Analysis of the impact on the value of companies in the mining industry during M&A and their synergistic effects

Anna HARUMOVÁ[1] and Eduard HYRÁNEK[2]

Authors' affiliations and addresses:
[1]University of Economics in Bratislava, Faculty of business management, Department of Corporate Finance, Dolnozemská cesta 1/b 852 35, Bratislava, Slovakia.
e-mail: anna.harumova@euba.sk

[2]University of Economics in Bratislava, Faculty of business management, Department of Corporate Finance, Dolnozemská cesta 1/b 852 35, Bratislava, Slovakia.
e-mail: eduard.hyranek@euba.sk

*Correspondence:
Anna Harumová, University of Economics in Bratislava, Faculty of business management, Department of Corporate Finance, Dolnozemská cesta 1/b 852 35, Bratislava, Slovakia
tel.: +421 905 517 779
e-mail: eduard.hyranek@euba.sk

Abstract

In this article, we analyze the effects on the value of companies in the mining industry during the corona crisis and in the post-covid period and on the possibility of carrying out planned mergers or acquisitions. As a model, we chose two companies operating in the given industry and investigated what factors affect the calculation of their market value. Available data from the financial statements of these mining companies (KSR – Kameňolomy SR, s. r. o., Eurovia – Kameňolomy SR, s. r. o.) for the years 2018 to 2022 were used for the calculation, based on which the planned data for the years 2023 to 2027 were then determined. Exploring the possibility of entering a partnership with another company brings many opportunities but also risks. In conclusion, we analyze the number and value of mergers occurring between 2015 and 2021 in Slovakia, within the Visegrad 4 group, in Europe and in the world. In conclusion, we will evaluate the development of mergers and acquisitions in the years 2022 and 2023 in Central and Eastern Europe, especially Slovakia. Finding a reliable partner is difficult, and there is no definite guide, but it is possible to acknowledge when and why doing business on a partnership basis is more advantageous and efficient if the merger is professionally prepared.

Keywords

Merger, acquisition, enterprise value, exhaustible resources, capitalization rate, synergistic effects, mining companies

Introduction

In recent decades, mergers and acquisitions (M&A) have become an integral part of corporate strategy, which is mainly aimed at achieving synergistic effects in various areas of business activities. The just-mentioned synergistic effects should be long-term and lead to the strengthening of the competitive positions of the newly created company compared to its previous state. The term merger is a close, proprietary form of joining two companies during which the two companies are merged into one. A merger is a process in which two companies voluntarily merge (Stverkova & Pohludka, 2021). A merger is the unification of two companies into one new company, which occurs by combining the share capital based on the shareholders' prior approval. A merger can also occur when a new company exchanges its shares for the shares of companies that are being deducted under advantageous conditions. A merger can also be understood as a form of organizational concentration, which means that it represents an agreement between entrepreneurs to combine their businesses into a single enterprise. With this type of connection, either all enterprises disappear and a new enterprise is created, or one enterprise continues to exist, and the others influence it.

Acquisition is a process in which a smaller or economically weaker company is absorbed by a larger or stronger company. A takeover is the purchase of 51% or more of the voting shares by the raiding company (acquiring company) in the target company (acquired). It can be carried out by buying the shares of the target company for cash, by offering bonds, or by a new issue of shares that are exchanged for shares of the target company. Absorption is usually involuntary and forced in nature. European companies, confronted with the need to adapt to the common market, the creation of the European Monetary Union and the growing globalization of markets, have been significantly oriented towards acquisition strategies, especially since the mid-1980s. An acquisition is a merger process in which one business buys another by buying a controlling stake or all. This acquisition does not have to lead to revolutionary changes in structure and activity (Chapčáková & Hečková, 2009). Some mergers and acquisitions always had a relatively short-term speculative aspect, which used the current situation on the financial markets to increase the market value of companies. Wirtz (2006) established three phases of the acquisition process.

The merger can only be successful if it corresponds to and helps to implement the long-term strategy of the company's development, which, in accordance with the owner's approach to financial management, has the basic goal of maximizing the owners' assets. As a rule, the long-term strategy of companies includes their growth and expansion. The company's growth can be achieved through its own development of new products, new technologies and markets (internal growth), by merging with other companies, or by taking them over (external growth). The company must evaluate which path is more advantageous for it - which is less costly in the given situation and which will bring financial results more quickly. When a company decides to aim for external growth in the form of a merger, it must carry out a financial analysis of the expected results (Belas et al., 2019). When organizing it, the analysis is based on generally accepted knowledge: a merger is economically advantageous when the combined companies have more value when joined together than separately. The merger's success is, therefore, the result of a long-term strategy for the company's development, which is intended to ensure the maximization of the owners' assets. Mergers usually take place voluntarily based on an agreement between the shareholders and the board of directors of the merging entities. In practice, it works in such a way that a weak subject with existential problems takes advantage of the opportunity to merge with an economically strong partner while the conditions are precisely set.

Literature Review

The mining industry has a very important position among industrial sectors because its activity provides raw materials for other industries. It is placed at the beginning of the chain of industries. It can be said that only metallurgy and thus metallurgical primary production, which is in second place in that chain, has a similar position in terms of industries. The largest mergers and acquisitions took place in the insurance and banking sectors. They concerned the public benefit sector, such as healthcare, as well as the mass media - print, television, radio, and to a large extent also, film production. The main goal of this wave was the creation of strong multinational companies that would have at least a continental scope. Various motives for mergers are presented in the professional literature (Brealey & Myers, 2014). According to the authors, reasonable motives for a merger are economies of scale, economies of vertical integration, merging of complementary resources, unused tax shields, utilization of surplus funds, and elimination of inefficiencies. Doubtful reasons for a merger are diversification, bootstrap effect (the merger brings no real profit, and the combined value of both firms will not increase; when the share price does not change, the P/E ratio will fall), and lower financing costs. According to professional literature, motives are divided into market, product, financial and social capital (Mishchuk et al., 2023; Šoltés & Gavurova, 2014). By this, we mean the fact that information and communication technologies represent a significant challenge also for the field

of education and the creation of skills of experts in the sector of critical infrastructure, which includes securing the raw material base of the state (Kelemen and Jevčák, 2018a; Małkowska, et al., 2021; León-Gómez et al., 2022). Reactions to these praxeological requirements create a path for innovative solutions, as we perceive it in various application areas of the economy within the countries of the European Union, for example, about renewable energy sources (Ahmad et al. 2022; Jonek-Kowalska, 2022), or in socio-economic planning and risk assessment (Gavurova et al., 2022). New methods make it possible to examine the interdependence between financial development, fiscal instruments, and environmental deterioration in developed and converging EU countries, which, like Slovakia, are undergoing, for example, the transformation and decline of mining with a strong impact on the environment and public health (Zioło et al., 2020; Skvarciany et al., 2021; Janovská, et al., 2021; Stjepanovic et al., 2022), or assessing the contribution of data mining methods to these processes (Vorobyeva et al., 2020; Papík, & Papíková, 2021). Information and communication technologies bring the phenomenon of threats. Strengthening the vulnerability of systems to support decision-making processes, business management means sharing experience in the field of security and the security agenda across individual sectors, as well as knowledge from interdisciplinary research on security issues (Kelemen et al., 2018b; Gavurova et al. 2016; Lazaroiu et al. 2022). Other authors outline that various theoretical approaches that explain individual motives for mergers and acquisitions have gradually developed. We know that the mining industry has a big impact on society, not only from an economic point of view. According to Ranangen & Lindman (2017), the mining industry was experiencing good economic times. At present, it is necessary to recultivate the mines after the end of the mining activity and, in the case of quarries, recultivate them by flooding, which will create a habitat like a natural habitat for animals and for fish production. Fanta (2019) dealt with efficiency in the field of water resource management. Tubis et al. (2020) dealt with assessing risks in the mining industry; it mainly concerns risks of an environmental and economic nature. In his publication, Zhou (2013) deals with black coal mining and the associated environmental pollution. Baatartogtokh et al. (2018), in their professional work, addressed the use of outsourcing in companies operating in the mining industry. According to Vokoun (2017), economic innovations are needed in the mining industry, which requires knowledge of economic history and an interdisciplinary approach. Innovative approaches were also discussed by other experts who claimed that the correct identification of a good innovative approach in a company is not always clear. Therefore, it is always better to compare the two chosen innovative approaches and continue the company's innovation in this direction (Androniceanu et al., 2022; Ali et al., 2023; Czerna & Stverkova, 2021). Kasych et al. (2019) also mention the positive impact of innovations in the mining industry based on their research on investigating air pollutant emissions from Ukrainian mining companies. He proposed to introduce cleaning production technologies and waste-free technologies to reduce the level of these emissions. Sanchez and Hartlieb (2020) argued that innovation is crucial for firms because it brings economic development (Androniceanu & Georgescu, 2023).

Smart manufacturing processes, digitization, manufacturing systems and data-driven decision-making are essential for sustainable manufacturing innovation (Ludbrook et al., 2019; Androniceanu, 2023; Androniceanu et al., 2022). Altman & Saunders (1997) investigated the impact and measured the credit risk of individual loans and portfolios of loans and presented a new approach based on a mortality risk framework to measure the risk and return of loans and bonds. For joint-stock companies operating in the mining industry, where risk greatly impacts the value of their shares, any adverse event, such as accidents, may directly or indirectly impact their shares (Zheng and Li, 2008). Research results that will expand the amount of knowledge needed to interpret synergistic effects in the mining sectors were published by Matuszewski (2021). The obtained results confirm the need for synergistic effects in both areas of operation and the costs that need to be considered in the processes of mergers and acquisitions in the copper ore mining sector. The source of managerial arrogance in mergers and acquisitions was investigated by Billett (2005) based on the history of deals made by individual acquirers. He interpreted the results as consistent with a self-attribution bias that leads to managers' overconfidence. Harfouf (2017) argues that companies face the dilemma of internal and/or external growth due to constantly changing market conditions. Under changing business environment, companies must establish mechanisms to deal with uncertainty, and flexibility positively affects both the operational and the financial performance of industrial companies (Yousuf et al., 2019; Komasi et al., 2023). The literature suggests that one of the best ways to mitigate these conditions is through mergers and acquisitions (M&A), where most research considers M&A as a performance optimization strategy. The difficulty and complexity of the M&A process in the success or failure of company integration is determined by many factors, which consist of the clear structure of the deal to maximize potential success (Weber et al., 2014). Yousuf et al. (2023) revealed that operational flexibility has a beneficial impact on company success. This research aims to identify the factors influencing the success and failure of mergers and acquisitions in the mining sector and to establish best practices in this sector.

Material and Methods

When analyzing the impacts which affect the value of companies in the mining industry was based on individual economic indicators that are used to calculate the value of the company. These are mainly investments, current assets, liabilities, and debts from the balance sheet. Profit, sales, interest expense, depreciation, taxes, and

other items are obtained from the profit and loss statement. Based on these items, EBIT and EBIT after tax are calculated, which is adjusted by items such as depreciation, investments and working capital for the so-called Cash flow, which represents the drawable resources of the evaluated company. Depletable resources are then discounted using the capitalization rate, which we calculate based on the formula:

$$i = (1 - \text{DS})N_{PK}.\frac{\text{PK}}{\text{CK}} + N_{VK} . \frac{\text{VK}}{\text{CK}} \tag{1}$$

In formula (i), it represents the calculated capitalization rate as a percentage reflecting the level of risk, the average cost of capital and the structure of capital employed, which is used in the calculation in decimal form. DS is the income tax rate as a percentage, which is set in the term of the Income Tax Act for the assessed company and is inserted into the calculation in decimal form. (NPK) are the costs associated with the use of borrowed capital in per cent, i.e. interest and other costs paid to the creditor, which are added to the calculation in decimal form. (PK) represents the volume of borrowed capital in monetary units; it consists of components of foreign liabilities, which for the purposes of calculating the discount rate, are: long-term bank loans, current bank loans, financial assistance, issued bonds, bills, leasing, paid rents and other liabilities. ((NVK) is the cost of equity capital in per cent, i.e. profit share expected and obtained by the owner for the investment of his capital in the company, which are inserted into the calculation in decimal form. (VK) is the volume of equity capital in monetary units, consisting of components of liabilities, to calculate equity capital. (CK) total capital (sum of equity and borrowed capital in monetary units). At the same time CK = PK + VK.

The entrepreneurial method determines the value of the company by capitalizing exhaustible resources for the evaluated period of the company, according to the formula:

$$V\check{S}H_P = H_{OZ} + H_P \tag{2}$$

The general value of the company determined by the business method (VŠHPP) is calculated as the sum of the value of depletable resources (HOZ) and continuing value (HP). The value of drawable resources is calculated by discounting the interest rate, in which the capitalization rate (i) is used, by using the formula:

$$H_{OZ} = \sum_{t=1}^{n} \frac{OZ_t}{(1+i)^t} \tag{3}$$

(OZt) represent depletable resources during the evaluated period (n), i. e. in our case, it is the period 2023 to 2027 in the formula. The second component of the company's value is the Continuing value, which considers the assumptions of the company to create exhaustible resources during an indefinite period and which is converted to the current value at the valuation date. The continuing value is determined according to the formula:

$$H_p = \frac{OZ_{n+1}}{i-g} . \frac{1}{(1+i)^n} \quad (i>g) \tag{4}$$

The continuing value (HPP) is calculated as the share of the volume of depletable resources in the year following the monitored period (OZ_{n+1}) and the difference between the rate of) and the Sustainable rate of growth of depletable resources (g). This share is multiplied by the compound interest according to the relevant length of the monitored period (year). The sustainable growth rate of depletable resources (g) expresses the percentage year-on-year change in the ability of the company to create depletable resources, which depends on the state of the company as of the valuation date and on its development during the monitored period within its industry in the context of its history. The sustainable rate of growth is determined in the expert opinion in accordance with the customary procedures of professional practice (geometric advice, arithmetic advice, etc.). The merger of companies will follow the model. Before determining the individual synergistic effects, the value of the overall economic effect resulting from the M&A is estimated. To obtain its value, a model consisting of the following three steps can be used (Damodaran, 2005):

1. Both companies involved in the M&A process will be evaluated separately, using the discounting expected cash flows method.

2. The joint value of both companies, without any M&A effects, is calculated by combining the values obtained in the first step.

3. The joint value of both companies will be calculated, including the resulting synergies.

When evaluating the synergistic effect in functional companies, the method of expert estimation, which relies on it, has proven itself well for express analysis of the company's activity. Several methods are used in theory and practice to calculate the synergistic effects of mergers and acquisitions.

Empirical and theoretical methods were used in the article to process the issue. An analysis was used, which divided the issue into several parts. When distinguishing essential things, he used abstraction, with the help of which non-essential signs were disregarded. Induction was used, for example, in financial analysis, where the

company's financial situation was evaluated based on individual calculated indicators of the company; the opposite procedure was also used, i.e., deduction. The comparison compared the results of the evaluation of the company by individual methods. The synthesis combined the individual parts and the relationships between them into a whole to summarize the knowledge and results of the individual methods.

Results

Company valuation is an important part of the process for evaluating M&A effects. Above all, it is important in the analysis to start from the target company, estimate its market value and determine the change in cash flows that this M&A will bring. Cash flows have a better-reporting value than accounting profit. Economic theory states that even if profit is a very valuable indicator, it also contains certain risks of distortion. Company indicators are used for the calculation, such as the company's own capital (VK0, VK1) and foreign capital (CK0, CK1) for the last 2 years, cost interest (Nu), borrowed capital (PK) and total capital (CK), which is the sum of own and borrowed capital and tax rate (d). In addition, publicly available data such as the risk-free interest rate (r_f), which can be used as the average yield of a government bond, are used for the calculation. Sectoral beta coefficient (β_s), which represents the average figure for the sector in which the company operates and the risk premium (r_m-r_f), which is allocated to the Slovak Republic (Tkacova et al., 2022). The mentioned data can be found in the financial statements of both mining companies and on the Internet, on the Damodaran online page. Each of these components has an impact on the final value of the company. The capital asset pricing model (CAPM - Capital Asset Pricing Model) is used to determine the cost of equity capital. The mathematical relationship for the CAPM model is:

$$E_{(r_i)} = r_f + \beta\big(E(r_m) - r_f\big) \tag{5}$$

The expected rate of return $E(r_i)$ is calculated by calculating the risk-free rate of return (r_f), which is often taken as the yield rate of government treasury bills and the difference between the expected rate of return ($E(r_m)$) and the risk-free rate (r_f), i.e. the market risk premium, multiplied by the Beta coefficient (β), which represents the quantity used to measure the systematic risk of the given asset. This relationship can be interpreted as follows: the investor's rate of return is composed of the risk-free rate of return and the so-called risk premium, which represents the investor's reward for taking on the risk. The formula is used to calculate the cost of equity capital. The formula to calculate the systematic market risk without the influence of the capital structure (β_N) is used:

$$\beta_N = \frac{\beta_S}{1+(1-d)\times\frac{CK_0}{VK_0}} \tag{6}$$

The formula to calculate the systematic market risk, including the impact of the capital structure *(β_Z)* is used:

$$\beta_Z = \beta_N \times \left\{1 + (1-d) \times \frac{CK_1}{VK_1}\right\} \tag{7}$$

The cost of borrowed capital (NPK) is determined as a ratio of interest or other costs paid to the creditor for the loan principal or loan form. The formula for the calculation is as follows:

$$N_{PK} = \frac{Nu}{PK} \times 100 \tag{8}$$

Based on the calculations according to the mentioned formulas, the formula for calculating the capitalization rate (i) can be used, listed under number 1. It is a tool with which the net income obtained in the future will be converted to the current value, expressed as a percentage. In theory, the rate of capitalization is also referred to as the rate of the discount factor, which discounts future cash flows to the present value. Its calculation is a very difficult task for any expert who determines the value of the company. The result of our investigation is concrete calculations and a comparison of depletable resources for the previous period at both mining companies.

Table 1 shows the calculation of the depletable resources of the company KSR - Kameňolomy SR, Ltd. for the period from 2018 to 2022. The calculation is based on EBIT, which developed positively only in the years before the corona crisis (2017 and 2018); in 2019, it was only one-third of the previous period, and in the following two years, it was even negative. The reason was a low or negative economic result. It reached positive values only in 2022. The development of depletable resources was very variable based on the abovementioned reasons.

Tab. 1 Calculation of depletable resources of the company KSR – Kameňolomy SR, Ltd.

KSR – Kameňolomy SR, Ltd. (in thousands of EUR)	2017	2018	2019	2020	2021	2022
EBIT	1,182	1,324	538	-59	-1,121	470

EBIT after tax	934	1,046	425	-59	-1,121	381
Depreciation (+)	83	64	674	662	564	579
Investments (-)		-293	718	-501	-163	-160
Increase in working capital (-)		-609	1,211	-675	73	-609
Cash flow (Depletable resources)		2,012	-830	1,779	-467	1 ,729

Source: Own calculations based on company statements

Table 2 shows the calculation of the depletable resources of the company Eurovia – Kameňolomy SR, Ltd. for the same period from 2018 to 2022. In this year, EBIT was negative only once, which caused a negative economic result. In 2020, the lower EBIT was caused by a lower economic result. The development of depletable resources was variable in individual years and began to stabilize at the end of the monitored period.

Tab. 2 Calculation of depletable resources of the company Eurovia – Kameňolomy SR, Ltd.

Eurovia – Kameňolomy SR, Ltd. (in thousands of EUR)	2017	2018	2019	2020	2021	2022
EBIT	1,234	1,180	-347	970	1,164	452
EBIT after tax	975	932	-274	766	920	357
Depreciation (+)	1,380	1,570	1,634	1,468	1,383	1,288
Investments (-)		7,398	-17,697	930	15,629	802
Increase in working capital (-)		-3,416	1,898	-2,252	6,087	383
Cash flow (Depletable resources)		6,484	-14,439	912	24,019	2,830

Source: Own calculations based on company statements

The level of capitalization is primarily influenced by the riskiness of the company. It is known that there is a direct relationship between risk and profitability. The higher the risk associated with the company's cash flows, the higher the capitalization rate should be. Conversely, the higher the capitalization rate is set, the lower the value of the company will be. Most businesses' capitalization rates should range from 5% to 20%. Therefore, company owners and managers need to know the method by which the company's value is determined because, among other things, you will also get valuable information about which areas should be focused on when negotiating with an investor and which key factors affect the company's value. Based on this knowledge, it will be determined how to increase its value.

Table 3 shows the calculation of the value of the company KSR – Kameňolomy SR, Ltd. at different levels of capitalization. Four different capitalization rates were used for the calculation, which can occur based on the calculation according to the company's indicators. With a capitalization rate of 2.27%, based on the same future cash flows, the value of company value of KSR – Kameňolomy SR Ltd. is set at 131,320 thousand. EUR. This value consists of the value of drawable resources (current value of future income at a capitalization rate of 2.27%) to the amount of 8,282 thousand. EUR and a continuing value of 123,038 EUR. When we look at Table 3, when the capitalization rate increases (5.27%, 9.27% and 15.27%), both values decrease, and with the highest capitalization rate of 15.27%, the value of the company is the lowest to the amount of 12,229 thousand. EUR.

Tab. 3 Calculation of the value of the company KSR – Kameňolomy SR,Ltd. at different levels of capitalization

KSR – Kameňolomy SR, Ltd.				
Capitalization rate in %	2.27	5.27	9.27	15.27
The value of depletable resources	8,282	7,646	6,908	5,994
Continuing value	123,038	32,535	14,019	6,235
The value of the company in thousands of EUR	131,320	40,181	20,927	12,229

Source: Own calculations based on company statements.

Table 4 also shows the calculation of the value of the company Eurovia – Kameňolomy SR, Ltd. at different levels of capitalization. The same four different capitalization rates were used for the calculation. With a capitalization rate of 2.27%, the value of the company Eurovia – Kameňolomy SR, Ltd. reaches the amount of 214,940 thousand EUR. This value is made up of the value of depletable resources (current value of future income at a capitalization rate of 2.27%) to the amount of 13,556 thousand EUR and a continuing value of 201,384EUR.

As can be seen in Table 4, when the capitalization rate increases (5.27%, 9.27% and 15.27%), both values decrease, and with the highest capitalization rate of 15.27%, the value of the company is the lowest at 20,016 thousand EUR.

Tab. 4 Calculation of the value of the company Eurovia – Kameňolomy SR, Ltd. at different levels of capitalization.

Eurovia – Kameňolomy SR, Ltd. (in thousands of EUR)				
Capitalization rate in %	2.27	5.27	9.27	15.27
The value of depletable resources	13,556	12,515	11,307	9,811
Continuing value	201,384	53,252	22,946	10,205
The value of the company in thousands of EUR	**214,940**	**65,767**	**34,253**	**20,016**

Source: Own calculations based on company statements.

Mergers and acquisitions in the mining sector, which fell by more than half of their volumes, from a global perspective, growth should be expected during this year, following the rise in commodity prices, because history shows that an M&A is highly correlated with price movements in the commodity market. The possibility of entering a partnership with another company brings with it not only a lot of opportunities but also risks. Finding a reliable partner is difficult, and there is no definite guide, but it is possible to realize when and why doing business on a partnership basis is more advantageous and efficient. The following text presents the calculation of the value of the merger and the resulting synergistic effects of the merger of two mining companies, which are discussed in the article. Table 5 shows the calculation of the value of the company KSR – Kameňolomy SR, s.r.o. with a capitalization rate of 5.27% as of 12/31/2022. The value of the company on the just mentioned date is 40,181 thousand. EUR.

Tab. 5 Calculation of the value of the company KSR – Kameňolomy SR, Ltd., before the merger as of 31.12.2022.

Year	Depletable resources	Interest ayer	Current value
2023	1,729	0.9499	1,642
2024	1,746	0.9024	1,576
2025	1,764	0.8572	1,512
2026	1,781	0.8143	1,451
2027	1,799	0.8143	1,465
2028	1,817		
Total general value of depletable resources			**7,646**
Continuing value			**32,535**
The value of the company as of 31.12.2022 in thousands of EUR			**40,181**

Source: Own calculations based on company statements

Table 6 shows the calculation of the value of the company Eurovia – Kameňolomy SR, Ltd., with a capitalization rate of 5.27 % as of 12/31/2022. The value of the company on the mentioned date is 65,767 thousand. EUR.

Tab. 6 Calculation of the value of the company Eurovia – Kameňolomy SR Ltd., before the merger as of 31.12.2022.

Year	Depletable resources	Interest payer	Current value
2023	2,830	0.9499	2,688
2024	2,858	0.9024	2,579
2025	2,887	0.8572	2,475
2026	2,916	0.8143	2,374
2027	2,945	0.8143	2,398
2028	2,974		
Total general value of depletable resources			**12,515**
Continuing value			**53,252**
The value of the company as of 31.12.2022 in thousands EUR			**65,767**

Source: Own calculations based on company statements

The stated values of the companies will be used in the calculation of the resulting value of the merger and the synergistic effects of the combined companies, according to Table 7. Companies A (KSR – Kameňolomy SR, Ltd.) and B (Eurovia – Kameňolomy SR, Ltd.) will be marked for simplification. The table shows the discounted Cash Flow for a period of 5 years (2023 to 2027) of both companies. In the next column is **A+B** without synergies, which is the sum of the values of depreciable resources, continuing value, and the value of the company for the merger. In the last column, there is A+B, including synergies, which represents the sum of the values of depreciable resources, continuing value, and the value of the company after the merger, after taking 15% of the synergistic effects into account.

Tab. 7 Calculation of the value of the merger and the synergistic effect of the merged companies

Discounted Cash Flow in 5 years (in thousands of EUR)	A	B	A+B excluding synergies	A+B including synergies
2023	1,642	2,688	4,331	4,980
2024	1,576	2,579	4,155	4,778
2025	1,512	2,475	3,987	4,585
2026	1,451	2,374	3,825	4,207
2027	1,465	2,398	3,863	4,443
Depletable resources in 5 years	7,646	12,515	16,297	22,993
Continuing value	32,535	53,252	85,787	98,655
Company value	40,181	65,767	102,084	121,648
Synergy effect value (121,648 - 102,084)				**19,564**

Source: Own calculations based on company statements

After the merger of the merged companies, A(KSR – Kameňolomy SR, Ltd.) and B (Eurovia – Kameňolomy SR, Ltd.), the value of the merged companies is 121,648 thousand. EUR.The joint company value of companies A (KSR – Kameňolomy SR, Ltd.) and B (Eurovia – Kameňolomy SR, Ltd.) before the merger was 102,084 thousand EUR. Based on the difference of these values, the value of synergistic effects is determined to the amount of 19,564 thousand EUR.

Discussion

The current state of the world is such that the world's major mining companies must find a new way to succeed. The era of critical minerals has arrived, d it is the most significant change the industry has experienced in decades, according to PWC. Mining companies can no longer rely on yesterday's portfolios and practices to create value in this new dynamic and highly competitive environment. And mining CEOs seem to know it: of those who took part in PWC's 26th annual Global CEO Survey, 41% don't think their companies will be economically viable in ten years if they continue their current path. The period of critical minerals must therefore be a period of rediscovery (PWC, 2023).

According to Trend, the global market for mergers and acquisitions, according to the analysis, faced a challenging development in 2022, when the volume and value of mergers and acquisitions fell from record high values. For example, a double-digit decline was recorded in the USA and China. However, the influence of various macroeconomic and geopolitical factors did not uniformly impact the mergers and acquisitions markets. In 2022, for example, India stood out, with its activity up 16% and volume up 35%, which represents an all-time high. The volume and value of mergers and acquisitions fell from record highs (65,000 transactions) in 2021 by 17% and 37%, respectively, although they remain above the 2020 and healthy pre-pandemic levels. In the second half of 2022, the volume and value of transactions decreased by a larger part, by 25% and 51%, compared to the previous year. Among the top 5 M&A deals according to value in the mining industry from 2022, i. e. in 2023, can be included: Cannington Project Coolabah Metals $19,995 million, OZ Minerals BHP Lonsdale Investments $6,440 million, OZ Minerals BHP Lonsdale Investments $6,422 million, and Polyus AKROPOL GROUP $6,300 million.

In terms of value, activity in the field of mergers and acquisitions decreased by 9% in Q1 of 2023 compared to a total of $34.5 billion in the previous quarter and up 141% from Q1 of 2022. The volume of related deals increased in Q1 of 2023 compared to the previous quarter by 2% and was 20% higher than in Q1 of 2022. Foreign direct investment (FDI) transactions accounted for a 31% share of global mining industry mergers and acquisitions in the first quarter of 2023, up 16% from the previous quarter.

Based on data from the World Investment Report for 2022 (UNCTAD), a review was made of the number and value of net cross-border M&As from the buyer's and seller's point of view for the V4 countries, Europe, and the world in the years 2015-2021.

Tab. 8 The number of net cross-border M&A by region/economy of the buyer, 2015-2021, in millions. USD

Countries	2015	2016	2017	2018	2019	2020	2021
Czech Republic	18	18	14	17	32	17	30
Hungary	2	1	7	2	17	- 1	12
Poland	22	26	16	23	17	7	32
Slovakia	5	10	3	4	3	7	7
Total V4	47	55	40	46	69	30	81
Europe	2,353	2,495	2,553	2,672	2,889	2,364	3,847
World	6,364	6,607	6,967	6,821	7,118	6,201	8,846

Source: Own calculations according to the World Investment Report for 2022 (UNCTAD)

Table 8 shows the number of net cross-border M&As by buyer for V4 countries, Europe, and the world in the period 2015-2021. The highest number of net cross-border M&As from the point of view of a buyer from V4 countries was recorded by the Republic of Poland, with 32 for 2021, with a decrease in 2019 and 2020 compared to the previous period. The second highest number of net cross-border M&As from the perspective of a buyer from V4 countries was recorded by the Czech Republic, with 30 for 2021, with the fact that only in 2020 there was a decrease compared to the previous period. The Republic of Hungary took third place, and the last place among the V4 countries is Slovakia, where no downward trend can be seen, but only 7 net cross-border M&As by buyer took place in 2021. The share of Slovakia in the number of European and global net cross-border M&As, according to the buyer, is negligible.

Tab. 9 The number of net cross-border M&A by region/economy of the seller, 2015-2021, in millions. USD

Country	2015	2016	2017	2018	2019	2020	2021
Czech Republic	27	34	23	21	28	21	52
Hungary	6	8	16	4	10	10	23
Poland	105	101	63	69	106	42	99
Slovakia	8	3	3	10	25	3	15
Total V4	146	146	105	104	169	76	189
Europe	3,079	3,384	3,133	3,362	3,587	2,971	4,736
World	6,364	6,607	6,967	6,821	7,118	6,201	8,846

Source: Own calculations according to the World Investment Report for 2022 (UNCTAD)

Table 9 shows the number of net cross-border M&As by seller for the V4 countries, Europe, and the World during the years 2015-2021. The highest number of net cross-border M&As by sellers from the V4 countries was recorded by the Republic of Poland, with 99 in 2021. In 2019, there was an increase to 106, and in 2020 there was a decrease compared to the previous period to 42. The second highest number of net cross-border M&As from the point of view of the seller from the V4 countries was recorded by the Czech Republic, with 52 for 2021; only in 2020, there was a decrease compared to the previous period. In third place is the Republic of Hungary, with 23 for 2021, and in last place among the V4 countries is Slovakia, where no downward trend can be seen, but only 3 net cross-border M&As by buyer took place in 2020. Slovakia's share of the number of European and global net cross-border M&As by seller is also minuscule.

Tab. 10 The value of net cross-border M&A by region/economy of the buyer, 2015-2021, in millions. USD

Country	2015	2016	2017	2018	2019	2020	2021
Czech Republic	- 6.9	26.1	43.8	153.8	245.6	301.8	514.7
Hungary	38.0	- 94.1	103.0	-	-	5.6	20.6
Poland	519.6	315.7	130.8	1,829.1	462.5	- 91.1	1,694.0
Slovakia	- 995.5	21,9	7,4	551.0	-	-	-
Total V4	- 445	270	285	2,534	708	216	2,229
Europe	316 944,0	435,150.4	210,783.6	342,728.0	181,627.6	208,747.8	284,586.7
World	735,125,7	886,901.4	693,962.0	815,725.7	507,396.1	474,864.0	727,880.0

Source: Own calculations according to the World Investment Report for 2022 (UNCTAD)

Table 10 shows the value of net cross-border M&As in millions of US dollars, according to the buyer for the V4 countries, Europe, and the world in the period 2015-2021. The highest value of net cross-border M&A from the point of view of the buyer from among the V4 countries was recorded by the Republic of Poland, with a value

of 1,694 million. USD, for the year 2021, with the fact that for the years 2019 and 2020, there was a decrease compared to the previous period- The second highest number of net cross-border M&As from the point of view of a buyer from V4 countries was recorded by the Czech Republic with a value of 514.7 million. USD, for the year 2021, with the fact that in 2019 and 2020, there was a decrease compared to the previous period. The third place was taken by the Republic of Hungary with a value of 20.6 million. USD, and in last place among the V4 countries was Slovakia; in 2021, there was no net cross-border M&As, according to the buyer. Slovakia's share of the number of European and global net cross-border M&As by seller is also minuscule.

Tab. 11 The value of net cross-border M&A by region/economy of the seller, 2015 – 2021, in millions USD.

Country							
Czech Republic	2015	2016	2017	2018	2019	2020	2021
Hungary	2,252.6	1,362.2	- 10.1	1,750.7	- 652.6	- 443.4	136.3
Poland	35.8	- 9.5	13.3	- 186.1	- 0.2	10.9	- 38.9
Slovakia	1,191.1	- 832.5	- 798.0	2,244.6	1,082.2	556.7	2,411.8
Total V4	0,0	19.0	- 2.4	15.2	7.4	-	70.6
Europe	3,480	539	- 797	3,824	437	124	2,580
World	308,372.5	389,824.7	236,040.2	381,101.6	200,233.5	259,595.9	257,586.1

Source: Own calculations according to the World Investment Report for 2022 (UNCTAD)

Table 11 shows the value of net cross-border M&As in millions. USD, by seller for V4 countries, Europe, and the world in the period 2015-2021. The highest value of net cross-border M&A from the point of view of the seller from the V4 countries was recorded by the Republic of Poland, with a value of 2,411.8 million. USD, for the year 2021, with the fact that for the years 2019 and 2020, there was a decrease compared to the previous period. The second highest number of net cross-border M&A from the point of view of the seller from V4 countries was recorded by the Czech Republic with a value of 136.3 mil. USD, for the year 2021, with the fact that already in 2019 and 2020, there was a high decrease compared to the previous period. The third place was taken by the Republic of Hungary with a value of -38.9 million. USD and Slovakia were in last place among the V4 countries; in 2021, net cross-border M&As took place, according to the seller, for 70.6 million. USD. The share of Slovakia in the number of European and global net cross-border M&As, according to the buyer, is minuscule.

According to the 2022/2023 incoming mergers and acquisitions news (Mazars: Investing in CEE: Inbound M&A report 2022/2023), a total of 846 transactions with a total value of EUR 39.2 billion were registered in Central and Eastern Europe. The number of transactions recorded in CEE in 2022 is higher than any annual total except that recorded in 2021 and just overshadowed the 38.6 billion euros of 2016. Based on the above data, the corona crisis did not have a negative impact on the execution of mergers and acquisitions transactions in Central and Eastern Europe, while the developed economies of Western Europe and North America suffered a more significant year-on-year decrease in volume and value. According to the study, Central and Eastern Europe has become a strong attraction for international investments. The overall share of M&A transactions in the region involving cross-border sponsors rose to 64% in 2022, an increase of four percentage points over the previous year.

Slovakia recorded M&A transactions in 2022, two more than in 2021. The total value of M&A transactions increased by approximately 73%, from 76 million EUR in 2021 to 132 million EUR in 2022. Like the other countries of Central and Eastern Europe, Slovakia relies heavily on the import of natural gas for industry and household heating. Slovakia is characterized by one of the lowest gas energy networks in the region of Central and Eastern Europe: four-fifths of electricity in Slovakia is produced from nuclear and renewable sources, which increases resilience. One of the risks for Slovakia is the threat to car production, the country's largest industry. A positive influence in Slovakia could be that Volvo will invest in a new plant in Košice, which will only produce parts for electric vehicles. This would reduce dependence on traditional gasoline and diesel-powered cars. According to the predictions of Mazars, 2023 will certainly be challenging. But this prediction is opposed by the quality of business in the region, the creativity of traders and the continued support of the EU Resilience and Recovery Instrument, which is worth more than 100 billion EUR for the 12 countries of Central and Eastern Europe that are members of the EU. That and the CEE region's healthy fundamentals suggest there are good reasons to be relatively optimistic in the coming year (Mazars: Investing in CEE: Inbound M&A report 2022/2023).

Conclusions

This article analyses the latest developments in mergers and acquisitions, primarily under the influence of the global financial crisis. It shows how and why transactions in this area have significantly decreased during the covid period and what are the likely causes of the revival of mergers and acquisitions in 2023, and what trends can be expected in the future. An important part of this analysis are the influences that affect the value of companies in the mining industry during the corona crisis and in the post-covid period. Barriers to the potential implementation

of planned mergers or acquisitions are examined. This article directly evaluates the possibility of a merger of two mining companies. Two companies operating in the given industry were chosen as a sample, and the factors that affect their market value calculation were investigated. Part of implementing the merger of companies is determining the market value of both companies. In practice, there are several methods for determining the value of merged companies, but the business method is the most used, in which the company's value is based on the company's future income (Cash Flow). Based on these future earnings, the depreciable resources and continuing value are then calculated, which together form the company's market value after considering the current value. Available data from the financial statements of these mining companies (KSR – Kameňolomy SR, Ltd. and Eurovia – Kameňolomy SR, Ltd.) for the years 2018 to 2022 were used for the calculation, based on which the planned data for the years 2023 to 2027 were then determined. It is important to note that the calculation of the value from the planned data was based, among other things, on the capitalization rate, which includes the future risk of these expected revenues. For this reason, the correct determination of the capitalization rate is very important, as it greatly impacts the final value of the company. This article then also compared the calculations of company values at different capitalization rates to demonstrate the importance of a correctly determined capitalization rate. In this context, it also deals with the evaluation of the synergistic effects that arose from the merger of the two mining companies. After the completed merger of the merged companies A (KSR – Kameňolomy SR, Ltd.) and B (Eurovia – Kameňolomy SR, Ltd.), the value of the merged companies amounted to 121,648 thousand. EUR. The joint company value of companies A (KSR – Kameňolomy SR, Ltd.) and B (Eurovia – Kameňolomy SR, Ltd.) before the merger was 102,084 thousand EUR. Based on the difference of these values, synergistic effects were determined to be 19,564 thousand. EUR. In addition, the article analyses the number and value of mergers between 2015 and 2021 in Slovakia, within the V4, in Europe and in the world. Finally, from the available data, the development of mergers and acquisitions in 2022 and 2023 in Central and Eastern Europe and especially in Slovakia, which is the focus of our interest, will be evaluated.

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