

# The impact of the Russo-Ukrainian war on the European market and EU policy towards non-energy raw materials

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## Abstract

The full-scale Russian invasion of Ukraine caught the market and EU politicians off guard. The beginning of the first full-scale war on European soil since World War II marks the era of new conditions within European market, especially in mineral resources branch. Ukraine and Russia are significant producers of non-energy raw materials. The invasion resulted in a brief disruption to the metals exchange (LME), but the war had significantly greater impact on European mineral companies (KGHM, Imerys, Boliden AB), with many reporting reduced net profits or even losses in the period between February 2022 and 2023. The unsatisfactory financial results impacted in exact way those companies with assets in Ukraine or Russia and those with no business connection to any side of the conflict. The EU, as a political and administrative entity, demonstrated an inadequate approach in its planning for ensuring the security of the supply chain for critical and strategical raw materials. Consequently, some modifications to its policies have been necessitated by the ongoing conflict. The study shows there is a need for dynamic changes in the EU administration with the objective of reducing the EU's dependence on metal suppliers. Surprisingly, it turned out that the war did not disrupt global and European non-energy materials market.

**Key words:** non-energy raw materials, Russo-Ukrainian war, EU mineral resources policy, European market, mineral industry

**Jel Classification:** F51, L61, L72, Q34

## Introduction

The question of raw materials security in the European Union has been the subject of discussion for a considerable period. The primary challenge faced currently by Europe in its pursuit of a green transition is securing of the supply chain. It is important to note that, despite recommendations from experts, the EU administration has been reluctant to invest in the mining sector. However, the full-scale Russian invasion of

Ukraine on 24 February 2022 has prompted a re-evaluation of many raw materials issues. As early as the onset of the war, researchers drew attention to the fact that the impact on the global and European economies would be contingent on the reaction of countries that were reliant on Russian commodities (Mbah & Wasum 2022; Khudaykulova et al. 2022). The primary objective of this study is to provide a comprehensive analysis of the impact of Russian aggression against Ukraine on the market for non-energy raw materials in the EU, and to assess the preparedness of the EU as a community to adapt to the evolving dynamics of the raw materials market.

## Non-energy, critical and strategic raw materials

The term "non-energy raw materials" is used to refer to a much broader group of substances, collectively known as "mineral raw materials". A mineral raw material, also referred to as a primary mineral raw material, is defined as a component of the lithosphere, hydrosphere, atmosphere or biosphere that has been detached from the natural environment and adapted for practical use (Bolewski et al. 1990). Mineral raw materials can be classified in several ways, with the most common currently being a division into four basic groups; these are energy, metallic, chemical, rock (clay). The principal energy raw materials are coals and hydrocarbons. Second group encompasses all known metallic elements. Another group is chemical raw materials, these include rock salt, potassium salt, gypsum, sulphur and phosphorites. The fourth group is that of rock raw/clay materials, which encompasses a vast array of materials (Szamałek 2007, p. 27). For the purposes of this work, the category of non-energy raw materials, which is a combination of all groups excluding energy raw materials, will be used. This term is widely used in specialised studies (Centre et al. 2023; Galos et al. 2016; Tiess 2011). As a whole, they are of great importance for green transformation. That is why the exploration, extraction and processing of non-energy raw materials continues to remain at the relatively high amount (Witkowska-Kita 2016). From the perspective of the EU, the two principal factors that serve to indicate the criticality of a given raw material are its economic importance and the risk of disruption to the supply chain. In addition, the political risks associated with the primary producers of specific raw materials and the potential for recycling the materials in question must be considered. The initial inventory of critical raw materials for the EU was published in 2011 and has been presented in a systematic manner every three years since then. In the current Critical Materials Act 70 raw materials were analysed. From this group, 34 were selected and classified as critical raw materials (Europa 2023).

Strategic raw materials are a much looser and more flexible term than critical raw materials. Broadly speaking, they are mineral raw materials that are crucial for the proper and continuous functioning of the economy. Strategic raw materials have been well defined by the Polish legislator, who defines them as the key to the functioning of the state and the economy (Uchwała nr 39, p. 16). It seems interesting to note that definitions of strategic raw materials in other countries are directly correlated with national defence issues. For example, the term "strategic raw material" in the USA is mainly used by the Department of Defence, which regularly draws up studies outlining the raw materials required by the USA for full-scale warfare and how much of them must be in the national reserves for national security reasons (Defence Logistics Agency 2013).

## Ukraine and Russia as producers of non-energy raw materials

The disruption caused by the Russian Federation's invasion of Ukraine and the resulting economic sanctions imposed on Russia and its potential retaliation have had a significant impact on the global markets. In accordance with the data provided by the USGS (2019), the production of minerals in Russia exhibited a gradual increase in 2019, aligning with earlier projections. During this period, the most significant increases in production volumes on the territory of the Russian Federation were observed for raw materials such as iridium (50%), tin (48%), gallium (33%), ruthenium (30%), rhodium (26%), rock (22%) and potash salt (22%), as well as molybdenum (17%). Conversely, iodine production declined by 63%, silver by 45%, sulphur by 31%, and tantalum by 28%.

Table 1. Ukraine's share in global production of non-energy raw materials

	% of world production
Iron Ore	3.30
Manganese	3.30
Kaolin	7.50
Titanium	7.70
Salt	0.70
Uranium	1.50
Zirconium	1.60
Graphite	1.30
Gypsum	0.80
Feldspar	0.10
Hafnium	1.60
Silicon	0.70

Source: World Bank (2022).

Russia has historically been, and continues to be, a significant player in the mining industry. However, its share of the global market has experienced a notable decline since the dissolution of the Soviet Union. Nevertheless, Russia remains a significant producer and exporter of nickel, palladium, and other platinum metals (commonly referred to as PGMs), vanadium, gold, and a multitude of other metals and precious stones. Additionally, Russia is a significant producer of potassium and phosphates, which are utilized as raw materials in the production of fertilizers (Grabisz 2004). Except for China, only Russia is a self-sufficient industrial power in terms of critical raw materials. It should be noted that production levels are lower than those of the People's Republic of China, nonetheless this does not diminish the considerable volume produced. The principal non-energy commodities exported by the Russian Federation to the EU are nickel, palladium and all platinum. However, this situation underwent a significant transformation on 15 March 2022, when the EU member states enacted a ban on the import of specific steel products and luxury goods from Russia (OSW 2022). Ukraine, despite its smaller size compared to Russia, has also occupied a pivotal role in the commodities markets for an extended period.

According to 2022 data (Table 1), Ukraine is significant contributor to global production of iron, manganese, kaolin and titanium, accounting for several percent of the global total. Russia and Ukraine have a comparable share of global iron production, with Russia accounting for 4% and Ukraine for 2.6% of world production (World Bank 2022). From the perspective of the European and global economies, it is noteworthy that prior to the full-scale Russian invasion, Ukraine was responsible for 45-55% of global neon production, a noble gas that is crucial for manufacturing. Furthermore, the situation is complicated by the fact that Russia is responsible for 30% of the production of this gas (Wiśniewska 2022). On 30 May 2022, the government in Moscow adopted a decree limiting the export of noble gases from Russia, which has resulted in a significant reduction in the supply of this element on world markets.

The Russian Federation is a significant contributor to the production of four precious metals (Figure 1). It is responsible for approximately 40% of global production, which positions Russia as the undisputed leader and the primary exporter of this metal to the EU. Both countries are significant producers of a multitude of non-energy raw materials (Figure 2). Often, they have constituted principal suppliers of these raw materials to EU and NATO member states. The Russian full-scale invasion has had a significant impact on the operations of mining and processing plants, particularly those situated in Ukraine. Russian production was redirected towards military objectives, a strategy that, when coupled with sanctions, led to a considerable reduction in exports from the country. Moreover, Russian occupied Ukrainian territories where deposits and production facilities were located, a factor that also constrained Ukrainian export potential.

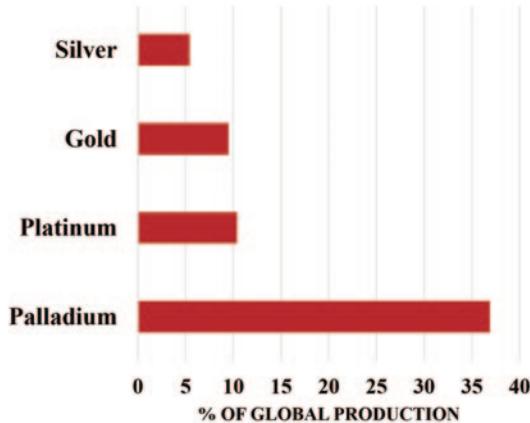


Figure 1. The 2022 Russian Federation share in the global production of palladium, platinum, gold and silver  
Source: Own elaboration based on World Bank (2022).

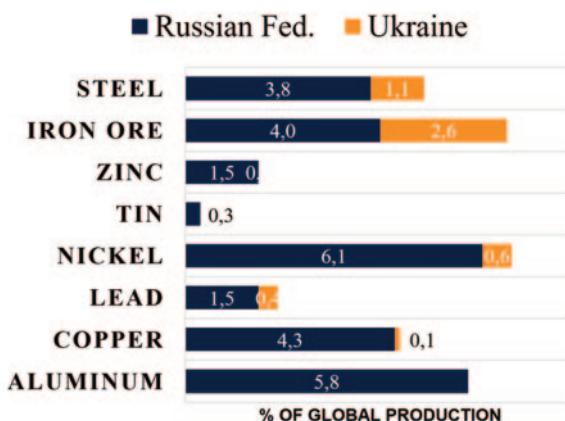


Figure 2. Comparison of 2022 production shares of selected natural resources between Russia and Ukraine  
Source: Own elaboration based on World Bank (2022).

## EU politics in the field of raw mineral materials

Considering these events, it seems that the EU is unable to act. Recent years have seen Europe prioritise the implementation of technologies within the mining sector with the objective of mitigating its environmental impact. This initiative has frequently resulted in a decline in the cost of producing raw materials, although concurrently it has also led to a decrease in annual production. To illustrate this point consider the cases of Germany, where the production volume diminished by 4.35% between 2009 and 2017, and Portugal, where mineral production has been reduced by more than 50%. However, it should be noted that in Finland production has increased over the same period, accompanied by a decrease in CO<sub>2</sub> emissions from these plants (Janikowska & Kulczycka 2021). At the same time, lack of foresight resulted in the absence of recycling initiatives for economically crucial metals. The only project with any tangible support in relation to deposits was presented by Henryk Karaś (2020), linked to KGHM Polska Miedź S.A.. The project was intended to utilise biohydrometallurgical techniques to recover copper from shale deposits in Germany, Poland and Finland. It was only approved for funding due to its categorisation as a biotechnology project.

Table 2. Comparison of employment, number of companies and financial results of the EU mining sector in 2006 and 2021.

	2006	2021
EU employees	733 200	378 000
EU companies	20 700	17 105
Net turnover (€ mln)	235 268	101 889
Value added (€ mln)	88 546	37 425

Source: Europa.eu (2007 & 2022).

According to Eurostat data (Table 2) the European mining industry has experienced a gradual decline over recent years. Even taking into account Brexit, we could still see major declines in employment, number of mineral companies and net turnover. Technologies involved in mining operations within the EU are becoming increasingly obsolete in comparison to those used by other global producers. Furthermore, regarding the most of critical raw materials, the EU has become dependent on countries that are either non-democratic or hostile. A case in point is China, from which the EU imports 45% of its critical raw material requirements (European Commission 2023). That gives rise to several political and ethical issues, which are becoming increasingly prevalent in discussions held in this field. It is unfortunate that, despite all the factors that could have been considered, Europe was not adequately prepared for the advent of the pandemic or the outbreak of war. The arrival of these two global crises compelled the EU to implement measures to address the deficiencies in its raw material policy. While earlier initiatives had been taken to chart a course towards ensuring raw material security, these were largely indicative of prospective shifts in direction (Grohol 2019).

The European Commission's press release from 16 March 2023 reveals that the recently enacted Critical Raw Materials Act includes the following targets for the diversification of supply and production capacity to be achieved by the EU by 2030: at least 10% of annual demand is to be met through mining within the EU, at least 40% is to be sourced from processing within the EU, and a minimum of 15% is to be the result of recycling of these metals within the EU. Furthermore, imports from a single external supplier must not exceed 65% of requirements for single raw material. Those alterations are not the only changes to the approach of the EU to the raw materials after the outbreak of war. A further aspect of the modifications to the EU's policy stance is the establishment of secure and resilient supply chains that will prove capable of withstanding crises. The EU has set itself the objective of simplifying procedures and reducing administrative burdens in order to facilitate the issuance of permits for business operations and the implementation of projects involving critical resources. The primary motivators for the advancement of mineral projects in Europe are the provision of financial assistance and the reduction of permit issuance timescales. In accordance with the revised regulations, the maximum duration for obtaining permits for the extraction of minerals is set at 24 months, while permits for processing, refining and recycling are to be issued within 12 months. Of particular interest is the stipulation that, with the reduction of timeframes, the EU member states will be obliged to devise and implement national programmes for the utilisation of geological resources with the objective of establishing a reserve base (European Commission 2023).

## The impact of the war on the global market and prices of non-energy raw materials

The market has always demonstrated a responsiveness to international crises, with war representing a singularly significant example (Imai & Weinstein 2002; Nordhaus 2002; Koyame & Clark 2002). The extent of the global economic impact is contingent upon the geographical scope of the hostilities and the involvement of both active and passive parties. The invasion of Ukraine by Russia on 24<sup>th</sup> February 2022 has resulted in a significant disruption to the prevailing order in the so-called Western world. This order assumed that the period of wars was over for European and North American territories. However, the actions of the Russian Federation starting from 24<sup>th</sup> February demonstrated that war at the gates of the EU is a scenario

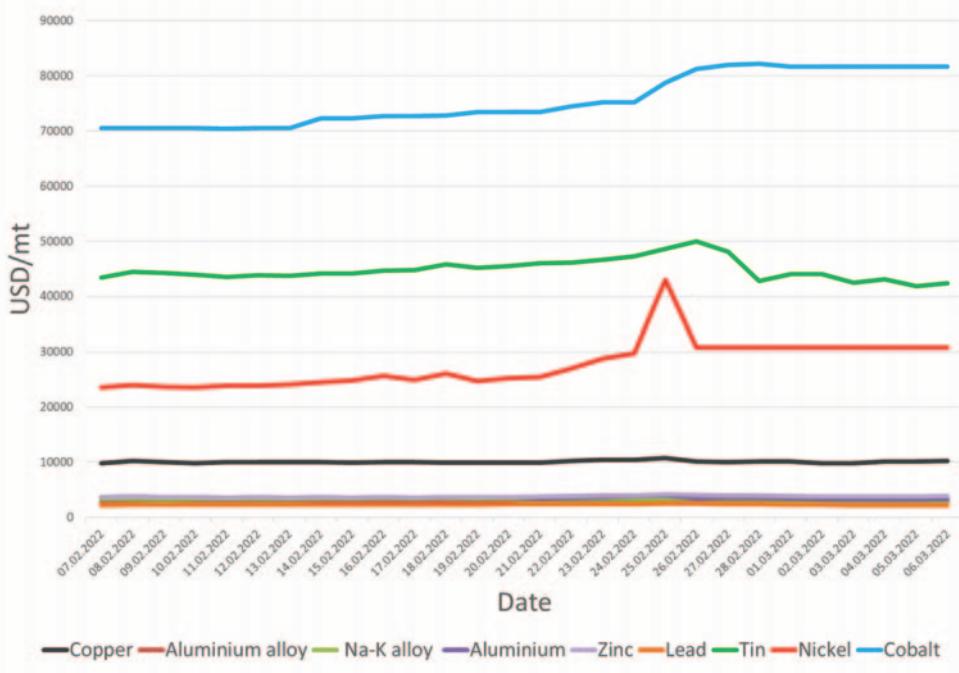


Figure 3. Changes in metal prices as a result of the Russian full-scale invasion on 24 February 2022

Source: Own elaboration based on LME (2022).

that the economies of the states within the community will have to confront once more after many years of relative stability. It is also noteworthy that both Ukraine and Russia are significant exporters of energy, agricultural products, and non-energy raw materials. The aforementioned disruptions have served to exacerbate the volatility in commodity markets, which has been occurring in the aftermath of the recovery from the global pandemic caused by the SARS-CoV-2 virus. This recovery has increased global demand and reduced supply beyond that observed in 2020. It is notable that indications of forthcoming shifts in the non-energy commodity markets were already discernible prior to the Russian full-scale invasion.

In addition to the changes in the configuration of supply chains, the advent of armed conflict also influenced the valuation of natural resources. A crisis typically results in a surge in prices on the stock market. The London Metal Exchange (LME) is one of the largest and most important institutions of its kind in the world. LME operate a wide range of metals. Intuitively, when war breaks out between two producers of non-energy raw materials, the expected market reaction should be an increase in commodity prices. However, the specific nature of the London Metal Exchange's business meant that its reaction was not as obvious as it might seem.

Initially, there was no significant visible reaction to the events. It can be seen that most metals experienced a price increase during the reopening on 24 February, but with the exception of sodium-potassium alloy and nickel, it is difficult to regard these increases as sudden and significantly different from the normal variations of the market (Figure 3). Between Wednesday 3 February and Monday 28 February, all London-listed alloys recorded price increases of between 0.31 and 3.78% (LME 2022). Interestingly, many of the metals listed on the LME fell in price in the early days of the war what is atypical for raw materials during a war outbreak.

The first phase of the conflict was reflected in the metal price charts as a period of turbulence, characterised by abrupt fluctuations in prices. However, these fluctuations are not particularly pronounced in

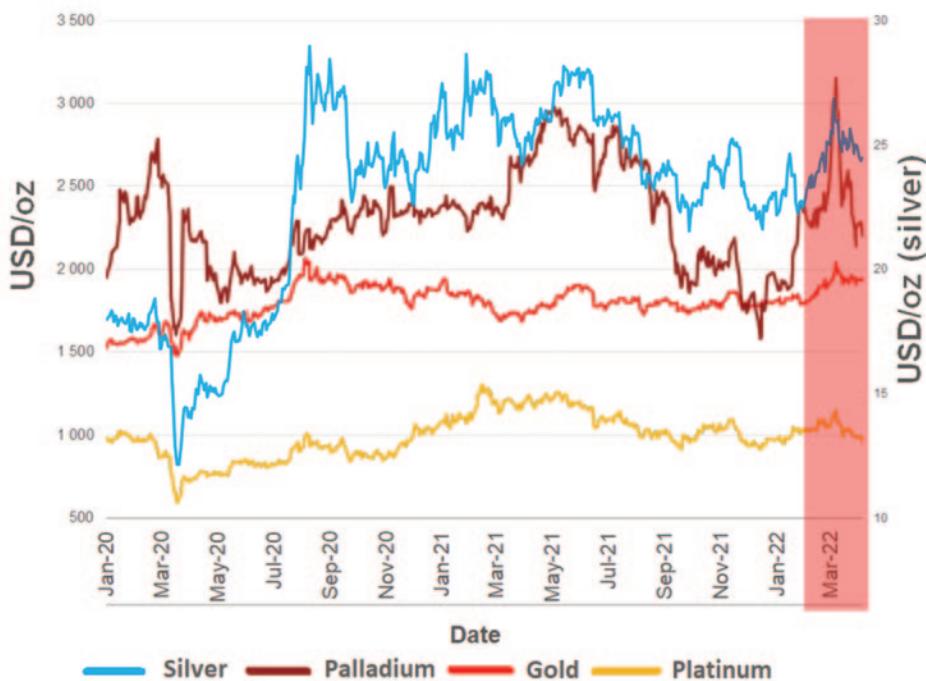


Figure 4. Changes of precious metal prices during the January 2020 – March 2022 period.  
Source: Own elaboration based on World Bank (2022).

terms of quotations. They are also quoted quite differently from what happened with Brent oil and gas (The Guardian 2022). It is noteworthy that this increase cannot be correlated with the introduction of new sanctions by the EU, as during this period the only new provision it issued was the extension of sanctions against Belarus as a response to its involvement in the ongoing conflict (European Council 2022). Furthermore, there is no correlation between the price spike and the situation on the frontline, as activities there did not escalate. The only significant event from this period was the introduction of sanctions on the fossil fuels by the US (New York Times 2022). However, this was a temporary increase and in the second half of March 2022 we have seen a stable situation on the London Metal Exchange.

Precious metal prices exhibited a similar pattern of behaviour to other metallic commodities. It is noteworthy that there was a rapid return to low values after the initial weeks of the war (Figure 4), when it became obvious that the conflict would not evolve into a European or global war.

Copper is a relatively uncommon example in this case. Following the Russian full-scale invasion, there was a sharp increase in the price of the metal, which subsequently returned to its previous level relatively quickly. However, from the third quarter of 2022 onwards, the price of copper began to rise again at a fairly rapid pace. This is evidenced by World Bank (2022) data, which shows a correlation between this price movement and a fall in the value of the investors purchasing index to values described as neutral.

A synthesis of the price developments in non-energy commodity markets as a consequence of the Russo-Ukrainian conflict yields three principal conclusions:

- 1) The outbreak of the war did not have a significant impact on the prices of non-energy raw materials on international markets. The contribution of both countries engaged in the conflict to the production of selected raw materials is insufficient to cause a significant disruption to the continuity of the supply chain.

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- 2) The greatest impact on pricing is the number of countries engaged in the conflict, rather than the anxiety generated by the commencement of hostilities. The notable yet gradual increase in steel prices can be attributed to a number of subsequent factors, including sanctions imposed on the Russian Federation, steel consumption in the arms industry, and the destruction of Ukrainian production facilities.
- 3) Metal exchanges exhibit a notable lag in their response to international crises. In contrast, hydrocarbon quotations demonstrate a considerably more rapid reaction to the onset of hostilities.

## The outbreak of war as a stress-test for european mineral companies

In this thesis, the methodology for selecting companies for further analysis constitutes a significant element of the work presented. As a representation of the EU raw materials industry, three companies will be presented. Due to the nature of the study, the companies chosen operate exclusively in the nonenergy raw materials industry and are headquartered within any of the member states of the European Union. The financial reports, both annual and quarterly, as well as associated financial data, of those companies have been analysed to provide the foundation for the conclusions and observations presented in this thesis.

In terms of annual revenue, the largest companies operating in the nonenergy raw materials industry are KGHM Polska Miedź (Poland), Boliden AB (Sweden), and Imerys (France). The KGHM Polska Miedź S.A. company currently operates seven mines in Poland, Chile, the USA, and Canada. The company owns two smelters and one ore refining facility. Additionally, the company is currently engaged in exploratory and prospection activities at four locations. In comparison to the preceding year, the company's net financial results (1) for 2022 exhibited a 31.65% decline on a year-on-year basis. However, this decline cannot be directly connected with start of war in Ukraine.

The decline observed in 2022 was not exclusive to the KGHM Group, as evidenced by the 17% and 21% reductions in the WIG and WIG 20 indices (2), respectively, during the same period. Because of the decline in share prices on the stock market, KGHM's capitalisation decreased from 27.88 billion PLN at the end of 2021 to 25.35 billion PLN in 2022. However, this was not the sole factor contributing to the underwhelming performance in 2022. Despite a relatively stable copper price environment in the initial six-month period of 2022, characterised by modest volatility in the wake of the military conflict, there was an 18.6% decline in the price of copper cathode on the stock exchange in comparison to the prices observed in the second quarter of 2022 (KGHM 2022). KGHM acknowledges the war in Ukraine as a significant risk factor in its present analysis and future earnings forecasts. As was the case in 2022, a decline in net earnings and stock market performance is anticipated in 2023. A persistent downward trajectory in share value is evident.

The share price of KGHM at the end of the first half of 2023 exhibited a decline of 8% in comparison to its value at the end of the first quarter of 2023 and a 11% decline in comparison to the same period in 2022. It is unfortunate that no correlation can be observed between the performance of the WIG and WIG 20 indices. Moreover, during the same periods they rose by 15% and 17% for the WIG and 17% and 15% for the WIG 20. This is a consequence of the market turbulence and the internal issues faced by KGHM (KGHM 2023). The necessity to operate at increasingly greater depths within the orebody, coupled with the ongoing occurrence of flooding (Zagrzebski et al. 2022), has led to a considerable increase in the costs associated with mining operations.

According to KGHM annual report (KGHM 2023) the most significant risk categories related to the war against Ukraine, which have an impact on the operations of the Company and the Group, can be classified as follows: further increases in fuel and energy prices, supply chain disruptions and availability, and the possibility of a global economic recession as a result of the global crisis is affecting multiple vectors, with the potential for extraordinary changes in legal regulations. These include the change of power in Poland and new EU directives, as well as the taxation of the extraction of certain minerals and the volatility of quotations of copper, silver and molybdenum.

A further case study will examine the Swedish company Boliden AB, headquartered in Stockholm, which has been engaged in the mineral industry for nearly a century. Nowadays, the corporate group is engaged

in five mining operations. The company's primary focus is on the production of zinc, copper, lead, nickel, silver, and gold. The company has ownership of three mines located within Swedish territory, in addition to two foreign mining assets, one of which is situated in Finland and the other in Ireland (Boliden AB 2022). Since the outbreak of the war, Boliden AB has not entered any contracts with companies in Russia. The company is currently engaged in the controlled termination of existing contracts, in alignment with the EU's policy towards Russian-owned entities. Therefore, the immediate impact of the conflict on the group's operations is relatively limited. As is explicitly stated in Boliden AB's financial report the unsatisfactory financial performance can be attributed to the increase in production costs and the decrease in demand for the company's products, which can be attributed to the saturation of the reserves of the raw materials in question (Boliden AB 2023). It is important to note, that Sweden became a full member of NATO in 2024. This has served to reinforce its position on the international stage and, to some extent, mitigate the investment risks associated with its territory. Nevertheless, the fact remains that Boliden AB's circumstances remain challenging and will necessitate further investment measures to improve them.

The last example would be Imerys, a French mineral company with a global reach. The Imerys Group has a diverse range of geological and mining assets. As reported in the Imerys annual financial report (Imerys 2023), the company currently has mining projects in 83 locations around the world, where it exploits more than 30 different minerals of economic importance. Imerys assets comprise a range of mineral deposits, predominantly classified as rock and clay materials. The company's portfolio includes a range of raw materials, including feldspar, kaolin, perlite, diatomite and talc. Additionally, the company possesses reserves of other mineral raw materials (e.g. lithium), but its primary focus is on the acquisition of rock and clay raw materials for a diverse customer base, including manufacturers of utility ceramics, civil engineering, cosmetics, and paper manufacturers. A key differentiating factor for Imerys is its ownership of geological and mining assets in the Russian Federation and Ukraine. It is important to note that investments in Ukraine and Russia represented 1.7% of the Imerys Group's consolidated revenues in 2021, and in 2022 this figure decreased to 0.6%. Furthermore, the company's divestment from these two countries is evident, as net assets in the warring countries constituted 0.5% of the company's total operationally committed capital in 2021, declining to 0.2% by the end of 2022 (Imerys 2023). Since the full-scale Russian invasion, Imerys has been compelled to suspend operations at two of its production facilities in Ukraine.

In accordance with the title of the subsection, it is reasonable to raise the question of whether the enterprises under consideration herewith withstood the stress-test of the Russian invasion. However, it is difficult not to notice that the war itself only indirectly affected the enterprises presented here. Naturally, as previously described, the Russian attack on Ukraine resulted in increases in energy prices, which translated into production costs. Nevertheless, these companies demonstrated their resilience in the face of the challenges posed by the Russian invasion. The question that arises is whether the war itself posed any challenges to the mineral corporations. Returning once again to the financial performance of these companies, or more precisely to the value of their shares, an interesting regularity can be noted. In the last week of February 2022, Boliden Ab and KGHM Polska Miedź S.A. recorded an increase in share value. Conversely, Imerys, a company with assets in the Russian Federation and Ukraine, witnessed a decline in its share value on the stock exchange (Markets 2022). In the long term, however, commodity companies experienced a decline in value due to investor flight in response to the war. Nevertheless, their performance remained relatively close to the average decline of approximately 2% observed among all European companies (Bougiass et al. 2022). The KGHM group's particularly poor performance is an exception, and can be attributed to the aforementioned technological issues.

The repercussions of the Russo-Ukrainian war manifested in a comparable yet seemingly diminished manner relative to that of the Swedish and Polish enterprises. The reason for that is that one of the companies operate mainly outside the zone threatened by various types of Russian aggression and has diversified its operations to multiple continents. It is important to note that, of the companies presented thus far,

only Imerys has owned or currently owns geological and mining assets in Ukraine or Russia. The war has had a significant impact on this part of the company's business, but due to its marginal nature in the revenue structure, it cannot be concluded that this was the reason for Imerys' poor financial performance in 2022-2023. The primary conclusion that emerges from the analysis of the data presented is that there is no significant correlation between the changes in the financial performance of the mineral companies discussed in the subsection and the outbreak of the Russo-Ukrainian war in 2022.

## Conclusion

The data presented here yield two clear and unexpected conclusions. The present situation in the non-energy commodities market is consistent with the colloquial expression "business as usual". Despite the initial volatility observed in the metals markets, prices have demonstrated a swift recovery. A similar situation can be observed in the case of precious metals, which have been on an upward trajectory in recent years. However, the spike in their prices following the full-scale Russian invasion was merely a transient phenomenon and did not result in significant long-term gains. However, it is surprising to observe the discrepancy between the prices of fossil fuels and non-energy commodities. This is probably due to the resilience of non-energy resources to temporary supply disruptions, their storage tends to be less expensive than fossil fuels, and producers keep reserves in case of a drop in production capacity, resulting in a more stable price.

It is noteworthy that the financial reports of the EU mining companies indicate that the fuel crisis was the primary factor contributing to the suboptimal financial performance observed in recent times. This fact should be viewed in an optimistic light. It demonstrates that the EU economy is less dependent on Russian metal supplies, which, in the context of an increasing likelihood of an escalation in the NATO-Russia conflict, suggests the possibility of pursuing an assertive economic policy towards the opponent. Notably, the geographical context appears to be inconsequential, as losses were incurred by companies with projects situated both in proximity to and at a distance from the borders of the Russian Federation.

As a general conclusion, it can be assumed that the impact of the full-scale Russian invasion on Ukraine on the EU copper industry was only psychological, as it led to a period of market distress. In practical terms the crisis did not contribute to a major depression among European mineral producers. From a longer-term perspective, the situation of the EU is not encouraging. Considering the potential shifts in the geopolitical landscape following the change of power in the USA, it is likely that relations between the Western world and China will face challenges. As previously stated, China is the EU's primary supplier of rare earth elements. The optimal solution is to reallocate a portion of the allocated funds to the development of the mining sector within the EU. In contrast with the prevailing view, the practice of mining does not inevitably result in the complete degradation of the environment. It would be prudent to consider the potential reduction in production costs of the technologies needed to implement the provisions of the European Green Deal and the Fit for 55 as a means of compensating for the disadvantages that may arise. It is only through the establishment of a secure raw material base that the EU will be able to effectively combat climate change and achieve the desired zero-emission status. A comprehensive strategy is required, encompassing not only the promotion of investment in environmentally sustainable mining operations but also the reform of the legal framework to reduce the barriers to entry for potential investors. Currently, the EU presents a challenging environment for this type of investment, as evidenced by the prolonged dispute between Canadian and Australian investors and the Polish government, which has undermined the EU's attractiveness as an investment destination.

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