) liquidity, cash flow, assets and liabilities and other important elements can be found in financial statements. For investors to fundamentally understand if a company is profitable and to see whether it is financially stable there are a group of formulas that helps evaluate relevant ratios. Key ratios that investors typically scrutinize when considering the purchase of shares and in general are used to evaluate shares (company price) are provided in annex 3. These ratios are composed of dividend pay-out, dividend per share, earnings per share, price-to-earnings, return on equity, return on asset and other ratios. By evaluating these ratios investors can measure if chosen shares are profitable and attractive to invest. Investors usually check capital structure as well by analysing the composition of ordinary shares, preferred shares, and various classes, like retained earnings and long- term debt, maintained by a business entity in financing assets (Siregar et al., 2023). Earnings are dependent on the company's management and product or service quality and they can be influenced by other economic or market aspects. Analysts often prefer to focus on earnings before interest, taxes, depreciation and amortisation (EBITDA), a measure that is generally felt to give a better picture of core business operations (Marc Levinson, 2005). Investor interest in dividend pay-out reflects a heightened preference for liquidity and short-term returns (Driver et al., 2020). Financial performance of a company is one of the most important factors for investment decisions.

Economic factors constitute one of the primary influencers on share prices, as they typically have an impact on other quantitative indicators as well. Economic cycle and macro-economy will have a psychological impact on investors' investment behaviour, thus investors have a greater impact on stock prices (Sun & Hong, 2021). Demand and supply directly dictates the conditions for share price. Other economic factors such as GDP, inflation, unemployment rate,



interest rate, foreign exchange rate are standard indicators that influence share price as well as the whole market.

Qualitative group of factors contains internal, external factors. Internal factors are considered aspects that depend on the company's management and shareholders decisions for company's future and strategy, mergers and acquisitions (M&A), ESG implementation, transparent reporting and ownership structure. In Almashaqbeh et al., 2021 research it is indicated that when businesses are successfully run by highly experienced owners, the profitability and profit margins improve. External factors contain analyst's reports, competitive environment in the market / industry, news and media, investors psychology and risks – these factors cannot be directly controlled or influenced by the company itself as well as political factors which have influence only by governments or other institutions. Policies, regulations or laws can have influence on trade of shares or investors' perceptions.

From a quantitative standpoint, investors' actions, such as buying or selling shares, directly impact the supply and demand dynamics in the market, thereby influencing share prices. On the qualitative side, investors' decisions are influenced by psychological factors such as market sentiment, risk appetite, and expectations. These subjective elements can significantly impact investor behaviour and, consequently, share prices. Therefore, investors play a dual role by representing the demand for shares while also exerting a psychological influence on investment decisions. Investors themselves do not have a direct impact on social and environmental parameters. However, their investment choices and engagement with companies can indirectly influence social and environmental outcomes (Kölbl et al., 2020). Sustainable business development can have a significant impact on a company's share price. There are main factors that from a sustainability point of view have influence on share price like investors, cost reduction, risk mitigation, brand value and customer loyalty. Investors evaluates both quantitative and qualitative influences on share prices. When investors allocate their capital to specific companies, they can incentivize those companies to adopt sustainable practices and consider social and environmental factors in their operations. Investors have the potential to drive positive change through their investment decisions and engagement with companies. ESG assessment increases investors' risk perception as well as companies' environmental practices, which increases companies' systemic risk (Landi et al., 2022). Sustainable practices can also help companies mitigate various risks, such as regulatory compliance, reputational damage, supply chain disruptions, and resource scarcity.

By proactively addressing these risks, companies increase their resilience and reduce potential negative impacts on financial performance. This can positively affect investor confidence and, in turn, the share price. ESG metrics and indexes also have an impact on share prices, although there are several different models of evaluating a company's ESG performance it has an effect on investors decisions and shows overall business dedication to have sustainable business development. Positive brand perception and customer loyalty can positively impact a company's financial performance and share price. Improved operational efficiency and reduced expenses can positively influence a company's profitability, which can be reflected in its share price. Sustainable practices can enhance a company's brand value and reputation. Consumers increasingly prefer to support businesses that align with their values, including sustainability.

When reviewing all the factors that have direct or indirect influence on a company's share prices, it is evident that different factors can have varying impacts across different stock exchange markets. In Almashaqbeh et al., 2021 research it is noticed that peculiarity of the markets makes it difficult to draw generalizations to all markets worldwide beyond the direction of the relations between the share price movement and the studied factors because of the varied conditions surrounding each stock market it can be attributed to the different market regulations, number of investors, and country legal and institutional peculiarities, which make each market unique in a sense (Almashaqbeh et al., 2021). All exchange markets have relatively similar groups of factors that have influence on share prices and their performance over time, but each group of factors could have different effects due to diverse economies, political and other geopolitical aspects.

The stock market serves as a platform for businesses to raise capital and reduce costs. Companies aiming to sell their shares in the stock market typically initiate IPOs. When participating in the stock exchange market, companies have responsibilities to be transparent by providing necessary reports and complying to the requirements set by the exchange. While the stock exchange market reflects the dynamics of supply and demand, it is crucial to understand the factors influencing share prices. One increasingly emerging factor is how and if companies incorporate sustainable mindset into their governance and business activities.

World has to adapt with rapid changes in the environment and biodiversity loss, ever increasing inequality, social problems increasing after pandemic and unrest with global geopolitical issues. Sustainable business development foundation lies in the UN agreements and initiatives that transform global regulation of sustainable transition. Other global organizations

such as OECD, World bank group, ISO and more implement sustainability in their own fields with the purpose to consolidate sustainable development. Establishing a robust sustainability framework with defined goals and targets, providing explicit guidelines on practices' environmental, societal, and economic impacts, and instituting a unified reporting system can serve as a foundational step. This approach can assist others in implementing positive practices. Higher education institutions have a critical role in preparing future leaders who can effectively address the complex sustainability challenges with the knowledge, skills, and values they need. The efforts of the UN to introduce and implement essential changes in today's world through the SDGs and their corresponding plans, indicators, and monitoring highlight a significant need for transformation. While sustainability frameworks lay the foundation for targets and roadmaps, they are essentially tools that must be actively employed to bring about positive change. Global commitments are further translated into specific actions at continental and regional levels, as demonstrated by the European Union's extensive package of initiatives geared towards sustainable development. These initiatives are designed for all member states, and each country is obliged to adhere to the regulations and initiatives set forth. Given the global impact and the shared responsibilities of countries to achieve common goals, businesses play a pivotal role as the primary drivers of the economy, serving as both income sources and expenditure platforms. To ensure sustainable growth, businesses must invest strategically, seek ways to satisfy stakeholders, establish conducive work environments, and fulfil social responsibilities. The foundation for implementing actions toward a more sustainable business is essential. When formulating sustainable strategies, it is crucial to begin with the primary objective of businesses, which is profitability by assessing the products or services that generate profits and making materiality assessments to evaluate the most important parts of business. Broader application of ESG standards within their organizations have a significant impact on sustainable business development. Sustainable business development, among other indicators, holds significance in the decision-making process when considering the purchase of a company's shares. Therefore, it becomes a critical element in the company's operational strategies and future priorities. By demonstrating a commitment to environmental and social responsibility, companies can attract and retain customers, leading to increased sales and market share.

## 2. SUSTAINABLE BUSINESS DEVELOPMENT EFFECT ON SHARE PRICE METHODOLOGY

Methodological part aims to present chosen methodologies that would explain and evaluate sustainable business development and its effect on listed companies share prices and their fluctuations. The aim of this research is to explore the implementation of sustainable business development within companies and assess its potential impact on the Nasdaq Baltic stock exchange market. The assessment of impact will involve examining whether a correlation exists between sustainable business practices and fluctuations in share prices. Another part of this research focuses on analysing how companies implement sustainable business development and the specific measures they undertake to integrate sustainable practices into their strategies, operations, and governance. General analysis of sustainable business development will help to assess if its implementation or its lack of adds any value to the company. Furthermore, the research aims to determine sustainable development trends in the Baltic region and identify the most suitable practices for the Baltic countries.

**Research problem** – research seeks to investigate the impact of integrating sustainable business development practices on the stock market dynamics, particularly focusing on companies listed on the Nasdaq Baltic stock exchange. Main problem revolves around determining whether the implementation of sustainable business development by these companies influences their individual share prices.

**Research goal** – evaluate if sustainable business development has an impact on company's share prices.

### **Research assignments:**

1. Overview and analyse Nasdaq Baltic stock exchange market and its tendencies towards sustainable business development, make SWOT analysis;
2. Present Sustainable Business Development Score (SBDS) model and assessed scores;
3. Determine whether sustainable business development has an effect on companies share price.

## 2.1. Research design

Research design involves content analysis of publicly available data about Nasdaq Baltic stock exchange market and companies that are listed in that stock exchange. As research subjects are listed companies on Nasdaq Baltic stock exchange subject companies must be transparent and disclose financial information such as financial statements, companies usually disclose annual reports that consist of strategy and its evaluation, sustainability reports, ESG reports, operations overview and business development plans. In order to do in-depth research all listed companies were overviewed to have an appellative picture of sustainable reporting trends in Nasdaq Baltic stock exchange statistics as shown in table 1.

*Table 1. Nasdaq Baltic stock exchange listed companies' sustainability reporting analysis*

<i>Stock exchange</i>	<b>Listed companies</b>	<b>No sustainability reporting (%)</b>	<b>Sustainability reporting (%)</b>
<i>Tallinn</i>	32	50 %	50 %
<i>Vilnius</i>	28	67,9 %	32,1 %
<i>Riga</i>	12	41,7 %	58,3 %
<b>Baltic stock market</b>	<b>72</b>	<b>58 %</b>	<b>42 %</b>

*Source: compiled by the author, based on publicly available information on companies listed in Nasdaq Baltic stock exchange*

Analysed data shows that more than a half of listed companies in the Nasdaq Baltic stock exchange do not report on sustainability as well as do not provide any concrete information about sustainable development implementation in strategy and organizational development of a company. The absence of transparency in the field of sustainability does not necessarily indicate a lack of implementation of sustainable development within a company. Instead, it reflects a lack of communication with stakeholders.

To conduct thorough analysis, selection of research objects was conducted by industry sector and location that selected companies would operate. Companies have to be from different countries in order to evaluate the Baltic region. With the foreseen requirements and analysis of the whole Nasdaq Baltic stock exchange market the selection for research objects consist of 9 companies that operate in three different industries and are the largest companies in stock exchange from different countries Estonia, Latvia and Lithuania. Selected companies for research objects are shown in table 2.

Table 2. Companies selected for research objects

TICKER	COMPANY	MARKET	LIST / SEGMENT	MARKET CAP *(2023 H1)	INDUSTRY
<i>EGRIT</i>	Enefit Green	TLN	Baltic Main List	€ 957.21 Mil	Utilities
<i>GZEIR</i>	Latvijas Gaze	RIG	Baltic Secondary List	€ 416 Mil	Utilities
<i>IGNIL</i>	Ignitis group	VLN	Baltic Main List	€ 1.46 Bil	Utilities
<i>AUGIL</i>	AUGA group	VLN	Baltic Main List	€ 88.9 Mil	Consumer Staples
<i>PRFIT</i>	PRFoods	TLN	Baltic Main List	€ 8.6 Mil	Consumer Staples
<i>BALIR</i>	Amber Latvijas Balzams	RIG	Baltic Secondary List	€ 73.5 Mil	Consumer Staples
<i>CPAIT</i>	Coop Pank	TLN	Baltic Main List	€ 264 Mil	Financials
<i>DGRIR</i>	DelfinGroup	RIG	Baltic Main List	€ 61,8 Mil	Financials
<i>SABIL</i>	Šiaulių bankas	VLN	Baltic Main List	€ 376 Mil	Financials

*Source: compiled by the author, based on publicly available information in Nasdaq Baltic stock exchange*

Selected companies are in three groups, groups representing all Baltic countries with the same business sector. Utility, Consumer Staples and Financials sectors are one of the most valuable sectors in the Baltic region (Baltictop30, 2022). All sectors are under close scrutiny and provide products and services that have become essential for modern living. Mandatory regulations and policies are in effect, demanding businesses' compliance. Therefore, it is crucial for companies in these sectors to incorporate sustainable business development and create products and services that are integral to the daily lives of the global population.

## 2.2. Sustainable Business Development Scoring (SBDS) model

In the quantitative research part assessing the impact of sustainable business on share prices in the Nasdaq Baltic stock exchange market, a novel evaluation model tailored to the Baltic region is formulated. This model is grounded in the ESG reporting structure, as a majority of companies listed on the Nasdaq Baltic stock exchange adhere to Nasdaq's ESG reporting requirements. Consequently, the ESG reporting structure is more widely utilized and understood compared to an SDG-based reporting framework in the Baltic region. In order to formulate this novel model that could be applied to the Baltic region it is imperative to analyse the Baltic regions companies that are listed, also examine their reports for compliance with Nasdaq requirements and scrutinizing

companies' annual reports. Additionally, there is a need to make a comprehensive analysis of various ESG rating methodologies in the global market, including but not limited to Sustainalytics, MSCI, Moody's, Nasdaq, and others which practices were undertaken to identify an accurate scoring model. While the lack of a universally adopted reporting, system poses a significant challenge for sustainability, which results in shortcomings of a global benchmark for sustainable development and practices, it is worth noting that there is also no singular rating model for measuring ESG factors.

To evaluate on what level does the company perform in sustainable business development this SBDS model consists of two parts: core and extended evaluation. The core evaluation will help to assess specific areas like sector and their impact on the most important subject in environment, society and economy, sustainability reporting, materiality assessment which determines whether a company is cognizant of its position in terms of sustainability prospects and if company invests into sustainability. The extended evaluation will assess ESG factors, examining their incorporation or absence within the company. The SBDS model not only reveals the factors influencing the score but also delineates the weighting of core and extended evaluations along with their respective factors in determining the final score (figure 8).

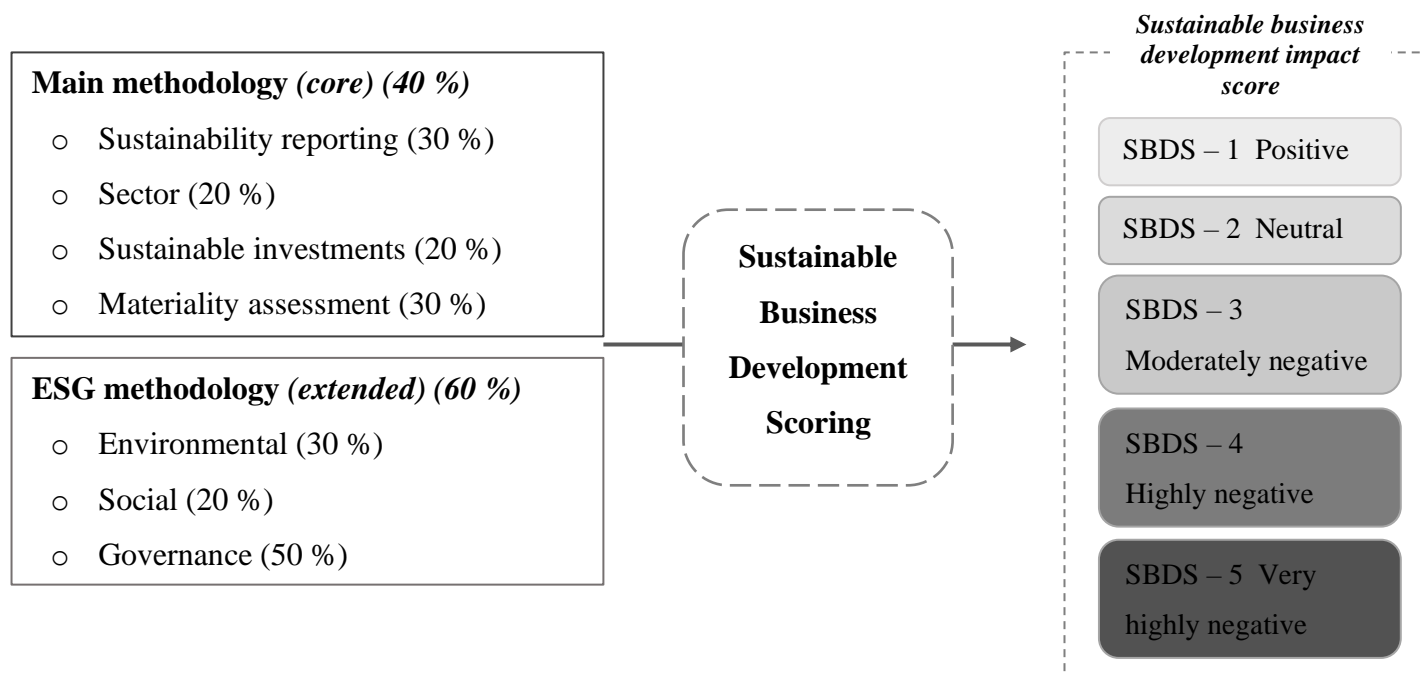


Figure 8. Sustainable business development scoring model

Source: compiled by the author

This SBDS model provides information if companies are contributing to a more sustainable business development and identifying areas within its business activities and sectors where meaningful changes can be made. The core evaluation shows the company's transparency and its reporting on sustainability, the sector in which the company operates, and whether the company conducts a materiality assessment, signifying its awareness of its position in sustainable business development. The core evaluation assesses all three factors on a scale from 1 to 10. Sustainability reporting is evaluated by examining whether a company reports on sustainability and the reporting systems it employs. Sector factors are assessed based on the sustainability regulations applicable to that specific industry, and materiality assessment is evaluated by determining if the company conducts materiality assessments and is aware of its position in relation to them. Sustainable investments are assessed based on the percentage of total investments made in a given year that align with sustainability criteria.

The extended evaluation aims to analyse the environmental, social, and governance pillars of companies. It examines how the company engages with these aspects, assessing the existence of procedures that not only initiate changes but also internally monitor ESG processes. Furthermore, it explores whether the company establishes goals and implements measures to track and achieve them.

	Category scores	Measurement for categories
<b>E</b>	<ul style="list-style-type: none"> <li>a) Decarbonisation</li> <li>b) Water management</li> <li>c) Waste and pollution</li> </ul>	<p>→ All categories evaluated at 1 – 10 (1 – does not have measurements 10 – achieves set measurements)</p>
<b>S</b>	<ul style="list-style-type: none"> <li>a) Gender pay</li> <li>b) Total injuries in a company</li> <li>c) Social initiatives</li> </ul>	<p>→ 1 – 10 (1 – ratio is 0; 10 – ratio is 1:1) → 1 – 10 (1 – &gt;10% ; 10 – 0 %) → 1 – 10 (1 – no initiatives; 10 – high rate)</p>
<b>G</b>	<ul style="list-style-type: none"> <li>a) Board diversity</li> <li>b) Board independence</li> <li>c) Ethics / anti-corruption policy (Y/N)</li> <li>d) Transparency (financial, annual, sustainability reports)</li> </ul>	<p>→ 1 – 10 (1 – ratio is 0; 10 – ratio is 1:1) → 1 – 10 (1 – 0 %; 10 – 100 %) → 1 – 10 (1 – no policies; 10 – all policies implemented) → 1 – 10 (1 – no reports; 10 – all reports)</p>

Figure 9. Extended evaluation method

Source: compiled by the author



To assess sustainable business development, it is essential to incorporate both core and extended evaluations, along with their respective factors, into a comprehensive formula. There could be additional considerations when evaluating every category that's why measurements are provided in intervals. This formula should consider all relevant factors and facilitate a holistic evaluation of the overall of the sustainable business development score.

$$(1) \mathbf{SBDS} = C_{max} \times ((0,3 \times SR) + (0,2 \times S_i) + (0,2 \times SI) + (0,3 \times MA)) + \\ ESG_{max} \times (E_{max} \times \left(\frac{E_a+E_b+E_c}{3}\right) + S_{max} \times \left(\frac{S_a+S_b+S_c}{3}\right) + G_{max} \times \left(\frac{G_a+G_b+G_c+G_d}{4}\right))$$

**SBDS** – sustainable business development score

**C<sub>max</sub>** – core evaluation weight (0,4)

**SR** – sustainability reporting evaluation (weight – 0,3)

**S<sub>i</sub>** – sector (industry) evaluation (weight – 0,2)

**SI** – sustainable investments (weight – 0,2)

**MA** – materiality assessment evaluation (weight – 0,3)

**ESG<sub>max</sub>** – extended evaluation weight (0,6)

**E<sub>max</sub>** – environmental category evaluation (weight – 0,3)

**E<sub>a,b,c</sub>** – environmental factors and their evaluation

**S<sub>max</sub>** – social category evaluation (weight – 0,2)

**S<sub>a,b,c</sub>** – social factors and their evaluation

**G<sub>max</sub>** – governance category evaluation (weight – 0,5)

**G<sub>a,b,c,d</sub>** – governance factors and their evaluation

The formula calculates a weighted sum of the evaluations based on the specified weights for core and extended evaluation and its each category. The formula allocates the calculated weights, resulting in a final evaluation that is assessed according to the scoring system as illustrated in Figure 10.



Figure 10. SBDS scoring system (by formula evaluation)

Source: compiled by the author

Concerning the data required for ESG assessment, it is possible that the necessary information may be unavailable or missing. Typically, all categories are evaluated based on the exposures of companies for which information is available, determining whether homogeneity exists throughout the sector or if there is considerable variability. In cases where information is not available, assumptions will be made about the company's position on the exposure spectrum relative to similar companies, relying on known characteristics.

To determine the influence of sustainable business development on a company's share price, it is crucial to recognize various quantitative and qualitative factors that can affect share prices. Consequently, when conducting an analysis, it is essential to incorporate key indicators that contribute to fluctuations in share prices. In this analysis, eight factors were chosen: EPS, P / E, ROE, GDP, inflation, market capitalization, interest rates and the sustainable business development score, are considered for evaluation.

$$(2) ROE = \left( \frac{\text{Net Income}}{\text{Shareholders' equity}} \right) \times 100$$

ROE is a profitability ratio which measures the income available to company owners (both common and preferred stockholders) for the capital they invest in the company. This ratio is calculated manually only for the AS Delfingroup company.

Other indicators are monthly interest rates, monthly inflation and GDP growth. Low interest rates signify diminished demand for capital, which tends to depress share prices. Bull markets typically coincide with low interest rates and high capital gains, while bear markets are often associated with high interest rates and low capital gains (Ilyas Sindhu Mohammad Ali et al., 2014). Inflation exerts an influence on stock markets. The perceptions of investors and traders regarding the anticipated course of inflation can also have diverse effects on stock prices (Ilyas

Sindhu Mohammad Ali et al., 2014). GDP growth indicates economic growth of a country by attributing to corporate profit, consumer spending confidence.

### 2.3. Quantitative research method

The quantitative method is chosen to confirm the raised hypothesis which is concluded from the theory part. A research approach that prioritizes quantification in both data collection and analysis is known as quantitative research, this method focuses on measuring and numerical representation. Its objective is to explore answers to questions that begin with phrases such as "how many," "how much," and "to what extent" (Rahman, 2016). Quantitative research centres on aspects of social behaviour that can be measured and analysed systematically, emphasizing quantifiable patterns rather than solely discovering and interpreting the subjective meanings individuals attribute to their actions (Rahman, 2016). This method will analyse raw data by linear regression and other regression models to evaluate whether there is a company's share price correlation with sustainable business development. To assess the impact of sustainable business development, it is necessary to translate it into a scoring system that incorporates the essential components of sustainable business practices.

To investigate the relationship between sustainable business development and company share prices in the Nasdaq Baltic stock exchange, a comprehensive methodology is employed. The research uses linear regression analysis to model the association between average monthly share prices of nine selected companies and selected variables which include monthly inflation, GDP growth, monthly interest rates, ROE for each company, and self-assessed SBDS. The linear regression model was initially constructed to understand the direct effects of these factors on share prices.

$$(3) Y_i \approx \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \epsilon_i$$

$Y_i$  – monthly average share price (dependent variable)

$\beta_0, 1, 2, 3, 4, 5$  – coefficients

$X_{1i}$  – SBDS (independent variable)

$X_{2i}$  – inflation (monthly) (independent variable)

$X_{3i}$  – GDP growth (independent variable)

$X_{4i}$  – interest rates (monthly) (independent variable)

$X_{5i}$  – ROE (independent variable)

$\epsilon_i$  – the error term

Linear regression is a very straightforward approach to predicting a quantitative response  $Y$  on the basis of a predictor variable  $X$ , or in this case 5 variables. It assumes that there is an approximately linear relationship between  $X$  and  $Y$  (G. James et al., 2023). This analysis allows for a quantitative assessment of the impact of these factors on share prices. After assessing linear regression, a panel data model will be used. It is a regression model that accounts for individual heterogeneity and time-specific effects.

$$(4) Y_{it} \approx \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + u_i + \epsilon_i$$

$Y_i$  – monthly average share price (dependent variable)

$\beta_{0, 1, 2, 3, 4, 5}$  – coefficients

$X_{1i}$  – SBDS (independent variable)

$X_{2i}$  – inflation (monthly) (independent variable)

$X_{3i}$  – GDP growth (independent variable)

$X_{4i}$  – interest rates (monthly) (independent variable)

$X_{5i}$  – ROE (independent variable)

$u_i$  – entity-specific fixed or random effect

$\epsilon_i$  – the error term

Subsequently, fixed and random effects models were implemented to account for potential heterogeneity among companies. Fixed model assumes that entity-specific characteristics are correlated with the independent variables while the random model assumes that entity-specific effects are uncorrelated with the independent variables (Bell et al., 2019). Accordingly, a Hausman test which is conducted to determine the most appropriate model, revealing which fixed or random effect models better captures the underlying dynamics. If the null hypothesis is rejected, it suggests that one of the models is inconsistent.

Furthermore, to ensure the validity of inferential statistics diagnostic tests will be done including The Shapiro-Wilk normality test which assesses whether the residuals of regression model are normally distributed, this test is essentially a goodness-of-fit test (King & Eckersley, 2019). Breusch-Pagan test to detect heteroscedasticity in residuals tests the null hypothesis that the

error variances are all equal versus the alternative that the error variances are a multiplicative function of one or more variables (R. Williams, 2020). And the last test is Variance Inflation Factors (VIF) which assesses multicollinearity.

$$(5) VIF_i = \frac{1}{1-R_i^2}$$

$R_i^2$  – is the coefficient of determination of the regression of the  $i$ -th represents the index of each independent variable that is calculated. VIF offers an index that quantifies the extent to which the variance of an estimated regression coefficient is elevated due to multicollinearity (G. Semshak Dauda et al., 2023).

By performing these tests following linear regression, it ensures that the selected models comply to key assumptions and maintain resilience. Addressing any violations or potential issues identified by these diagnostic tests contributes to enhancing the credibility of the obtained results. By employing these statistical methods and tests, the research aims to provide an understanding of the impact of sustainable business development on company share prices, contributing valuable insights to the Nasdaq Baltic stock exchange market.

Analysed literature in theory part concluded that sustainable business development is an essential part of company's growth that helps companies operate more efficiently, contributes to economic growth, technological innovation, orientates business activity and organizational development towards increased social and environmental responsibility. The share prices of listed companies are influenced by various factors. Hence, this research aims to assess the extent to which sustainable business development impacts these prices. In light of this context, there are two hypotheses that require validation or rejection:

**H1:** Sustainable business development has an impact on companies share prices in the Nasdaq Baltic stock exchange market.

**H2:** Implementation of sustainable business development increases share price in the Nasdaq Baltic stock exchange market.

**H3:** Performance in evaluation of a company's sustainable business development is associated with industry specifics.

The research part will scrutinize these three hypotheses using a chosen quantitative research method. The investigation aims to reveal whether these hypotheses will be validated or refuted.

## 2.4. Data collection

The data collection for this quantitative method is conducted from publicly available information encompassing both primary and secondary sources, drawing from diverse outlets such as Nasdaq Baltic stock exchange market data, analysts' reports, financial reports, annual reports, company strategies, and official company websites. Share prices data is gathered from Nasdaq Baltic stock market and other sources that assess companies' performance, producing fact sheets. The dataset covers the timeframe from the first half of 2018 to the first half of 2023. However, for certain companies, the dataset is contingent on their listing on the Nasdaq stock exchange. This is because some selected companies went public through an IPO in either 2020 or 2021. Consequently, the data sets for these companies commence from their respective IPO dates and extend until the first half of 2023. Data for all the factors to be analysed were gathered from the "Factset" database (FactSet, n.d.), with the exception of AS Delfingroup. For this company, the indicators were sourced from quarterly reports and calculated by the author.

Data about inflation (frequency – monthly) and GDP (frequency – quarterly) was conducted from Eurostat data base by distinguishing Estonia, Latvia and Lithuania. Eurostat engages in data validation, ensuring that the data align with specific fundamental criteria that assess the credibility of the provided information (Eurostat, 2023b, 2023a). Consequently, this database has been selected as the most dependable source for the required data. Data about interest rates (frequency – monthly) was conducted from the European Central Bank database by distinguishing Estonia, Latvia and Lithuania. Interest rates data is based on new euro-denominated loans to euro area non-financial corporations' percentages per annum, period average rates (European Central Bank, 2023).

Data for the SBDS model is collected by companies annual, financial and sustainability or ESG or corporate governance reports which are described in Sustainable business development score in the Baltic region section. All data that was collected for SBDS evaluation is from publicly available information.

### **3. SUSTAINABLE BUSINESS DEVELOPMENT AND ITS EFFECT ON NASDAQ BALTIC STOCK EXCHANGE MARKET**

Research part consists of a detailed analysis of the data collected from the companies listed on the Nasdaq Baltic stock exchange market. In order to assess companies' adoption of sustainable development, their performance, and the various factors impacting their share prices, it is essential to conduct an in-depth analysis of the Nasdaq Baltic stock exchange. The first section of analysis includes the Nasdaq Baltic stock exchange's environment, economic dynamics, market capitalization, and growth prospects. The second section concentrates on the methodology developed by an author which is used to establish the SDBS, detailing the data collection process and presenting results categorized by sector and a country. The third section of the analysis will culminate the first and second sections by assessing whether sustainable business development has an effect on share prices of companies listed on the Nasdaq Baltic stock exchange.

#### **3.1. Nasdaq Baltic stock exchange review**

This research section focuses on analysing the Nasdaq Baltic stock exchange market to assess its operational environment and comprehend the history, regulation, structure and dynamics of the market it operates within.

The Nasdaq Baltic stock exchange is a part of the world largest exchanges Nasdaq Inc. In 2007 Nasdaq and OMX announced intentions to merge and in 2008 Nasdaq acquired OMX creating Nasdaq Inc. The acquisition strengthened Nasdaq's position as a major player in the global financial market and as part of the Nasdaq OMX Group, the stock exchanges in the Baltic region Tallinn Stock Exchange, Riga Stock Exchange, and Vilnius Stock Exchange were integrated into the larger network which led to the creation of the Nasdaq Baltic Stock Exchange.

Being part of the world's largest exchanges gives considerable confidence in the Baltic securities market among international investors. This affiliation allows the market to benefit from valuable knowledge, regulations, global standards and learn from best practices globally. The Nasdaq Baltic provides a market infrastructure aligned with international industry standards, featuring the world's fastest trading platform and diligent listing standards. Nasdaq Baltic oversees three stock exchanges in Estonia, Latvia, and Lithuania, along with the Nasdaq CSD, all under a unified Baltic framework. The Nasdaq Baltic stock exchange offers a range of services, including company listing, a trading platform for securities such as stocks and bonds listed on the exchange,

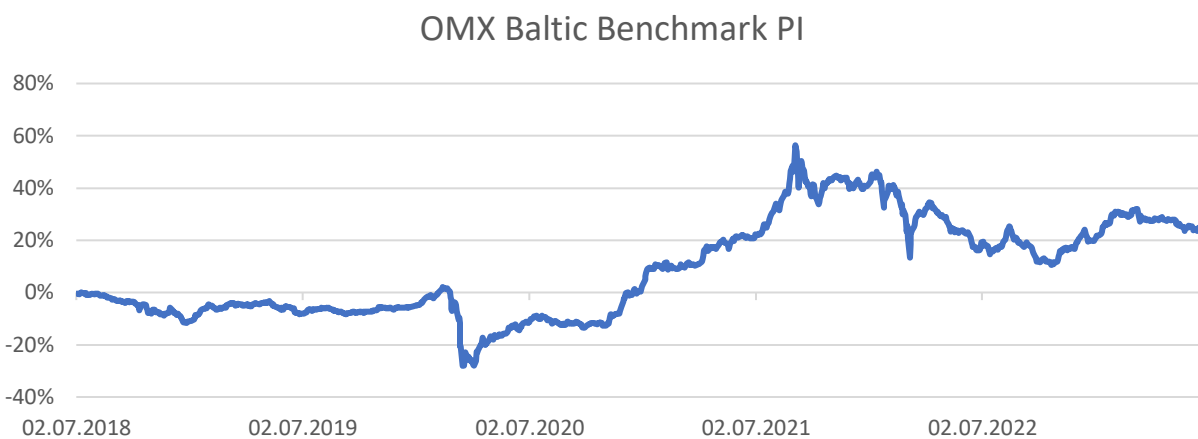
market data provision, regulatory compliance management, market surveillance execution, index services, technology solutions for optimizing trading and data management, as well as various financial processes. Additionally, the exchange provides guidelines for corporate governance and actively promotes educational initiatives. This comprehensive structure offers complete capital market infrastructure, covering the entire value chain, encompassing listing, trading, market data, clearing and settlement, and the secure custody of securities (Nasdaq Baltic, n.d.-a). The establishment of essential elements for a unified Baltic marketplace enhances accessibility and attractiveness for both local and international investors (Nasdaq Baltic, n.d.-a). A well-developed exchange market not only establishes robust guidelines and regulations conducive to the growth of companies but also attracts both local and international investors eager to invest in listed enterprises, thereby fostering market expansion. This appeal also makes it attractive for companies to consider listing their shares in a growing stock market.

The Baltic securities markets are supervised by local financial supervisory authorities, whose purpose is to protect and promote the stability and reliability of the entire financial sector. As the Nasdaq Baltic stock exchanges in Tallinn, Riga, and Vilnius are distinct legal entities operating in separate jurisdictions, each exchange adheres to its own specific set of regulations (Nasdaq Baltic, n.d.-d). Market surveillance is conducted by various institutions in different countries; in Lithuania and Latvia, it is overseen by their respective national banks, while in Estonia, The Financial Supervision and Resolution Authority takes on this responsibility.

The Nasdaq Baltic stock exchange provides a range of indexes designed to reflect the performance of either the entire stock market or specific segments within it. The exchange offers gross indexes (GI), indicating the gross return of included stocks; price indexes (PI), reflecting changes in share prices; and capped indexes (CAP). These indexes are organized into index families, including the OMX Baltic benchmark index, which tracks the largest and most traded shares in sectors represented by the Nasdaq Baltic market. Among the index offerings, the OMX Baltic 10 index highlights the 10 most actively traded shares, while the OMX Baltic All-Share index monitors all shares listed on the Main and Secondary lists. Additionally, there are local all-share indexes for OMX Tallinn, OMX Riga, and OMX Vilnius, indicating gross index values only. Sector indexes provide specific industry information. All indexes are created, monitored, and periodically maintained in accordance with the Rules for the Construction and Maintenance of the Nasdaq OMX Baltic equity indexes (Nasdaq, 2016). Indexes serve as indicators of the overall



trend, whether it encompasses all stocks in the market or only those within a specific industry segment or geographic area. Consequently, indexes assist investors in monitoring market movements and offer a cost-effective method for constructing portfolios that mirror these trends (Nasdaq Baltic, n.d.-b). Provided Nasdaq Baltic market total performance by OMX Baltic Benchmark PI index is in figure 11.



*Figure 11. OMX Baltics Benchmark PI index for 2018 H1 - 2023 H1*

*Source: compiled by the author, based on publicly available information in Nasdaq Baltic stock exchange*

The OMX Baltic Benchmark PI genuine price return index solely captures fluctuations in the prices of the stocks included in the index, without factoring in dividends. A visual examination reveals a period of underperformance until the end of 2020. During this timeframe, the global economic downturn triggered by the COVID-19 pandemic led to countries implementing lockdowns and restrictions, resulting in a notable reduction in economic activities. The resultant instability in stock markets saw extreme volatility as investors faced uncertainties surrounding the pandemic's duration and impact. Towards the end of 2020, financial markets began to recover, with investors regaining confidence and increasing their investments. In 2021, numerous financial markets worldwide exhibited signs of rebounding from the economic effects of the COVID-19 pandemic. Similarly, the OMX Baltic Benchmark PI index started to increase, reaching its highest peak at the end of the third quarter of 2021 with a growth rate of 56%. As the economic recovery gained momentum, investors sought exposure to sectors expected to benefit from increased economic activities, including cyclical stocks, as well as those in the financial and industrial sectors.

Following the third-quarter peak in 2021, the index gradually began to decline, experiencing some volatility characterized by fluctuations that either increased or decreased the index. This trend was primarily driven by investors feeling the repercussions of the pandemic and making corresponding decisions. Additionally, the economy started to be unstable as interest rates started to rise, an energy crisis unfolded, and geopolitical instability ensued with Russia's invasion of Ukraine. Decisions and regulations within the European Union also impacted businesses, influencing their profitability and overall activity. Hence, the current state of this index is positive, although it started to decrease from the third quarter of 2023. As of June 30, 2023, the market capitalization of shares on the Nasdaq Baltic stock exchange amounted to 10.6 billion EUR which increased by 2,72 billion EUR since 2018 first half (Nasdaq Baltic, 2023a). This growth in market capitalization signifies the expansion of the exchange and reflects investor activity, with increased investments in listed companies.

Economic growth is important for local enterprises by improving their capacity to generate and deliver value. This involves the development of products, increased employment, investments in production capacity, and expansion into new markets—all of which hinge on companies' ability to secure additional capital for such growth. Nasdaq Baltic aims to foster economic growth in the Baltic region by concentrating on attracting high-value companies and by promoting and enhancing the appeal of Initial Public Offerings (IPOs). Additionally, the initiative involves encouraging countries to leverage the issuance of bonds, thereby expanding the opportunities for suitable domestic long-term investment instruments.

The Nasdaq Baltic stock exchange consists of 72 companies that are distributed in different lists: Baltic main list (33 companies), Baltics secondary list (18 companies), First North Baltic share list (20 companies) and Baltic first north foreign shares trading list (1 company). All companies belong to one of the exchanges in Vilnius, Riga or Tallinn. Companies that are listed in this stock exchange operate in these sectors figure 12.

## Number of companies listed in Nasdaq Baltic stock exchange

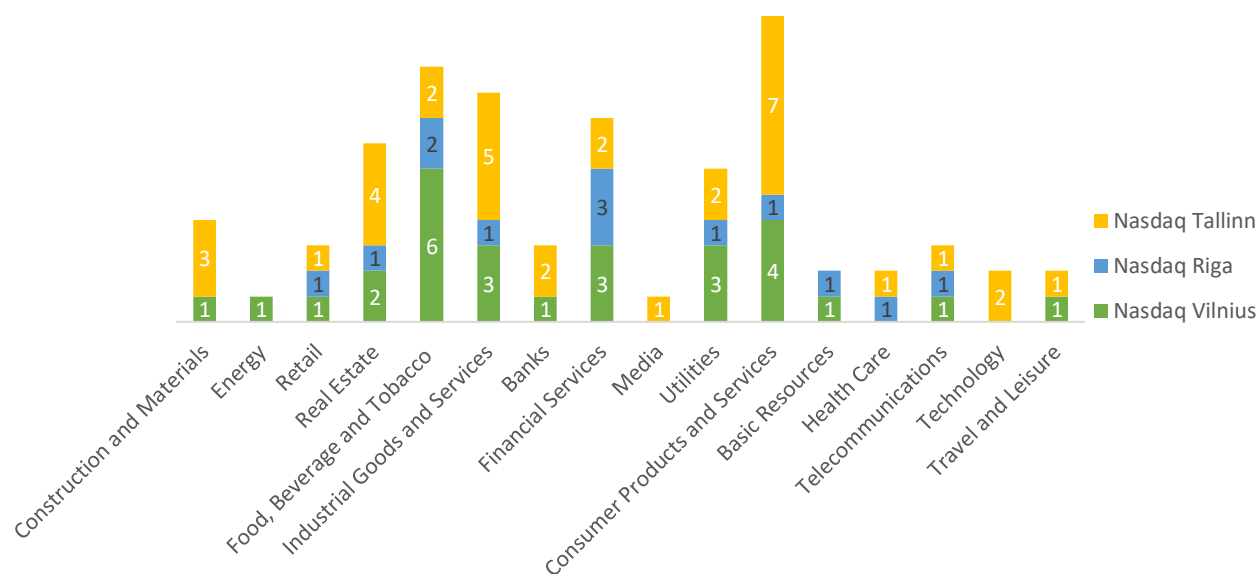


Figure 12. Number of companies listed in Nasdaq Baltic stock exchange, by sector a country for 2023 June 30

Source: compiled by the author, based on publicly available information in Nasdaq Baltic stock exchange

The predominant sectors represented on the Nasdaq Baltic stock exchange include consumer products and services, along with food, beverage, and tobacco (Consumer Staples industry). This is followed by industrial goods and services, along with financial services. According to the HitHorizon database, the Services sector boasts the highest number of registered companies in Estonia, Latvia and Lithuania. In Latvia and Estonia, the Services sector is followed by Retail Trade and Finance, Insurance, and Real Estate (HitHorizons, 2023). The most valuable enterprises in the Baltic region predominantly belong to the consumer goods, financial services, and utility services sectors (Baltictop30, 2022). The distribution of sectors on the Nasdaq Baltic stock exchange mirrors the dominant or developing sectors in the economic market of the Baltic region.

In order to ensure liquidity in the market Nasdaq Baltic provides investors with market makers, also known as liquidity providers, who provide an additional layer of confidence for investors. Their responsibility involves consistently maintaining bid and offer orders of a specified size within a defined price spread. This continuous presence benefits investors by lowering liquidity costs and minimizing risks through more precise pricing (Nasdaq Baltic, n.d.-c). Liquidity

plays a crucial role in the stock exchange market to ensure that the market maintains sufficient fluidity for financial transactions.

### 3.1.1. Vilnius, Riga and Tallinn stock exchanges

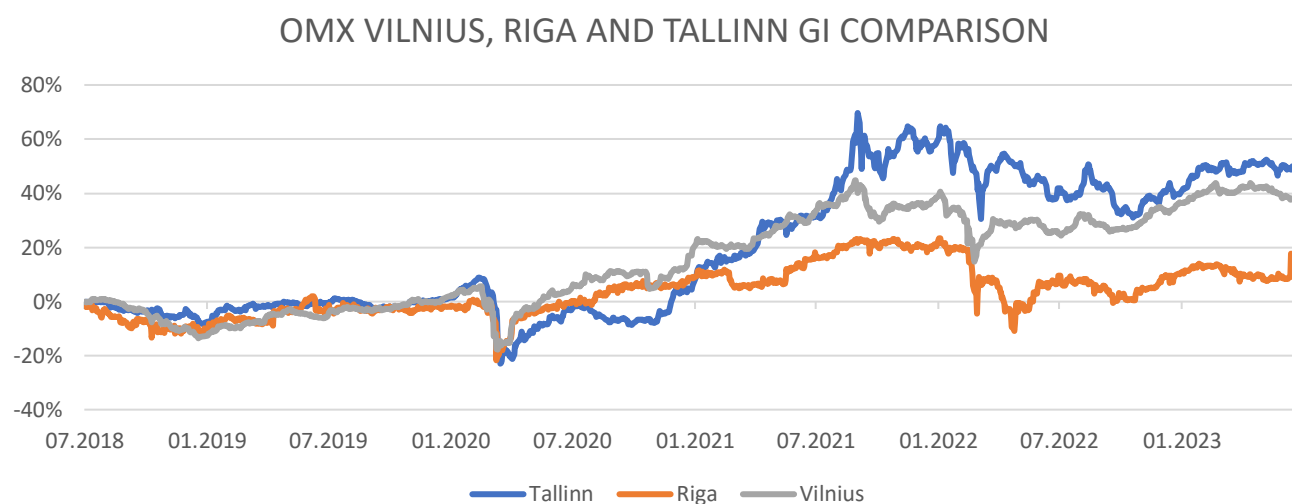
The Nasdaq Vilnius stock exchange originally started in 1993 as the National Stock Exchange of Lithuania which was the first stock exchange in the Baltic region. Nasdaq Vilnius stands as the sole regulated secondary securities market in Lithuania, upholding a regulated, transparent, and efficient market infrastructure. The bank of Lithuania is responsible for supervision and oversight of the Nasdaq Vilnius stock exchange; it falls under the jurisdiction of the Bank of Lithuania's regulatory counterpart, the Financial Market Supervision Service (FMSS). The FMSS operates as a part of the Bank of Lithuania and is responsible for overseeing and regulating various financial market participants, including securities markets and exchanges. Its role is to ensure the stability, integrity, and efficiency of financial markets within Lithuania (The Bank of Lithuania, 2023). In terms of regulation, listing rules are established in accordance with Lithuanian law. Additionally, there exist corporate governance reporting forms and a code that listed companies must adhere to. Nasdaq Vilnius has its specific member rules, application forms, and market guidelines in place. As of June 30, 2023, Nasdaq Vilnius had 28 listed companies, with the dominant sector being food, beverages, and tobacco, including a total of 6 companies (Nasdaq Baltic, 2023b).

The Nasdaq Riga stock exchange originally started in 1995 in Latvia as a second stock exchange in Baltics, and afterwards in 2008 joined OMX group as other Baltic countries. Nasdaq Riga stands as the sole regulated secondary securities market in Latvia, upholding a regulated, transparent, and efficient market infrastructure. The bank of Latvia is responsible for the supervision and oversight of Nasdaq Riga stock exchange. In terms of regulation, listing rules, corporate governance code and other important documents related to financial markets are established in accordance with Latvian law. As of June 30, 2023, Nasdaq Riga had 13 listed companies, with the dominant sector being Financial Services, including a total of 3 companies (Nasdaq Baltic, 2023b).

The Nasdaq Tallinn stock exchange originally started in 1995 in Estonia and was the last to establish a stock exchange in the Baltics, and afterwards in 2008 joined OMX group as other Baltic countries. Nasdaq Tallinn stands as the sole regulated secondary securities market in

Estonia, upholding a regulated, transparent, and efficient market infrastructure. The Estonian Financial Supervision and Resolution Authority, an independent financial oversight and crisis resolution entity, is responsible for the supervision and oversight of this exchange. It operates with autonomous responsibilities and a dedicated budget, working on behalf of the state of Estonia and making independent decisions (Finantsinspeksioon, 2018). As of June 30, 2023, Nasdaq Tallinn had 34 listed companies, with the dominant sector being Consumer Products and Services, including a total of 7 companies (Nasdaq Baltic, 2023b).

All three exchanges of Vilnius, Riga and Tallinn utilizes the INET trading system for equities, Nasdaq Vilnius employs Nasdaq’s core technology, a system employed across all Nasdaq equity markets globally (Nasdaq Baltic, 2023). The exchange serves as an efficient platform for companies to raise capital, facilitating the involvement of institutional and private investors in both primary offerings and secondary trading. Performance of each stock exchange price index provided in figure 13.



*Figure 13. OMX VILNIUS\_GI, OMX RIGA\_GI AND OMX TALLINN\_GI indexes comparison for 2018 H1-2023 H1*

*Source: compiled by the author, based on publicly available information in Nasdaq Baltic stock exchange*

From the initial half of 2018, the gross index for all three exchanges remained relatively consistent until the first quarter of 2020 when the COVID-19 pandemic hit, resulting in widespread lockdowns, travel restrictions, and disruptions to global economic activities. The period witnessed heightened volatility in financial markets, with sharp declines observed in stock indexes worldwide. Investors endured uncertainty regarding the pandemic’s duration and severity, leading

to selloffs across various sectors. Following the global financial shock, market recovery began. All three Baltic stock exchanges experienced a peak in mid-2021, followed by a period of decline. The indexes have shown some recovery in the latter part of 2022 and early 2023. As illustrated in figure 13, the Vilnius stock exchange exhibited the earliest and robust recovery among the Baltic countries. However, the Tallinn stock exchange eventually surpassed the Vilnius stock exchange and maintained the most effective index until the first half of 2023. It is evident that both Vilnius and Tallinn exchanges are more active, boasting a greater number of listed companies, primarily in the Main Baltic list, and with a larger total capitalization compared to Riga exchange. To evaluate the relative strength or weakness of the Baltic stock exchanges based on the average performance of the provided indexes from July 2018 to June 2023, the average values for OMX Vilnius GI were 882.07, for OMX Riga GI were 1092.47, and for OMX Tallinn GI were 1281.87. These findings indicate that OMX Tallinn GI has the highest average, indicating stronger performance compared to the other two exchanges, while OMX Vilnius GI has the lowest average, suggesting comparatively weaker performance over the specified time period.

By comprehensively examining the Nasdaq Baltic stock exchange, including its history, operations, market structure, regulatory framework, market participants, sector analysis, market liquidity, and development paths. This assessment sets the stage for a comprehensive SWOT analysis shown in table 3, providing valuable insights to evaluate the Nasdaq Baltic stock exchange as a holistic entity.

*Table 3. Nasdaq Baltic stock exchange SWOT analysis*

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>– Regional dominance, which provides a financial market platform for Estonia, Latvia and Lithuania.</li> <li>– Integration with Nasdaq Inc., which provides best practices, reputation and global connectivity form one of the financial market leaders in the world</li> <li>– Advanced technologies for data and its analysis, financial transactions and other important operations in the market</li> <li>– Regulatory framework is clear and stable which provides confidence to market participants</li> </ul>	<ul style="list-style-type: none"> <li>– Small size financial market which can impact liquidity and limit the depth of certain markets</li> <li>– Economic instabilities for Baltic region due to relatively new and emerging economies and overall performance of the exchange</li> <li>– Dependency on specific sectors, which could impact overall performance of the exchange</li> <li>– No public information about evaluation of listed companies ESG compliance and performance</li> </ul>

– ESG guidelines and their implementation for listed companies	
<b>OPPORTUNITIES</b>	<b>THREATS</b>
<ul style="list-style-type: none"> <li>– Market expansion possibilities by attracting neighbour countries or to collaborate with other exchanges</li> <li>– Continuation to develop new technologies and innovative solutions for market participants</li> <li>– Product diversification by introducing exchange with new products that would be attractive for companies and investors</li> <li>– Green financial market and sustainable investment products</li> <li>– Partnerships for sustainable development with governments or NGOs</li> </ul>	<ul style="list-style-type: none"> <li>– Global competition, with growing companies within Baltic region successful companies could turn to other, bigger exchanges in order to seek larger capital markets</li> <li>– Cybersecurity risks with an increase of cyberattacks</li> <li>– Geopolitical instability in Baltic region that can impact confidence in the market’s stability</li> <li>– Regulatory changes which could be unfavourable for Baltic region as countries are EU member states and the law must comply with EU regulations</li> </ul>

*Source: compiled by the author*

While the Nasdaq Baltic stock exchange is comparatively smaller than other European or global stock exchanges, its significant potential lies in being owned by Nasdaq Inc., one of the largest stock markets globally. With such a formidable parent company, Nasdaq Baltic can enhance its technological and innovative capabilities, improving its position in the European market and exploring avenues for sustainable growth in financial markets. Additionally, paying attention to regulatory requirements and a close monitoring of political and geopolitical movements is crucial, as these factors can impact financial markets. In the realm of technology and innovation, it is not only essential to introduce new and more efficient products/services but also imperative to prioritize security, ensuring the reliability of the financial market.

### **3.2. Sustainable business development score in Baltic region**

To evaluate the level of sustainable business development in the Baltic region, research objects were selected from the Nasdaq Baltic stock exchange. A total of nine companies were assessed, representing three distinct business industries. Within these industries, companies were chosen from three different countries: Estonia, Latvia and Lithuania. In selecting companies for the research analysis, considerations of market capitalization, industry, and their relationship to sustainability were taken into account. The connection to sustainability is assessed by examining how business activities impact the environment and identifying the tools that companies possess or can employ to promote sustainable business development. Additionally, governmental

regulations that mandate companies to comply or take specific actions are also considered. The chosen industries for the research include Utilities, Consumer Staples, and Financials.

The Utility industry represents companies that supply electricity and (or) natural gas. Business segments are the sales & trading and distribution, generation, production, storage and transmission segments. Utility industry is one of the most regulated industries by the government and other institutions as chosen companies are controlled by the state (as a major shareholder). Utilities are seen at a moderately negative level due to its impact on legacy fossil fuel assets and environmental concerns related to energy production however this sector has a big potential to transfer to renewable energy investments that can contribute positively by reducing carbon emissions. The selected companies from this industry on the Nasdaq Baltic stock exchange include Enefit Green AS (Estonia), AS Latvijas Gāze (Latvia) and AB Ignitis Group (Lithuania).

The Consumer Staples industry provides people with safe, high-quality, healthy, and affordable food. Alongside the tobacco sector, this industry constitutes a significant contributor to manufacturing output and employment. Businesses engaged in the processing of food, beverages, and tobacco not only produce final consumer goods, many of which are essential daily products, but also intermediate products for use in other manufacturing activities, such as oils, fats, and sugars (European commission, 2004). All chosen companies operate in various segments of this sector, including agriculture, fisheries, and alcohol. The Consumer Staples industry wields significant influence on environmental and social issues and is seen at a highly negative level, given its substantial impact on large-scale water usage, deforestation, and GHG emissions in certain agricultural practices. Additionally, the industry is associated with social concerns such as labor rights issues, particularly in developing countries. The selected companies from this industry on the Nasdaq Baltic stock exchange include AS PRFoods (Estonia), AS Amber Latvijas balzams (Latvia) and AB AUGA group (Lithuania).

The Financial industry has a wide range of institutions and activities that are related to the management of money, assets and financial transactions. This industry plays a pivotal role in facilitating the flow of funds between savers and borrowers and includes entities such as banks, insurance companies, investment firms, stock exchanges, and other intermediaries. This sector is also closely monitored and watched by governments and other institutions. The EU is closely monitoring the financial sector to secure financial stability and improve the market (European Commission, n.d.). Two of the chosen companies operate within the banking sector, while another



offers financial services. The financial industry is generally considered neutral in the sustainability context and is seen at a neutral level, with its primary threat arising from the potential financing of environmentally harmful activities in the absence of proper regulation. However, it plays a significant role in facilitating sustainable business development by providing support to companies across various sectors in their efforts to implement environmentally responsible practices. The selected companies from this industry on the Nasdaq Baltic stock exchange include Coop Pank AS (Estonia), AS Delfingroup (Latvia) and AB Šiaulių bankas (Lithuania).

Each of these sectors encounters distinct internal and external challenges and collectively stands as one of the most prominent industries on the Nasdaq Baltic stock exchange, having one of the largest numbers of companies within those sectors.

The information collected for assessing the SBDS, following the created model outlined in the methodology part, was sourced from companies' financial, annual and sustainability reports (if available). Data from reports was gathered through the Nasdaq Baltic stock exchange reports section under each company, and by reviewing the main websites of each company where they provide their annual and other reports for transparency. The data was exclusively collected from these sources (AB Ignitis group, 2021a, 2021b, 2022a, 2022b, 2023b, 2023a, 2023c; AB Šiaulių bankas, 2023; AMBER LATVIJAS BALZAMS, 2023a, 2023b; AUGA group, 2020, 2021, 2022, 2023; Coop pank, 2021; Coop Pank, 2022; Delfingroup, 2022b, 2022a, 2023b, 2023c, 2023a; Enefit green, 2022; Enefit Green, 2023; LATVIJAS BALZAMS, 2019a, 2019b, 2020a, 2020b, 2021a, 2021b, 2022a, 2022b; Latvijas Gaze, 2019a, 2019b, 2019c, 2019d, 2020a, 2020b, 2021a, 2021b, 2022a, 2022b, 2023; PRFoods, 2019, 2020, 2021, 2022, 2023; Šiaulių bankas, 2019, 2020, 2021, 2022). A comprehensive assessment is presented in Annex 4. The SBDS aim to appraise how companies implement, or if they implement at all, the core aspects of sustainable business development. This begins with a materiality assessment, aiding companies in identifying key aspects of their impact on environmental, social, and economic issues. It enhances risk management, improves strategic decision-making for long-term value, supports sustainability reporting and transparency, and prioritizes stakeholder concerns. The SBDS assessment also considers sustainable investments and whether the company reports on sustainability topics. Another component involves an evaluation of Environmental, Social, and Governance (ESG) factors, as detailed in the methodology section. The combined assessment of these factors, guided by the formulated SBDS model, provides a general evaluation of the company.

Every industry was assessed before evaluating companies, because the sector has 20 % weight in core evaluation with evaluation interval from 1 to 10. The Utilities industry received a score of 3 in the assessment, signifying its pivotal role at the intersection of economic development and environmental impact. A score of 3 indicates a moderate performance in implementing sustainable business practices. In the Consumer Staples industry, closely linked to everyday necessities, a score of 4 was assigned, pointing to a lower level of sustainable development implementation and a significant impact on environmental, social, and economic issues. Conversely, the Financial industry was evaluated at a score of 2 which shows neutrality and showcases a robust commitment to sustainable business development. Additionally, it plays a crucial role in providing capital to companies across various sectors, thereby fostering improvements and encouraging sustainable development in the broader economy. Final SBDS are shown in figure 14.

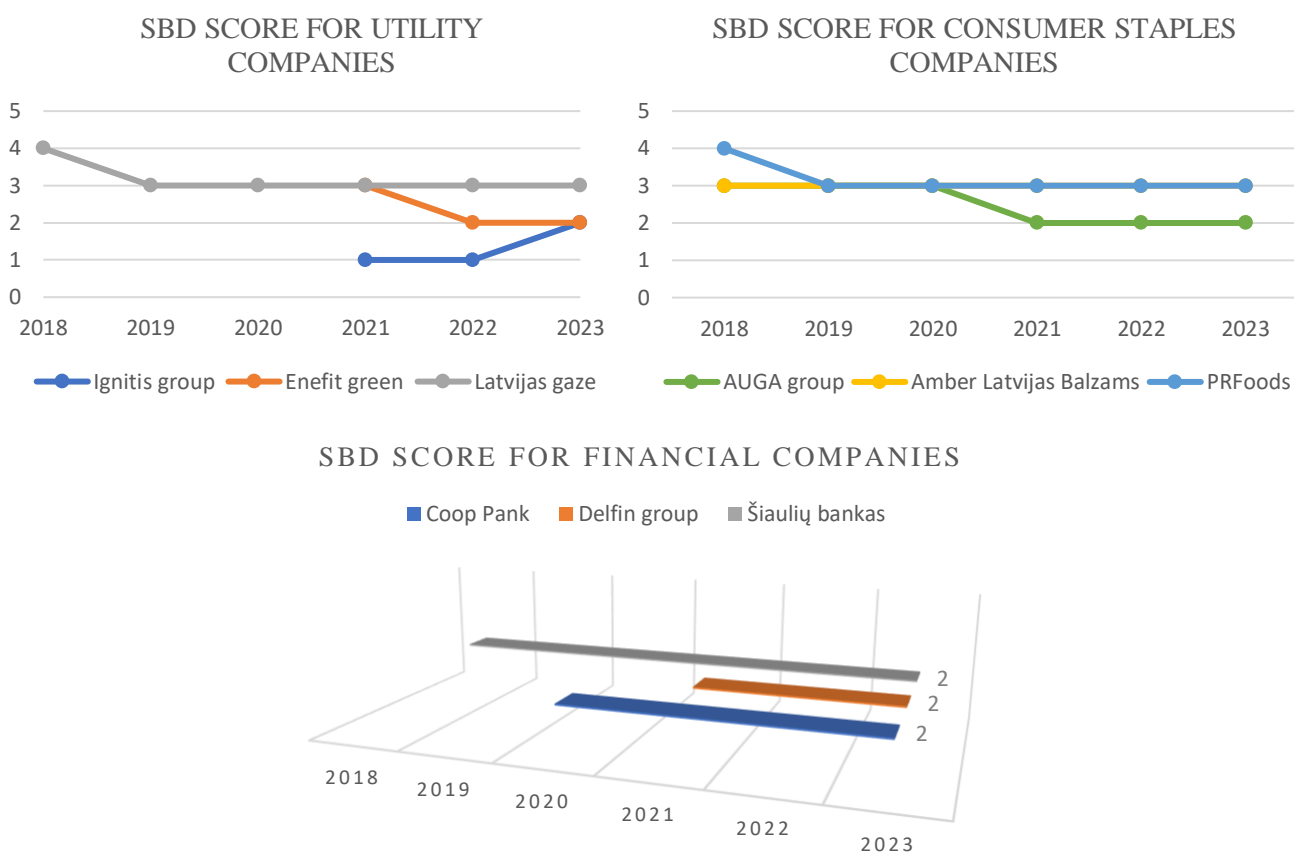


Figure 14. SBDS for Utility, Consumer Staples and Financial industry's companies

Source: compiled by the author, company reports

The SBDS assessment revealed that the most common score is averaging at 3 which is moderately negative. This trend dominates in the Utilities and Consumer Staples industries, with an exception in the Financial industry where companies consistently received a score of 2, indicating a neutral stance throughout the evaluated period. The commonality of a score of 3 can be attributed to the significant impact of Utilities and Consumer Staples industries on environmental and social factors, requiring these companies to establish concrete plans for assessing their influence on sustainable development-related topics. In the Financial industry, the companies exert a more pronounced effect on economic and social issues. Notably, water, waste, and pollution management were excluded from the evaluation in Financial industry due to their low impact and the absence of concrete assessments in publicly available data. Regulatory bodies and authorities have placed a growing emphasis on ESG-related disclosures and practices within the financial sector. As regulations become more stringent, financial institutions are incentivized to adopt responsible and sustainable business practices, reducing the overall ESG risk. Financial institutions are increasingly involved in funding and supporting environmentally friendly projects, contributing to a positive ESG profile and mitigating environmental risks. Therefore, their evaluation stands at the same score over the evaluated period of time.

The highest score was awarded to AB Ignitis Group, which diligently implements, and monitors sustainability plans quarterly, providing detailed information on their implementation and results in sustainable business development. Additionally, it is noteworthy that in 2022, AB Ignitis Group attained favourable ratings from various assessment entities, including an (A-) from CDP, an (AA) from MSCI, and a Medium risk of ESG rating from Sustainalytics (AB Ignitis group, 2023c; Sustainalytics, 2023). This indicates that AB Ignitis Group is consistently evaluated as stable and robust in the realms of ESG and sustainability. It is particularly noteworthy that diverse rating agencies, each employing distinct evaluation methods, concur in their assessment of AB Ignitis Group's strength and stability in these crucial areas, positioning it favourably relative to its peers. On the other hand, the lowest score was assigned to AS Latvijas Gaze and AS PRFoods in 2018, reflecting a lack of information and materiality assessment, indicating no concrete actions in terms of sustainable development. It is noteworthy that in 2018, sustainable development was not widely recognized or considered a top priority for companies or their stakeholders.

The core evaluation revealed a consistent growth in sustainable investments across all assessed industries over the years. This increase is attributed to technological advancements, the

initiation of new projects related to globally recognized science-based targets, and a consideration of the EU taxonomy with detailed information provided. Similarly, sustainable reporting witnessed a continuous rise, with each year benefiting from clear frameworks established by entities such as the United Nations, GRI, EU initiatives, and other reporting systems. Furthermore, materiality assessments became increasingly specific concerning the business activities of companies. While some companies acknowledge their impact solely, others integrate materiality assessments with stakeholders' needs and business operations.

The extended evaluation revealed that, on average, the Consumer Staples industry performed worse in ESG assessments compared to other industries. Financial industry companies, along with AB Ignitis Group, received the best score. Environmental aspects demonstrated improvement in all sectors from 2018 to 2023, with a focus on globally accepted goals to reduce net emissions. This improvement also extended to water, waste, and pollution reduction and management. Social factors indicate that companies tend to undertake social initiatives, both internally for employee education and creating a better and safer workplace environment, and externally with specific fields chosen by the companies. The exception is Latvijas Gaze, which did not state any specific initiatives. All other evaluated companies expressed an interest in corporate responsibility for stakeholders. In terms of the governance pillar, each company exhibited different board diversities and independence ratios. For example, Latvijas Gaze showed no change in board diversity and independence, which remained low. In contrast, AB Ignitis Group demonstrated the highest diversity and independence rate among all the evaluated companies. Regarding ethics and anti-corruption policies, Financial industry companies had implemented these policies throughout the entire evaluated period, primarily due to heavy regulation in the sector. Companies that lacked these policies in 2018 began implementing them between 2020 and 2022. Lastly, the transparency of all evaluated companies showed that while they all provided annual and financial statements within the evaluated period, not all issued sustainability reports, or started doing so in subsequent years. It is important to note that, even when companies do report, the transparency and provision of necessary information may vary. Additionally, some information lacks sufficient justification.

The SBDS provides insights into sustainable reporting and investment, materiality assessment, and ESG topics. The conclusion drawn is that not all companies grasp the correct approach to sustainable business development. For instance, some companies initiate sustainability reporting without conducting proper materiality assessments to understand how they impact

sustainability-related issues. Regarding ESG evaluation, most companies fail to establish clear goals and neglect to provide transparent measurements or evaluations of the process. It is worth noting that robust governance and strategic decision-making have the potential to increase sustainable business development by identifying the actual needs of the company to operate in a more sustainable manner.

### **3.3. Sustainable business development effect on share prices**

The third section of the research focuses on assessing the impact of the SBDS which was developed based on the theoretical part of the thesis and its' model presented in the methodology part, on share prices within the Nasdaq Baltic stock exchange market which was reviewed and analysed in first section of this research.

To evaluate what influences share prices, it is crucial to note that there is an extensive list of factors with varying effects on share prices. These factors are categorized into quantitative and qualitative aspects. Qualitative factors encompass events such as company growth, annual general shareholders meetings, mergers and acquisitions, and other elements like political, regulatory changes, news and media influence, and investor psychology. However, measuring the precise impact of these qualitative factors can be challenging. To accurately analyse the impact of the SBDS on share prices, it is chosen to evaluate quantitative factors influencing share prices. This research leans towards quantitative factors as they effectively measure economic movement and performance. Initially, a set of seven factors was chosen, including EPS, P/E, ROE, inflation, interest rates, GDP growth, and the SBDS. Descriptive statistics in Figure 15 offer an overview and description of the data utilized in the research for assessment. interest rates, GDP growth, and the SBDS. Descriptive statistics in Figure 15 offer an overview and description of the data utilized in the research for assessment.

SBD score		monthly avg. Share price		GPD growth		interest rates		inflation	
Mean	2,65311005	Mean	5,09511269	Mean	0,41220096	Mean	3,16081557	Mean	8,19497608
Standard Error	0,04055631	Standard Error	0,291818	Standard Error	0,10190682	Standard Error	0,04542031	Standard Error	0,39133003
Median	3	Median	1,49345455	Median	0,4	Median	2,85	Median	3,65
Mode	3	Mode	10,5952381	Mode	-0,5	Mode	3,24	Mode	2,8
Standard Deviation	0,82917566	Standard Deviation	5,96623314	Standard Deviation	2,08348984	Standard Deviation	0,92862045	Standard Deviation	8,00076127
Sample Variance	0,68753227	Sample Variance	35,5959379	Sample Variance	4,34092992	Sample Variance	0,86233594	Sample Variance	64,0121809
Kurtosis	-0,6533392	Kurtosis	0,71423394	Kurtosis	3,99116338	Kurtosis	1,54391551	Kurtosis	-1,1062027
Skewness	0,03723467	Skewness	1,23691618	Skewness	-0,4091188	Skewness	1,4577292	Skewness	0,62479338
Range	3	Range	23,1988182	Range	14,3	Range	4,06954545	Range	27
Minimum	1	Minimum	0,22845455	Minimum	-7,3	Minimum	2,04045455	Minimum	-1,8
Maximum	4	Maximum	23,4272727	Maximum	7	Maximum	6,11	Maximum	25,2
Sum	1109	Sum	2129,75711	Sum	172,3	Sum	1321,22091	Sum	3425,5
Count	418	Count	418	Count	418	Count	418	Count	418

EPS		P/E		ROE	
Mean	0,40901675	Mean	20,1161332	Mean	5,24159699
Standard Error	0,04031176	Standard Error	1,78567983	Standard Error	0,77394429
Median	0,08	Median	8,62166419	Median	6,41
Mode	0,01	Mode	#N/A	Mode	-7,02
Standard Deviation	0,82417583	Standard Deviation	36,5083103	Standard Deviation	15,8233284
Sample Variance	0,6792658	Sample Variance	1332,85672	Sample Variance	250,37772
Kurtosis	7,85959932	Kurtosis	8,80586072	Kurtosis	7,1677038
Skewness	0,09870216	Skewness	2,22983739	Skewness	-1,4590943
Range	7,53	Range	286,289	Range	131,755533
Minimum	-4,2	Minimum	-48,789	Minimum	-84,755533
Maximum	3,33	Maximum	237,5	Maximum	47
Sum	170,969	Sum	8408,54367	Sum	2190,98754
Count	418	Count	418	Count	418

Figure 15. Descriptive statistics for selected data for the research

Source: compiled by the author

SBDS shows a consistent central tendency, with the mean, median, and mode centred around 3. This indicates that, on average, scores grouped around this value, reflecting the evaluation from 1 (high evaluation) to 5 (low evaluation). A slight positive skewness (0.04) suggests a concentration of scores on the lower end, revealing that a few companies received lower SBDS. The moderate spread of scores (range of 3, standard deviation of 0.83) indicates variability, with some entities scoring as high as 1 and others as low as 4. The negative kurtosis (-0.65) implies a distribution with lighter tails than normal, making extreme scores less likely. The evaluation reveals that most companies received an SBDS of 3, with a relatively more spread-out distribution.

The mean of monthly average share price is around 5.10, but a high positive skewness (1.24) and mode (10.60) greater than the mean and median indicate a rightward skew, pointing to a concentration of higher share prices, there is a notable presence of months where the share prices are relatively elevated compared to the average. A substantial variability with a standard deviation of 5.97 and a large range of 23.20 suggests diverse share prices, with some months experiencing significantly higher or lower prices. Notably, some companies feature "penny stocks" with very low prices, contrasting others with significantly higher prices. Due to the positive kurtosis (0.71) which indicates a distribution with heavier tails it shows that there is an increased probability of

encountering months with share prices that deviate significantly from the average. These extreme share prices could be influenced by specific events, market conditions, or other factors that lead to more variability in the data.

Interest rates range from 2.04% to 6.11%, showing a diversity of 4.07 percentage points. The mean interest rate is approximately 3.16%, with the median at 2.85% and a mode around 3.24%, indicating a concentration of frequently occurring rates. Positive skewness (1.46) suggests a concentration of relatively higher interest rates, leading to a longer tail on the right side, higher interest rates influenced by post-COVID regulations and economic instability with interest rate increase in order to stabilize inflation. A higher standard deviation indicates that the individual interest rates in the dataset deviate, on average, by about 0.93 percentage points from the mean interest rate and sample variance (0.86) indicate greater variability in interest rates. The interest rates vary more widely from the mean, indicating a higher degree of fluctuation or dispersion. Positive kurtosis (1.54) suggests heavier tails, indicative of a higher likelihood of extreme interest rates which is influenced by market conditions.

The average GDP growth rate over the observed period is approximately 0.41. A high standard deviation implies that individual growth rates deviate, on average, by about 2.08 percentage points from the mean. The range of 14.3 suggests significant fluctuations in GDP growth rates. The median (0.4) and mode (-0.5) mode being less than the median and mean suggests a distribution skewed towards lower growth rates. The negative skewness (-0.41) indicates that the distribution of GDP growth rates is skewed to the left, with more observations towards the lower end. There are relatively more instances of lower growth rates compared to higher ones. Positive kurtosis (3.99) indicates heavier tails and a more pronounced peak, signifying periods of rapid and extreme GDP growth. The range of 14.3 suggests significant variations in economic performance, showing periods of economic contraction (negative growth) and significant growth. This highlights the economic dynamics and fluctuations over the observed period. Also considered is the fact that the GDP growth rates were collected from three distinct countries, and the growth itself varied among these nations.

The mean of inflation rate is approximately 8.19, showcasing the average rate of price increase over the observed periods. High variability with a standard deviation of 8.00 and a range of 27 suggests significant fluctuations in monthly inflation rates which happened in 2022. The positive skewness suggests periods of both low and high inflation, with a tendency toward lower

rates. The kurtosis value indicates a distribution with less extreme values, and the wide range emphasizes the fluctuations in inflation, particularly noting a rapid rise in 2022.

The mean ROE ratio across nine companies is approximately 5.24, indicating the average return on equity. The high standard deviation of 15.82 and a wide range of 131.76 suggest significant variability in the ROE ratios among the nine companies. A high standard deviation indicates that individual ROE ratios deviate, on average, by about 15.82 percentage points from the mean. The wide range indicates substantial differences in the profitability of these companies. The negative skewness and mode (-7.02) indicate a concentration of companies with lower or negative ROE values, impacting the overall distribution shape. The positive kurtosis suggests the presence of extreme ROE values, both positive and negative.

Each factor comprises 418 observations, resulting in a total of 2,508 observations utilized for this research from all 6 factors. During the data collection process for the research, earnings-per-share and price-to-earnings were initially considered and gathered. However, upon assessing their close relationship with share prices, these factors were excluded from the research. Their exclusion was based on the observation that their movement would replicate share price tendencies and patterns, implying a substantial impact of these factors on share prices. To explore the relationships between share prices and other factors, a correlation matrix is presented in table 4, illustrating the interconnections among various variables.

*Table 4. Correlation between variables (share price and other factors)*

	<i>Monthly av. share price</i>	<i>SBDS</i>	<i>GDP growth</i>	<i>Interest rate (monthly)</i>	<i>Inflation (monthly)</i>	<i>ROE</i>
Monthly av. share price	1	<b>-0,0164</b>	0,0127	0,1843	0,0297	0,0016

*Source: compiled by the author, using MS excel.*

The magnitude of the correlation between SBDS and monthly average share price coefficients is quite close to zero (0.0164), which suggests a weak correlation. It indicates that there is little to no linear relationship between the variables. Changes in SBDS variable are not reliably associated with changes in the share price variable based on this correlation alone.



### 3.3.1. Shares in Nasdaq Baltic stock exchange

The companies selected for the research project are all listed on the Nasdaq Baltic stock exchange. Among them, some have a longstanding presence, while others recently joined the stock exchange through initial public offerings (IPOs), contributing to the growth of this market and enhancing capital in the region. Notably, the companies listed on the Baltic Main List include Ignitis Group, Enefit Green, AUGA Group, PRFoods, Coop Pank, Delfingroup, and Šiaulių Bankas. Additionally, other companies listed on the Baltic Secondary List include Latvijas Gaze and Amber Latvijas Balzams. Daily share prices of all companies provided in figure 16.

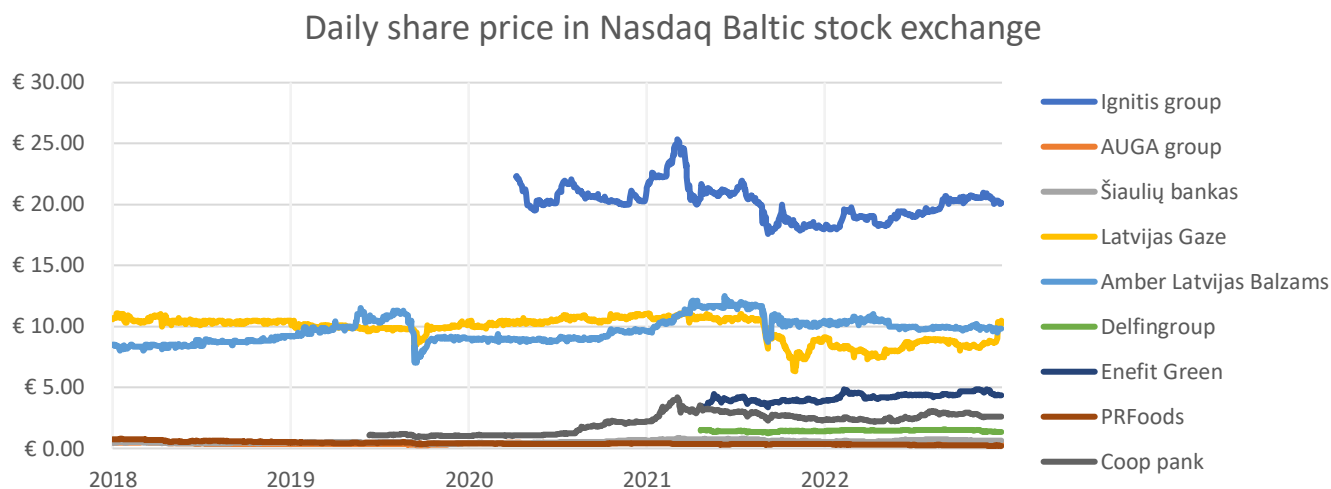


Figure 16. Daily share prices of 9 companies listed in Nasdaq Baltic stock exchange

Source: compiled by the author, based on (Nasdaq Baltic, 2023b)

The visual in figure 16 shows the daily share prices of the analysed companies from the second quarter of 2018 to the second quarter of 2023. Ignitis Group boasts the highest share price, not only among the analysed companies but also across all companies listed in the Nasdaq Baltic stock market. While all companies exhibit relatively similar movements in share prices, there are some exceptions. Worst-performing company is PRFood which experienced a constant decline during that period.

Among the analysed companies, some, such as Šiaulių bankas, AUGA group, and PRFoods, have what are commonly referred to as "penny" stocks it means that companies that share price is below 1 EUR and is measured in cents. Further analysis based on an industry and a country is presented in figure 17, illustrating the daily share prices.

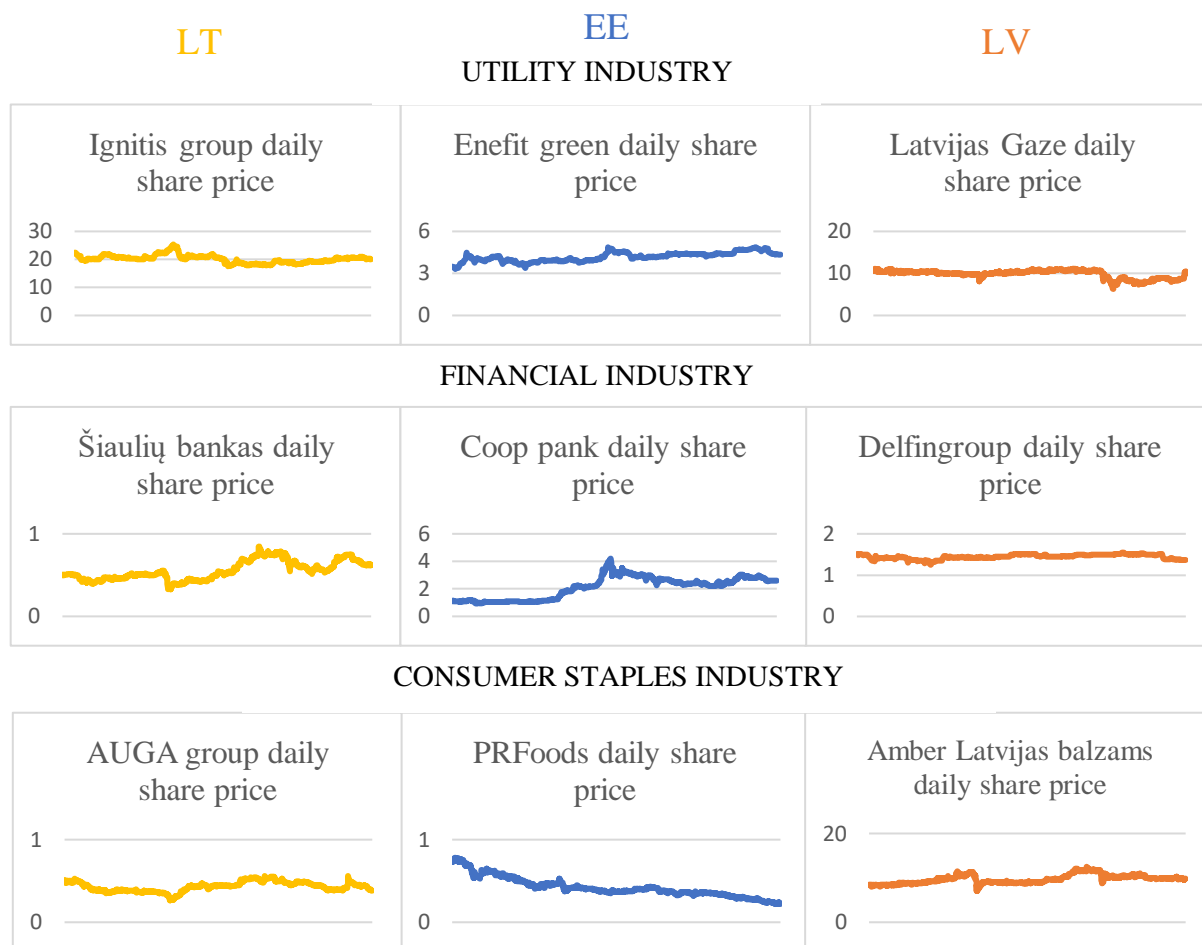


Figure 17. Daily share prices divided into sectors and countries

Source: compiled by the author, based on (Nasdaq Baltic, 2023b)

In a global context, the share prices of all analysed companies are relatively small, considering the Nasdaq Baltic is a comparatively small financial market. The impact of the COVID-19 pandemic and the ensuing economic downturn is evident in a common trend where share prices decreased around the end of the third quarter 2020. While there was an increase in share prices in the third quarter of 2021, they subsequently began decreasing again, with some companies, like Latvijas Gaze, experiencing a more significant decline from 2022 compared to others. Overall, companies in the Utility industry have higher share prices compared to other industries. This can be attributed to the stability provided by their regulated business model, offering a level of predictability. Energy-related companies like Enefit Green and Ignitis Group have demonstrated growth but with some volatility. Enefit Green's upward trend in the first half of 2023 aligns with potential growth in the renewable energy market. The energy sector is sensitive

to regulatory changes, market conditions, and geopolitical factors, influencing share price movements. When evaluating the change in share prices from the first half of 2018 to the first half 2023, certain companies, including Enefit Green, Šiaulių bankas, Coop Pank, and Amber Latvijas Balzam, have seen an increase in share prices compared to the first half 2018 (or the day they were listed). On the other hand, other companies have lower share prices compared to the first half 2018, remaining relatively stable, except for PRFood, whose share price decreased nearly three-times.

### 3.3.2. Sustainable business development effect on companies share price

After reviewing the Nasdaq Baltic stock exchange market, conducting an analysis of SBDS evaluations, and assessing the share prices of selected companies from the first half of 2018 to the first half of 2023, the next step is to statistically evaluate whether sustainable business development, as expressed in SBDS, has an effect on share prices. This important phase of the research that aims to confirm or refute the raised hypothesis. All data used for quantitative research is detailed and accompanied by descriptive statistics. The quantitative research methodology, as outlined in the methodology part, forms the basis for the analysis, beginning with linear regression.

```

Residuals:
    Min       1Q   Median       3Q      Max
-9.8026 -2.3944 -0.0998  2.2488  9.0993

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)    4.58147    0.83186   5.508 6.44e-08 ***
`SBD score`   -3.12374    0.25522  -12.240 < 2e-16 ***
`Inflation (monthly)`
-0.10974    0.02395   -4.583 6.11e-06 ***
`GDP growth`    0.06067    0.08696    0.698  0.486
`Interest Rate (monthly)`
 0.87582    0.19879    4.406 1.35e-05 ***
ROE            0.06469    0.01401    4.616 5.24e-06 ***
as.factor(Industry)Utilities  14.38524    0.57009   25.233 < 2e-16 ***
as.factor(Industry)Consumer Staples  6.14218    0.56371   10.896 < 2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 3.563 on 410 degrees of freedom
Multiple R-squared:  0.6493, Adjusted R-squared:  0.6433
F-statistic: 108.4 on 7 and 410 DF,  p-value: < 2.2e-16

```

Figure 18. Linear regression model

Source: compiled by the author, using Rstudio (RStudio, n.d.)

The linear regression analysis shows that SBDS demonstrates a statistically significant impact on share prices, with a coefficient of 0.25522. But a lower SBDS is associated with a higher Monthly Average Share Price, although higher SBDS means worse evaluation of sustainable business development which is a counterintuitive relationship. Additionally, other variables exhibit considerable effects on share prices. The industry categories of Utilities and Consumer

Staples positively influence share prices. The Utilities industry is associated with a 0.57009 increase in the share price compared to other industries, this can be attributed to the perception of stability and reliability associated with Utility companies. The Consumer Staples industry is associated with a 0.56371 increase in the share price compared to other industries. Moreover, the ROE and monthly interest rates shows impacts on a share price. A one-unit increase in the ROE is associated with a 0.01401 increase in the share price. ROE reflects a company's profitability relative to its equity. A higher ROE indicates efficient use of shareholder equity, which is often perceived positively by investors. Interest rates can impact the cost of capital and borrowing for companies. A positive coefficient implies that, holding other factors constant, a one-unit increase in monthly interest rates is associated with a 0.19879 increase in the share price. This relationship may be influenced by the borrowing costs and overall economic conditions. These findings underscore the multifaceted nature of factors influencing share prices, where sustainable development, industry category, ROE, and interest rates all contribute significantly to the observed variations. All coefficients are statistically significant, as indicated by the low p-values, which suggests that changes in these independent variables are associated with statistically significant changes in the share price. An R-squared of 0.6493 indicates that approximately 64.93% of the variability in share prices is explained by the model. The adjusted R-squared accounts for the number of predictors, providing a more accurate measure. The adjusted R-squared is 0.6433, suggesting that the model has a good fit, considering the number of variables included.

As per the methodology, an alternative approach is to assess panel data, taking into consideration both time-series and cross-sectional variation. This allows for the capture of time-specific effects and entity-specific effects.

```

Residuals:
  Min.  1st Qu.  Median  3rd Qu.  Max.
-2.16991 -0.17556  0.03059  0.25469  3.20177

Coefficients:
              Estimate Std. Error t-value Pr(>|t|)
SBD.score    -0.0284409  0.1367567  -0.2080  0.83536
Inflation..monthly. -0.0068167  0.0048774  -1.3976  0.16300
GDP.growth    0.0188365  0.0169741   1.1097  0.26778
Interest.Rate..monthly. 0.0158774  0.0403542   0.3934  0.69419
ROE           -0.0080642  0.0033171  -2.4311  0.01549 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Total Sum of Squares:    199.23
Residual Sum of Squares: 193.59
R-Squared:               0.02828
Adj. R-Squared:         -0.0029886
F-statistic: 2.3515 on 5 and 404 DF, p-value: 0.040185

```

Figure 19. Panel data model with multiple variables

Source: compiled by the author, using Rstudio (RStudio, n.d.)

The panel data model was employed to assess the relationship between the Monthly Average Share Price and various independent variables. The analysis utilized a within-effects model, capturing individual entity-specific variations over the observed time period ( $T = 21-60$ ) for a panel of nine companies ( $N = 418$ ). The coefficients for the independent variables were estimated, and the results indicate that only ROE demonstrated a statistically significant impact on share prices (Estimate =  $-0.0080642$ ,  $p$ -value =  $0.01549$ ). The negative coefficient suggests that as ROE increases, there is a corresponding decrease in the share price. While high ROE is generally considered favourable, extremely high ROE might suggest that a company is highly leveraged, potentially indicating financial risk, therefore investors may become cautious about companies with exceptionally high ROE. The other independent variables, including the SBDS, inflation, GDP growth, and monthly interest rate, did not exhibit statistically significant associations with share prices. A significant F-statistic ( $F = 2.3515$ ,  $p$ -value =  $0.040185$ ) suggests that the model, as a whole, is statistically significant and provides evidence against the null hypothesis that none of the variables have an effect. However, the modest R-squared value ( $0.02828$ ) suggests that the model explains only a limited proportion of the variability in share prices. Therefore, there is a need to evaluate fixed and random models that would identify if entity-specific characteristics are (not) correlated with the independent variables.

```

Unbalanced Panel: n = 9, T = 21-60, N = 418

Residuals:
  Min. 1st Qu.  Median 3rd Qu.  Max.
-2.16991 -0.17556  0.03059  0.25469  3.20177

Coefficients:

                Estimate Std. Error t-value Pr(>|t|)
SBD.score      -0.0284409  0.1367567  -0.2080  0.83536
Inflation..monthly. -0.0068167  0.0048774  -1.3976  0.16300
GDP.growth      0.0188365  0.0169741   1.1097  0.26778
Interest.Rate..monthly. 0.0158774  0.0403542   0.3934  0.69419
ROE             -0.0080642  0.0033171  -2.4311  0.01549 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Total Sum of Squares:    199.23
Residual Sum of Squares: 193.59
R-Squared:               0.02828
Adj. R-Squared:         -0.0029886
F-statistic: 2.3515 on 5 and 404 DF, p-value: 0.040185

```

Figure 20. Fixed model

Source: compiled by the author, using Rstudio (RStudio, n.d.)

The coefficient in fixed model estimates variables highlight that SBDS, monthly inflation, GDP growth, and monthly interest rates do not exhibit statistically significant effects on share prices. A one-unit increase in the SBDS is associated with a decrease of 0.0284409 units in the share price. However, this coefficient is not statistically significant (p-value = 0.83536), suggesting that changes in SBDS are not related to changes in share prices. ROE emerges as a significant determinant, with a negative impact on share prices. A one-unit increase in ROE is associated with a decrease of 0.0080642 units in the share price. This effect is statistically significant (p-value = 0.01549), suggesting that higher ROE is linked to lower share prices. The model's overall explanatory power is humble, as indicated by an R-squared value of 0.02828 which indicates that the model explains only a small proportion of the variability in share prices. The adjusted R-squared accounts for the number of predictors and is slightly negative, suggesting limited improvement in model fit after accounting for complexity. The F-statistic of 2.3515 with a p-value of 0.040185 implies the overall statistical significance of the model. However, the modest R-squared suggests that the model's explanatory power is limited.

The lack of statistical significance suggests that changes in SBDS are not correlated with share price movements. Monthly Inflation, GDP growth, monthly interest rate variables do not show statistically significant relationships with share prices, implying that short-term economic

indicators may not be strong predictors in this context. The negative and statistically significant coefficient indicates that as a company's ROE increases, its share price tends to decrease. This could be interpreted as investors perceiving higher ROE as a risk or overvaluation, leading to lower share prices. These results show that industry-specific factors are shaping share prices rather than financial or economic ones. Now, to assess whether entity-specific factors are uncorrelated with share prices, a random effects model is used.

```

Unbalanced Panel: n = 9, T = 21-60, N = 418

Effects:
      var std.dev share
idiosyncratic 0.4792 0.6922 0.166
individual    2.4133 1.5535 0.834
theta:
  Min. 1st Qu.  Median    Mean 3rd Qu.  Max.
  0.9032 0.9322 0.9426 0.9360 0.9426 0.9426

Residuals:
  Min. 1st Qu.  Median    Mean 3rd Qu.  Max.
 -2.249 -0.338 -0.122  0.004  0.313  3.830

Coefficients:
              Estimate Std. Error z-value Pr(>|z|)
(Intercept)    1.8646253  1.0283408  1.8132  0.0698 .
SBD.score     -0.1591466  0.1456952 -1.0923  0.2747
Inflation..monthly. -0.0081798  0.0052773 -1.5500  0.1211
GDP.growth     0.0195197  0.0183797  1.0620  0.2882
-----
Interest.Rate..monthly.  0.0182619  0.0436855  0.4180  0.6759
ROE                 -0.0073716  0.0035858 -2.0558  0.0398 *
factor(Industry)Utilities  10.0518533  1.3841050  7.2623 3.804e-13 ***
factor(Industry)Consumer Staples  2.0683168  1.3864831  1.4918  0.1358
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Total Sum of Squares:    274.38
Residual Sum of Squares: 230.37
R-Squared:              0.16043
Adj. R-Squared:         0.1461
Chisq: 70.0701 on 7 DF, p-value: 1.43e-12

```

Figure 21. Random model

Source: compiled by the author, using Rstudio (RStudio, n.d.)

The random-effects panel data model reveals that the SBDS with increasing scores (which means more negative evaluation) has an impact on companies share price while SBDS increases by one-point share prices decreases by (-0,159), although p-value implies that the SBDS effect is not statistically significant. While SBDS is not statistically significant it suggests that as the score increases (indicating a more negative evaluation of sustainable business development), share prices tend to decrease. This implies a potential negative relationship between sustainability evaluations and share prices. Monthly inflation, and GDP growth do not exhibit significant effects, ROE and industry categorization (Utilities and Consumer Staples) demonstrate significant impacts

on share prices. Being in the Utilities industry significantly impacts share prices, leading to a substantial increase. However, the Consumer Staples industry does not show a statistically significant effect. This underscores the importance of industry-specific dynamics in shaping share price variations. The model explains approximately 16.04% of the variability in share prices as R-squared is (0.16043). The adjusted R-squared accounts for the number of predictors, suggesting that around 14.61% of the variability is explained after adjusting for the model's complexity. The highly significant Chisq and low p-value indicate overall statistical significance showing that at least one predictor is contributing significantly to the model.

The presence of individual-specific effects suggests that there are unobserved factors contributing to share price variations. These factors could include company-specific strategies, market positioning, or other industry-specific characteristics not captured by the measured variables. The significant impact of the Utilities industry indicates the importance of considering industry-specific dynamics in understanding share price variations. Industry trends, regulations, or market conditions may play a crucial role in influencing share prices. By assessing fixed and random models there is a need to evaluate which model fits better and for that answer Hausman test is utilized in table 5.

*Table 5. Hausman Test*

<b>HAUSMAN TEST</b>	
<i>chisq</i>	6.8084
<i>p-value</i>	0.2353

*Source: compiled by the author, using Rstudio (RStudio, n.d.)*

Hausman test shows that the random model is better than the fixed model, revealing that the random effects model better captures the underlying dynamics. Since the p-value is not statistically significant, the random-effects model is considered appropriate in this context. Assumptions of the Hausman test show that the errors in the fixed-effects and random-effects models are homoscedastic (constant variance). Deviations from homoscedasticity could affect the reliability of the test. For endogeneity test assumes that there is no endogeneity issue affecting the model. The random effects in the model are assumed to be exogenous.

At the conclusion of the quantitative research, it is crucial to perform statistical diagnostic tests to ensure the validity of all data and results. Statistical tests show that by the Shapiro-Wilk



normality test (annex 3) the p-value is extremely small ( $< 0.001$ ), suggesting strong evidence to reject the null hypothesis. Therefore, the conclusion is that the residuals are not normally distributed. In Breusch-Pagan test for heteroscedasticity (annex 4) results showed that the p-value is highly significant, indicating evidence against the null hypothesis of homoscedasticity. Therefore, heteroscedasticity is detected, implying that the variability of residuals is not constant across all levels of the independent variables. And in variance inflation factors (VIF) (annex 5) results indicate that there is little to no multicollinearity among the predictor variables in the regression model, which is favourable for the reliability of coefficient estimates.

Although the linear regression model shows significance between SBDS and share prices based on the results from the random-effects model, 1st hypothesis ( $H_1$ ) is rejected that the SBDS has a significant impact on share prices. Although there is no significant relationship between the SBDS and share prices as the p-value of 0.146 indicates that the effect is not statistically significant at the conventional significance level of 0.05.

*Table 6. Raised hypothesis and its evaluation*

RAISED HYPOTHESIS	VALIDATION OR REJECTION
<b>H1:</b> Sustainable business development has an impact on companies share prices in the Nasdaq Baltic stock exchange market.	<b>H1: is rejected</b> , the coefficient for the SBDS in the random-effects model was not statistically significant, suggesting that the SBDS may not have a direct impact on monthly average share prices.
<b>H2:</b> Implementation of sustainable business development increases share price in Nasdaq Baltic stock exchange market.	<b>H2: is confirmed</b> , when SBDS increases (which means worse evaluation) by one-point share prices decreases by (-0,159), there for more negative evaluation results in share price decrease
<b>H3:</b> Performance in evaluation of a company's sustainable business development depends on industry specifics.	<b>H3: is confirmed</b> , in sustainable business development industry specifics are factors that highly influence SBDS and also influence share prices.

*Source: compiled by the author*

The results do not strongly support the  $H_2$  hypothesis that the implementation of sustainable business development universally increases share prices. But results show that the worse evaluation of SBDS decreases share price, therefore  $H_2$  hypothesis is confirmed, but with the idea that it is necessary to do more research. The nuanced findings suggest that other factors, such as entity-specific characteristics and industry dynamics, may outweigh the impact of sustainability practices on share prices. During the quantitative research phase, a conclusion was drawn regarding the  $H_3$  hypothesis, asserting that industry-specifics influence the assessment of

sustainable business development. The findings indicate that the implementation of sustainable development practices is contingent upon aligning with the business activities and industry in which a company operates.

By trying to evaluate factors that have an effect on companies' share prices thorough analysis was utilized by using various statistical methods. The evidence is mixed. While the SBDS did exhibit significance in the linear regression model, its impact was inconsistent across different analyses. The entity-specific characteristics, as captured in the fixed and random effects models, appear to play a more substantial role in shaping share prices. Industry categorizations, ROE, and monthly interest rates exhibited substantial impacts, shedding light on the nuanced dynamics of share price determination. Recognizing the limitations of a linear regression approach, there was panel data analysis done to capture time and entity-specific variations. The fixed-effects model emphasized the significance of ROE, underlining its negative influence on share prices. Other variables, including the SBDS, failed to demonstrate statistically significant associations. This hinted at the possibility that entity-specific characteristics play a pivotal role in shaping share prices, overshadowing broader economic and financial factors. In contrast, the random-effects model introduced a nuanced perspective. While the SBDS did not exhibit a statistically significant impact, ROE and industry categorizations (specifically Utilities) emerged as robust determinants of share prices. The Hausman test provided valuable insights, suggesting that the random-effects model is more appropriate, considering the endogeneity of certain variables. This implies that unobserved individual-specific characteristics play a crucial role in shaping share prices. In essence, this comprehensive analysis underscores the multifaceted nature of share price dynamics. While sustainable practices, as measured by the SBDS, may not be the sole driver, industry-specific and entity-specific factors demand careful consideration.

## CONCLUSIONS AND RECOMMENDATIONS

1. The United Nations stands as a key driver in the establishment and maintenance of global sustainability and its transformation. Since the early 1970s with conferences on human environment, this institution has been instrumental in organising international agreements aimed at advancing environmental improvement, improving social inclusion, and boosting economic efficiency. With laying the groundwork for the sustainable development framework, the UN has played a crucial role in shaping sustainable business development reporting systems, metrics, and measurement units, providing a means to understand the significance of sustainability, how to measure it, and monitor progress toward established goals. Most of the world directs its plans and actions towards a more sustainable existence under the guidance of the 2030 Agenda for Sustainable Development and the Paris Agreement, as well as the EU by establishing the Green deal, countries, businesses, and individuals must align their actions to achieve the intended goals for the future.
2. Sustainable business development is part of a strategy to stimulate business growth that involves a comprehensive examination of the business model and its essential elements, such as stakeholders, the created business value from its activities, the supply chain, core and organizational values, performance management, and human capital. The integration of sustainable development into a business strategy focuses on environmental, economic, and social considerations, allowing a company to have a positive impact by establishing strong governance which provides clear direction, and makes decisive decisions. Implementing sustainable design encourages the adoption of new innovations and technology to create products and (or) services which would participate in a circular economy, ultimately contributing to the achievement of globally agreed-upon sustainable development goals.
3. Companies that are publicly listed offer their shares on a stock exchange as a means to generate capital. The pricing of these shares is affected by a number of factors and events, some of which exert a direct influence, while others do so indirectly. The volatility of share prices for listed companies comes from both qualitative elements, such as company growth, stakeholder needs, M&A, transparency, sustainability initiatives, governance, news and media coverage, reputation, politics, market conditions, investor psychology, and analyst reports, as well as quantitative factors, including the financial performance of the company, dividends, market capitalization, capital structure, economic indicators, demand and supply tendencies, GDP,

inflation, unemployment rates, interest rates, foreign exchange rates, and other factors. Larger companies assess potential influences on share prices to effectively manage demand and share prices, ultimately contributing to the growth and profitability of the company.

4. Baltic countries exhibit a fast-growing economy and have made strides in reducing environmental pressures, including efforts to increase renewable energy consumption and divest from natural gas. Progress in green scores, measured by reducing greenhouse gas emissions and increasing the uptake of renewable energy technologies, reflects a positive trend. SMEs dominate the Baltic economies, and there is a need for increased focus on sustainability in these businesses. Circular economy performance is below the EU average, indicating a potential area for improvement in making products and services more reusable and suitable for a circular economy. Companies on the Nasdaq Baltic stock exchange exhibit varying levels of sustainability reporting and ESG performance. The SBDS assessment indicates a moderately negative trend, with the Utilities and Consumer Staples industries having a more significant impact on environmental and social factors.
5. Although the Nasdaq Baltic stock exchange is a relatively small financial market, its parent company being Nasdaq Inc. is one of the main strengths of this exchange. By maintaining three Baltic exchanges Tallinn, Riga and Vilnius it provides liquidity with capital markets as well as advanced technology solutions and other services. Continuous innovation, collaborative initiatives, and a proactive approach to sustainability will further enhance the resilience and competitiveness of the Baltic region's financial market platform.
6. Sustainable business development is not a one-size-fits-all model, and the effectiveness of sustainable development varies across industries. Industry-specific metrics provide a targeted and meaningful assessment, acknowledging the unique challenges and opportunities that each sector faces. By employing metrics tailored to the particularities of each industry, companies can not only demonstrate their commitment to sustainable practices but also improve their relevance and credibility within their specific business environment. This approach facilitates a more accurate assessment of the correlation between sustainable business development and financial performance, offering investors, analysts, and stakeholders a comprehensive view of a company's commitment to ESG principles.
7. A comprehensive evaluation of sustainable business development extends beyond the traditional metrics of ESG compliance. It is imperative to recognize the significance of a

company's proficiency in conducting materiality assessments. This involves a strategic introspection into the aspects that are most material or impactful to the company and its stakeholders. Furthermore, an in-depth examination of a company's commitment to sustainable investments and compliance with the EU taxonomy is important. This not only shows the company's dedication to environmentally sustainable practices but also sheds light on its financial decision-making processes. Aligning business strategies with the EU taxonomy demonstrates a commitment to transparency, responsible finance, and an understanding of the broader implications of financial choices on sustainability.

8. SBDS does not have a significant impact on companies share price. But given the significant impact of industry categorization on share prices, companies may benefit from industry-specific sustainability strategies tailored to their sector. Companies should prioritize the effective communication of their sustainability initiatives to investors and stakeholders. Embracing and maintaining transparent reporting is essential, as it aids stakeholders and investors in understanding the long-term value that a company creates or aspires to create. This, in turn, could have an impact on the share prices of listed companies.
9. The current regulatory framework on sustainability in the Baltic region appears insufficient to promote implementation of sustainable business development, especially within the context of SMEs that dominate the market. While larger corporations may navigate existing regulations more effectively, SMEs often face challenges in adopting sustainable practices due to limited resources and awareness.
10. The opportunity exists to enhance sustainability engagement by introducing targeted guidelines and regulations specifically tailored to SMEs scale and capacities. By establishing clear frameworks, providing incentives, and offering support mechanisms, policymakers can empower SMEs to improve on sustainable business practices. This not only aligns with the broader global trend towards responsible business conduct but also ensures a more inclusive and impactful approach to implement sustainability within the Baltic region. Through such initiatives, the region can potentially witness a more comprehensive integration of sustainable development practices across businesses, contributing to both environmental and economic well-being in the long term.
11. This research result proposes that future studies should incorporate more industry-specific factors in assessing sustainable business development.

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## ANNEXES

Annex 1. The European green deal initiatives their purposes and goals

INITIATIVE	PURPOSE	GOALS
<b>FIT FOR 55</b>	set of proposals to revise climate-, energy- and transport-related legislation and put in place new legislative initiatives to align EU laws with the EU's climate goals.	<ul style="list-style-type: none"> <li>○ <b>ensure a just and socially fair transition</b></li> <li>○ <b>maintain and strengthen innovation and competitiveness of EU industry</b></li> </ul>
<b>EUROPEAN CLIMATE LAW</b>	EU and its member states committed to cutting net greenhouse gas emissions in the EU	<ul style="list-style-type: none"> <li>○ <b>at least 55% net emissions cut by 2030</b></li> </ul>
<b>EU STRATEGY ON ADAPTATION TO CLIMATE CHANGE</b>	strategy outlines a long-term vision for the EU to become a climate-resilient society that is fully adapted to the unavoidable impacts of climate change by 2050	
<b>EU BIODIVERSITY STRATEGY FOR 2030</b>	recover Europe's biodiversity	<ul style="list-style-type: none"> <li>○ <b>restore at least 20% of the EU's land and sea areas by 2030</b></li> </ul>
<b>FARM TO FORK STRATEGY</b>	shifting the current EU food system towards a sustainable model.	
<b>EUROPEAN INDUSTRIAL STRATEGY</b>	accelerate and enable change, innovation and growth in industry sector	
<b>CIRCULAR ECONOMY ACTION PLAN</b>	decoupling economic growth from resource use and shifting to circular systems in production and consumption is key to achieving EU climate neutrality by 2050	
<b>BATTERIES AND WASTE BATTERIES</b>	regulation on batteries to create a circular economy for the sector by targeting all stages of the life cycle of batteries, from design to waste treatment	
<b>A JUST TRANSITION</b>	just transition mechanism to provide financial and technical support to the regions most affected by the move towards a low-carbon economy	
<b>CLEAN, AFFORDABLE AND SECURE ENERGY</b>	decarbonisation of the energy sector	
<b>EU CHEMICALS STRATEGY FOR SUSTAINABILITY</b>	Protect human health, support a toxic-free environment	
<b>FOREST STRATEGY AND DEFORESTATION</b>	sustainable forest management, improving size and biodiversity of forests	<ul style="list-style-type: none"> <li>○ <b>3 billion new trees by 2030</b></li> </ul>

Source: compiled by the author, based on (European Commission, 2023c)

## Annex 2. ESG factor issues

ENVIRONMENTAL	SOCIAL	GOVERNANCE
Climate risk and mitigation	Diversity and inclusion	Board diversity, quality, effectiveness and accountability
Greenhouse gas emissions	Pay equity	Risk and opportunity management
Energy efficiency	Skills for the future	Capital allocation
Water consumption	Dignity and equity	Compensation policies
Pollution and waste	Human capital	Transparency in shareholder and stakeholder communications
Natural resource scarcity	Innovation of better products and services	Succession planning
Sustainable materials sourcing	Changing social views on data privacy	Shareholder rights
Clean energy and technologies	Health and well-being	
Product stewardship	Employment and wealth generation	
Biodiversity	Community impact	
	Ethical behaviour	

Source: compiled by the author, based on (Ernst & Young Baltic UAB, 2022)

## Annex 3. Ratios that are used for evaluating performance of a company (by making a decision to invest)

RATIOS	DESCRIPTION
DPR	The Dividend Pay-out Ratio (DPR) is the ratio used to show the share of income paid as dividends to investors.
DPS	Dividend per share is a ratio that measures how much dividend is distributed compared to the number of shares outstanding in a given year.
EPS	Earnings per Share (EPS) is the ratio used to calculate the net profit/profit obtained from a share.
P/E	Price/earnings ratio offers an easy way to identify firms whose shares seem under-priced or overpriced relative to the market.
PBV	Price to book value is a valuation ratio to assess how expensive or cheap a stock is by comparing the stock price to the company's book value.
ROE	Return On Equity measures the income (income) available to company owners (both common and preferred stockholders) for the capital they invest in the company.
ROA	Return on asset is a ratio that explains a company is able to manage all assets effectively and efficiently to obtain profit after interest and taxes.

Sources: compiled by the author, based on (Ilyas Sindhu Mohammad Ali et al., 2014; Marc Levinson, 2005; Nugroho et al., 2022; Siregar et al., 2023; Sun & Hong, 2021)

## Annex 4. Sustainable business development score evaluation

		Ignitis group	Enefit green	Latvijas gaze	AUGA group	PRFoods	Amber Latvijas Balzams	Coop Pank	Delfin group	Šiaulių banks		
2023 (H1)		<b>Core evaluation</b>										
	40 % weight of final score	sustainability reporting (30%)	8	6	5	9	4	6	6	9	8	
		Sector (20%)	5	5	5	3	3	3	8	8	8	
		Sustainable investments (20 %)	9	8	4	5	5	6	6	5	7	
		Materiality assessment (30%)	8	7	6	9	3	5	6	6	8	
	<b>SCORE -&gt;</b>		<b>3,04</b>	<b>2,6</b>	<b>2,04</b>	<b>2,8</b>	<b>1,48</b>	<b>2,04</b>	<b>2,56</b>	<b>2,84</b>	<b>3,12</b>	
	60 % weight	<b>Extended evaluation</b>										
		Environmental 30 %	Decarbonisation	5	7	6	6	5	5	8	7	7
			water management	7	6	6	5	6	5	N/A	N/A	N/A
			waste and pollution	6	6	5	5	6	5	N/A	N/A	N/A
		Social 20 %	gender pay	9	0	0	5	0	0	0	5	5
			total injuries in a company	9	10	10	5	0	0	0	10	0
			social initiatives	8	8	3	7	7	7	6	9	8
		Governance 50 %	board diversity	9	2	2	3	1	3	1	1	3
board independence			7	4	4	10	8	8	10	6	7	
ethics / anti-corruption policy			8	8	5	9	6	10	8	10	10	
transparency (financial, annual, sustainability report)			9	8	7	10	7	8	8	10	10	
<b>SCORE -&gt;</b>		<b>4,595</b>	<b>3,51</b>	<b>2,89</b>	<b>4,04</b>	<b>2,95</b>	<b>3,355</b>	<b>3,705</b>	<b>4,245</b>	<b>4,03</b>		
<b>FINAL SCORE -&gt;</b>		<b>7,635</b>	<b>6,11</b>	<b>4,93</b>	<b>6,84</b>	<b>4,43</b>	<b>5,395</b>	<b>6,265</b>	<b>7,085</b>	<b>7,15</b>		
		Ignitis group	Enefit green	Latvijas gaze	AUGA group	PRFoods	Amber Latvijas Balzams	Coop Pank	Delfin group	Šiaulių banks		
2022		<b>Core evaluation</b>										
	40 % weight of final score	sustainability reporting (30%)	9	6	5	9	4	6	6	9	8	
		Sector (20%)	5	5	5	3	3	3	8	8	8	
		Sustainable investments (20 %)	9	8	4	5	5	6	6	5	7	
		Materiality assessment (30%)	10	7	6	9	3	5	6	6	8	
	<b>SCORE -&gt;</b>		<b>3,4</b>	<b>2,6</b>	<b>2,04</b>	<b>2,8</b>	<b>1,48</b>	<b>2,04</b>	<b>2,56</b>	<b>2,84</b>	<b>3,12</b>	
	60 % weight	<b>Extended evaluation</b>										
		Environmental 30 %	Decarbonisation	5	7	6	6	5	5	8	7	7
			water management	8	6	6	5	6	5	N/A	N/A	N/A
			waste and pollution	6	6	5	5	6	5	N/A	N/A	N/A
		Social 20 %	gender pay	9	0	0	5	0	0	0	5	5
			total injuries in a company	6	10	10	5	0	0	0	10	0
			social initiatives	9	8	3	7	7	7	6	9	8
		Governance 50 %	board diversity	8	2	2	3	1	3	1	1	3
board independence			7	4	4	10	8	8	10	6	7	
ethics / anti-corruption policy			10	8	5	9	6	10	8	10	10	
transparency (financial, annual, sustainability report)			10	8	7	10	7	8	8	10	10	
<b>SCORE -&gt;</b>		<b>4,725</b>	<b>3,51</b>	<b>2,89</b>	<b>4,04</b>	<b>2,95</b>	<b>3,355</b>	<b>3,705</b>	<b>4,245</b>	<b>4,29</b>		
<b>FINAL SCORE -&gt;</b>		<b>8,125</b>	<b>6,11</b>	<b>4,93</b>	<b>6,84</b>	<b>4,43</b>	<b>5,395</b>	<b>6,265</b>	<b>7,085</b>	<b>7,41</b>		
		Ignitis group	Enefit green	Latvijas gaze	AUGA group	PRFoods	Amber Latvijas Balzams	Coop Pank	Delfin group	Šiaulių banks		
2021		<b>Core evaluation</b>										
	40 % weight of final score	sustainability reporting (30%)	9	3	5	9	4	6	6	9	8	
		Sector (20%)	5	5	5	3	3	3	8	8	8	
		Sustainable investments (20 %)	7	8	1	5	5	6	6	5	7	
		Materiality assessment (30%)	10	0	6	9	3	5	6	6	7	
	<b>SCORE -&gt;</b>		<b>3,24</b>	<b>1,4</b>	<b>1,8</b>	<b>2,4</b>	<b>1,48</b>	<b>2,04</b>	<b>2,56</b>	<b>2,84</b>	<b>3</b>	
	60 % weight	<b>Extended evaluation</b>										
		Environmental 30 %	Decarbonisation	5	5	6	5	5	5	8	7	7
			water management	7	6	6	4	6	5	N/A	N/A	N/A
			waste and pollution	5	6	5	4	6	5	N/A	N/A	N/A
		Social 20 %	gender pay	9	0	0	5	0	0	0	8	5
			total injuries in a company	7	10	10	6	0	0	0	10	0
			social initiatives	9	8	3	7	7	7	6	9	7
		Governance 50 %	board diversity	9	2	2	3	1	3	1	1	3
board independence			8	4	4	10	8	8	10	6	7	
ethics / anti-corruption policy			10	6	5	8	6	10	8	7	10	
transparency (financial, annual, sustainability report)			10	6	7	10	7	8	8	10	10	
<b>SCORE -&gt;</b>		<b>4,795</b>	<b>3,09</b>	<b>2,89</b>	<b>3,825</b>	<b>2,95</b>	<b>3,355</b>	<b>3,705</b>	<b>4,14</b>	<b>3,99</b>		
<b>FINAL SCORE -&gt;</b>		<b>8,035</b>	<b>4,49</b>	<b>4,69</b>	<b>6,225</b>	<b>4,43</b>	<b>5,395</b>	<b>6,265</b>	<b>6,98</b>	<b>6,99</b>		

		Ignitis group	Enefit green	Latvijas gaze	AUGA group	PRFoods	Amber Latvijas Balzams	Coop Pank	Delfin group	Šiaulių bankas
2020	<b>Core evaluation</b>									
	40 % weight of final score									
	sustainability reporting (30%)	8		5	9	4	6	6		8
	Sector (20%)	5		5	3	3	3	8		8
	Sustainable investments (20 %)	8		0		5	6	5		6
	Materiality assessment (30%)	9		6	8	3	5	6		6
	<b>SCORE - &gt;</b>	<b>3,08</b>		<b>1,72</b>	<b>2,28</b>	<b>1,48</b>	<b>2,04</b>	<b>2,48</b>		<b>2,8</b>
	60 % weight									
	<b>Extended evaluation</b>									
	Environmental 30 %									
	Decarbonisation	7		5	5	5	4	7		6
	water management	8		6	4	6	5	N/A		N/A
	waste and pollution	6		5	3	6	5	N/A		N/A
	Social 20 %									
gender pay	9		0	4	0	0	0	0	5	
total injuries in a company	9		10	7	0	0	0	0	0	
social initiatives	8		3	7	7	7	6	6	7	
Governance 50 %										
board diversity	9		2	1	1	4	1	1	3	
board independence	7		4	10	8	8	10	10	7	
ethics / anti-corruption policy	9		5	8	4	10	8	8	10	
transparency (financial, annual, sustainability report)	10		7	10	7	6	8	8	10	
<b>SCORE - &gt;</b>	<b>4,925</b>		<b>2,83</b>	<b>3,615</b>	<b>2,8</b>	<b>3,22</b>	<b>3,525</b>		<b>3,81</b>	
<b>FINAL SCORE - &gt;</b>	<b>8,005</b>		<b>4,55</b>	<b>5,895</b>	<b>4,28</b>	<b>5,26</b>	<b>6,005</b>		<b>6,61</b>	
2019	<b>Core evaluation</b>									
	40 % weight of final score									
	sustainability reporting (30%)	8		5	6	4	6			7
	Sector (20%)	5		5	3	3	3			8
	Sustainable investments (20 %)	9		0		5	6			5
	Materiality assessment (30%)	4		6	8	2	5			5
	<b>SCORE - &gt;</b>	<b>2,56</b>		<b>1,72</b>	<b>1,92</b>	<b>1,36</b>	<b>2,04</b>			<b>2,48</b>
	60 % weight									
	<b>Extended evaluation</b>									
	Environmental 30 %									
	Decarbonisation	6		5	4	5	4			5
	water management	7		5	4	6	5			N/A
	waste and pollution	7		6	2	6	5			N/A
	Social 20 %									
gender pay	9		0	5	0	0			5	
total injuries in a company	5		8	8	0	0			0	
social initiatives	7		3	5	7	7			7	
Governance 50 %										
board diversity	8		2	1	1	4			3	
board independence	7		4	10	8	8			7	
ethics / anti-corruption policy	7		5	8	3	10			10	
transparency (financial, annual, sustainability report)	10		7	10	7	6			10	
<b>SCORE - &gt;</b>	<b>4,44</b>		<b>2,75</b>	<b>3,495</b>	<b>2,725</b>	<b>3,22</b>			<b>3,63</b>	
<b>FINAL SCORE - &gt;</b>	<b>7</b>		<b>4,47</b>	<b>5,415</b>	<b>4,085</b>	<b>5,26</b>			<b>6,11</b>	
2018	<b>Core evaluation</b>									
	40 % weight of final score									
	sustainability reporting (30%)	8		4	6	2	5			7
	Sector (20%)	5		5	3	3	3			8
	Sustainable investments (20 %)	9		0		4	5			5
	Materiality assessment (30%)	4		5	8	1	4			5
	<b>SCORE - &gt;</b>	<b>2,56</b>		<b>1,48</b>	<b>1,92</b>	<b>0,92</b>	<b>1,72</b>			<b>2,48</b>
	60 % weight									
	<b>Extended evaluation</b>									
	Environmental 30 %									
	Decarbonisation	6		3	4	4	4			5
	water management	7		3	4	6	5			N/A
	waste and pollution	7		2	2	5	5			N/A
	Social 20 %									
gender pay	9		0	5	0	0			5	
total injuries in a company	5		10	8	0	0			0	
social initiatives	7		3	5	7	7			7	
Governance 50 %										
board diversity	8		2	1	1	4			3	
board independence	7		4	10	8	8			7	
ethics / anti-corruption policy	7		5	8	2	5			10	
transparency (financial, annual, sustainability report)	10		6	10	6	6			10	
<b>SCORE - &gt;</b>	<b>4,44</b>		<b>2,275</b>	<b>3,495</b>	<b>2,455</b>	<b>2,845</b>			<b>3,63</b>	
<b>FINAL SCORE - &gt;</b>	<b>7</b>		<b>3,755</b>	<b>5,415</b>	<b>3,375</b>	<b>4,565</b>			<b>6,11</b>	

## Annex 5. Data used for quantitative research

Company	Month / Year	SHARE PRICE	SBD score	Monthly Average Share Price	GDP growth	Interest Rate (monthly)	Inflation (monthly)	EPS, EUR	P / E	ROE
Amber Latvijas Balzams	2023 6	9,78	3	9,78	-0,30	6,11	8,10	0,38	25,74	2,02
AUGA Group	2023 6	0,40	2	0,40	2,40	5,90	8,20	-0,02	-19,82	-12,71
Coop Pank	2023 6	2,60	2	2,60	-0,60	5,53	9,00	0,10	26,02	22,65
Delfin Group	2023 6	1,38	2	1,38	-0,30	6,11	8,10	0,04	35,33	37,00
Enefit Green	2023 6	4,48	3	4,48	-0,60	5,53	9,00	0,02	224,00	13,35
Ignitis Group	2023 6	20,33	2	20,33	2,40	5,90	8,20	0,40	50,82	13,73
Latvijas Gaze	2023 6	9,21	4	9,21	-0,30	6,11	8,10	0,31	29,71	3,91
PRFoods	2023 6	0,23	3	0,23	-0,60	5,53	9,00	-0,01	-22,85	3,80
Siauli Bankas	2023 6	0,62	2	0,62	2,40	5,90	8,20	0,13	4,79	17,48
Amber Latvijas Balzams	2023 5	9,96	3	9,96	-0,30	5,92	12,30	0,38	26,22	2,02
AUGA Group	2023 5	0,44	2	0,44	2,40	5,68	10,70	-0,02	-22,06	-12,71
Coop Pank	2023 5	2,70	2	2,70	-0,60	5,23	11,20	0,10	26,95	22,65
Delfin Group	2023 5	1,45	2	1,45	-0,30	5,92	12,30	0,04	37,16	37,00
Enefit Green	2023 5	4,75	3	4,75	-0,60	5,23	11,20	0,02	237,50	13,35
Ignitis Group	2023 5	20,65	2	20,65	2,40	5,68	10,70	0,40	51,64	13,73
Latvijas Gaze	2023 5	8,45	4	8,45	-0,30	5,92	12,30	0,31	27,25	3,91
PRFoods	2023 5	0,24	3	0,24	-0,60	5,23	11,20	-0,01	-23,95	3,80
Siauli Bankas	2023 5	0,63	2	0,63	2,40	5,68	10,70	0,13	4,86	17,48
Amber Latvijas Balzams	2023 4	9,83	3	9,83	-0,30	5,67	15,00	0,38	25,88	2,02
AUGA Group	2023 4	0,44	2	0,44	2,40	5,45	13,30	-0,02	-22,09	-12,71
Coop Pank	2023 4	2,87	2	2,87	-0,60	4,80	13,20	0,10	28,68	22,65
Delfin Group	2023 4	1,50	2	1,50	-0,30	5,67	15,00	0,04	38,58	37,00
Enefit Green	2023 4	4,66	3	4,66	-0,60	4,80	13,20	0,02	233,00	13,35
Ignitis Group	2023 4	20,48	2	20,48	2,40	5,45	13,30	0,40	51,19	13,73
Latvijas Gaze	2023 4	8,37	4	8,37	-0,30	5,67	15,00	0,31	26,99	3,91
PRFoods	2023 4	0,25	3	0,25	-0,60	4,80	13,20	-0,01	-24,57	3,80
Siauli Bankas	2023 4	0,67	2	0,67	2,40	5,45	13,30	0,13	5,17	17,48
Amber Latvijas Balzams	2023 3	9,91	3	9,91	-0,50	5,50	17,20	0,60	16,52	3,20
AUGA Group	2023 3	0,46	2	0,46	-1,90	5,19	15,20	-0,01	-46,44	-23,55
Coop Pank	2023 3	2,84	2	2,84	-0,80	4,71	15,60	0,09	31,52	19,16
Delfin Group	2023 3	1,51	2	1,51	-0,50	5,50	17,20	0,04	42,02	35,00
Enefit Green	2023 3	4,40	3	4,40	-0,80	4,71	15,60	0,12	36,69	14,92
Ignitis Group	2023 3	20,37	2	20,37	-1,90	5,19	15,20	1,76	11,58	6,17
Latvijas Gaze	2023 3	8,75	4	8,75	-0,50	5,50	17,20	0,30	29,18	3,77
PRFoods	2023 3	0,26	3	0,26	-0,80	4,71	15,60	0,01	26,15	1,30
Siauli Bankas	2023 3	0,71	2	0,71	-1,90	5,19	15,20	0,12	5,91	17,03
Amber Latvijas Balzams	2023 2	9,89	3	9,89	-0,50	5,01	20,10	0,60	16,49	3,20
AUGA Group	2023 2	0,49	2	0,49	-1,90	4,82	17,20	-0,01	-48,79	-23,55
Coop Pank	2023 2	2,95	2	2,95	-0,80	4,38	17,80	0,09	32,78	19,16
Delfin Group	2023 2	1,50	2	1,50	-0,50	5,01	20,10	0,04	41,79	35,00
Enefit Green	2023 2	4,32	3	4,32	-0,80	4,38	17,80	0,12	36,04	14,92
Ignitis Group	2023 2	19,58	2	19,58	-1,90	4,82	17,20	1,76	11,12	6,17
Latvijas Gaze	2023 2	8,91	4	8,91	-0,50	5,01	20,10	0,30	29,69	3,77
PRFoods	2023 2	0,28	3	0,28	-0,80	4,38	17,80	0,01	27,84	1,30
Siauli Bankas	2023 2	0,75	2	0,75	-1,90	4,82	17,20	0,12	6,23	17,03
Amber Latvijas Balzams	2023 1	9,81	3	9,81	-0,50	4,78	21,40	0,60	16,35	3,20
AUGA Group	2023 1	0,41	2	0,41	-1,90	4,60	18,50	-0,01	-40,89	-23,55
Coop Pank	2023 1	2,66	2	2,66	-0,80	4,11	18,60	0,09	29,58	19,16
Delfin Group	2023 1	1,49	2	1,49	-0,50	4,78	21,40	0,04	41,46	35,00
Enefit Green	2023 1	4,39	3	4,39	-0,80	4,11	18,60	0,12	36,58	14,92
Ignitis Group	2023 1	19,29	2	19,29	-1,90	4,60	18,50	1,76	10,96	6,17
Latvijas Gaze	2023 1	8,79	4	8,79	-0,50	4,78	21,40	0,30	29,29	3,77
PRFoods	2023 1	0,28	3	0,28	-0,80	4,11	18,60	0,01	27,95	1,30
Siauli Bankas	2023 1	0,72	2	0,72	-1,90	4,60	18,50	0,12	5,98	17,03
Amber Latvijas Balzams	2022 9	10,56	3	10,56	-0,70	2,89	22,00	0,64	16,50	3,53
AUGA Group	2022 9	0,42	2	0,42	0,70	2,73	22,50	-0,02	-21,25	-7,02
Coop Pank	2022 9	2,34	2	2,34	-0,50	3,10	24,10	0,06	39,05	14,82
Delfin Group	2022 9	1,49	2	1,49	-0,70	2,89	22,00	0,04	40,39	41,00
Enefit Green	2022 9	4,37	3	4,37	-0,50	3,10	24,10	0,09	48,55	19,34
Ignitis Group	2022 9	18,93	1	18,93	0,70	2,73	22,50	3,33	5,68	3,14
Latvijas Gaze	2022 9	7,89	4	7,89	-0,70	2,89	22,00	2,42	3,26	21,42
PRFoods	2022 9	0,32	3	0,32	-0,50	3,10	24,10	0,02	15,94	-29,00
Siauli Bankas	2022 9	0,56	2	0,56	0,70	2,73	22,50	0,10	5,60	14,83
Amber Latvijas Balzams	2022 8	10,41	3	10,41	-0,70	2,42	21,40	0,64	16,26	3,53
AUGA Group	2022 8	0,44	2	0,44	0,70	2,19	21,10	-0,02	-22,20	-7,02
Coop Pank	2022 8	2,44	2	2,44	-0,50	2,70	25,20	0,06	40,64	14,82
Delfin Group	2022 8	1,50	2	1,50	-0,70	2,42	21,40	0,04	40,42	41,00
Enefit Green	2022 8	4,53	3	4,53	-0,50	2,70	25,20	0,09	50,31	19,34
Ignitis Group	2022 8	19,18	1	19,18	0,70	2,19	21,10	3,33	5,76	3,14
Latvijas Gaze	2022 8	8,19	4	8,19	-0,70	2,42	21,40	2,42	3,38	21,42
PRFoods	2022 8	0,34	3	0,34	-0,50	2,70	25,20	0,02	16,82	-29,00
Siauli Bankas	2022 8	0,59	2	0,59	0,70	2,19	21,10	0,10	5,92	14,83
Amber Latvijas Balzams	2022 7	10,26	3	10,26	-0,70	2,66	21,30	0,64	16,03	3,53
AUGA Group	2022 7	0,45	2	0,45	0,70	2,33	20,90	-0,02	-22,51	-7,02
Coop Pank	2022 7	2,37	2	2,37	-0,50	2,57	23,20	0,06	39,54	14,82
Delfin Group	2022 7	1,44	2	1,44	-0,70	2,66	21,30	0,04	38,94	41,00
Enefit Green	2022 7	3,99	3	3,99	-0,50	2,57	23,20	0,09	44,39	19,34
Ignitis Group	2022 7	18,09	1	18,09	0,70	2,33	20,90	3,33	5,43	3,14
Latvijas Gaze	2022 7	8,62	4	8,62	-0,70	2,66	21,30	2,42	3,56	21,42
PRFoods	2022 7	0,34	3	0,34	-0,50	2,57	23,20	0,02	17,03	-29,00
Siauli Bankas	2022 7	0,55	2	0,55	0,70	2,33	20,90	0,10	5,46	14,83
Amber Latvijas Balzams	2022 6	10,17	3	10,17	0,10	2,81	19,20	1,20	8,48	6,44
AUGA Group	2022 6	0,48	2	0,48	-0,60	2,39	20,50	0,01	47,54	-14,24
Coop Pank	2022 6	2,39	2	2,39	-1,10	2,60	22,00	0,05	47,89	13,10
Delfin Group	2022 6	1,42	2	1,42	0,10	2,81	19,20	0,03	52,74	26,00
Enefit Green	2022 6	3,89	3	3,89	-1,10	2,60	22,00	0,06	64,85	16,30
Ignitis Group	2022 6	18,20	1	18,20	-0,60	2,39	20,50	3,07	5,93	3,20
Latvijas Gaze	2022 6	8,74	4	8,74	0,10	2,81	19,20	2,12	4,12	19,27
PRFoods	2022 6	0,35	3	0,35	-1,10	2,60	22,00	-0,04	-8,76	28,10
Siauli Bankas	2022 6	0,58	2	0,58	-0,60	2,39	20,50	0,09	6,46	14,22
Amber Latvijas Balzams	2022 5	10,24	3	10,24	0,10	3,08	16,80	1,20	8,54	6,44
AUGA Group	2022 5	0,49	2	0,49	-0,60	2,24	18,50	0,01	-48,58	-14,24
Coop Pank	2022 5	2,51	2	2,51	-1,10	2,38	20,10	0,05	50,15	13,10
Delfin Group	2022 5	1,43	2	1,43	0,10	3,08	16,80	0,03	52,89	26,00
Enefit Green	2022 5	3,93	3	3,93	-1,10	2,38	20,10	0,06	65,54	16,30
Ignitis Group	2022 5	18,15	1	18,15	-0,60	2,24	18,50	3,07	5,91	3,20
Latvijas Gaze	2022 5	7,45	4	7,45	0,10	3,08	16,80	2,12	3,51	19,27
PRFoods	2022 5	0,36	3	0,36	-1,10	2,38	20,10	-0,04	-8,98	28,10
Siauli Bankas	2022 5	0,60	2	0,60	-0,60	2,24	18,50	0,09	6,72	14,22

Company	Month / Year	SHARE PRICE	SBD score	Monthly Average Share Price	GDP growth	Interest Rate (monthly)	Inflation (monthly)	EPS, EUR	P / E	ROE
Amber Latvijas Balzams	2022 4	10,28	3	10,28	0,10	3,23	13,10	1,20	8,57	6,44
AUGA Group	2022 4	0,48	2	0,48	-0,60	2,23	16,60	0,01	48,48	-14,24
Coop Pank	2022 4	2,68	2	2,68	-1,10	2,37	19,10	0,05	53,56	13,10
Delfin Group	2022 4	1,44	2	1,44	0,10	3,23	13,10	0,03	53,16	26,00
Eneft Green	2022 4	3,92	3	3,92	-1,10	2,37	19,10	0,06	65,29	16,30
Ignitis Group	2022 4	18,87	1	18,87	-0,60	2,23	16,60	3,07	6,15	3,20
Latvijas Gaze	2022 4	7,99	4	7,99	0,10	3,23	13,10	2,12	3,77	19,27
PRFoods	2022 4	0,36	3	0,36	-1,10	2,37	19,10	-0,04	-8,88	28,10
Siauliu Bankas	2022 4	0,63	2	0,63	-0,60	2,23	16,60	0,09	7,03	14,22
Amber Latvijas Balzams	2022 3	10,03	3	10,03	1,50	3,43	11,50	1,11	9,04	6,05
AUGA Group	2022 3	0,46	2	0,46	0,60	2,45	15,60	0,01	46,02	-17,19
Coop Pank	2022 3	2,59	2	2,59	-0,10	2,40	14,80	0,04	64,85	12,87
Delfin Group	2022 3	1,34	2	1,34	1,50	3,43	11,50	0,03	43,23	31,00
Eneft Green	2022 3	3,71	3	3,71	-0,10	2,40	14,80	0,13	28,56	14,80
Ignitis Group	2022 3	18,23	1	18,23	0,60	2,45	15,60	2,37	7,69	2,33
Latvijas Gaze	2022 3	9,22	4	9,22	1,50	3,43	11,50	1,94	4,75	17,34
PRFoods	2022 3	0,34	3	0,34	-0,10	2,40	14,80	-0,03	-11,50	-34,80
Siauliu Bankas	2022 3	0,64	2	0,64	0,60	2,45	15,60	0,09	7,06	14,26
Amber Latvijas Balzams	2022 2	11,59	3	11,59	1,50	3,26	8,80	1,11	10,44	6,05
AUGA Group	2022 2	0,47	2	0,47	0,60	2,44	14,00	0,01	47,40	-17,19
Coop Pank	2022 2	2,85	2	2,85	-0,10	2,46	11,60	0,04	71,32	12,87
Delfin Group	2022 2	1,35	2	1,35	1,50	3,26	8,80	0,03	43,59	31,00
Eneft Green	2022 2	3,82	3	3,82	-0,10	2,46	11,60	0,13	29,41	14,80
Ignitis Group	2022 2	20,10	1	20,10	0,60	2,44	14,00	2,37	8,48	2,33
Latvijas Gaze	2022 2	10,55	4	10,55	1,50	3,26	8,80	1,94	5,44	17,34
PRFoods	2022 2	0,35	3	0,35	-0,10	2,46	11,60	-0,03	-11,81	-34,80
Siauliu Bankas	2022 2	0,73	2	0,73	0,60	2,44	14,00	0,09	8,09	14,26
Amber Latvijas Balzams	2022 12	9,95	3	9,95	0,60	3,78	20,70	0,84	11,84	4,53
AUGA Group	2022 12	0,40	2	0,40	-0,50	3,86	20,00	-0,02	-19,79	-6,96
Coop Pank	2022 12	2,45	2	2,45	-1,40	4,02	17,50	0,07	35,07	15,60
Delfin Group	2022 12	1,49	2	1,49	0,60	3,78	20,70	0,04	40,15	38,00
Eneft Green	2022 12	4,39	3	4,39	-1,40	4,02	17,50	0,13	33,75	16,30
Ignitis Group	2022 12	19,25	1	19,25	-0,50	3,86	20,00	1,50	12,84	5,10
Latvijas Gaze	2022 12	8,41	4	8,41	0,60	3,78	20,70	0,98	8,58	12,52
PRFoods	2022 12	0,29	3	0,29	-1,40	4,02	17,50	-0,01	-29,48	-1,70
Siauliu Bankas	2022 12	0,69	2	0,69	-0,50	3,86	20,00	0,11	6,28	15,00
Amber Latvijas Balzams	2022 11	10,15	3	10,15	0,60	3,46	21,70	0,84	12,08	4,53
AUGA Group	2022 11	0,40	2	0,40	-0,50	3,61	21,40	-0,02	-19,79	-6,96
Coop Pank	2022 11	2,34	2	2,34	-1,40	3,66	21,40	0,07	33,42	15,60
Delfin Group	2022 11	1,46	2	1,46	0,60	3,46	21,70	0,04	39,34	38,00
Eneft Green	2022 11	4,21	3	4,21	-1,40	3,66	21,40	0,13	32,41	16,30
Ignitis Group	2022 11	18,73	1	18,73	-0,50	3,61	21,40	1,50	12,49	5,10
Latvijas Gaze	2022 11	7,97	4	7,97	0,60	3,46	21,70	0,98	8,14	12,52
PRFoods	2022 11	0,29	3	0,29	-1,40	3,66	21,40	-0,01	-29,45	-1,70
Siauliu Bankas	2022 11	0,61	2	0,61	-0,50	3,61	21,40	0,11	5,53	15,00
Amber Latvijas Balzams	2022 10	10,60	3	10,60	0,60	3,24	21,70	0,84	12,61	4,53
AUGA Group	2022 10	0,39	2	0,39	-0,50	3,24	22,10	-0,02	-19,71	-6,96
Coop Pank	2022 10	2,21	2	2,21	-1,40	3,26	22,50	0,07	31,57	15,60
Delfin Group	2022 10	1,46	2	1,46	0,60	3,24	21,70	0,04	39,37	38,00
Eneft Green	2022 10	4,17	3	4,17	-1,40	3,26	22,50	0,13	32,05	16,30
Company	Month / Year	SHARE PRICE	SBD score	Monthly Average Share Price	GDP growth	Interest Rate (monthly)	Inflation (monthly)	EPS, EUR	P / E	ROE
Ignitis Group	2022 10	18,59	1	18,59	-0,50	3,24	22,10	1,50	12,39	5,10
Latvijas Gaze	2022 10	7,56	4	7,56	0,60	3,24	21,70	0,98	7,71	12,52
PRFoods	2022 10	0,30	3	0,30	-1,40	3,26	22,50	-0,01	-30,27	-1,70
Siauliu Bankas	2022 10	0,55	2	0,55	-0,50	3,24	22,10	0,11	5,04	15,00
Amber Latvijas Balzams	2022 1	11,75	3	11,75	1,50	3,24	7,50	1,11	10,58	6,05
AUGA Group	2022 1	0,50	2	0,50	0,60	2,40	12,30	0,01	50,18	-17,19
Coop Pank	2022 1	2,92	2	2,92	-0,10	2,54	11,00	0,04	72,90	12,87
Delfin Group	2022 1	1,41	2	1,41	1,50	3,24	7,50	0,03	45,48	31,00
Eneft Green	2022 1	4,06	3	4,06	-0,10	2,54	11,00	0,13	31,19	14,80
Ignitis Group	2022 1	21,17	1	21,17	0,60	2,40	12,30	2,37	8,93	2,33
Latvijas Gaze	2022 1	10,69	4	10,69	1,50	3,24	7,50	1,94	5,51	17,34
PRFoods	2022 1	0,36	3	0,36	-0,10	2,54	11,00	-0,03	-12,10	-34,80
Siauliu Bankas	2022 1	0,76	2	0,76	0,60	2,40	12,30	0,09	8,45	14,26
Amber Latvijas Balzams	2021 9	11,10	3	11,10	2,90	3,43	4,70	1,48	7,50	8,37
AUGA Group	2021 9	0,50	2	0,50	1,80	2,54	6,40	-0,05	-9,95	-7,02
Coop Pank	2021 9	3,38	2	3,38	-0,30	2,85	6,40	0,05	67,55	10,50
Ignitis Group	2021 9	23,43	1	23,43	1,80	2,54	6,40	2,38	9,84	2,42
Latvijas Gaze	2021 9	10,94	4	10,94	2,90	3,43	4,70	-2,20	-6,60	-84,76
PRFoods	2021 9	0,38	3	0,38	-0,30	2,85	6,40	-0,02	-18,92	-28,09
Siauliu Bankas	2021 9	0,78	2	0,78	1,80	2,54	6,40	0,09	8,66	14,25
Amber Latvijas Balzams	2021 8	10,40	3	10,40	2,90	3,38	3,60	1,48	7,03	8,37
AUGA Group	2021 8	0,53	2	0,53	1,80	2,55	5,00	-0,05	-10,62	-7,02
Coop Pank	2021 8	3,56	2	3,56	-0,30	2,81	5,00	0,05	71,14	10,50
Ignitis Group	2021 8	23,21	1	23,21	1,80	2,55	5,00	2,38	9,75	2,42
Latvijas Gaze	2021 8	10,78	4	10,78	2,90	3,38	3,60	-4,20	-2,57	-84,76
PRFoods	2021 8	0,40	3	0,40	-0,30	2,81	5,00	-0,02	-19,99	-28,09
Siauliu Bankas	2021 8	0,73	2	0,73	1,80	2,55	5,00	0,09	8,08	14,25
Amber Latvijas Balzams	2021 7	9,88	3	9,88	2,90	3,19	2,80	1,48	6,67	8,37
AUGA Group	2021 7	0,53	2	0,53	1,80	2,54	4,30	-0,05	-10,63	-7,02
Coop Pank	2021 7	2,46	2	2,46	-0,30	2,77	4,90	0,05	49,14	10,50
Ignitis Group	2021 7	22,13	1	22,13	1,80	2,54	4,30	2,38	9,30	2,42
Latvijas Gaze	2021 7	10,75	4	10,75	2,90	3,19	2,80	-4,20	-2,56	-84,76
PRFoods	2021 7	0,42	3	0,42	-0,30	2,77	4,90	-0,02	-21,07	-28,09
Siauliu Bankas	2021 7	0,68	2	0,68	1,80	2,54	4,30	0,09	7,57	14,25
Amber Latvijas Balzams	2021 6	9,65	3	9,65	2,60	3,46	2,70	1,33	7,25	7,55
AUGA Group	2021 6	0,52	2	0,52	1,60	2,63	3,50	-0,05	-10,41	1,32
Coop Pank	2021 6	2,16	2	2,16	2,10	2,78	3,70	0,03	71,84	9,04
Ignitis Group	2021 6	20,54	1	20,54	1,60	2,63	3,50	2,35	8,74	0,62
Latvijas Gaze	2021 6	10,92	4	10,92	2,60	3,46	2,70	0,14	78,03	1,47
PRFoods	2021 6	0,41	3	0,41	2,10	2,78	3,70	-0,05	-8,12	-29,04
Siauliu Bankas	2021 6	0,68	2	0,68	1,60	2,63	3,50	0,08	8,49	14,11
Amber Latvijas Balzams	2021 5	9,59	3	9,59	2,60	3,87	2,60	1,33	7,21	7,55
AUGA Group	2021 5	0,49	2	0,49	1,60	2,53	3,50	-0,05	-9,79	1,32
Coop Pank	2021 5	2,13	2	2,13	2,10	2,80	3,20	0,03	71,05	9,04
Ignitis Group	2021 5	20,14	1	20,14	1,60	2,53	3,50	2,35	8,57	0,62
Latvijas Gaze	2021 5	10,75	4	10,75	2,60	3,87	2,60	0,14	76,79	1,47
PRFoods	2021 5	0,40	3	0,40	2,10	2,80	3,20	-0,05	-7,96	-29,04
Siauliu Bankas	2021 5	0,65	2	0,65	1,60	2,53	3,50	0,08	8,09	14,11
Amber Latvijas Balzams	2021 4	9,44	3	9,44	2,60	4,11	1,70	1,33	7,10	7,55
AUGA Group	2021 4	0,45	2	0,45	1,60	2,60	2,40	-0,05	-8,93	1,32



Company	Month / Year	SHARE PRICE	SBD score	Monthly Average Share Price	GDP growth	Interest Rate (monthly)	Inflation (monthly)	EPS, EUR	P / E	ROE
Coop Pank	2021 4	2,15	2	2,15	2,10	2,95	1,60	0,03	71,81	9,04
Ignitis Group	2021 4	20,31	1	20,31	1,60	2,60	2,40	2,35	8,64	0,62
Latvijas Gaze	2021 4	10,65	4	10,65	2,60	4,11	1,70	0,14	76,04	1,47
PRFoods	2021 4	0,40	3	0,40	2,10	2,95	1,60	-0,05	-7,91	-29,04
Siauliu Bankas	2021 4	0,57	2	0,57	1,60	2,60	2,40	0,08	7,11	14,11
Amber Latvijas Balzams	2021 3	9,00	3	9,00	0,60	3,61	0,30	1,31	6,87	7,54
AUGA Group	2021 3	0,44	2	0,44	1,80	2,68	1,60	-0,05	-8,78	2,47
Coop Pank	2021 3	1,82	2	1,82	2,80	2,79	0,90	0,03	60,52	7,77
Ignitis Group	2021 3	20,62	1	20,62	1,80	2,68	1,60	2,12	9,73	2,04
Latvijas Gaze	2021 3	10,47	4	10,47	0,60	3,61	0,30	0,62	16,89	6,16
PRFoods	2021 3	0,38	3	0,38	2,80	2,79	0,90	-0,01	-37,55	-23,95
Siauliu Bankas	2021 3	0,53	2	0,53	1,80	2,68	1,60	0,08	6,66	13,83
Amber Latvijas Balzams	2021 2	9,00	3	9,00	0,60	3,89	-0,20	1,31	6,87	7,54
AUGA Group	2021 2	0,44	2	0,44	1,80	2,64	0,40	-0,05	-8,88	2,47
Coop Pank	2021 2	1,52	2	1,52	2,80	3,06	0,50	0,03	50,65	7,77
Ignitis Group	2021 2	21,12	1	21,12	1,80	2,64	0,40	2,12	9,96	2,04
Latvijas Gaze	2021 2	10,77	4	10,77	0,60	3,89	-0,20	0,62	17,37	6,16
PRFoods	2021 2	0,38	3	0,38	2,80	3,06	0,50	-0,01	-37,57	-23,95
Siauliu Bankas	2021 2	0,52	2	0,52	1,80	2,64	0,40	0,08	6,44	13,83
Amber Latvijas Balzams	2021 12	11,85	3	11,85	0,00	3,30	7,90	1,16	10,21	6,41
AUGA Group	2021 12	0,50	2	0,50	1,20	2,42	10,70	-0,05	-9,96	-10,47
Coop Pank	2021 12	2,99	2	2,99	1,00	2,70	12,00	0,04	74,74	12,43
Delfn Group	2021 12	1,41	2	1,41	0,00	3,30	7,90	0,04	39,20	47,00
Enefit Green	2021 12	3,97	4	3,97	1,00	2,70	12,00	0,15	26,45	14,80
Ignitis Group	2021 12	21,00	1	21,00	1,20	2,42	10,70	2,30	9,13	2,26
Latvijas Gaze	2021 12	10,60	4	10,60	0,00	3,30	7,90	0,08	132,44	0,88
PRFoods	2021 12	0,34	3	0,34	1,00	2,70	12,00	-0,03	-11,40	-35,41
Siauliu Bankas	2021 12	0,76	2	0,76	1,20	2,42	10,70	0,09	8,42	14,50
Amber Latvijas Balzams	2021 11	11,65	3	11,65	0,00	3,03	7,40	1,16	10,04	6,41
AUGA Group	2021 11	0,54	2	0,54	1,20	2,43	9,30	-0,05	-10,90	-10,47
Coop Pank	2021 11	3,16	2	3,16	1,00	2,78	8,60	0,04	79,11	12,43
Delfn Group	2021 11	1,43	2	1,43	0,00	3,03	7,40	0,04	39,81	47,00
Enefit Green	2021 11	3,96	4	3,96	1,00	2,78	8,60	0,15	26,38	14,80
Ignitis Group	2021 11	20,95	1	20,95	1,20	2,43	9,30	2,30	9,11	2,26
Latvijas Gaze	2021 11	10,69	4	10,69	0,00	3,03	7,40	0,08	133,58	0,88
PRFoods	2021 11	0,36	3	0,36	1,00	2,78	8,60	-0,03	-11,94	-35,41
Siauliu Bankas	2021 11	0,76	2	0,76	1,20	2,43	9,30	0,09	8,41	14,50
Amber Latvijas Balzams	2021 10	11,77	3	11,77	0,00	3,03	6,00	1,16	10,15	6,41
AUGA Group	2021 10	0,54	2	0,54	1,20	2,40	8,20	-0,05	-10,71	-10,47
Coop Pank	2021 10	3,18	2	3,18	1,00	2,79	6,80	0,04	79,50	12,43
Delfn Group	2021 10	1,51	2	1,51	0,00	3,03	6,00	0,04	41,83	47,00
Enefit Green	2021 10	3,41	4	3,41	1,00	2,79	6,80	0,15	22,75	14,80
Ignitis Group	2021 10	20,64	1	20,64	1,20	2,40	8,20	2,30	8,97	2,26
Latvijas Gaze	2021 10	10,75	4	10,75	0,00	3,03	6,00	0,08	134,40	0,88
PRFoods	2021 10	0,37	3	0,37	1,00	2,79	6,80	-0,03	-12,28	-35,41
Siauliu Bankas	2021 10	0,75	2	0,75	1,20	2,40	8,20	0,09	8,36	14,50
Amber Latvijas Balzams	2021 1	9,03	3	9,03	0,60	3,79	-0,50	1,31	6,90	7,54
AUGA Group	2021 1	0,44	2	0,44	1,80	2,66	0,20	-0,05	-8,85	2,47
Coop Pank	2021 1	1,23	2	1,23	2,80	3,05	0,30	0,03	40,98	7,77
Ignitis Group	2021 1	21,65	1	21,65	1,80	2,66	0,20	2,12	10,21	2,04

Company	Month / Year	SHARE PRICE	SBD score	Monthly Average Share Price	GDP growth	Interest Rate (monthly)	Inflation (monthly)	EPS, EUR	P / E	ROE
Latvijas Gaze	2021 1	10,71	4	10,71	0,60	3,79	-0,50	0,62	17,27	6,16
PRFoods	2021 1	0,37	3	0,37	2,80	3,05	0,30	-0,01	-36,95	-23,95
Siauliu Bankas	2021 1	0,53	2	0,53	1,80	2,66	0,20	0,08	6,65	13,83
Amber Latvijas Balzams	2020 9	8,95	3	8,95	7,00	3,61	-0,40	1,18	7,59	7,14
AUGA Group	2020 9	0,45	3	0,45	6,00	3,61	0,60	0,01	44,58	-1,69
Coop Pank	2020 9	1,05	2	1,05	4,70	2,95	-1,30	0,02	52,69	8,00
Latvijas Gaze	2020 9	10,35	4	10,35	7,00	3,61	-0,40	0,44	23,51	4,61
PRFoods	2020 9	0,39	3	0,39	4,70	2,95	-1,30	-0,03	-12,88	-18,82
Siauliu Bankas	2020 9	0,43	2	0,43	6,00	2,63	0,60	0,08	5,36	13,99
Amber Latvijas Balzams	2020 8	8,97	3	8,97	7,00	3,64	-0,50	1,18	7,60	7,14
AUGA Group	2020 8	0,43	3	0,43	6,00	2,67	1,20	0,01	42,99	-1,69
Coop Pank	2020 8	1,08	2	1,08	4,70	2,95	-1,30	0,02	53,90	8,00
Latvijas Gaze	2020 8	10,12	4	10,12	7,00	3,64	-0,50	0,44	23,00	4,61
PRFoods	2020 8	0,40	3	0,40	4,70	2,95	-1,30	-0,03	-13,42	-18,82
Siauliu Bankas	2020 8	0,44	2	0,44	6,00	2,67	1,20	0,08	5,49	13,99
Amber Latvijas Balzams	2020 7	8,97	3	8,97	7,00	3,75	0,10	1,18	7,60	7,14
AUGA Group	2020 7	0,43	3	0,43	6,00	2,74	0,90	0,01	43,37	-1,69
Coop Pank	2020 7	1,07	2	1,07	4,70	2,85	-1,30	0,02	53,56	8,00
Latvijas Gaze	2020 7	10,10	4	10,10	7,00	3,75	0,10	0,44	22,95	4,61
PRFoods	2020 7	0,41	3	0,41	4,70	2,85	-1,30	-0,03	-13,64	-18,82
Siauliu Bankas	2020 7	0,44	2	0,44	6,00	2,74	0,90	0,08	5,48	13,99
Amber Latvijas Balzams	2020 6	9,03	3	9,03	-7,30	3,68	-1,10	1,24	7,28	7,60
AUGA Group	2020 6	0,39	3	0,39	-5,20	2,73	0,90	0,01	39,07	-2,50
Coop Pank	2020 6	1,05	2	1,05	-5,30	2,89	-1,60	0,01	104,51	8,25
Latvijas Gaze	2020 6	10,14	4	10,14	-7,30	3,68	-1,10	0,42	24,15	4,34
PRFoods	2020 6	0,42	3	0,42	-5,30	2,89	-1,60	-0,04	-10,48	-9,20
Siauliu Bankas	2020 6	0,40	2	0,40	-5,20	2,73	0,90	0,07	5,71	14,39
Amber Latvijas Balzams	2020 5	9,05	3	9,05	-7,30	3,34	-0,90	1,24	7,30	7,60
AUGA Group	2020 5	0,34	3	0,34	-5,20	2,65	0,20	0,01	34,12	-2,50
Coop Pank	2020 5	1,04	2	1,04	-5,30	2,81	-1,80	0,01	104,26	8,25
Latvijas Gaze	2020 5	9,92	4	9,92	-7,30	3,34	-0,90	0,42	23,63	4,34
PRFoods	2020 5	0,43	3	0,43	-5,30	2,81	-1,80	-0,04	-10,64	-9,20
Siauliu Bankas	2020 5	0,39	2	0,39	-5,20	2,65	0,20	0,07	5,51	14,39
Amber Latvijas Balzams	2020 4	8,76	3	8,76	-7,30	3,97	-0,10	1,24	7,06	7,60
AUGA Group	2020 4	0,30	3	0,30	-5,20	2,39	0,90	0,01	29,77	-2,50
Coop Pank	2020 4	1,02	2	1,02	-5,30	2,72	-0,90	0,01	101,73	8,25
Latvijas Gaze	2020 4	9,75	4	9,75	-7,30	3,97	-0,10	0,42	23,20	4,34
PRFoods	2020 4	0,41	3	0,41	-5,30	2,72	-0,90	-0,04	-10,28	-9,20
Siauliu Bankas	2020 4	0,38	2	0,38	-5,20	2,39	0,90	0,07	5,42	14,39
Amber Latvijas Balzams	2020 3	8,46	3	8,46	-1,30	3,94	1,40	1,29	6,56	8,06
AUGA Group	2020 3	0,29	3	0,29	-0,40	2,33	1,70	0,01	29,25	-3,54
Coop Pank	2020 3	1,02	2	1,02	-0,40	2,84	1,00	0,02	50,78	6,50
Latvijas Gaze	2020 3	9,21	4	9,21	-1,30	3,94	1,40	0,38	24,25	3,83
PRFoods	2020 3	0,42	3	0,42	-0,40	2,84	1,00	0,01	41,64	-5,68
Siauliu Bankas	2020 3	0,40	2	0,40	-0,40	2,33	1,70	0,08	5,05	15,25
Amber Latvijas Balzams	2020 2	11,10	3	11,10	-1,30	3,66	2,30	1,29	8,60	8,06
AUGA Group	2020 2	0,35	3	0,35	-0,40	2,30	2,80	0,01	34,79	-3,54
Coop Pank	2020 2	1,15	2	1,15	-0,40	2,75	2,00	0,02	57,59	6,50
Latvijas Gaze	2020 2	9,80	4	9,80	-1,30	3,66	2,30	0,38	25,80	3,83
PRFoods	2020 2	0,49	3	0,49	-0,40	2,75	2,00	0,01	48,55	-5,68

Company	Month / Year	SHARE PRICE	SBD score	Monthly Average Share Price	GDP growth	Interest Rate (monthly)	Inflation (monthly)	EPS, EUR	P / E	ROE
Siauliu Bankas	2020 2	0,54	2	0,54	-0,40	2,30	2,80	0,08	6,72	15,25
Amber Latvijas Balzams	2020 12	8,83	3	8,83	1,00	3,71	-0,50	1,24	7,12	7,24
AUGA Group	2020 12	0,44	3	0,44	0,40	2,69	-0,10	0,01	44,28	1,95
Coop Pank	2020 12	1,15	2	1,15	2,40	2,93	-0,90	0,03	38,25	8,47
Ignitis Group	2020 12	20,18	1	20,18	0,40	2,69	-0,10	1,56	12,94	3,40
Latvijas Gaze	2020 12	10,42	4	10,42	1,00	3,71	-0,50	0,28	37,21	2,98
PRFoods	2020 12	0,38	3	0,38	2,40	2,93	-0,90	-0,04	-9,38	-22,01
Siauliu Bankas	2020 12	0,49	2	0,49	0,40	2,69	-0,10	0,07	6,99	12,89
Amber Latvijas Balzams	2020 11	8,92	3	8,92	1,00	3,68	-0,70	1,24	7,19	7,24
AUGA Group	2020 11	0,42	3	0,42	0,40	2,59	0,40	0,01	42,31	1,95
Coop Pank	2020 11	1,07	2	1,07	2,40	3,04	-1,20	0,03	35,81	8,47
Ignitis Group	2020 11	19,92	1	19,92	0,40	2,59	0,40	1,56	12,77	3,40
Latvijas Gaze	2020 11	10,30	4	10,30	1,00	3,68	-0,70	0,28	36,80	2,98
PRFoods	2020 11	0,36	3	0,36	2,40	3,04	-1,20	-0,04	-9,09	-22,01
Siauliu Bankas	2020 11	0,45	2	0,45	0,40	2,59	0,40	0,07	6,38	12,89
Amber Latvijas Balzams	2020 10	8,89	3	8,89	1,00	3,68	-0,70	1,24	7,17	7,24
AUGA Group	2020 10	0,44	3	0,44	0,40	2,62	0,50	0,01	43,87	1,95
Coop Pank	2020 10	1,07	2	1,07	2,40	2,93	-1,70	0,03	35,65	8,47
Ignitis Group	2020 10	21,37	1	21,37	0,40	2,62	0,50	1,56	13,70	3,40
Latvijas Gaze	2020 10	10,37	4	10,37	1,00	3,68	-0,70	0,28	37,03	2,98
PRFoods	2020 10	0,38	3	0,38	2,40	2,93	-1,70	-0,04	-9,46	-22,01
Siauliu Bankas	2020 10	0,43	2	0,43	0,40	2,62	0,50	0,07	6,17	12,89
Amber Latvijas Balzams	2020 1	10,78	3	10,78	-1,30	3,53	2,20	1,29	8,36	8,06
AUGA Group	2020 1	0,36	3	0,36	-0,40	2,29	3,00	0,01	35,80	-3,54
Coop Pank	2020 1	1,09	2	1,09	-0,40	2,80	1,60	0,02	54,55	6,50
Latvijas Gaze	2020 1	9,82	4	9,82	-1,30	3,53	2,20	0,38	25,85	3,83
PRFoods	2020 1	0,46	3	0,46	-0,40	2,80	1,60	0,01	46,16	-5,68
Siauliu Bankas	2020 1	0,52	2	0,52	-0,40	2,29	3,00	0,08	6,51	15,25
Amber Latvijas Balzams	2019 9	9,73	3	9,73	0,30	3,30	2,30	1,31	7,43	8,54
AUGA Group	2019 9	0,37	3	0,37	0,20	2,27	2,00	-0,02	-18,38	-2,73
Latvijas Gaze	2019 9	10,03	4	10,03	0,30	3,30	2,30	0,07	143,33	0,97
PRFoods	2019 9	0,45	3	0,45	0,40	2,67	2,20	-0,02	-22,68	-5,08
Siauliu Bankas	2019 9	0,50	2	0,50	0,20	2,27	2,00	0,09	5,60	20,44
Amber Latvijas Balzams	2019 8	9,69	3	9,69	0,30	3,29	3,10	1,31	7,39	8,54
AUGA Group	2019 8	0,38	3	0,38	0,20	2,29	2,50	-0,02	-19,15	-2,73
Latvijas Gaze	2019 8	10,03	4	10,03	0,30	3,29	3,10	0,07	143,25	0,97
PRFoods	2019 8	0,48	3	0,48	0,40	2,67	2,10	-0,02	-24,20	-5,08
Siauliu Bankas	2019 8	0,50	2	0,50	0,20	2,29	2,50	0,09	5,60	20,44
Amber Latvijas Balzams	2019 7	9,30	3	9,30	0,30	3,26	3,00	1,31	7,10	8,54
AUGA Group	2019 7	0,38	3	0,38	0,20	2,30	2,50	-0,02	-19,08	-2,73
Latvijas Gaze	2019 7	10,13	4	10,13	0,30	3,26	3,00	0,07	144,72	0,97
PRFoods	2019 7	0,51	3	0,51	0,40	2,62	2,00	-0,02	-25,27	-5,08
Siauliu Bankas	2019 7	0,48	2	0,48	0,20	2,62	2,50	0,09	5,30	20,44
Amber Latvijas Balzams	2019 6	9,14	3	9,14	0,60	3,26	3,10	1,29	7,09	8,63
AUGA Group	2019 6	0,39	3	0,39	1,40	2,20	2,40	-0,02	-19,29	-7,20
Latvijas Gaze	2019 6	10,45	4	10,45	0,60	3,26	3,10	0,07	149,25	0,93
PRFoods	2019 6	0,53	3	0,53	0,40	2,63	2,60	-0,02	-26,74	-7,04
Siauliu Bankas	2019 6	0,46	2	0,46	1,40	2,20	2,40	0,09	5,09	20,88
Amber Latvijas Balzams	2019 5	8,91	3	8,91	0,60	3,24	3,50	1,29	6,91	8,63
AUGA Group	2019 5	0,39	3	0,39	1,40	2,16	2,50	-0,02	-19,33	-7,20

Company	Month / Year	SHARE PRICE	SBD score	Monthly Average Share Price	GDP growth	Interest Rate (monthly)	Inflation (monthly)	EPS, EUR	P / E	ROE
Latvijas Gaze	2019 5	10,37	4	10,37	0,60	3,24	3,50	0,07	148,10	0,93
PRFoods	2019 5	0,54	3	0,54	0,40	2,61	3,10	-0,02	-27,20	-7,04
Siauliu Bankas	2019 5	0,46	2	0,46	1,40	2,16	2,50	0,09	5,14	20,88
Amber Latvijas Balzams	2019 4	8,81	3	8,81	0,60	3,20	3,30	1,29	6,83	8,63
AUGA Group	2019 4	0,37	3	0,37	1,40	2,20	2,70	-0,02	-18,53	-7,20
Latvijas Gaze	2019 4	10,44	4	10,44	0,60	3,20	3,30	0,07	149,07	0,93
PRFoods	2019 4	0,56	3	0,56	0,40	2,57	3,20	-0,02	-28,17	-7,04
Siauliu Bankas	2019 4	0,46	2	0,46	1,40	2,20	2,70	0,09	5,06	20,88
Amber Latvijas Balzams	2019 3	8,69	3	8,69	-1,20	3,20	2,70	1,29	6,74	8,76
AUGA Group	2019 3	0,36	3	0,36	1,40	2,13	2,60	-0,02	-18,06	-7,54
Latvijas Gaze	2019 3	10,30	4	10,30	-1,20	3,20	2,70	0,43	23,94	5,26
PRFoods	2019 3	0,58	3	0,58	1,70	2,60	2,20	-0,03	-19,19	-6,55
Siauliu Bankas	2019 3	0,47	2	0,47	1,40	2,13	2,60	0,09	5,19	23,89
Amber Latvijas Balzams	2019 2	8,71	3	8,71	-1,20	3,15	2,80	1,29	6,75	8,76
AUGA Group	2019 2	0,39	3	0,39	1,40	2,12	2,00	-0,02	-19,30	-7,54
Latvijas Gaze	2019 2	10,38	4	10,38	-1,20	3,15	2,80	0,43	24,13	5,26
PRFoods	2019 2	0,61	3	0,61	1,70	2,60	1,90	-0,03	-20,21	-6,55
Siauliu Bankas	2019 2	0,43	2	0,43	1,40	2,12	2,00	0,09	4,76	23,89
Amber Latvijas Balzams	2019 12	10,56	3	10,56	-0,80	3,49	2,10	1,34	7,88	8,43
AUGA Group	2019 12	0,37	3	0,37	1,30	2,37	2,70	-0,02	-18,50	-3,57
Coop Pank	2019 12	1,10	2	1,10	0,70	2,66	1,80	0,02	54,97	9,60
Latvijas Gaze	2019 12	9,75	4	9,75	-0,80	3,49	2,10	0,51	19,12	5,26
PRFoods	2019 12	0,46	3	0,46	0,70	2,66	1,80	0,01	46,33	-3,26
Siauliu Bankas	2019 12	0,50	2	0,50	1,30	2,37	2,70	0,09	5,53	17,60
Amber Latvijas Balzams	2019 11	10,61	3	10,61	-0,80	3,41	2,00	1,34	7,92	8,43
AUGA Group	2019 11	0,37	3	0,37	1,30	2,34	1,70	-0,02	-18,62	-3,57
Latvijas Gaze	2019 11	9,90	4	9,90	-0,80	3,41	2,00	0,51	19,42	5,26
PRFoods	2019 11	0,44	3	0,44	0,70	2,64	1,80	0,01	43,81	-3,26
Siauliu Bankas	2019 11	0,51	2	0,51	1,30	2,34	1,70	0,09	5,63	17,60
Amber Latvijas Balzams	2019 10	9,98	3	9,98	-0,80	3,35	2,20	1,34	7,44	8,43
AUGA Group	2019 10	0,37	3	0,37	1,30	2,35	1,50	-0,02	-18,44	-3,57
Latvijas Gaze	2019 10	10,02	4	10,02	-0,80	3,35	2,20	0,51	19,65	5,26
PRFoods	2019 10	0,42	3	0,42	0,70	2,61	1,40	0,01	42,43	-3,26
Siauliu Bankas	2019 10	0,51	2	0,51	1,30	2,35	1,50	0,09	5,64	17,60
Amber Latvijas Balzams	2019 9	8,77	3	8,77	-1,20	2,96	2,90	1,29	6,80	8,76
AUGA Group	2019 9	0,39	3	0,39	1,40	2,08	1,60	-0,02	-19,40	-7,54
Latvijas Gaze	2019 9	10,36	4	10,36	-1,20	2,96	2,90	0,43	24,09	5,26
PRFoods	2019 9	0,62	3	0,62	1,70	2,63	2,80	-0,03	-20,74	-6,55
Siauliu Bankas	2019 9	0,42	2	0,42	1,40	2,08	1,60	0,09	4,67	23,89
Amber Latvijas Balzams	2018 9	8,38	3	8,38	1,40	2,89	3,30	1,24	6,76	8,81
AUGA Group	2018 9	0,50	3	0,50	0,40	2,15	2,40	-0,03	-16,71	-8,39
Latvijas Gaze	2018 9	10,61	4	10,61	1,40	2,89	3,30	0,47	22,57	6,01
PRFoods	2018 9	0,70	4	0,70	0,90	2,69	3,50	0,01	70,30	1,92
Siauliu Bankas	2018 9	0,50	2	0,50	0,40	2,15	2,40	0,07	7,15	20,99
Amber Latvijas Balzams	2018 8	8,37	3	8,37	1,40	2,89	2,80	1,24	6,75	8,81
AUGA Group	2018 8	0,49	3	0,49	0,40	2,05	1,80	-0,03	-16,39	-8,39
Latvijas Gaze	2018 8	10,51	4	10,51	1,40	2,89	2,80	0,47	22,37	6,01
PRFoods	2018 8	0,75	4	0,75	0,90	2,50	3,50	0,01	74,89	1,92
Siauliu Bankas	2018 8	0,51	2	0,51	0,40	2,05	1,80	0,07	7,29	20,99
Amber Latvijas Balzams	2018 7	8,32	3	8,32	1,40	2,98	2,70	1,24	6,71	8,81

Company	Month / Year	SHARE PRICE	SBD score	Monthly Average Share Price	GDP growth	Interest Rate (monthly)	Inflation (monthly)	EPS, EUR	P / E	ROE
AUGA Group	2018 7	0,49	3	0,49	0,40	2,04	2,30	-0,03	-16,38	-8,39
Latvijas Gaze	2018 7	10,79	4	10,79	1,40	2,98	2,70	0,47	22,96	6,01
PRFoods	2018 7	0,76	4	0,76	0,90	2,54	3,30	0,01	75,59	1,92
Siauliu Bankas	2018 7	0,50	2	0,50	0,40	2,04	2,30	0,07	7,19	20,99
Amber Latvijas Balzams	2018 12	8,52	3	8,52	0,50	2,92	2,50	1,25	6,82	8,58
AUGA Group	2018 12	0,40	3	0,40	1,50	2,21	1,80	-0,03	-13,19	-7,01
Latvijas Gaze	2018 12	10,37	4	10,37	0,50	2,92	2,50	0,63	16,46	8,11
PRFoods	2018 12	0,59	4	0,59	1,20	2,55	3,30	0,01	59,29	-2,42
Siauliu Bankas	2018 12	0,42	2	0,42	1,50	2,21	1,80	0,08	5,28	21,72
Amber Latvijas Balzams	2018 11	8,43	3	8,43	0,50	2,85	2,90	1,25	6,74	8,58
AUGA Group	4	0,44	3	0,44	1,50	2,14	2,40	-0,03	-14,54	-7,01
Latvijas Gaze	2018 11	10,41	4	10,41	0,50	2,85	2,90	0,63	16,52	8,11
PRFoods	2018 11	0,56	4	0,56	1,20	2,55	3,20	0,01	56,27	-2,42
Siauliu Bankas	2018 11	0,43	2	0,43	1,50	2,14	2,40	0,08	5,41	21,72
Amber Latvijas Balzams	2018 10	8,38	3	8,38	0,50	2,88	3,20	1,25	6,71	8,58
AUGA Group	2018 10	0,46	3	0,46	1,50	2,17	2,80	-0,03	-15,48	-7,01
Latvijas Gaze	2018 10	10,52	4	10,52	0,50	2,88	3,20	0,63	16,70	8,11
PRFoods	2018 10	0,63	4	0,63	1,20	2,47	4,50	0,01	63,24	-2,42
Siauliu Bankas	2018 10	0,45	2	0,45	1,50	2,17	2,80	0,08	5,69	21,72

*Annex 6. Hausman test*

Hausman Test

```
data: Monthly.Average.Share.Price ~ SBD.score + Inflation..monthly. + ...
chisq = 6.8084, df = 5, p-value = 0.2353
alternative hypothesis: one model is inconsistent
```

*Annex 7. Shapiro-Wilk normality test*

Shapiro-Wilk normality test

```
data: random_model$residuals
W = 0.92464, p-value = 1.204e-13
```

*Annex 8. Breusch-Pagan test for heteroscedasticity*

studentized Breusch-Pagan test

```
data: random_model
BP = 101.31, df = 7, p-value < 2.2e-16
```

*Annex 9. Variance inflation factors (VIF)*

	GVIF	Df	GVIF <sup>1/(2*Df)</sup>
SBD.score	1.096125	1	1.046960
Inflation..monthly.	1.156126	1	1.075233
GDP.growth	1.067505	1	1.033201
Interest.Rate..monthly.	1.046581	1	1.023025
ROE	1.058012	1	1.028597
factor(Industry)	1.016633	2	1.004133