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The Quality of Goodwill Disclosures and Impairment in the Financial Statements of Energy, Mining, and Fuel Sector Groups during the Pandemic Period—Evidence from Poland

Maciej Gierusz [1,*], Stanisław Hońko [2,*], Marzena Strojek-Filus [3] and Katarzyna Świetla [4]

1. Department of Accounting, The Faculty of Management, University of Gdańsk, 101 Armii Krajowej St., 80-309 Gdańsk, Poland
2. Department of Accounting, Institute of Economy and Finance, University of Szczecin, 64 Mickiewicza St., 71-101 Szczecin, Poland
3. Department of Accounting, Faculty of Finance, University of Economics in Katowice, 1 Maja 50, 40-287 Katowice, Poland
4. Department of Financial Accounting, Institute of Finance, Cracow University of Economics, 27 Rakowicka St., 31-510 Kraków, Poland

* Correspondence: mac_gie@wp.pl (M.G.); stanislaw.honko@usz.edu.pl (S.H.)

Abstract: The COVID-19 pandemic has strongly affected the economic situation of many countries, which is worth considering not only globally but also in the context of specific industries. An asset that is particularly sensitive to negative economic changes is goodwill. The aim of this study is to assess the impact of the pandemic on the quality of financial disclosures concerning goodwill in consolidated financial statements of groups of chosen strategic sectors in Poland. We investigated the implications of the pandemic on the frequency and scale of goodwill impairment in relation to 23 companies listed on the Warsaw Stock Exchange from the Energy, Mining, and Fuel Index. We identified the research gap in this area. For the purposes of this study, two research hypotheses were formulated: (H1) during the COVID-19 pandemic, there has been a slight improvement in the quality of goodwill disclosures in the consolidated financial statements of groups in the energy, fuel, and mining sectors; (H2) The COVID-19 pandemic caused a decrease in goodwill due to impairment losses in the consolidated financial statements of groups in the energy, fuel, and mining sectors. The hypotheses were verified on the basis of the above research sample. In order to verify the first hypothesis, we tested 81 consolidated financial statements for the years 2018–2021 based on a self-developed index of the quality of disclosed information. To verify the second hypothesis, we analyzed the frequency and scale of the estimated loss of goodwill during the COVID-19 pandemic and its impact on the deterioration of the financial condition of the same research sample. The conducted research shows that the quality of disclosures regarding the goodwill in the examined sample has changed slightly. Contrary to our expectations, the pandemic did not materially reduce the value of goodwill. This means that the first hypothesis was verified positively, while the second hypothesis had to be rejected.

Keywords: goodwill; impairment of goodwill; quality of financial statements; energy sector; mining; fuel; disclosures of financial information

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1. Introduction

The COVID-19 pandemic has had serious consequences in two dimensions: health and economics. COVID-19 has had a strong impact on human health and mortality worldwide. It has also caused problems and difficulties in the functioning of business entities in many sectors of the economy. This is the reason for the deterioration of financial results and, in some industries, also the bankruptcies of many companies. The impact of the pandemic on the financial situation of enterprises is also a consequence of the lack of predictability of future results and the instability of operations. One of the sectors with a high vulnerability to many social and economic factors is the energy sector, which has been experiencing strong turbulence for years due to, among other factors, climate policy and geopolitics. The energy sector in Poland is strongly connected with the hard coal and lignite mining industry and also strongly dependent on the policy of the authorities. Studies carried out in different countries also indicate the mutual coupling of this sector with the economic situation of the country and the region [1]. On the other hand, the economic situation is affected by special phenomena, including the pandemic, e.g., [2–7]. In this context, the question arises if the impact of the pandemic on the quality of information on goodwill and its write-offs in companies from the energy, mining, and fuel sectors in Poland can be identified.

The research also took into account two sectors: mining and fuel, which are proprietary to the energy sector in Poland. The mining and fuel sectors are heavily dependent on the geopolitical situation and factors such as the pandemic.

An asset that should serve as a litmus test for the crisis is goodwill. Simply, it can be assumed that it is a fixed estimated value of the market perception of an entity related to, for example, exceptional management qualifications, market share, or a unique business model. Goodwill is a special asset of groups reported as a result of the parent company acquiring control of other entities (subsidiaries) and is presented in the consolidated statements of its financial position [8–10]. Goodwill represents the parent's future expected economic benefits that are not attributable to the other assets reported in the consolidated accounts. It is the result of the occurrence and impact of other "invisible" assets of an intangible nature in a subsidiary [11]. The deterioration of the financial condition of the group is particularly emphasized by an impairment loss of goodwill. Companies in the energy sector belong to the largest business entities, often with extensive holding structures. Research conducted on entities in this sector in China indicates a strong negative effect of the pandemic on the situation of those entities that showed write-downs of goodwill in financial statements [3]. However, there is a deficit of research on this problem in other parts of the world, affected by the effects of the pandemic to varying degrees. The research gap identified in this article is the impact of the COVID-19 pandemic on potential impairment losses of goodwill in groups of the energy, mining, and fuel sectors in Poland.

The aim of the article is to assess the impact of the COVID-19 pandemic on the quality of consolidated financial statements, particularly in terms of goodwill and impairment losses in capital groups of the Warsaw Stock Exchange Index (WIG)-Energy, WIG-Fuel, and WIG-Mining.

The research results partially fill the gap regarding the impact of the pandemic on the goodwill presented in the consolidated financial statements of the energy sector groups and sectors strongly associated with it in the countries of Central and Eastern Europe. The research particularly focused on goodwill impairment as a result of the pandemic. Finally, our research complements the picture of the quality of disclosures of goodwill in the consolidated financial statements of groups in strategic sectors in Poland.

The structure of this article was adapted to the research purpose. The first part presents an overview of the literature on goodwill, with an emphasis on areas specified in the research hypotheses. The empirical part is preceded by a description of the research methods used. This section includes two main parts, aiming to verify research hypotheses. The last part consists of final conclusions and the indication of limitations and recommendations.

2. Literature Review

The review of the literature concerning the research problem was carried out in two parts corresponding to the stages of the empirical research. Firstly, research on the quality of disclosure of goodwill information was taken into account. Secondly, the remaining studies on goodwill and its write-offs were classified. Each part of the literature review ends with the formulation of a research hypothesis.

A. Kozłowska [12] tried to define the most important factors that determine the quality of financial reporting. She pointed out that it is an issue of the qualitative features of financial information in financial statements that are increasingly raised in the context of the harmonization and standardization of accounting. The author used the qualitative analysis of financial statements. This has been carried out in accordance with the Framework for Financial Reporting Concepts. It was also based on the results of scientific research in this field.

The study presented by G. Iatridis [13–15] indicates that the implementation of International Financial Reporting Standards (IFRS) generally reinforces quality of financial information. The author pointed out that the implementation of IFRS reduces the scope for earnings management. The good quality of accounting information, especially financial statements, is related to more timely loss recognition and provides relevant accounting measures which are also connected with accounting disclosures.

Similar studies were conducted by M. E. Barth, W. R. Landsman, and M. H. Lang, [16] who pointed to the impact of the use of accounting standards on its quality. They referred to the coupling taking place in the application of IFRS in the context of the interpretation of solutions and their practical application due to limited income manipulation, the faster recognition of losses, and the better adequacy of the information presented.

The confirmation of this opinion is also the result of the deliberations of many researchers, e.g., [17,18], analyzing the quality of accounting information in the context of unified solutions in its field.

Conclusions on the impact of the accounting quality on the quality of reports were also presented by Sumiyana et al. [19], who argued that the quality of accounting information is extremely important for the target readers of financial reporting. Consequently, it results in a lower cost of internal and external capital and affects the development of business entities.

In the context of the quality of financial information presented in financial statements, a particular resource to be reported is goodwill. Goodwill is defined in the literature in different ways; however, in most of the presented definitions, its essence is emphasized as "surplus value", referring to the expected profit or assets of the entity [20–23]. It represents the additional gain to be realized in the future and is therefore the present value of the additional benefits that an entity acquiring another entity expects to realize. Meanwhile, Scott [9] indicates that this value is still related to intangible assets. At the same time, Hendriksen [8], while characterizing goodwill both on the basis of economic theory and accounting theory, additionally defines it as a surplus of the value of an entity as a whole over the sum of its tangible and intangible net assets. As an asset, goodwill is recognized in the statement of financial position (consolidated statement of financial position) only when control is obtained over another entityin accordance with IFRS 3 "Business Combinations". It therefore represents the value acquired by the investor and verified by means of the actual transaction of acquiring a controlling interest. It is the result of the existence of other intangible assets that have not been identified, individually measured, and disclosed in the acquired entity's statement of financial position. In the context of the high expectations of users regarding financial reporting, the scope of the presented disclosures becomes of key importance [22–24]. In the research concerning the quality of information on goodwill presented in consolidated financial statements, the basis was the reference to the concept of true and fair view and the requirements of the International Accounting Standards (IAS) and IFRS [25] (Amel-Zadeh, Glaum, and Sellhorn, 2021). M. Gierusz [26] points out the inconsistency between the rules of showing and valuation of goodwill in financial statements and the definition of assets adopted in the IFRS. In the opinion of A. Amel-Zadeh, M. Glaum, and T. Sellhorn [25], the means of identification and valuation, as well as the presentation of a company's value, is crucial for the correct assessment of economic entities' conditions, but it is also strongly influenced by the area of managerial activities. In this area, we can also distinguish research focusing on the problem of the allocation of the purchase price to goodwill and other identifiable intangibles [27,28].

The quality of disclosures concerned with goodwill is a subject of many studies. Khairi et al. [29] conducted a study which answered several important questions regarding the quality of information disclosed on the goodwill impairment process under the requirements of the Financial Reporting Standard (FRS) 36. This study investigated the compliance level and disclosure quality of the financial statements of the top 20 Singaporean firms listed on the stock exchange-SGX in 2007 based on their market capitalization.

The results of an investigation by M. Boučková [30] have shown a generally low level of compliance with disclosure requirements of goodwill impairment within the selected entities. This caused little comparability between financial statements.

A critical review of the literature and research on the disclosure of goodwill were conducted by C. Carvalho, A.M. Rodrigues, and C Ferreira [31], who indicated the main contribution of the literature as well as its limitations. They also suggested new approaches to future research connected with goodwill and the main determinants of its disclosures in the literature and the market. The authors also discussed the need to implement enforcement mechanisms to improve the level of compliance regarding disclosures on goodwill and their impairment tests. They concluded that most of the analyzed literature shows that the information disclosed about goodwill is incomplete and largely heterogeneous. It also confirms a reduced level of compliance with the disclosures indicated by accounting standards.

In the light of the above-mentioned literature, the following hypothesis was formulated:

H1: *During the COVID-19 pandemic, there has been a slight improvement in the quality of goodwill disclosures in the consolidated financial statements of groups in the energy, fuel, and mining sectors.*

Goodwill, due to its uniqueness compared to other assets, is a subject of research concerning the valuation process. Part of the research concerns factors influencing the identification and valuation of company value (e.g., [10,32,33]).

Another group of studies addresses methods of accounting for goodwill, including assessing the effects of abandoning amortization in favor of impairment testing (e.g., [34–38]). The resignation from amortization in IAS/IFRS in favor of goodwill impairment testing caused discussion among researchers about the implications of this change and its compliance with the true and fair view concept. The results of conducted studies were not unequivocal in their assessment. The results of the study by P. Van Hulzen et al. [39] indicate a higher quality of financial statements when the amortization method is used. However other studies indicate that accounting for goodwill by utilizing impairment write-offs better reflects the economic value of goodwill than the method of systematic write-offs (write-downs) (e.g., [34,39]). Martinez et al. [40] indicate the need for changes in accounting regulation to combine depreciation with impairment testing. A SWOT analysis performed by M. Cieciura and H. Czaja-Cieszyńska [41] led to a conclusion about the advantage of impairment testing. The results of the research also point to the threats connected with this method, consisting of an intentional treatment of possible write-offs by managers [11,35,42–44].

There are some studies that verify whether companies disclose the information required by the IFRS on the impairment of goodwill [45,46].

What is important to the purpose of the article is the research on the goodwill impairment losses in terms of their determinants (e.g., [31,47,48]). M. Glaum et al. [49] investigated the main determinants of goodwill impairment decisions undertaken by entities applying the IFRS. The authors chose a comprehensive sample of stock-listed firms from 21 countries and indicated that goodwill impairment is negatively associated with their economic results. The authors concluded that firms in low-enforcement countries are less responsive to declines in the economic value of goodwill.

One of the factors analyzed included the global crisis of 2008–2010 [42]. Zemskova [50] researched the factors influencing goodwill and impairments of goodwill in the oil and gas sectors. Research in recent years has focused on the impact of the COVID-19 pandemic on goodwill write-downs [3,51]. G. Goswami and Kimmel [51] examined whether the deteriorating cash flow due to the pandemic affected goodwill write-downs.

A study of the energy sector in China found a strong negative impact of the pandemic on financial results in the sector [3]. The results indicate that the presentation of write-offs resulted in a moderating variable; companies with goodwill impairment were more strongly affected by the pandemic. The situation of entities that did not show such a write-off was significantly more favorable [3]. This section may be divided into subheadings. It should provide a concise and precise description of the experimental results, their interpretation, as well as the experimental conclusions that can be drawn.

In this context, the second hypothesis was formulated:

H2: *The COVID-19 pandemic caused a decrease in goodwill due to impairment losses in the consolidated financial statements of groups in the energy, fuel, and mining sectors.*

It is worth emphasizing that there has been very few studies on the impact of the COVID-19 pandemic on the valuation of goodwill, particularly impairment write-offs in selected economic sectors, including the energy, fuel, and mining sectors, which are the research areas of this paper. The small amount of research is due to the very short research period from the outbreak of the pandemic and thus the limited possibilities of observing its direct and indirect effects in selected sectors.

3. Material and Methods

In line with the adopted objective, the research was carried out in two stages. The first stage focused on the quality of disclosures regarding goodwill presented in consolidated financial statements. In the second stage, the relationship between the pandemic and write-offs (including write-downs) of goodwill was investigated.

The results of the study presented below are aimed at confirming or rejecting the hypotheses H1 and H2. Both hypotheses were verified on the basis of the consolidated financial statements of the same groups. The study covered the consolidated financial statements for the period 2018–2021 of 23 leading stock exchange groups listed in Warsaw, belonging to three sectors of the economy:

1. Energy (12 groups): CEZ, Kogenera, Polenerga, Będzin, Enea, PGE, Tauron, Zepak, Interaolt, Photon, MLSystem, Onde.
2. Mining (5 groups): Coal Energy, Greenx, JSW. KGHM, Bogdanka,
3. Fuel (6 groups): Lotos, MOL, PGNiG, Orlen, Serenius, Unimot.

The selected sample was targeted and covered the energy sector as well as related industries. On the other hand, the selection of exchange-traded entities was dictated by the fact that such entities, as leading players on the market, conclude the most transactions to acquire other business units. Therefore, it can be expected that the acquired goodwill will constitute a significant percentage of their balance sheet total. In addition, in the case of entities listed on European stock exchanges, all entities report in accordance with IFRS.

The verification of hypothesis H1 required the development of a unique research tool, which is the **self-developed index of disclosure quality**, assuming the perspective of a financial statement user who is interested in understanding the essence of goodwill in a concise way. It is necessary to explain why this method was chosen. There are many methods of assessing the quality of financial statements, including mathematical and statistical methods—for example, relating to earnings management. Different methods are used to evaluate the narrative part of financial statements. Two groups of methods can be distinguished, namely, subjective or semi-objective methods. V. Beattie, B. McInnes, and S. Fearnley [52] consider the disclosure index—for example, in the form of a checklist—to be the semi-objective method. The authors cited distinguish three types of disclosure indexes, namely, binary, weighted, and nested. Taking into account the narrow research area in this article, covering one item of assets (goodwill), a decision was made to use a binary index.

The study used its own disclosure quality index regarding goodwill, which was constructed based on the list of control questions. An affirmative answer results in awarding

"1", whereas a negative answer results in "0". For simplicity, no additional weights were assigned to the responses. Goodwill resulting from a merger or attributed to subsidiaries or associates was disclosed in 65 statements (80% of the audited entities). Companies that did not show goodwill (16 financial statements) included only general disclosures regarding goodwill in their accounting policies. The list of control questions is closely related to the scope of disclosures regarding goodwill specified in IAS/IFRS. The selection of questions is aimed at highlighting the information that should be disclosed and is important for the user of the consolidated financial statements to correctly interpret the goodwill. In our opinion, this list of questions can be used to test the quality of goodwill disclosures in the financial statements of entities of different sectors, not only those that we research in this study.

In order to verify research hypothesis H2, an analysis of numerical data was carried out, comparing the goodwill value with other items of the financial statements, such as:

- opening balance sheet, impairment losses, and closing balance sheet for goodwill,
- total assets,
- equity,
- revenue,
- operating profit,
- expenditure on fixed assets, intangible assets, and subsidiaries.

The research part, aimed at verifying the second hypothesis, was divided into the following stages of the analysis

Study 1—change in revenue;
Study 2—change in operating profits;
Study 3—share of goodwill in total assets;
Study 4—share of goodwill in total equity;
Study 5—amount of impairment losses in goodwill;
Study 6—frequency of impairment losses in goodwill;
Study 7—average useful life of fixed assets;
Study 8—the "Rollover Indicator" for goodwill

It should be noted that, despite the selection of a relatively small number of entities from related sectors, it is difficult to talk about full comparability in terms of the scale of business activity. The balance sheet totals and sales revenue indicate that the largest entities' operations amount to hundreds of billions of zlotys (Orlen). In contrast, other entities conduct business activity at the level of tens of millions of zlotys (Photon, Serenius).

We can assume that, due to the radically different business potential, the goodwill presented on the balance sheets of these entities may constitute a different percentage of the balance sheet total, and the transactions of business combinations have different importance and frequency.

Another element that should be noted at the beginning of the study is the number of entities in the research sample; in the analyzed period of 2018–2021, the acquired goodwill did appear on the balance sheet. In the sample, there were 16 entities from 23 companies initially covered by the study. In the further part of the study, results will be presented for each of the three sectors (energy, mining, and fuel) separately and collectively, which should increase the cognitive value of the analysis.

4. Results and Discussion

4.1. Analysis of the Quality of Disclosures

The recognition and measurement of goodwill raise many doubts. Some even claim that this balance sheet item is so questionable that it does not meet the definition of assets. The argument for this statement is the inability to sell goodwill separately. The occurrence of doubts as to the existence and measurement of goodwill justifies the expectation of disclosures being of high quality regarding the recognition and impairment of goodwill.

It can be assumed that a measure of the quality of financial statements is the quality of disclosures relating to ”soft” assets, such as goodwill.

As already mentioned, the analysis covered 81 financial statements. The first hypothesis is verified based on 65 reports in which goodwill appeared. In the remaining statements, there are only general references to goodwill in the accounting policy. They usually repeat the provisions of accounting standards. The binary index consisted of seven questions. One point was assigned for an affirmative answer; hence, the maximum number of points was 65. The questions were deliberately not limited to the requirements imposed by the accounting standards. The collective responses are presented in Table 1.

Table 1. The number of points for the quality of disclosures by question.

Number	Question	Number Points (Max. 65)	%
1	Is the financial statement searchable?	60	92%
2	Have the means of creation of goodwill been disclosed?	27	42%
3	Has the date of creation of goodwill been disclosed?	19	29%
4	Has the interpretation of the goodwill been disclosed?	10	15%
5	Has the allocation of goodwill to the CGU been disclosed?	49	75%
6	Have the indications of impairment of goodwill been disclosed?	25	38%
7	Have the discount rates used to estimate the recoverable amount been disclosed?	36	55%

Question 1 concerns a technical issue. Some of the audited financial statements were made available as scans with the official signatures of management and accountants. This method of communication, appearing only in 2018–2019, was used in five reports. In recent years, it has been observed that the traditional form of presenting financial statements in pdf format has been replaced by a more friendly form: the electronic standard (ESEF).

Question 2 concerned the sources of goodwill. In some financial reports—for example, in Unimot SA—the history of each element of goodwill is presented in detail, specifying not only the means but also the moment of its creation. This allows users to assess whether the elements of goodwill are the result of several transactions or one single transaction. The opposite of this approach, applied in numerous reports, is limited to the recognition of goodwill in the notes concerning intangible assets without providing any explanations. This approach, in our opinion, has low informative value and does not allow users to assess the risks and future economic benefits of goodwill. Most of the investigated entities limited their reporting to the description of transactions generating goodwill in a reporting period. To learn more about the sources of goodwill, it would be necessary to study the financial statements from previous periods.

The answer to question 3 can only be found in 19 financial statements. The lower number of points awarded in response to this question is a consequence of indicating the transactions that are the reason for recognizing goodwill without indicating the date of these transactions. Such a solution leads to difficulties in analyzing changes in the goodwill over time.

Question 4 requires some clarification. By the interpretation of goodwill in this article, we mean the explanation of the meaning of a given component of goodwill. In many analyzed reports, there are general statements that repeat the definition of IFRS goodwill. Goodwill may include the following components [53]:

- Component 1—The excess of the fair value over the book value of the acquiree’s net assets at the date of acquisition,
- Component 2—The fair value of other net assets that the acquiree had not previously recognized,

- Component 3—The fair value of the going concern element of the acquiree's existing business, reflecting on the ability of the acquiree as a standalone business to earn a higher rate of return on an organized collection of net assets than would be expected if those net assets had to be acquired separately,
- Component 4—The fair value of the expected synergies and other benefits from combining the acquirer's and acquiree's net assets and businesses,
- Component 5—Overvaluation of the consideration paid by the acquirer stemming from errors in valuing the consideration tendered,
- Component 6—Overpayment or underpayment by the acquirer.

From the point of view of the user of the financial statements, it is not important how goodwill was calculated. The economic substance of the item is more substantial. An example of the disclosure of economic content may be the disclosure in the reports of the Będzin company: "The recognized goodwill resulted primarily from the possessed experience and specialist knowledge in the financial sector, the reputation of the acquired company, established processes and business projects in the financial area, and access to markets". Another company (Orlen) posted the following content: "Goodwill created from the acquisition of RUCH results from the forecast synergies resulting from the merger of RUCH's operations with the ORLEN Group and presents the value of assets that could not be recognized separately in accordance with the requirements of International Accounting Standard (IAS) 38 (employees and their knowledge)". The presented disclosures, in conjunction with the transaction data (subject, date), assist users in assessing the potential of future cash flows related to a given component of goodwill. In accordance with the requirements of IAS 36 (paragraph 134), an entity is required to disclose goodwill allocated to cash-generating units. This is essential because goodwill does not generate economic benefits on its own but rather in combination with other components of the cash-generating units (CGU).

When analyzing the number of answers to question 5, it should be stated that 25% of the studied financial statements do not meet these requirements. The lack of an attribution of goodwill to the CGU deprives users of key information, reducing the predictive value of financial statements. Informing only about global amounts of goodwill, without their allocation to CGU, excludes assessment of the probability of the impact of economic benefits in a given segment of activity. It also makes it impossible to verify any assumptions accepted for the purpose of measuring the impairment of goodwill.

An entity's obligation under IAS 36 (paragraph 10) is to test goodwill for impairment, regardless of any impairment indicators. Therefore, it is assumed that goodwill is an item that is particularly vulnerable to value adjustments. An entity that recognizes impairment losses is required to disclose the events and circumstances that led to impairment losses (IAS 36 para 130a). Therefore, it is assumed that entities that have not recognized impairment losses of goodwill are not required to disclose the impairment's indicators. The study showed entities that disclosed impairment indicators despite not recognizing any impairment loss. For example, the Polenergia report for 2021 revealed that: "The conducted analysis of the indicators has shown that changes in the expected price levels of electricity, gas and CO2 emission allowances contribute to a decrease in the forecast margin on electricity production." The treatment of the determinants of the impairment of assets provides a background for evaluating the assumptions accepted by an entity for the purpose of measuring impairment.

The last question was about the disclosure of the discount rates applied to measure the recoverable amount of the CGUs. Despite the obligation to disclose key assumptions of the measurement, in almost half of the financial statements, this information was omitted. It is also worth noting that quite different discount rates were applied—from 4% to 12%. It cannot be concluded that higher rates were used in the 2020–2021 reports, which would be justified by expected inflation.

In summary, most entities comply with their obligations regarding disclosure imposed by the IFRS. However, this is not the same as high-quality disclosure, as judged from the perspective of a financial statement for users who expect clear and concise information about goodwill to enable assessment of the risk and the potential forfuture benefits generated by this questionable item of assets.

The following section presents the ranking of disclosure quality scores by year and entity (Table 2). This section may be divided into subheadings. It should provide a concise and precise description of the experimental results, their interpretation, as well as the experimental conclusions that can be drawn.

Table 2. The number of points for the quality of disclosures (by the company) (max. 7 points/year).

Place	Company	2018	2019	2020	2021	Total
1	CEZ	7	7	7	7	28
2	Unimot	6	6	6	6	24
3	Będzin	4	5	6	7	22
4	Lotos	4	4	4	4	16
4	Polenerg	4	4	4	4	16
4	Tauron	4	4	4	4	16
5	MOL	3	3	3	6	15
6	Inter	4	4	5	1	14
7	Orlen	1	1	5	6	13
8	Enea	3	3	3	3	12
8	Kogener	3	3	3	3	12
8	PGE	3	3	3	3	12
9	ML	2	2	2	2	8
9	PGNIG	2	2	2	2	8
10	Photon	1	1	1	1	4
10	Serinius	1	1	1	1	4
11	Onde	N/A	N/A	N/A	3	3
Total		52	53	59	63	227

Source: the authors' own study.

It can be concluded that the quality of disclosures regarding goodwill: (1) is not dependent on the affiliation of the capital group with a sector and (2) is gradually improving. The research carried out with the use of a binary index allows for a positive verification of hypothesis H1: During the COVID-19 pandemic, there has been a slight improvement in the quality of goodwill disclosures in the consolidated financial statements of groups in the energy, fuel, and mining sectors. However, it is difficult to link this improvement with the COVID-19 pandemic. It can only be assumed that, due to the increased risk, the examined entities were willing to present more information, increasing the chances of users assessing the ability to generate economic benefits by the CGU to which goodwill was allocated. This tendency should therefore be assessed positively.

4.2. Recognition and Measurement of Acquired Goodwill in Companies Listed on the Warsaw Stock Exchange

Study 1—Change in revenue

The purpose of this analysis is to evaluate how the revenues from the core business of the companies covered by the study behaved in the last four years—thus, the results for 2018/19 and 2020/21 will be compared with each other. This will allow for a determination of what impact the coronavirus pandemic had on the scale of business activity. At this stage, it can be presumed that a possible decrease in revenue, i.e., limited demand for the products and services offered by companies, should be a significant reason for testing goodwill for impairment and should consequently lead to the recognition of impairment losses in this respect. Table 3 presents the changes in revenue by sector and collectively.

Table 3. Change in revenue compared to the previous year.

Sector/Years	2018	2019	2020	2021
ENERGY	20.8%	15.7%	1.7%	47.0%
FUEL	22.6%	36.8%	−11.7%	64.5%
MINING	−15.4%	−2.7%	−22.6%	−5.7%
TOTAL	13.4%	17.2%	−7.1%	40.1%

Source: the authors' own study.

From the above analysis, several interesting conclusions can be drawn:

1. The effects of the coronavirus pandemic are very clearly visible in the financial results of all industries in 2020. In the case of the energy and fuel sectors, we are dealing with a recession. Although the energy sector recorded minimal growth in nominal terms, its scale is smaller than the inflation in Poland for this period, oscillating around 3.4%. Realistically, therefore, we were dealing with a decline. On the other hand, the second of the periods marked by the epidemic, i.e., 2021, is already experiencing a significant rebound and, to a large extent, apart from the mining industry, is making up for losses for the previous reporting period.
2. The mining sector has been struggling with recession and a decline in the scale of operations for many years. This phenomenon intensified in the pandemic-tainted year 2020, but the next year was also marked by declines from the already lower base.
3. The best of the analyzed sectors were companies from the fuel industry, recording solid growth in the pre-covid period and more than making up for losses in 2021 after the collapse a year earlier.
4. In more analytical terms, 4 out of 5 entities from the mining sector in 2020 recorded a decrease in revenue, while in the fuel sector, it was 4 companies out of 6, and in the energy sector, it was only 4 out of 11 units. In 2021, declines were limited to some units of the mining sector.

In conclusion, the first study showed that more than half (12 out of 23) of the entities felt the effects of the epidemic in the form of a decrease in their revenues from core activities in the particularly difficult year of 2020. It should be considered that the negative dynamics of sales meet the criterion set for the impairment of assets in accordance with IAS 36, and they therefore should be the basis for conducting formal tests for impairment.

Study 2—Change in operating profits

The purpose of this study was to see whether the negative trend noticed in sales revenue was also reflected in the dynamics of operating profits. Theoretically, one would expect that the time of economic downturn in the markets could be the perfect time to introduce various types of rationalization activities, which are easier to justify and carry out than in a period of prosperity. In addition, it should be emphasized that the operating profit—i.e., before operations recognized as a result of accounting convention (e.g., revaluation to fair value, impairment losses), one-off events, and financial income and expenses—has the strongest link to cash flows from operating activities, which are key determinants of the generation of added value by an enterprise. Table 4 shows the change in operating profits by sector:

Table 4. Change in operating profits [1].

Sector/Years	2018	2019	2020	2021
ENERGY	−43.8%	−41.2%	16.6%	58.8%
FUEL	−23.8%	−9.0%	−77.9%	191.2%
MINING	−59.1%	49.4%	−133.1%	122.8%
TOTAL	−41.9%	−13.1%	−40.6%	107.2%

Source: the authors' own study. [1] (The following results must be interpreted with a great deal of caution, as operating profit can be both positive and negative. For example, if a company makes a profit of 10 units in one year and a loss of 40 units in the next year, the decrease is −400%. In addition, if, in the third period, the loss is to be 20 units, we are dealing with an increase in the ratio by 50%. In the case of entities where the increase or decrease in profits exceeded 300%, it was decided to "stabilize" its level and adopt a value of 300%. The aim of this procedure is to ensure that the extremely high or low result of one company does not burden the average too much).

The conclusions to be drawn from the above-presented analysis are as follows:

1. All the analyzed sectors between 2018 and 2020 faced difficult business realities, and operating results deteriorated over this time. Even the rebound in the mining sector in 2019 could not compensate for the losses incurred a year earlier. Only 2021 saw a noticeable improvement in the economic performance in all three sectors.
2. In more detail, only 3 out of the 23 surveyed entities recorded a negative operating profit in 2018. A total of 7 companies did in 2019, 9 companies did in 2020, and 5 companies did in 2021. The above results, therefore, seem to coincide with the trend observed in the context of operating profit dynamics.
3. The above indicates a high degree of correlation between the negative dynamics of revenues and operating profits, so the entities were not able to significantly reduce operating costs and introduce savings and rationalization activities on a wider scale.

Study 3—Share of goodwill in total assets

The aim of this study is to examine what percentage of goodwill constitutes the total assets of the surveyed entities, which will determine the importance of tests for the impairment of goodwill. Guided by the principle of materiality, it can be assumed that the role of the procedures provided for in IAS 36 will be much more important in those entities where goodwill constitutes a significant percentage of the balance sheet total.

The results only for those entities for which goodwill has occurred are presented in Table 5:

Table 5. Share of goodwill in total assets—all entities with purchased goodwill.

Sector/Years	2018	2019	2020	2021
ENERGY	0.8%	0.8%	0.6%	0.4%
FUEL	0.9%	0.8%	1.1%	1.2%
MINING	0.0%	0.4%	0.4%	0.4%
TOTAL	0.8%	0.8%	0.7%	0.7%

Source: the authors' own study.

From the above data, the following conclusions can be drawn:

1. The goodwill for the entities in which it occurred oscillates around one percent of the balance sheet total. Although this figure may not seem impressive, it exceeds the level often accepted by auditors as the materiality threshold when working on the audit of financial statements. Goodwill in the analyzed entities is therefore an important balance sheet item.
2. The relatively low level of goodwill can be explained by the fact that the analyzed entities belong to traditional sectors of the economy, where the emphasis is primarily on tangible, non-current assets—intangible assets play a smaller role.

3. The highest share of goodwill can be seen in the fuel industry. The successive increase in this value is connected with the acquisitions of business units realized by the Hungarian MOL.

Behind these ratios, there are specific monetary values, as presented in Table 6.

Table 6. The nominal value of goodwill—all entities with purchased goodwill (PLN mln).

Sector/Years	2018	2019	2020	2021
ENERGY	2653	2788	2480	2923
FUEL	784	788	2221	4096
MINING	0	57	57	57
TOTAL	3437	3633	4758	7076

Source: the authors' own study.

On the basis of the above data, it can be concluded that:

1. Goodwill in nominal terms has been gradually growing in recent years—it doubled between 2018 and 2021 from PLN 3.4 billion to almost PLN 7.1 billion. A significant acceleration in the growth of nominal amounts took place in the years marked by the coronavirus pandemic. Despite the uncertainty associated with the epidemic, at least some entities were not afraid to invest in the acquisition of further subsidiaries.
2. Goodwill plays a particularly important role in the energy and fuel sectors, while in the mining industry, its level is negligible. This may be due to the fact that entities operating in this sector have been struggling with recession and a decrease in revenue for years (see Table 3), which does not create the right climate for further mergers and acquisitions.

Study 4—Share of goodwill in total equity

Equity is often interpreted by readers of financial statements as a "safety cushion", ensuring that an entity's resources are financed in an appropriate proportion—not only by debt but by funds at the disposal of the owners. Too low of a level of equity compared to liabilities leads to an increase in the marginal cost of lending and, as a result, the weighted average capital cost (WACC). The analysis will determine to what extent companies are sensitive to possible impairment losses. It will be possible to determine what impact a one-off impairment of the entire goodwill would have on the net assets of the analyzed entities. This can be an important indicator in the context of identifying entities or sectors that are particularly interested in protecting goodwill in order to avoid a sharp and significant deterioration in the financial situation. The results are presented in Table 7.

Table 7. Share of goodwill in total equity.

Sector/Years	2018	2019	2020	2021
ENERGY	2.0%	1.7%	1.3%	1.5%
FUEL	2.5%	2.0%	2.9%	3.2%
MINING	0.0%	0.7%	0.8%	0.7%
TOTAL	2.1%	1.7%	1.8%	2.0%

Source: the authors' own study.

From the above analysis, the following conclusions can be drawn:

1. In all three analyzed sectors, the average level of the share of goodwill in equity oscillated at the level of 2%. The highest share by far was characterized by the fuel industry (over 3%), and the lowest was characterized by mining (below 1%).
2. Values of 2% of equity shall be considered, as in the case of the share of goodwill in total assets, to be substantial and to affect the image presented by an enterprise. A

one-off reduction of equity by the impairment of goodwill would already be felt by the company and would have an impact on the deterioration of its financial ratios.

3. In more analytical terms, in the case of five entities, the share of goodwill in equity in at least one of the analyzed years and, in most cases, in the entire period of 2018–2021 exceeded 4%, or the average share exceeded 2.5%. These companies are: POLENERGA, CEZ, INTERAOLT, MOL, UNIMOT, and KOGENERA. In their case, the significance of a possible impairment loss in goodwill would be particularly high.

Study 5—Amount of impairment losses in goodwill

Goodwill is an intangible asset that, due to its indefinite useful life, is not subject to amortization. Its role is taken over by impairment tests, which must be carried out at least once a year. It is therefore possible to determine the rate of impairment losses, which will be the equivalent of an amortization rate. As explained in the theoretical part of the study, goodwill is a unique resource of an entity representing:

- the above-average ability to generate profits by the entity—this competitive advantage is ultimately eliminated by other entities that copy innovative solutions;
- processes taking place in the entity—they require constant redefinition and adaptation to the changing realities of management;
- synergy benefits—the impulse associated with the acquisition of another enterprise brings the greatest benefits in the periods immediately after the acquisition,
- resources not included in the company's balance sheet—if they do not meet the criteria allowing for individual recognition in the company's balance sheet, it is difficult to consider that they have a longer useful life than resources presented as assets in the financial statements;

Table 8 presents the share of impairment losses in goodwill in its opening balance for the years 2018–2021:

Table 8. Share of impairment losses in goodwill in its opening balance for a period.

Sector/Years	2018	2019	2020	2021
ENERGY	6.2%	11.1%	11.4%	0.0%
FUEL	0.6%	0.0%	0.0%	0.2%
MINING	0.0%	0.0%	0.0%	0.0%
TOTAL	4.1%	6.9%	7.1%	0.1%

Source: the authors' own study.

From the above data, the following conclusions can be drawn:

1. In the "COVID year" of 2020, the impairment losses in goodwill were not significantly higher than those in the previous two reporting periods. In the second of the years marked by the effects of the pandemic (2021), there were practically no write-offs recorded.
2. The only sector in which impairment losses in goodwill were accounted for was the fuel industry—in the case of energy and mining, write-offs were absent.
3. This approach of companies to goodwill may seem surprising, especially in the light of the previously analyzed data on the dynamics of revenues, profits, and cashflows from operating activities. It could be assumed that a significant deterioration in the financial results will be more clearly reflected in the level of impairment losses in goodwill.
4. Also in a more analytical approach, the write-offs do not represent a different trend. For the five companies selected previously, the impairment rate in subsequent years was at the level of: 5.5% (2018), 2.2% (2019), 22.8% (2020), and 0.2% in 2021, respectively. The high result of 2020 is influenced by the large impairment in goodwill made by ITERAOLT, which strongly affects the average.

It is worth noting that, on the basis of the results obtained, the average impairment rates of goodwill for the years 2018–2021 for individual industries can be determined, which are, respectively: energy—7.2% fuel—0.2% mining—0.0%, and total—4.6%. An amortization rate of 4.6% corresponds to an economic useful life of more than 21 years. It can be assumed that, during this period, the analyzed entities amortized their goodwill.

5. It is also worth disaggregating the results into two two-year periods—before and during the pandemic. The data are then as follows:
   - 2018/19: 5.5%
   - 2020/21: 3.6%

The above shows that, paradoxically, during the epidemic, despite worse economic results, the surveyed companies were less willing to make write-downs of goodwill. The reasons for this can be manifold. One can only speculate about the reasons for this, but the concerns of unit management about the additional deterioration of financial results in already difficult economic times may play an important role. In addition, the logic of the IAS 36 tests is that they are highly prospectively oriented and thus largely abstract from the weaker performance of the current period, emphasizing the optimistic forecasts of management for subsequent periods. An important element may also be subjective assumptions and estimates when constructing the forecasts of discounted cash flows of the cash-generating unit—this makes models difficult to verify by an external auditor. It should also be noted that making an impairment loss in goodwill can also be read as an admission of the company's management to the error of acquiring a subsidiary—if it is necessary to make a write-off, it means that the investment was a failure. Entities may therefore treat a write-off as a loss to their reputation.

Study 6—Frequency of impairment losses in goodwill

The purpose of this study is to see how often companies noticed the need to make impairment losses. Table 9 presents the frequency of impairment losses in goodwill for the analyzed years (2018–2021):

Table 9. Frequency of impairment losses in goodwill.

Sector/Years	2018	2019	2020	2021
ENERGY	2	2	2	0
FUEL	1	0	0	1
MINING	0	0	0	0
TOTAL	3	2	2	1

Source: the authors' own study.

The above data allow for the drawing the following conclusions:

1. The probability of making a write-off by the analyzed companies was about 15%, which results from multiplying the sum of write-offs over a period of 4 years (nine times) by the total number of financial statements containing purchased goodwill prepared by these entities at that time (58 reports).
2. This means that companies impair their goodwill, on average, once every seven years. If this result is compared with the previously determined average amortization rate of goodwill, which amounted to 4.6%, it can be concluded that companies make write-offs less often but for larger amounts.
3. If we multiply the aforementioned result of 4.6% by 7 (due to making write-offs once every seven years), we will get 32.2% as an approximate value of the write-off made once every seven years. As a result, such a write-off must be made three times, which gives 21 years, to impair goodwill in full.
4. It is also worth disaggregating the results into two two-year periods—before and during the pandemic. The data are then as follows:

- 2018/19: five write-offs
- 2020/21: three write-offs

It is confirmed that goodwill write-offs occurred more often in the period before the pandemic than during it. Even the particularly difficult year of 2020 was not marked by more frequent write-offs made potentially for smaller amounts.

Study 7—Average useful life of non-current assets

The aim of this study was to determine at what rate all fixed assets rotate in the entities covered by the study. Such a calculation will be very useful in order to compare the obtained results with the estimated useful life of goodwill, determined to be 21 years. According to the authors, the period of holding non-current assets by enterprises should be longer than goodwill due to the fact that non-current assets consist, to a large extent, of tangible resources, which, by their nature, seem to have, in principle, a greater durability than intangible assets, with a particular emphasis on such a volatile resource as goodwill. In order to determine the useful life of all non-current assets, the expenditure on the purchases of new assets as part of investment activities was divided by the sum of non-current assets. This will allow to determine the rate of their rotation. Table 10 presents the turnover of assets in the analyzed 16 entities for the years 2018–2021.

Table 10. Turnover of non-current assets.

Sector/Years	2018	2019	2020	2021
ENERGY	8.7%	7.7%	9.8%	9.8%
FUEL	9.6%	10.1%	9.7%	11.0%
MINING	12.2%	17.7%	17.7%	13.3%
TOTAL	9.8%	9.6%	10.9%	10.9%

Source: the authors' own study.

From the above data, the following conclusions can be drawn:

1. The analyzed rotation rates on an annual basis present a fairly stable level over a period of four years. With a few exceptions, the fluctuation does not exceed the level of 2–3 percentage points, which proves the consistent policy of the companies in the field of CAPEX investments and the systematic replacement of already used-up, non-current assets by new purchases. The averages of individual industries oscillate around the level of 10–11%—the total average for all industries over a period of four years is 10.3%, so the full exchange of non-current assets takes place in the analyzed entities, on average, after less than 10 years.
2. The turnover rate of non-current assets in each industry is significantly higher than the period of amortization of goodwill in the analyzed entities (4.6%). This proves the above-average longevity of goodwill in the analyzed financial statements but at the same time contradicts the economic interpretation of this balance sheet category. Goodwill, despite its volatility and constant redefinition, is kept in the balance sheet in reporting practice longer than seemingly more durable material resources. According to the authors, this leads to a distortion of the image presented in the balance sheets of companies.

Study 8—The goodwill rollover ratio analysis

The theoretical part of the study indicates that goodwill is a specific resource of an entity that is not able to generate economic benefits individually but only within cash-generating units. It should therefore be assumed that it cannot function independently and thus shows an economic useful life exceeding the life of CGU assets, with a particular emphasis on non-current assets. IAS 38 states that the useful life of goodwill cannot be determined, but the economic logic would suggest that it does not seem to be longer than the useful life of the non-current assets to which it is assigned. This claim is evidenced by the fact that IAS 36, as part of the tests for impairment when calculating the present value of discounted cash flows, expressly prohibits the inclusion of inflows and outflows for the upgrade of existing and purchases of new fixed assets. In other words, the CGU is being tested in its current form. If the period of maintaining goodwill on the balance sheet exceeds the rotation period of all non-current assets, there is a rollover of goodwill. In practice, this means that, when conducting impairment tests, goodwill is assigned to a different set of assets in subsequent reporting periods than those for its initial recognition. The rollover ratio is determined by dividing the fixed asset turnover rate by the goodwill impairment ratio. Table 11 shows the rollover rate for the years analyzed.

Table 11. Goodwill rollover ratio.

	2018	**2019**	**2020**	**2021**
TOTAL	2.4	1.4	1.5	182.7 [1]

Source: the authors' own study. [1] Result distorted due to almost no impairments taking place in 2021.

From the above data, the following conclusions can be drawn:

1. In all analyzed industries, the value of the ratio exceeds 1, which means that goodwill is kept on the balance sheet longer than the average for non-current assets, so there is a rollover of goodwill, which, according to the authors, is inconsistent with the economic content of the discussed balance sheet category as well as with the guidelines for the procedure for conducting IAS 36 tests prohibiting taking into account increases in CGU assets.
2. The average value of the rollover ratio of goodwill for all industries has been set at 2.23 since the exchange of non-current assets takes place, on average, after about 10 years (the turnover rate of non-current assets was 10.3%), and the average rate of the depreciation of goodwill is, as previously established, 4.6%.
3. The ratio of 2.23 indicates that goodwill lives more than twice as long as other seemingly more durable non-current assets and has a useful life of about 21 years. In an era of a dynamically changing economic environment, it is difficult to expect an entity's intangible assets to be held in the financial statements for more than two decades. In particular, this applies to a resource defined as:
    - the entity's above-average ability to generate profits;
    - processes occurring in the entity;
    - synergy benefits;
    - resources not individually included in the company's balance sheet;
4. The year most affected by the coronavirus was 2020, when both sales revenue and operating results deteriorated significantly.
5. The share of goodwill in both total assets and equity is above the materiality threshold adopted by the auditor during the audit of the financial statements.
6. Based on the amounts and frequency of goodwill write-downs, the average depreciation rate was determined at 4.6%, which corresponds to the useful life of 21 years.
7. The economic useful life of non-current assets was determined to be 10 years, on average.
8. The goodwill rollover rate was determined to be 2.23, which does not appear to be consistent with the economic substance of this balance sheet item.

The research shows that, in general, the pandemic period did not affect the frequency and level of write-downs of goodwill, although significantly deteriorated results for 2020 were recorded. The results of the second stage of research did not confirm hypothesis H2: The COVID-19 pandemic caused a decrease in goodwill through impairment losses in the consolidated financial statements of groups in the energy, fuel, and mining sectors.

The results obtained by us referred to other studies. Research conducted by M. Glaum, W.R. Landsman, and Wyrwa [49] indicated that goodwill impairment losses are negatively associated with the economic performance of entities. However, based on our study, it can be seen that deteriorated results do not always lead to a reduction in goodwill. Additional observations can be made at specific times, such as a global crisis or a pandemic.

The results of our study do not coincide with the research conducted by M. Glaum and S. Wyrwa [42] on the companies of the 12 largest European stock exchanges in the period 2007–2009, i.e., the period including the global crisis. The researchers noted an increased frequency of both write-offs and their higher level in relation to the period before the crisis. However, there was clear sectoral variation. The energy industry and related sectors showed average data. As can be seen above, the pandemic should be viewed from a different perspective than the man-made financial crisis of the time.

G. Goswami and Kimmel [51] indicate a trend of deteriorating performance and cash flow under the impact of the COVID-19 pandemic, which should result in goodwill write-downs. In light of the study of T. Kiestik et al. [54] on Slovak enterprises, which showed the main sources of goodwill, one would expect that the reduction of these figures should be combined with goodwill write-downs. Thus, in this context, Polish companies from the energy, mining, and fuel sectors should show goodwill write-downs. Their absence or low level may indicate a lack of economic adequacy of goodwill presented in the balance sheet as an asset with the current way of accounting for goodwill. Such conclusions are, to a large extent, in line with those derived by Martinez et al. [40], who point out the need to modify the accounting for "wear and tear" of this group asset in the direction of combining depreciation charges with impairment testing. On the other hand, the results of Fu and Shen [3] show a strong impact of the pandemic on the financial situation of entities in the energy sector. Companies with goodwill impairment were more strongly affected by the pandemic. The situation of entities that did not show such impairment was significantly more favorable. In the context of the cited research results, the dissimilarity of the obtained results can be noted.

C. Carvalho, A.M. Rodrigues, and C. Ferreira [31] point to the problems of incompleteness and wide variation in the form and scope of reported information on goodwill and its write-downs. The results of our research indicate that, during the analyzed period, the quality of reporting improved, but there is no basis to associate this improvement with the impact of the pandemic. The research suggests that the information was not complete. Similar conclusions regarding completeness were drawn by M. Glaum and S. Wyrwa [42], who also took into account an important external factor, namely, the global crisis in 2007–2009. Both studies pointed out the lack of information, among other factors, on the discount rates adopted. The research results indicated above are consistent with those obtained by M. Boučková [30].

5. Conclusions

In the literature, there are studies in which the impact of the pandemic on the financial situation of entities in the energy sector was investigated [55–58]. Such research concerned various countries, including Poland. However, little research has been focused on the importance of goodwill as a specific asset of energy sector groups in the context of the pandemic. Goodwill can significantly affect the financial situation of groups in this sector. The acquired goodwill can constitute a high percentage of their balance sheet total. The findings of our study partially fill the gap regarding the impact of the pandemic on the goodwill presented in the consolidated financial statements of the energy, fuel, and mining sector groups in Poland. Our research also contributes to the discussion on the quality of goodwill disclosures in consolidated financial statements.

Our study extends the literature on the determinants of the quality of goodwill disclosures, particularly related to goodwill write-offs in energy, mining, and fuel sector groups. Previous studies have not taken into account the unique impact of factors such as pandemics. Economic changes, their scale, and their dynamics, as well as managers' reactions to them, represent a new challenge for researchers. The research hypotheses we have formulated focus on strategic sectors, generally concentrating on the largest groups. In case of Poland, these sectors are strongly interconnected by ownership, which makes them an interesting object of research. The obtained results provide a new perspective on goodwill as an asset of capital groups presented in consolidated financial statements.

Although there is a slight improvement in the quality of disclosures regarding goodwill based on the disclosure quality index used, this cannot be linked to the impact of COVID-19. In the analyzed financial statements, the reasons for updating the goodwill do not include factors resulting from COVID-19. Thus, it is possible to speak of a general improvement in the quality of disclosures, which contributes to the increase in the prognostic value of financial statements.

The basic conclusion of the study is that even the year 2020, particularly marked by the coronavirus pandemic, did not cause a significant increase in impairment losses in goodwill in the analyzed entities. The year 2021 already marks a clear economic recovery despite the still difficult epidemiological situation. At the same time, the tendency not to make write-offs is a common phenomenon both in the industry and in the time dimension —the volume of write-offs in 2018 and 2019, before the pandemic, also remained at a relatively low level. According to the authors, the practices of the analyzed entities are not consistent with the economic essence of the analyzed balance sheet item, which, in the understanding of readers of financial statements, should be characterized by a relatively short useful life. In addition, the excessive long retention of goodwill in a balance sheet is inconsistent with the provisions of IAS/IFRS, which, despite stating that goodwill has an indefinite useful life (IAS 38), do not allow impairment tests to take into account increases and new purchases of fixed assets (IAS 36). The results of our research indicate the need for changes in the IAS/IFRS.

In summary, the years 2020 and 2021 and the events related to the global pandemic did not result in an increase in impairment losses, even in industries that seemed to be particularly vulnerable to the effects of this phenomenon. It is common to roll over goodwill, i.e., to keep it on the balance sheet for decades (at least twice as long as other non-current assets) and assign it as part of the impairment test to assets that were not in the CGU at the time of the acquisition of the subsidiary.

Our study has limitations due to the short time period that was considered. Due to the limited amount of research conducted on goodwill impairment in the energy, mining, and fuel sectors during this period, we were limited in our ability to compare the results with other research. We intend to continue our studies with a focus on the energy sector in EU countries in order to deepen our sectoral comparative analysis and identify further determinants of goodwill impairment.

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