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Review

Energy M&A Market in the Baltic States Analyzed through the Lens of Sustainable Development

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Abstract: Mergers and acquisitions (M&A) may serve as a catalyst in energy transition by accelerating this trend and "greenwashing" the deals. M&A are often used by large energy companies as a tool to explore potential synergy benefits. Recently, M&A strategies in the energy industry have been pursued to transform traditional business models into more "sustainable" models. On the one hand, it may be observed that companies are taking a proactive rather than reactive approach towards environmental-, social-, and governance (ESG)-related M&A deals. On the other hand, sustainable M&A deals do not interest activist shareholders and regulatory authorities only anymore. Inclusion of a sustainability framework and managing ESG-related risks have become part of the overall strategy of most companies within the energy industry. This research addresses the problem of how energy M&A are contributing to sustainable development on the one hand and reflecting sustainable developments on the other hand. The current research focuses on the systematic literature on the M&A deals in the energy industry through the lens of sustainability by applying the SALSA methodology. Further, we applied a SWOT analysis of M&A in the energy industry from the perspective of sustainable development. Thomson Reuters DataStream 5.1 database was used for developing a case study. A sample of Lithuanian, Latvian, and Estonian energy companies that were involved as acquirers or targets in the M&A events from 1995 to 2020 was developed. Establishing a methodological approach construed of SALSA, SWOT, and case study analyses allowed us to bridge a gap in the existing literature and provoke further discussion in regards to market developments through the lens of sustainable development. The research results showed that there are relatively few M&A of renewable companies as the M&A market is dominated by traditional energy companies within Baltic states. However, companies in the Baltic states are pursuing energy security, have set targets for emission reductions, renewables and energy efficiency, are supporting EU climate neutrality, and put great emphasis on climate change mitigation.

Keywords: sustainability; energy; SWOT; ESG; developments; mergers and acquisitions

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1. Introduction

The world energy market reflects various developments and trends and is influenced by different factors. Schaeffer [1] acknowledges that key change drivers in the energy industry are sometimes contradictory. These include increasing energy demand from emerging economy countries, global economic shocks, changes in climate policies, geopolitical tensions, decline of nuclear energy, and cost reduction of energy from renewable sources. Kurbatova and Perederii [2] further recognize that even though renewable energy capacities are developing and are being strategically imposed and deployed worldwide, in practice the global energy supply still remains based on non-renewable energy resources. According to the authors, the energy supply from renewable sources may be promoted by international and individual country policies and introduction of properly designed support mechanisms to promote renewable energy production. Xu et al. [3] and Shivakumar

et al. [4] state that renewable energy growth is being driven by economic, geographical, policy, technological, and social factors. Key composites of each' driver are presented in Figure 1 and discussed below.

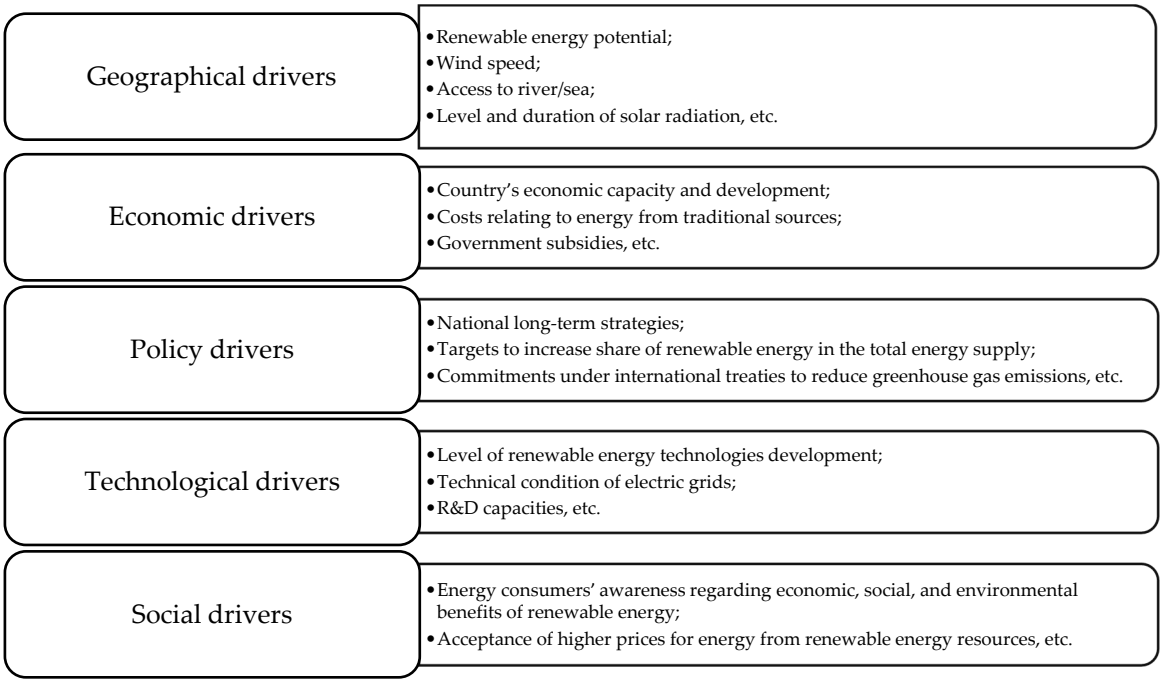


Figure 1. Driving forces of renewable energy increase in the overall energy supply. Source: authors' elaboration on work by Xu et al. [3] and Shivakumar et al. [4].

Within the composites of driving forces of renewable energy increase, geographical factors refer to environment and national potential to employ renewable resources for energy creation. These include, but are not limited to, renewable energy potential, wind speed, access to river/sea, level and duration of solar radiation, etc. Renewable energy developments are inextricable from a country's economic development. Xu et al. [3] acknowledge that renewable energy development and utilization is inseparable from financial support. Economic growth, a country's economic capacity and development, governmental subsidies, and high costs relating to energy from traditional sources will help increase investment in renewable energy development in the region and promote the development of renewable energy. From a technological perspective, factors affecting technological development include new energy utilization capabilities, power generation capabilities, and research and development capabilities. Technological developments and potential (e.g., technical condition of electric grids, high R&D capacities, developments of renewable energy technologies, etc.) enable countries to build and maintain competitive, cost-safe and sustainable energy supply, reduce development and maintenance costs, and improve reliability, applicability, and energy conversion efficiency. Within the context of renewable energy driving forces, social drivers refer to society's awareness of renewable energy. From this perspective, recently due to energy, geopolitical, and environmental issues, development and utilization of renewable energy has been accelerated and emphasized by the international community. Policy drivers (e.g., national strategies, policy systems, energy targets, international treaties, and memorandums) are very important, because they draw a path towards a country's renewable energy future development trends.

As a reflection of ongoing changes, and at the same time as the new energy industry becomes a shaping force, companies are pursuing M&A deals. Mihaiu et al. [5] conclude that M&A deals are one of the most popular corporate external growth strategies. In addition to serving as an external growth carrier, M&A have the capacity to strengthen operations, ex-

pand the corporate and operational presence in primary and secondary markets, access new geographical areas, create financial-, tax-, management- and operational synergies, eliminate service duplication, increase shareholder value, and offer new products and services, etc. Among key topics in M&A research are its effects on corporate performance. Results in this direction are ambiguous as M&A may lead either to a positive, negative, or mixed company performance after the M&A event. Most existing studies in the M&A area focus on the relationship between M&A and dynamics of financial performance indicators [6]; i.e., looking at whether financial performance improves or deteriorates after conducting an M&A deal. Meglio [7] acknowledges that M&A and sustainable development research has evolved individually and unrelatedly, where sustainability and responsibility issues were left at the margin of the M&A analysis.

A recent study by Barros et al. [8] establishes that sustainability issues together with various topics (e.g., determinants or consequences) of corporate social responsibility (CSR) have become common and substantial in the trending academic literature and empirical studies. Intensifying analysis in this direction coincides with and reflects global trends in pursuance of sustainable development goals established by the United Nations (UN) back in 2012. An international path towards sustainable development was further strengthened by the UN adopting the 2030 Agenda for Sustainable Development and establishing 17 Sustainable Development Goals (SDGs) for governments to achieve by 2030. Among the 17 SDGs, SDG7 directly addresses energy matters and the need to "*Ensure access to affordable, reliable, sustainable and modern energy for all*". According to Sachs et al. [9], the relevance of SDGs developed by the UN may be proven by their employment as a universal framework for sustainability not only across different research disciplines (e.g., natural sciences, economics, political science, sociology, etc.), but also among practitioners and other stakeholders including governments and non-governmental organizations. Montiel et al. [10] highlight that the SDGs address country level issues and are therefore designed as country level goals to be sought by governments. However, the authors [10] consider that UN SDGs are not firm goals and there is a lack of international research and knowledge on how international businesses may contribute to sustainable development and in particular to the SDGs. Van Zanten and van Tulder [11] further motivated the current study by concluding that global international companies are rethinking their business objectives and are shifting from profit (e.g., shareholder value maximization) to embracing SDGs. However, knowledge on implementation in this regard is still incomplete.

The sustainable development concept within the energy industry may be defined as meeting current energy demands without depletion of integral natural resources and without diminishing needs of future generations. From this perspective, sustainable energy should embrace safe, secure, healthy, long lasting, and self-recovering energy sources. The proposed definition evidences that changes to the status quo in the industry are needed as currently the energy industry is still relying on fossil fuels (e.g., coal and petroleum) and natural gas, which lead to heavy CO_2 and greenhouse gas emissions within the sustainable development framework. Benson et a. [12] conclude that sustainable energy systems shall address economic, social, and environmental dimensions, including assuring affordable and reliable energy, reducing discrimination and inequality, and reducing environmental impacts. In addition to the UN SDGs, recently the EU has adopted the EU Green Deal incentive, seeking to become the first climate neutral continent by 2050. This initiative aims to ensure economic developments within the EU shall not have negative environmental effects and shall have the capacity to lead towards an environmentally neutral economy [13]. Following Russian invasion of Ukraine, the European Commission has acknowledged and reacted to the new geopolitical and energy market realities. Subsequently, the REPowerEU plan has been announced, which establishes a series of measures to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition, while increasing the resilience of the EU-wide energy system [13].

Energy industry M&A are among the largest and have significant effects both on energy providers and customers as well. For instance, the Royal Dutch Shell's acquisition

of the BG Group back in 2016, valued at USD 54.0 billion, has created the world's largest natural gas liquefied business. Acquisition has helped Shell to pursue its growth strategy to develop a more focused and simpler operational structure by enhancing Shell's liquefied natural gas (LNG) and deep-water asset portfolio, particularly in Australia and Brazil. It enabled the company to accelerate and de-risk its LNG and deep water-focused strategy. Another recent example is the merger between PKN ORLEN and Grupa LOTOS, which indicates how M&A may transform a country's energy sector. In addition to traditional benefits of M&A (e.g., value chain diversification and strengthening commercial relations, synergy and shareholder value creation), the case of the PKN ORLEN and Grupa LOTOS merger is an M&A deal in line with the global trend directed at creation of strong multi-energy corporations able to compete in a progressively more demanding economic and regulatory environment, and creating a truly diversified and future proof multi-energy company with sufficient scale and financial strength to play a defining role in the energy transformation.

Considering the discussion above, our study moves from the traditional company shareholder-centered perspective and raises several questions. Firstly, the current research looked into how energy M&A are contributing to sustainable development on the one hand and reflecting sustainable developments on the other hand. Secondly, by employing a sample of real M&A events conducted in the Baltic states (Lithuania, Latvia, and Estonia) from 1995 to 2020, the study sought to analyze market developments in sustainability.

The current paper applies a SWOT analysis by following the SALSA methodology and descriptive M&A statistics in order to review the energy M&A market in the Baltic states through the lens of sustainable development. Several studies have applied a SWOT analysis to the energy industry. For example, Jing and Tao [14] applied it to China's Three Gorges Corporation, Agyekum [15] pursued SWOT analysis in research to estimate the strengths, weaknesses, opportunities, and threats in Ghana's renewable energy sector, and Lakatos and Arsenopoulos [16] used SWOT analysis to assess EU financial instruments to assess energy poverty in households. However, to our knowledge and according to pre-research investigation, no prior study has applied a SWOT analysis to the M&A and sustainable development framework of the energy industry. To add further relevance and a practical implementation approach, we used the DataStream 5.1 database to select and further analyze a sample of Lithuanian, Latvian, and Estonian energy companies that were either acquirers or targets in M&A deals completed during 1995–2020. We believe combining SWOT and descriptive analysis helped to answer our research questions and deepen understanding of the synergy between M&A, sustainable development, and energy.

2. Methods

The methodological approach employed in this research is presented in Figure 2. The study sought to provide a holistic and comprehensive understanding of developments and trends of M&A in the energy industry through the lens of sustainable development. Therefore, the methodological approach was constructed of three phases. Firstly, the SALSA (search, appraisal, synthesis, analysis) methodology was used for a systematic literature review (Phase 1) in order to perform a comprehensive SWOT analysis (Phase 2). Through Phases 1–2, we questioned how energy M&A are contributing to sustainable development on the one hand and reflecting sustainable developments on the other hand. Secondly, Phase 3 took a sample of energy M&A events conducted in the Baltic states (Lithuania, Latvia, and Estonia) from 1995 to 2020 and sought to view market developments through the lens of sustainable development.

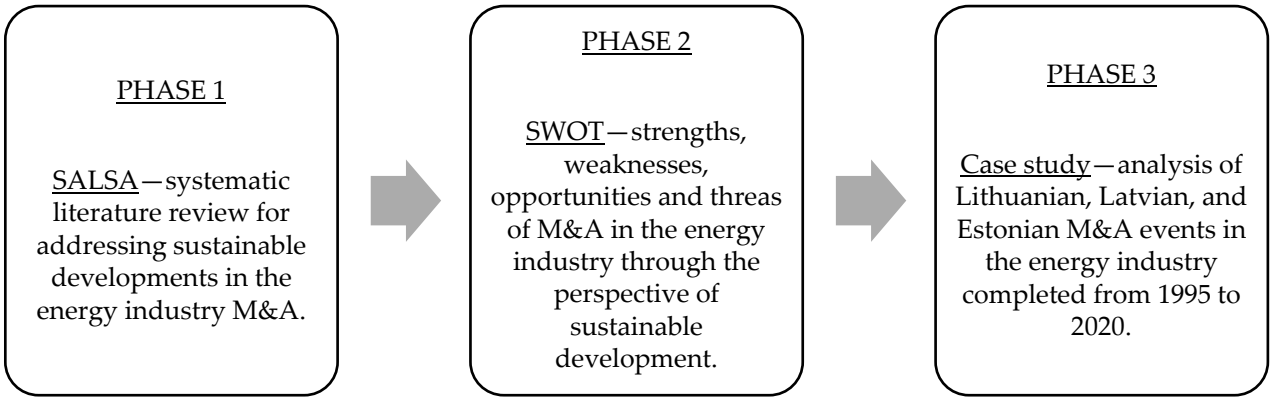


Figure 2. Methodological approach of the research. Source: created by authors.

In order to uncover new perspectives, properly identify, evaluate, and synthesize the existing body of previous studies and practical work, ensure a low subjectivity level and theoretical novelty of the results, we used a systematic literature review tool, SALSA. The benefits of the SALSA framework arise from several sources. Firstly, SALSA analysis focuses on synthesis and analysis of existing studies in a way that new perspectives are uncovered and new questions are raised [17]. Secondly, exploration, interpretation, synthesis, and analysis are important to any study [18]. Further studies [19] remark that SALSA is the most suitable tool for literature identification, evaluation, and synthesis due to its low subjectivity level. Finally, SALSA is often used [20] to guarantee methodological accuracy, comprehensiveness, and extensiveness. Figure 3 depicts the main stages of the SALSA methodology: search, appraisal, synthesis, and analysis.

Figure 3. Framework of SALSA methodology. Source: authors.

Firstly, through the initial "search" step, a searching strategy was defined. Our search strategy consisted of looking for keywords of M&A, sustainability, and energy industry in the database. The Web of Science (Clarivate Analytics) database has more than 1.9 billion cited references from more than 171 million records and offers a comprehensive platform was used in the research; 101 results were retrieved from the Web of Science database. These were assessed in order to ascertain if they were within the scope of current research and should be analyzed further. Secondly, during "appraisal", we read abstracts and reports of the papers selected. Following that, we assessed whether the papers found were appropriate for further analysis including SWOT. Afterwards we employ the "snowballing" technique, using references and citations of selected papers in order to include an additional set of relevant papers. We further enlarged the pool of selected articles by adding reports and analysis published by relevant bodies and related to the current investigation (e.g., European Commission, International Energy Agency). After conducting "search", "appraisal", and "snowballing" steps, the SALSA framework was continued with "synthesis". In this step, selected papers were read and analyzed with an emphasis on sustainable developments and M&A in the energy market. Results, insights, and perspectives of 25 selected articles were grouped following the objectives of the current study. Finally, in the "analysis" phase we proceeded with the SWOT analysis and summarized results via a 2 × 2 matrix (internal factors: strengths and weaknesses; vs. external factors: opportunities and threats), as presented in Figure 4.

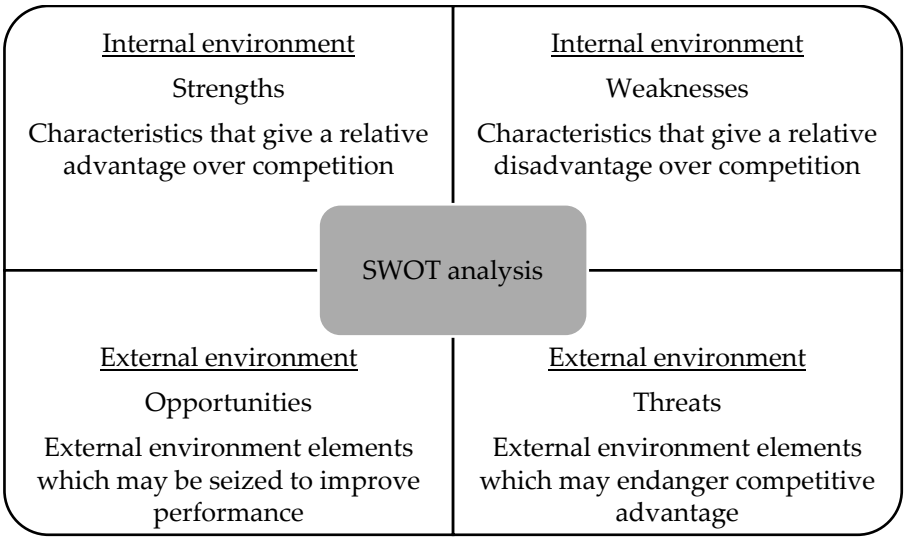


Figure 4. Framework of SWOT analysis. Source: authors.

Introduced in the 1950s at Harvard Business School and methodologically established in 1963 at a Harvard business policy conference, the SWOT (strengths, weaknesses, opportunities, and threats) methodology has a history of use over six decades. Within the focus of the current research, the SWOT analysis (Figure 4) approaches M&A in the energy industry through the perspective of sustainable development. Specifically, strengths and weaknesses arising from the internal environment are analyses, whereas opportunities and threats from the external environment are further added to the research interests. With SWOT becoming a mainstream framework in strategic management in the 1990s, this analysis has been used in many fields (e.g., education, politics, economics, environment, agriculture, legal, etc.). As Benzaghta et al. [21] acknowledges, SWOT analysis has become a key tool used by businesses for strategic planning. In addition to that, SWOT is commonly used to assess the internal and external environments of organizations during indetermination [22]. Dyson [23] defines SWOT as a flexible methodology which may be used with various newer techniques and approaches, stating that the SWOT methodology may be used to assess the current and potential standings of a particular matter and predict how it is set to perform in the future. Similarly, Vlados [24] argues that while initially SWOT was applied in the private business field, over time application of this methodology has expanded beyond its origins and currently it may be used in energy, development policies, public healthcare, water resources management, and rural development management, etc.

Arslan and Er [25] acknowledge SWOT as having the capacity to assess strengths and opportunities for a specific objective. On the other side of the scale are threats and weaknesses that when timely determined may be properly avoided and minimized in order to achieve the objective. Sharma and Sehrawat [26] support SWOT as being able to establish weights of internal (strengths and weaknesses) and external (opportunities and threats). The results of SWOT analysis may help practitioners and strategists to identify strengths, weaknesses, opportunities, and threats. Similarly to the approach proposed by Falcone [27], when carrying out the SWOT analysis we based it on a literature review of M&A and sustainable development. Considering the motivation of the current research includes analysis of M&A in the energy industry, we further analyzed a sample of Lithuanian, Latvian, and Estonian M&A events that were completed from 1995 to 2020. The DataStream 5.1 database by Thomson Reuters was employed to select a sample of Lithuanian, Latvian, and Estonian energy companies that were involved either as a target or acquirer from 1995 to 2020. Figure 5 introduces the selection criteria of the M&A data sample used in the research.

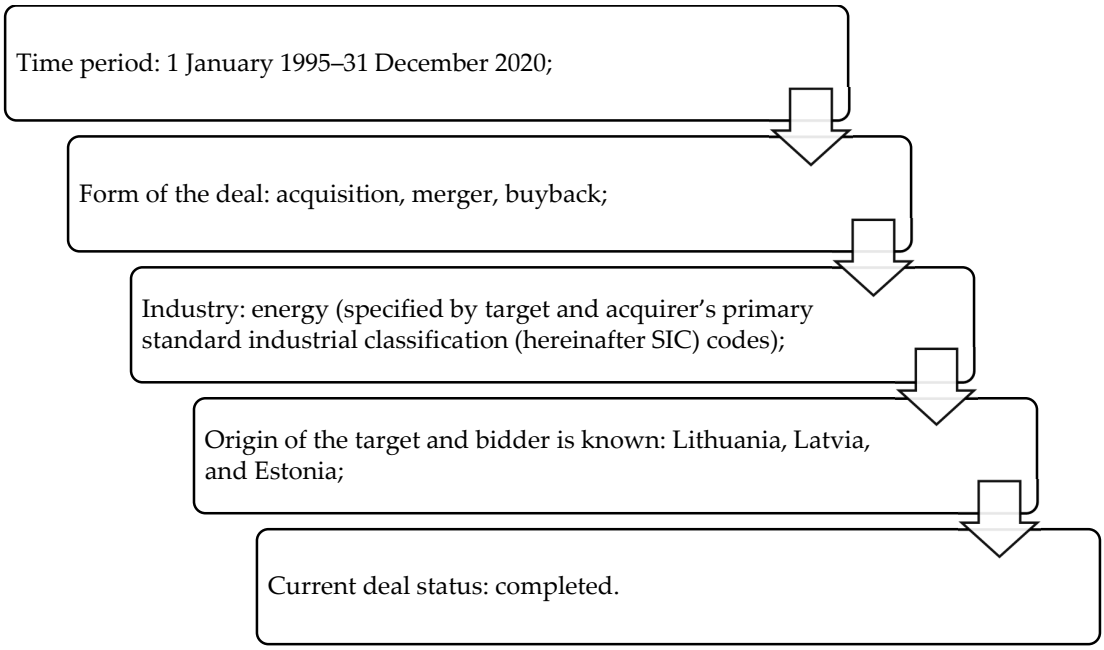


Figure 5. Selection criteria of M&A data sample used in the research. Source: authors.

In the time frame of 1995–2020, the research analyzed acquisitions, mergers, and buyback transactions completed in Lithuania, Latvia, and Estonia. Further, by choosing particular target and acquirer SIC codes, the research analyzed the energy industry only. In addition to that, it is worth mentioning that all deals were worth in excess of USD 1 million. Furthermore, due to limited access to DataStream 5.1, we could not obtain more recent data (e.g., after 1 January 2021).

3. Results

The Results section of our paper is divided into two subsections. The first subsection provides results of the outlook and analyzes energy M&A in the Baltic states. The second subsection provides results of the SWOT and SALSA analyses.

3.1. Outlook of Energy M&A in the Baltic States

Figures on the annual deal value and volume of energy M&A in the Baltic states from 1995 to 2020 are provided in Table A1 (Appendix A). According to the data, several trends may be observed. Firstly, a total of 40 M&A deals with value in excess of EUR 4.8 billion were completed from 1995 to 2020. Secondly, within Baltic states, most of the deals involved Lithuanian targets (e.g., 45% in terms of number and 69% in terms of value). M&A involving Estonian and Latvian targets constituted 30% and 25% in terms of number of the deals, and 3% and 27% in terms of value, respectively. Third, the largest M&A (value of EUR 2.35 billion) in the region was announced in 2006 when Polish company PKN ORLEN SA acquired Lithuanian petroleum refiner AB Mazeikiu Nafta. The largest deal in Latvia (value of EUR 844 million) was an investment in the Ventspils Nafta Oil Terminal back in 1996. The Estonian energy M&A market is relatively small in comparison with those of neighbor countries; the largest deal was only EUR 34 million (Elering AS's acquisition of Vorguteenus Valdus AS). Looking from the sustainability perspective, it is worth mentioning that only 4 deals (10% of total volume) with a value of EUR 40 million (1% of total value) involved a target with its main activities in cogeneration or alternative energy sources. Hence, it may be observed that the main motives for M&A in the region were other than the pursuit of sustainability.

Based on a sample of Lithuanian, Latvian, and Estonian M&A events that were completed from 1995 to 2020 and recorded in the DataStream 5.1 database by Thomson Reuters, Figure 6 breaks down the sample into two groups. Firstly, 21 (53%) of the deals

were cross-border and involved a target and acquirer from different countries. Within the Baltic states, in addition to Lithuanian, Latvian, and Estonian companies investing abroad, companies from Baltic states were acquired by Cyprus, Finnish, Dutch, Norwegian, Polish, Russian, Spanish, and US acquirers. Stefko et al. [28] acknowledge that cross-border M&A helps businesses to generate synergies, purchase assets, enable tax optimizations, grant access to markets and know-how, enhance competitiveness and market value, and differentiate and diversify business activities. On the other side, cross-border M&A may destroy positive developments and raise concerns over sustainability as they increase the risk of cartels, monopolies, and losses of scale. Using a sample of Korean M&A, Lee et al. [29] questioned whether cross-border M&A may result in a sustainable growth strategy. Their results have shown that post-merger performance depends on the stability and legitimacy of the intergroup status relations between the acquiring and acquired firms, regardless of whether the deal is a domestic or cross-border M&A.

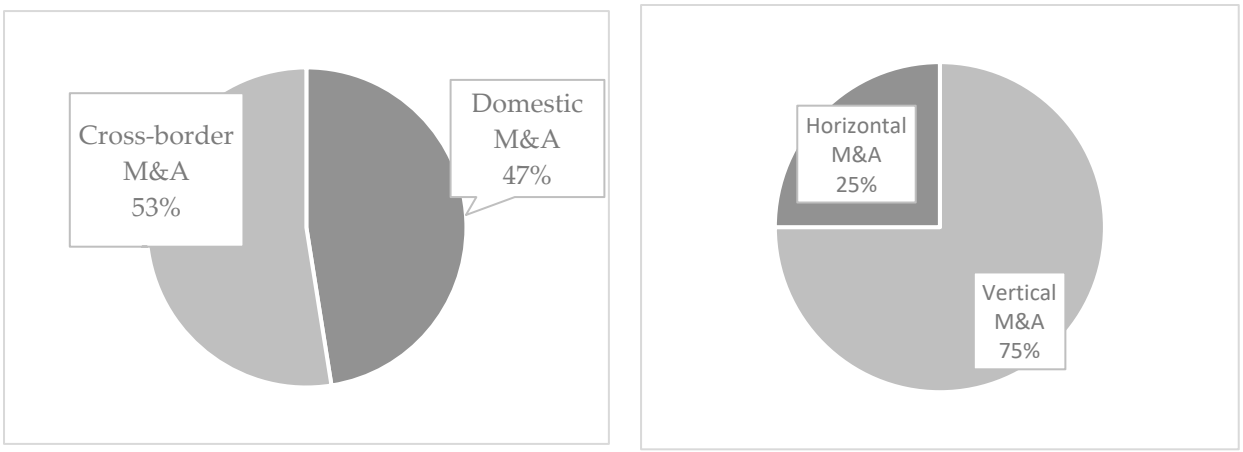
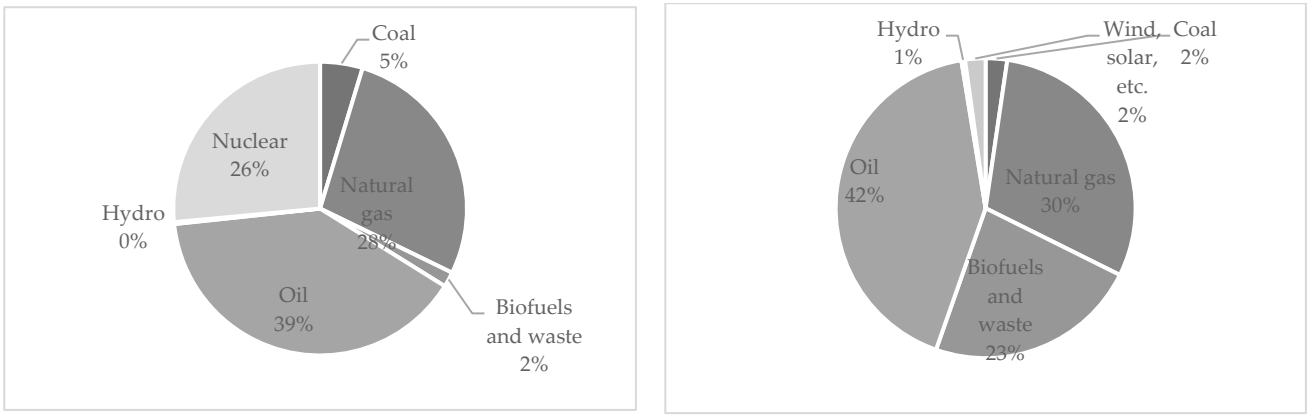


Figure 6. Descriptive statistics: (**a**) Cross-border vs. domestic M&A; (**b**) horizontal vs. vertical M&A. Source: authors' calculations.

Secondly, by using the target and acquirer's primary SIC codes, we were able to distinguish and divide our sample into horizontal and vertical M&A. As statistics suggested, 10 deals (25%) were horizontal whereas 30 deals (75%) were vertical. A vertical M&A may be defined as a transaction between two or more firms involved at different stages in the supply chain process. A horizontal M&A refers to business consolidation that occurs between firms that operate in the same industry. From the sustainability perspective, Barbieri et al. [30] acknowledge that vertical integration through M&A may both directly and indirectly impact competition in the markets, as it can increase the market power of the newly integrated firm and may modify the relationships with previous customers. On the other side are horizontal M&A, which are often defined as generating important increase in sectoral efficiency and R&D. However, from the sustainability perspective horizontal, M&A should be assessed with caution as they risk causing market power concentration and market contraction [30].

Among the key indicators for assessing a country's energy market is total energy supply. Therefore, we compared the dynamics of Lithuanian, Latvian, and Estonian energy market supply with a specific focus on the energy source. A detailed breakdown of total energy supply by source (in TJ) is provided in Table A2 (Appendix B). Trends observed shall be considered within the context of the Baltic states undergoing reform and regional integration within the Baltic and EU energy markets. Furthermore, an approach common to all countries is their pursuit of energy security, targets for emission reductions and renewables and energy efficiency, support of EU climate neutrality, and greater emphasis on the mitigation of climate change [31]. Statistics provided by the database of the International

Energy Agency [32] allowed us to analyze the dynamics of energy supply from different sources. This is relevant to the field as energy companies are the ones responsible for energy supply. Several insights may be observed from the data retrieved. Firstly, total energy supply decreased by 61%, 45%, and 49% in Lithuania, Latvia, and Estonia, respectively, when comparing 1990 with 2020. Currently, Baltic states have similar levels of energy supply with a total average value of 221.793 TJ. Secondly, significant changes have occurred within the energy sources from 1990 to 2020 (Figures 5–7).



(**a**) (**b**)

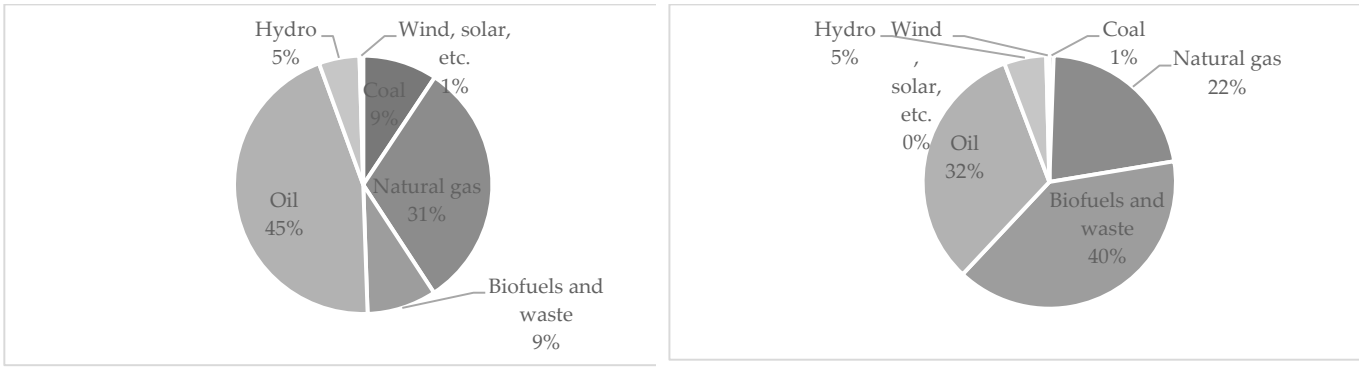
Figure 7. Structure of energy supply in Lithuania: (**a**) 1990; (**b**) 2020. Source: authors' compilations based on database of the International Energy Agency.

Figure 7 describes changes in the structure of the energy supply in Lithuania from 1990 to 2020. Considering Lithuania closed its last nuclear reactor in 2009, this energy source is not available anymore. However, its share of biofuels and waste has increased from 2% into 23%. As a path towards sustainable energy, its share of wind, solar, and hydro is increasing. However, this is still irrelevant as renewables constitute just 3% of the total energy supply. A positive development towards sustainability is reduction of the proportion of coal energy from 5% to 2%. However, Lithuania is still significantly dependent on oil (42%) and natural gas (30%).

Figure 8 describes changes in the structure of the Latvian energy supply from 1990 to 2020. Latvia has managed to reduce the proportions of oil, natural gas, and coal in its total energy supply from 45%, 31%, and 9% to 32%, 22%, and 1%, respectively. This development supports Latvia's path towards a sustainable energy supply. Similarly to Lithuania, its share of biofuels and waste has increased from 9% to 40%. Hydro in the Latvian energy market constitutes a significant 5%.

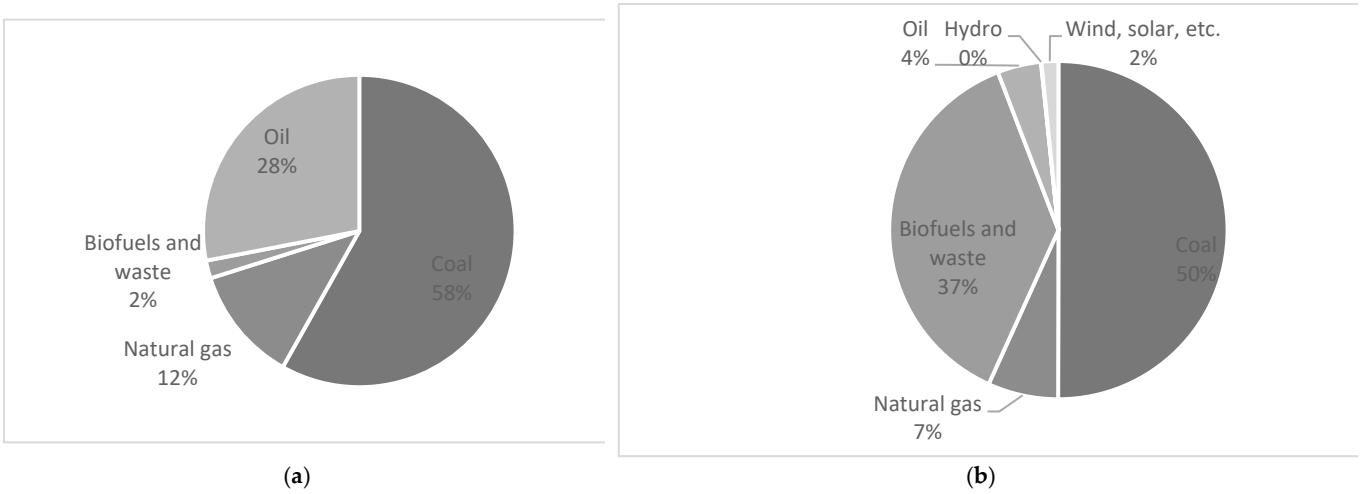
Figure 9 describes changes in the structure of the Estonian energy supply from 1990 to 2020. Estonia differs from the Lithuanian and Latvian markets in several aspects. Firstly, while coal constitutes 1–2% of the energy supply in Latvia and Lithuania, the share of coal in the Estonian energy market constitutes 50%. However, in contrast to Lithuania or Latvia, its shares of natural gas and oil amount to 7% and 4%, respectively. It is worth mentioning that Estonia has managed to reduce its share of oil by 24 percentage points during the past three decades. Similarly to the other Baltic states, its shares of biofuels and waste has increased from 2% to 37%.

Bompard et al. [33] analyzed the Baltic power systems' synchronization with the EU energy market. The authors recognize that the current energy transmission system of the Baltic countries is integrated with the integrated/unified power system (IPS/UPS), which includes the Russian grid. However, the Baltic states are actively pursuing EU energy policy targets. In addition to the European electricity market (NordPool), which the Baltic states have already joined, another goal is joining the pan-European electricity market and desynchronizing the power grid of the Baltic states from the IPS/UPS.



(**a**) (**b**)

Figure 8. Structure of energy supply in Latvia: (**a**) 1990; (**b**) 2020. Source: authors' compilations based on database of the International Energy Agency.



(**a**) (**b**)

Figure 9. Structure of energy supply in Estonia: (**a**) 1990; (**b**) 2020. Source: authors' compilations based on database of the International Energy Agency.

3.2. Analysis of M&A in the Energy Industry from the Perspective of Sustainable Development

Developments and trends of M&A should not be analyzed in isolation from the general trends in the industry. Liu and Lu [34] recognize two global pressures that facilitate changes in the energy industry. The first pressure relates to promotion of renewable energy development and a path towards sustainable energy diversification. The second pressure relates to CO_2 emission reduction and sustainable renovation of fossil energy resources. The authors acknowledge that industry transformation through a low-carbon and green transition reflects adjustments imposed by digital technologies and industrial digitalization, the internet, concepts of smart energy, shared economy, artificial intelligence, etc. In addition to the traditional forces, these developments extend the framework of the energy industry. Table 1 below provides results of the SWOT analysis that approached M&A in the energy industry from the perspective of sustainable development.

Table 1. Results of M&A SWOT analysis of the energy industry from the perspective of sustainable development.

Author	**Strengths**	*Author*	**Weaknesses**
Liu and Lu [34]	Digital transformation: extensible industrial applications, mature digital technology, and high efficiency of platform operation	Liu and Lu [34]	Large size of the industry (e.g., huge asset scale worldwide) Lack of the impetus of revolution (e.g., complex managerial hierarchy, long decision-making process) Various restrictions imposed by political system, economic and social development, technology innovation, international cooperation, etc.
Markovska et al. [35]	Potential of the renewable energy sources (RESs) Progressive adoption of EU standards in energy policy and regulation	Borthwick et al. [36]	Negative influence of macro policy uncertainty on M&A. Economic policy uncertainty significantly reduces firm M&A activities
Hong et al. [37]	Resource reallocation and synergy potential: complementarity for both parties can exert more potential synergy, thereby increasing the capacity of the merged firms to develop sustainably	Guo et al. [38]	Motivation of access to natural resources. Global oil and gas M&A are mostly domestic M&A, because cross-border M&A risks are closely related to many complex political and economic relationships
Zhou, Lingling et al. [39]	Green M&A improves operational efficiency	Waterworth and Bradshaw [40]	Different contract mechanisms and non-technical risk increase in the current capital constrained world. Hence, competition comes from countries with different contractual mechanisms, political risks and regulatory framework.
Wu et al. [41]	M&A promotes innovation performance and innovation investment.	Wasilewski et al. [42]	Capital intensity and mobilization of ever-increasing investments are among prerequisites to deliver energy projects and ensure satisfactory internal investment return
Hu et al. [43]	Access to resources, increase of market share, profitability potential, and improvement in long-term development	Elbassoussy [44]	Dependence of external energy resources; EU is net energy importer; energy system depends on limited number of suppliers
Arndt et al. [45]	Significant investments allocated by the EU for developing renewable energies	Arndt et al. [45]	Renewable energy profitability is subject to the fluctuations in energy prices

Table 1. *Cont.*

Author	**Strengths**	*Author*	**Weaknesses**
Pätäri et al. [46]	Sustainability-driven firms better control their costs and better generate profits in comparison with the conventional energy companies		
Bogner et al. [47]	Efforts of EU institutions to increase the effectiveness of competition law in the energy sector. Strong competition law is geared toward preventing companies from anticompetitive behavior by promoting and protecting market competition. Competition law enables authorities to supervise M&A and even to intervene		
Author	**Opportunities**	*Author*	**Threats**
Liu and Lu [34]	Increasing investment Development of emerging technologies Energy internet development	Liu and Lu [34]	Inertia in traditional business models favors maintaining currently running equipment distributed among supply chains
European Commission [13]	European Green Deal	Dasgupta et al. [48]	Potential harm of security risks (e.g., such as geomagnetic storms, malware, ransomware, phishing, botnets, etc.)
Manocha and Srai [49]	Product design and technology selection factors represent sources of M&A value creation	Hong et al. [37]	High cost and uncertainty increases M&A risks
Zheng et al. [50]	Corporate reorganizations, firm structure optimization, improved corporate governance	Gazzola et al. [51]	Corporate culture/cultural compatibility allows companies to operate according to common or similar visions regarding certain aspects that other companies probably find less important.
Caizza et al. [52]	Local knowledge, supplier networks, government relationships, clientele of target firm	Caizza et al. [52]	Post-merger integration (PMI)
Bali et a. [53]	Changes in employment. Renewable energy consumption and sector M&A contribute substantially to future changes in employment in the short and medium terms.		

Table 1. *Cont.*

Author	**Strengths**	*Author*	**Weaknesses**
Włodarczyk et al. [54]	EU Renewable Energy Directive; European Green Deal		
Lu et al. [55]	Developments towards increase in energy efficiency, the use of renewable energy sources, and greenhouse gas emission reduction		
Pereira et al. [56]	Complementarities among new sustainable activities		

As discussed in the Methods section, the two main components of SWOT analysis are the internal indicators constituting existing strengths and weaknesses and the external indicators reflected in opportunities and threats.

- Strengths. Liu and Lu [34] acknowledge that digital transformation strengthens the energy industry. Digital technologies may be extended to various industrial applications, e.g., power generation, power grid, status and performance data collection from power assets, etc. From the financial and cost management perspectives, digital transformation may impose savings and cost reduction by improving labor efficiency and operation safety. Markovska et al. [35] have pursued SWOT analysis of the Macedonian energy sector. While some characteristics are country specific, other are applicable to the EU energy industry. The potential of the renewable energy sources (RESs) is among the strengths as RESes contribute to energy supply security and energy import reduction. Furthermore, pursuit of integration, solidarity, and cooperation between EU countries by consolidating energy policies has the capacity to improve EU-wide energy security. Moving from the industry to the firm level, Hong et al. [37] acknowledge the synergy that pursuit of M&A may reallocate resources from target to asset and prolong the operation of the combined firms. Similarly, Zhou, Lingling, et al. [39] found that green M&A improves operational efficiency and strengthens firms' development capacity. Wu et al. [41] found that M&A can significantly promote innovation performance and innovation investment. Hu et al. [43] consider the strengths of M&A arising from access to valuable resources, increased market share, profitability potential, and improvement of companies' long-term development capacities. Arndt et al. [45] acknowledge that the EU is diversifying its energy supply and has allocated significant funds to developing renewable energies. Disposal of advanced technologies enables European companies to produce renewable energy more efficiently and cost-effectively. Bogner et al. [47] indicate that competition law in the EU energy sector is well established, efficient and further developing. According to the authors, legal and ownership unbundling are employed as policy tools geared towards pushing companies into demerging deals. Ruggiero et al. [57] further acknowledge that the EU energy market strengths arise from intra- and interstate partnership and interaction between various economic actors. Pätäri et al. [46] analyzed corporate sustainability as a term consisting of economic responsibility (profit), social responsibility (profit), and environmental responsibility (planet) dimensions. According to the empirical analysis, there is a positive association between corporate sustainability and firms' financial performance, especially when performance is measured as the market capitalization value. Furthermore, empirical evidence also supports that M&A activities related to corporate social responsibility have paid off among the energy industry companies. According to the authors of [46], this conclusion is also valid even though in the energy industry the share of environmental costs may be higher due to stringent environmental regulation. Having performed a comparative review of

CSR of energy utilities and sustainable energy development trends in the Baltic states, Lu et al. [55] state that M&A and sustainable development reflect common targets: increased energy efficiency, the use of renewable energy sources, and greenhouse gas emission reduction.

- Weaknesses. According to Liu and Lu [34], the energy industry is characterized by a large scale, multiple stakeholders and governing authorities, national security matters, complicated engineering matters, strong professionalism, etc. Taking a sample of Chinese M&A, Borthwick et al. [36] found a negative effect of policy uncertainty on M&A, meaning that M&A likelihood decreases due to policy uncertainty. Guo et al. [38] analyzed the worldwide energy M&A network and found that in comparison with international energy companies, national energy companies are mainly being acquired in order to access natural resources. This motivation threatens sustainability potential as it allows depletion of natural resources. Waterworth and Bradshaw [40] acknowledge new trends and developments in the energy market and fierce competition in the M&A market, which subsequently increase non-technical risk. Energy M&A, especially in the renewables area, are increasing and drawing more attention from public and private investors. However, Wasilewski et al. [42] acknowledge that advancements in energy generation technologies are capital intensive and require mobilization of ever-increasing investments. Elbassoussy [44] developed an integrated EU energy security theoretical framework concept with a focus on policies, strategies, and challenges faced. Most of them reflect a general trend of rising EU dependence on external energy resources. Further weaknesses of the EU energy market reflect the low level of EU country and firm reserves and global production. Secondly, there is a clear gap between energy production and consumption, meaning the EU is net energy importer. Third, the EU energy system depends on a limited number of suppliers. This weakness has especially become evident after the Russian invasion of Ukraine. While Arndt et al. [45] have recognized that the EU is investing significantly in development energies and pursuit of renewable energy cost-efficiency, renewable energy profitability is subject to the prices in the deployable energy market. From this perspective, development of the renewable energy market is very sensitive to and reflects price changes in traditional energy sources.
- Opportunities. Developments in any industry are subject to investments. Therefore, introduction of significant investments and large-scale block-chain technology developments, together with development of emerging technologies and energy internet development [34], create many opportunities. Energy and climate change together are among the top priorities in the EU's agenda to pursue sustainability. COVID 19 has further encouraged the EU to approve the European Green Deal, which seeks to transform the EU into a modern, resource-efficient, and competitive economy, ensuring no net emissions of greenhouse gases by 2050 and economic growth decoupled from resource use [13]. The findings of Manocha and Srai [49] suggest that product design and technology selection factors represent sources of M&A value creation when exploring an innovation for a sustainable change management. Zheng et al. [50] consider opportunities arising during M&A integration from corporate reorganizations, and optimization of firm structure which subsequently leads to improved corporate governance. Caizza et al. [52] foresee cross-border M&A as providing various opportunities and benefits, such as expeditious entry into new markets by gaining local knowledge, supplier networks, government relationships, and customers coming from the target firm. Bali et al. [53] have questioned what changes the transition towards renewable energy is bringing to EU employment levels. According to the authors, the transition towards renewable energy will have a positive marginal significant effect in the long term. However, the authors do acknowledge a significant short- and medium-term positive effect of renewable energy towards future employment changes. Włodarczyk et al. [54] recognize that the EU Renewable Energy Directive and the European Green Deal will bring many opportunities and contribute in the

transition to sustainability. Among other opportunities are significant support for financial investments and strategic plans seeking to support climate neutrality by 2050, reduction of energy disparities between EU countries, and transforming the EU into a resource efficient and competitive economy. Recently, Pereira et al. [56] analyzed strategies of electric utility companies towards the transition to sustainable energy system. The authors do support that M&A will lead to both business expansion and enhanced potential of sustainable energy activities integration. The largest potential opportunities are acquiring sustainable energy activities, leading to activities contributing to decarburization while simultaneously reinforcing the efficiency of the traditional business models. Verde [58] draws attention to convergence between electricity and gas businesses due to liberalization of EU natural gas and electricity industries. However, while liberalization offers many potential synergies (technological advances enable a broader use of natural gas as a source for generating electric power, downstream opportunities to avoid cost duplication, etc.), the natural gas industry is much more concentrated in comparison with the electricity industry and does not have high liquidity levels. Verde [58] proposes that European energy companies may pursue strategies of transformation into new vertically integrated "energy companies" that operate in both gas and electricity businesses as a reflection of the uncertainties of energy demand and price volatilities.

- Among the largest *threats* stands inertia in traditional business modes. It reflects the large investments already made in traditional equipment and supply chains. Further, various security risks threaten the energy industry. Dasgupta et al. [48] acknowledge the potential harm of a path towards digital transition and transformation that involves geomagnetic storms, malware, ransomware, phishing, botnets, etc., and raises significant risks to national security. Moving from industry to the firm level, Hong et al. [37] recognize that due to the significant cost and uncertainty, M&A activities involve high risk. Cultural compatibility and corporate culture may serve as potential threats to M&A, especially cross-border M&A, because different cultures may not align common visions regarding certain aspects and subsequently reduce M&A performance [51]. Further threats to sustainability and M&A in the energy industry, according to Ruggiero et al. [57], are caused by the energy industry remaining financially and timewise dominated by large-scale projects, and subsequently its control by a small number of national and international companies. In addition to that, the authors also acknowledge that sustainability is further threatened by the circumstances of a growing number of countries becoming increasingly dependent on a limited number of energy suppliers.

4. Discussion

Following the SALSA methodology, we used a SWOT analysis in the current research. According to Liu and Lu [34], this approach is beneficial in order to simultaneously assess the internal conditions and the external environments for companies. We do believe the current results may serve to help prepare an M&A strategy or assess a sustainability development plan as part of a more holistic approach. Research has highlighted attention to the current strengths, weaknesses, opportunities, and threats of M&A in the energy industry from the perspective of sustainable development (Table 1). We believe that use of traditional SWOT guidance and building on strengths, eliminating weaknesses, further exploiting of opportunities, and mitigating the effects of threats may add value to practitioners and further researchers. Similarly to Zheng et al. [50], we do not see sustainability conflicting with economic development. In contrast, we perceive sustainability potentially being improved by M&A activities as they may contribute to resource allocation optimization and advancing environmental sustainability. The current study broadens the existing literature and investigates the strengths, weaknesses, opportunities, and threats of energy industry M&A in the transition to sustainability.

Guo et al. [38] acknowledge the dynamics and changes in driving forces of M&A in the energy industry. While M&A were responses to globalization and global economic integration in the 1980s to the 2000s, currently companies are mainly pursuing M&A as a response to the low-carbon transition and the rise of developing countries. Similarly, Qadir et al. [59] acknowledge that commodity cycles and technological changes have historically prevailed and preconditioned several previous consolidation waves. However, recently regulatory actions and pressure have been important in prompting various organizations, associations, and national and international authorities to accelerate the energy sector's transition to environmentally sustainable operations. According to Wasilewski et al. [42], consolidation in the energy sector is primarily driven by three driving forces: commodity cycles, technological changes, and regulatory actions. According to Eikeland and Skjærseth [60], currently M&A as a means of corporate restructuring are driven by (i) pursuit of accelerated evolution of energy companies, (ii) active deployment of natural gas and oil industry-wide chain projects, (iii) intensified exploitation of renewable energy, unconventional oil and gas resources, (iv) increasing know-how and developing energy technologies, (vi) global greenhouse gas reduction initiatives, and (vii) pursuit of sustainable development path.

According to Bogner et al. [47], the neoclassical framework and the managerial framework are the main theoretical frameworks that provide different approaches in regards to M&A triggers and motivators. On the one hand, the neoclassical framework supports that firms and their managers act efficiently and pursue shareholder value maximization through M&A transactions. On the other hand, the managerial framework theory considers that managerial decisions on M&A may be motivated by self-interest and non-efficient behavior and therefore may lead to negative shareholder wealth effects. The market power hypothesis belongs to the neoclassical framework. The market power hypothesis states that shareholder wealth increase is directly caused by an increase in the merged entities' ability to control the market and manipulate prices, thus raising their profitability. As a result of this market consolidation and trends towards price increases, consumer welfare and sustainability are expected to drop under this hypothesis, because consumers may be exploited and forced to pay higher prices. However, Bogner et al. [47] support that the EU energy market, established legislation, and competition law sufficiently impose market efficiency, promote and protect market competition, and safeguard and improve consumer welfare.

The SWOT analysis performed in this study was based on the general idea that sustainability in all its forms (economic, social, and environmental) is the priority and of crucial importance to companies, communities, governments, and national and international institutions. From the traditional business perspective, M&A used to be a strategic tool aimed to further economic interests and assure firms' economic and financial stability. However, due to technical advancements, sociodemographic changes, demand from emerging economy countries, global economic shocks, changes in climate policies, geopolitical tensions, etc., sustainability tends not only to guide, but become a motivation for M&A. Increasing number of firms are employing M&A to "greenwash" existing operations and strengthen ESG assets, build green energy hubs and an integrated value chain to assist the energy transition, reshape business models, and invest in start-ups to acquire disruptive technology. From the sustainability perspective, the largest strengths in M&A transactions are in digital transformation, potential of renewable (green) energy, progressive adoption of EU standards in energy policy and regulation, and efforts to increase competition. The current research has shown that large size of the industry, restrictions imposed by the political system and economic and social developments, the negative influence of macro policy uncertainty, the motivation of access to natural resources, and capital intensity are among M&A weaknesses from the sustainability perspective. There are many opportunities for M&A to enhance and reflect sustainability issues: increasing investments, development of emerging technologies, energy internet development, the European Green Deal, corporate reorganizations, changes in employment, the EU Renewable Energy Directive, developments towards an increase in energy efficiency, and complementarities among new sustainable activities, etc. Inertia in

traditional business models, the potential harm of security risks, high costs and uncertainty, corporate culture, and post-merger integration risks are among threats to sustainability in M&A transactions.

5. Conclusions

The current research analyzed a sample of energy M&A deals conducted in Lithuania, Latvia, and Estonia through the lens of sustainable development and performed a SWOT analysis using the SALSA methodology. The following conclusions are drawn from the research on how energy M&A deals are adding to sustainable development on the one hand and reflecting sustainable developments on the other hand:

- The outlook of energy M&A in the Baltic states has shown that the market is relatively small (40 M&A deals in total excess value of EUR 4.8 billion from 1995 to 2020). Considering profiles of the target companies, only 4 deals (10% of total volume) with a value of EUR 40 million (1% of total value) involved a target with its main activities in cogeneration and alternative energy sources. Hence, it may be observed that the main M&A motives in the region are other than pursuit of sustainability. Furthermore, M&A of renewable companies are relatively small and M&A is dominated by traditional energy companies. Looking into the Lithuanian, Latvian, and Estonian energy market supply, common themes are pursuit of energy security, targets for emission reductions, renewables and energy efficiency, support of EU climate neutrality, and a greater emphasis on the mitigation of climate change. Analyzing a sample of Lithuanian, Latvian, and Estonian energy M&A deals showed that enlargement of the EU has expanded the EU energy market, thus increasing the number of actors, all of which have their own interests and agendas. Similarly to Liu and Lu [34] and Verde [58], the current study acknowledges the strategic nature of the EU energy system and resources as the EU energy system is more than the sum of its parts (e.g., national energy systems). Understanding energy security, national and international interests, and aligning corporate and national interests with a sustainable development perspective are critical current developmental challenges. Furthermore, the real life situation is even more complicated as private and state-owned energy companies, national governments (both EU countries and non-country states), and the EU represented by its institutions, in particular the Commission, are involved in the system.
- The practical significance of the current work lies in the description and analysis of various strengths, weaknesses, opportunities, and threats of M&A in the energy industry through the perspective of a sustainable development SWOT analysis. We believe that pursuit of traditional SWOT guidance and building on strengths, eliminating weaknesses, further exploiting opportunities, and mitigating the effects of threats may add value for practitioners and future researchers. M&A events are significant strategic tools for continuous adaptation, sustainable corporate development, and external growth. At the same time, M&A events are affecting not only companies, but the broader set of stakeholders involved. Therefore, M&A affect social, environmental, and economic sustainability pillars. Maintaining a balance and enhancing sustainability has become an important task for corporate, national, and global development in all countries. Within the framework of the EU, pursuit of sustainability was established by the 2015 Paris Agreement under the UN Framework Convention on Climate Change, and the EU's commitments towards the UN's 2030 Agenda [61] with its 17 sustainable development goals, whereas recently even greater emphasis has been placed on sustainability by the European Commission approving the EU Green Deal. The current research faces some limitations which, if properly and methodologically addressed, may serve as directions for future research. Firstly, SWOT analysis was performed through a 2×2 rather than 3×3 matrix. Use of a 3×3 matrix would have allowed us to draw more strategic conclusions and actions rather than systematizing factors according to four dimensions only. Furthermore, the article set for SALSA analysis that was used in the SWOT assessment was collected on a certain date and

used specific keywords. Therefore, there are risks related to limitations in time and circumstances, as using several keywords might have excluded relevant articles that do not use the exact keywords. Third, we have based the current research on a systematic literature review and descriptive statistics of the energy M&A market in the Baltic states. Finally, while the methodological framework developed allows us to trace market developments through the lens of sustainable development, it does not enable us to fully grasp and differentiate sustainability matters from general aspects induced or supported by M&A transactions.

- Future studies should embrace a quantitative approach and include econometric analysis elaborating on the relationship between the energy M&A market and sustainable development. Even though the EU energy sector is on a convergence path, there are differences between energy market structures and players within different EU countries. Therefore, in order to improve applicability of the results, future studies should consider analyzing a wider country set of energy M&A events.

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Appendix A

Table A1. Breakdown of annual deal value and volume of energy M&A in the Baltic states.

	Lithuania		Latvia		Estonia		Total	
Year	**Deal Value (mil. Eur)**	**Number of Deals**	**Deal Value (Mil. Eur)**	**Number of Deals**	**Deal Value (Mil. Eur)**	**Number of Deals**	**Deal Value (Mil. Eur)**	**Number of Deals**
1996			€844.68	1	€14.82	1	€859.51	2
1997			€126.43	1	€23.20	1	€149.63	2
1998					€13.09	2	€13.09	2
1999	€188.86	3			€18.50	1	€207.36	4
2000	€13.00	1			€6.36	1	€19.36	2
2001			€3.73	1			€3.73	1
2002	€202.81	5	€119.66	1			€322.48	6
2003			€1.93	1			€1.93	1
2004							€-	0
2005							€-	0
2006	€2352.54	2					€2352.54	2
2007					€3.52	1	€3.52	1
2008							€-	0
2009	€2.86	1			€1.23	1	€4.09	2
2010	€485.49	2			€7.34	1	€492.83	3
2011							€-	0
2012	€21.77	1					€21.77	1
2013							€-	0
2014	€73.91	1			€34.18	1	€108.08	2
2015			€115.97	2	€22.61	1	€138.58	3
2016	€30.50	1			€27.53	1	€58.04	2
2017	€5.12	1	€31.84	1			€36.96	2
2018			€3.14	1			€3.14	1
2019			€87.03	1			€87.03	1
2020							€-	0
Total:	€3376.87	18	€1334.41	10	€172.37	12	€4883.64	40

Appendix B

Table A2. Total annual energy supply by source in Lithuania, Latvia, and Estonia 1990–2020 (in TJ).

Title 1		1990	1995	2000	2005	2010	2015	2020
Lithuania	Coal	33.384	10.283	3.843	7.717	8.623	7.566	6.394
	Natural gas	195.855	84.929	86.404	103.984	104.326	86.561	82.553
	Biofuels and waste	11.916	19.312	27.019	35.139	41.647	55.851	63.348
	Oil	280.964	124.543	85.863	11.838	107.346	105.003	115.616
	Hydro	1.490	1.343	1.224	1.624	1.944	1.256	1.082
	Wind, solar, etc.				128	996	3.244	6.050
	Nuclear	188.551	131.565	94.007	114.697			
	Total:	712.160	371.975	298.360	275.127	264.882	259.481	275.043
Latvia	Coal	29.718	11.202	5.503	3.414	4.560	1.947	984
	Natural gas	99.653	42.279	45.736	56.852	61.206	45.987	38.111
	Biofuels and waste	27.581	42.102	39.696	49.852	48.386	59.431	69.179
	Oil	142.836	78.178	52.920	59.612	58.608	57.346	56.327
	Hydro	16.186	10.573	10.148	11.974	12.674	6.697	9.371
	Wind, solar, etc.	1.458		14	169	184	531	694
	Total:	315.974	184.334	154.003	181.704	185.434	171.408	173.972
Estonia	Coal	248.963	145.948	124.440	133.709	164.314	163.011	108.231
	Natural gas	51.175	24.388	27.717	33.481	23.551	16.348	14.576
	Biofuels and waste	7.865	20.623	21.454	24.376	34.671	38.408	80.962
	Oil	120.083	35.658	27.173	32.275	23.673	12.062	9.017
	Hydro		7	18	79	97	97	112
	Wind, solar, etc.				194	997	2.574	3.467
	Total:	428.086	226.624	200.802	224.114	247.303	232.500	216.365

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