

R. POZNIAK**THEORETICAL APPROACHES TO RISK MANAGEMENT OF INVESTMENTS IN PRECIOUS METALS IN THE FINANCIAL MARKET**

The article reveals the essence of risk from the perspective of several approaches — normative and descriptive — and provides an analysis of the types of risks associated with investing in precious metals on the financial market. It examines the ways in which investment risks in metals can be measured and how their impact can be mitigated through the application of various risk management strategies. Currently, companies are increasingly interested in expanding their investment activities in the financial market. This trend has been partially driven by the global financial crisis, the consequences of which affected virtually all economic actors. Companies have realized the necessity of determining the directions for investing their temporarily free cash assets, in order to protect themselves, to some extent, from crisis phenomena and not only preserve their financial resources but also to increase them. Investments in precious metals represent one of the oldest forms of capital preservation, which remain relevant to this day. Gold, silver, platinum, and palladium have traditionally functioned as “safe haven assets,” utilized to preserve value during periods of economic instability. The primary objective of such investments is to protect capital from inflation, devaluation, and other financial risks. Under conditions of increasing market uncertainty, precious metals continue to maintain their popularity among investors. As a result of this study, it can be concluded that any company’s investment activity is exposed to risk. Investments in precious metals are no exception, even though they are among the most reliable forms of investment. When engaging in investment activities in the precious metals market, companies must use both strategic and expert risk measurement approaches. For effective risk management in precious metals investment, it is advisable to apply strategies of diversification and hedging, which will help minimize potential losses to the fullest extent. A comprehensive approach to investment risk management—encompassing risk assessment through various methods and the use of diverse mitigation strategies—will enable investors to achieve the highest possible returns and increase their capital.

Keywords: financial market, investment activity, precious metals, risk management, descriptive approach, normative approach, diversification, hedging

Р.В. ПОЗНЯК**ТЕОРЕТИЧНІ ПІДХОДИ ДО УПРАВЛІННЯ РИЗИКАМИ ІНВЕСТИВАННЯ В ДОРОГОЦІННІ МЕТАЛИ НА ФІНАНСОВОМУ РИНКУ**

У статті розкривається сутність ризику з точки зору кількох підходів — нормативного та описового — та наведено аналіз видів ризиків, пов’язаних з інвестуванням у дорогоцінні метали на фінансовому ринку. Розглянуто способи вимірювання інвестиційних ризиків у метали та пом’якшення їхнього впливу шляхом застосування різних стратегій управління ризиками. Наразі компанії все більше зацікавлені в розширенні своєї інвестиційної діяльності на фінансовому ринку. Ця тенденція частково зумовлена світовою фінансовою кризою, наслідки якої торкнулися практично всіх економічних суб’єктів. Компанії усвідомили необхідність визначення напрямків інвестування своїх тимчасово вільних грошових активів, щоб певною мірою захистити себе від кризових явищ та не лише зберегти свої фінансові ресурси, а й примножити їх. Інвестиції в дорогоцінні метали є однією з найдавніших форм збереження капіталу, яка залишається актуальною й донині. Золото, срібло, платина та паладій традиційно функціонували як «безпечні активи», що використовуються для збереження вартості в періоди економічної нестабільності. Основною метою таких інвестицій є захист капіталу від інфляції, девальвації та інших фінансових ризиків. В умовах зростаючої ринкової невизначеності дорогоцінні метали продовжують зберігати свою популярність серед інвесторів. В результаті цього дослідження можна зробити висновок, що інвестиційна діяльність будь-якої компанії піддається ризику. Інвестиції в дорогоцінні метали не є винятком, хоча вони є одними з найнадійніших форм інвестування. Здійснюючи інвестиційну діяльність на ринку дорогоцінних металів, компанії повинні використовувати як стратегічні, так і експертні підходи до вимірювання ризиків. Для ефективного управління ризиками в інвестуванні в дорогоцінні метали доцільно застосовувати стратегії диверсифікації та хеджування, що допоможе максимально мінімізувати потенційні збитки. Комплексний підхід до управління інвестиційними ризиками, що охоплює оцінку ризиків за допомогою різних методів та використання різноманітних стратегій пом’якшення, дозволить інвесторам досягти максимально можливої прибутковості та збільшити свій капітал.

Ключові слова: фінансовий ринок, інвестиційна діяльність, дорогоцінні метали, управління ризиками, дескриптивний підхід, нормативний підхід, диверсифікація, хеджування

Introduction. Currently, companies are increasingly interested in expanding their investment activities in the financial market. This trend has been partially driven by the global financial crisis, the consequences of which affected virtually all economic actors. Companies have realized the necessity of determining the directions for investing their temporarily free cash assets, in order to protect themselves, to some extent, from crisis phenomena and not only preserve their financial resources but also to increase them.

Analysis of the Current State of the Issue. Investments in precious metals represent one of the oldest forms of capital preservation, which remain relevant to this day. Gold, silver, platinum, and palladium have traditionally functioned as “safe haven assets,” utilized to preserve value during periods of economic instability. The primary objective of such investments is to protect capital from inflation, devaluation, and other financial risks.

Under conditions of increasing market uncertainty, precious metals continue to maintain their popularity among investors.

Gold is the most common precious metal used for investment purposes. It serves as a protective asset, whose price tends to rise during financial crises. Gold is resistant to corrosion and has limited extraction volumes, which supports its value. Silver is also a popular asset, although its price is more volatile due to strong industrial demand. Unlike gold, silver is actively used in the production of electronics and other goods. Platinum is a rare metal employed in industry, particularly in the automotive sector for the manufacturing of catalytic converters. Its price is heavily influenced by industrial demand. In recent years, palladium has emerged as another significant investment asset, mainly due to increased demand in the automotive industry. Its use in emission control systems renders palladium extremely valuable.

The advantages of investing in precious metals may be summarized as follows. Precious metals serve as a means of preserving purchasing power. In the context of hryvnia devaluation and high inflation, they remain stable assets with high liquidity. Metals can be easily sold at market prices either domestically or internationally. During geopolitical conflicts, economic instability, or global crises, the value of precious metals tends to increase, making them a reliable safe haven asset. For investors in Ukraine, precious metals represent an important component of a diversified portfolio, mitigating risks associated with holding only monetary or equity assets.

In the near future, investment in precious metals is expected to remain relevant due to economic instability and inflationary pressures. Demand for gold, silver, and platinum may increase as attention to portfolio diversification continues to grow. However, for the development of this market in Ukraine, it is crucial to reduce the tax burden on metal transactions and to ensure access to modern instruments such as ETFs and futures. For Ukrainian investors, it is particularly important to assess their financial goals, investment horizons, and the risks associated with metal price fluctuations. The use of precious metals in portfolio diversification can contribute to reducing overall risk and preserving capital in the long term.

Purpose of the Study. The aim of this article is to examine the theoretical and methodological approaches to risk management in investing in precious metals within the financial market.

Analysis of Key Achievements and Literature. A substantial number of works by prominent economists have been devoted to the study of financial risks. The topic is extensively addressed in the research of J.M. Keynes, J. Schumpeter, K. Holtdorf [1], M. Rudolph [1], V.V. Vitlinsky [2], M.A. Dyadyuk [3], L.O. Kovalenko, L.M. Rymniova [4], I.A. Lukasevich [5], I.H. Cherdantsev [6], T.V. Momot [7], I.A. Blank [8], O.N. Yaryshenko [9], and V.O. Shpandaruk [10].

Despite the undeniable contribution of these scholars to the theoretical understanding and development of practical models for financial risk management, it is important to emphasize that issues of risk management under conditions of a volatile market environment require continued research in this domain.

Presentation of the Main Research Material. As noted by the authors of numerous academic works, risk is defined as the threat of partial or total loss of a company's own resources, the probability of missing income opportunities, or the incurrence of additional expenses related to specific production or financial activities. Many scholars associate the origins of financial risk with uncertainty. Moreover, academic literature points out that the higher the degree of uncertainty, the higher the financial risk.

Some experts argue that financial risk is speculative by nature, as it arises from financial operations that carry certain levels of risk—particularly those linked to fluctuations in currency exchange rates, interest rates, and the valuation of financial assets, as well as a decline in creditworthiness, solvency, and, consequently, financial

stability. Generally, speculative risks include not only financial risks but also commercial risks. Speculative risks are typically characterized as unpredictable events. In many cases, their manifestation results in losses and damages, and may provoke financial setbacks. However, at times, speculative risks can lead to substantial gains or additional income.

There is a viewpoint that in a modern market economy, any enterprise operating in business inevitably faces the opportunity to take on risk. Financial risks affect both monetary and property relations. The scale of negative impacts in the financial domain increases geometrically with the growth of the global economy. At the level of national economies, ineffective resource management can lead to either socioeconomic stagnation or rapid development. The domain of financial risks has two key orientations – maximizing returns and minimizing financial risks.

Based on the above, it can be concluded that financial risk represents a degree of uncertainty that is directly associated with the combination of borrowed and personal funds, which, in turn, are used to finance an enterprise or property. The greater the proportion of borrowed funds, the higher the financial risk.

Investment activity can be represented as the totality of the process of capital allocation in various forms and the activities related to its realization, which subsequently allow the investor to obtain certain results in the form of financial income and in other forms. Thus, investment is characterized by the expectation of receiving income from the allocation of one's own funds.

An important fact is that investment activity carries various risks. This substantiates the need for risk management, particularly when investing in precious metals in the financial market, which underscores the relevance of this study.

The crisis period highlighted the attractiveness of investments in precious metals and the opportunities it affords the investor. Companies that invested in metals were, to some extent, able to preserve their capital and, in some cases, even generate certain returns.

However, the precious metals market, like other segments of the financial market, is subject to risk. Investing in metals is one of the decisions made by a company as part of the implementation of its strategic activities and helps reduce the overall risk level of all forms of investment by diversifying the asset portfolio.

Precious metals serve as a kind of “safe haven” for companies that consider such investments to be long-term. Nevertheless, this investment direction is also associated with risks. Therefore, the objective of this work is to explore risk management opportunities for such investments and to select the best available option.

Risk is one of the fundamental characteristics of investment. When focusing on investment risk, it is important to note that it can be defined as the probability of outcomes resulting from the allocation of a company's temporarily free funds into various assets, which will be expressed as either a positive or negative deviation from the expected financial results of the investment project.

It should be emphasized that conducting investment

activity enables the investor to receive returns depending on the level of associated risk. However, there may be situations where companies partially or entirely lose their invested capital. In this context, it is worth noting that long-term investments in precious metals tend to reduce the risk of such adverse outcomes.

The correlation between investment returns and risk is directly proportional; i.e., the greater the return companies seek, the higher the accompanying risk level.

The category of "risk" is structurally complex, especially when applied to investment activities. Therefore, forming a classification system is a multistage process. Investment risks can be classified according to various criteria.

It is also appropriate to differentiate risks depending on the subject of the process. For instance, John Maynard Keynes once identified two types of risk influencing investment volume. The first is the risk of the entrepreneur or borrower, which refers to the probability that the subject will receive the expected return on capital investment. The second is the risk of the creditor, which refers to the danger of the borrower failing to repay the principal due to various macro- and microeconomic reasons.

It is important to note that one characteristic of investment-related risks is the higher degree of correlation between risk level and the maturity period of the financial instruments. This is due to increased uncertainty in income generation as the maturity period increases. Another significant feature of risks in this area is the substantial difference in the investment qualities of various financial instruments, which justifies the need for in-depth analysis and evaluation regarding the alignment with the investment goals of the company, particularly in terms of the "return-risk" ratio.

In the context of the precious metals market, the essence of risk can be examined from the normative approach to managerial decision-making processes. This is because this approach associates risk with variability and fluctuations in performance indicators, particularly through the use of terms such as "volatility" and "variability." These terms are commonly used when assessing the precious metals market. In this case, the calculation of variance is relevant, which involves the combination of various values of a performance indicator and their probabilities. These values are also considered when determining the measure of variability.

The descriptive approach demonstrates that companies, when assessing the riskiness of a given situation, assign different weights to possible values of the performance indicator and their probabilities, assuming that their values carry varying degrees of importance.

Thus, in cases where the "gain" or "loss" from an investment, particularly in precious metals, is small, the risk level will be considered negligible regardless of the individual probabilities—even if the calculated variance suggests otherwise.

A fundamental distinction between normative theory and practice lies in the fact that, theoretically, deviation of a performance indicator in either direction is a manifestation of risk. However, in practice, company experts generally only consider risk present when the deviation is negative.

From this perspective, the risk of investing in precious metals, in the author's opinion, is a structurally complex phenomenon, characterized by a certain degree of uncertainty regarding future outcomes (despite the relative stability of price changes for precious metals), and the presence of a probability of negative investment outcomes (sharp negative changes in the domestic and global economic environments, downturns in the mining and processing industries, etc.).

The study of risk types has led to the identification of three groups of risks associated with investing in precious metals:

- Market risks – These are factors determined by the influence of the external environment. In this context, it is important to consider the influence of political markets. Since the collapse of the gold exchange standard in 1971, markets have been flooded with fiat currencies not backed by tangible assets. This has triggered the formation of a currency "bubble" that continues to grow. As a result, investors have increasingly turned their attention to precious metals, which possess intrinsic value, unlike the U.S. dollar. Notably, this phenomenon has become particularly evident over the past decade. However, it is important to note that the current situation does not preclude a repeat of 1933, when, during the Great Depression, people were forced to exchange physical gold—in the form of coins and bars—for paper money issued in vast quantities.

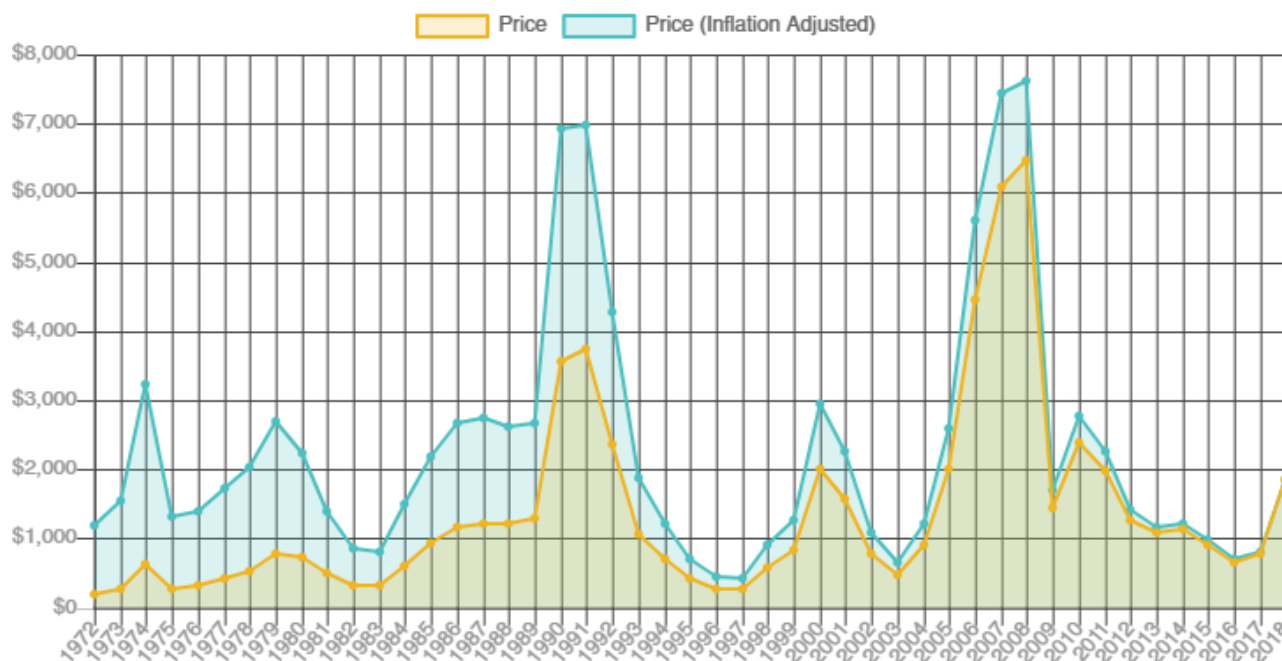
- Metal-specific risks – This category refers to the mining of a particular metal, its current industrial demand, technological progress, and assessments of its reserves. A prime example is the dramatic change in the price of rhodium in 2008, when the price per ounce dropped from \$7617 to \$1707 (pic.).

- Investment instrument risks – Precious metals are considered highly attractive for long-term investment, especially during periods of economic instability, high inflation, or political uncertainty in a specific country. It is worth noting that precious metals exhibit high volatility in financial markets, making them less suitable for short-term investments. In our country, investments in metals can be made through the purchase of bars, coins, the opening of unallocated metal accounts or deposits in precious metals, and investments in mutual funds.

Investing in physical metals involves costs related to VAT payments and storage expenses.

When opening unallocated metal accounts, there are risks associated with potential investor losses in the event of a bank's bankruptcy, as such accounts are not included in the deposit insurance system. Political risk also plays a role here.

One of the recent trends has been the emergence and development of index funds, which are considered more reliable than investing in shares of mining, processing, or refining companies. In this case, the risk of a single company's bankruptcy or dividend non-payment is eliminated. It is worth noting that even in favorable conditions, such companies tend to allocate financial resources toward equipment upgrades and the development of low-yield deposits.



Picture – The historical Rhodium price per troy oz [11]

The second and third groups represent intrinsic risks, i.e., they are directly associated with the investment object, its qualities, characteristics, and properties.

To assess the risks of investing in precious metals, several methods can be applied, including expert and statistical approaches.

From the statistical perspective, risk is equated with the variability of performance indicators. A retrospective analysis of price fluctuations for precious metals is conducted over previous periods, though risk assessment pertains to future events. It should be noted that the value of this method diminishes with rapidly changing economic conditions. However, the statistical method remains objective.

Another applicable approach in the precious metals market is the construction of a linear regression model, where the return of an individual metal is compared to the return of the market as a whole.

The market return is represented by the β -coefficient, indicating the degree of market risk associated with a specific metal. The other component is the regression equation's intercept—the α -coefficient—which can be interpreted as a measure of overvaluation or undervaluation of the metal. The square of the correlation coefficient between the variables indicates the share of market risk in the total return variance of the metal.

The second method is the expert approach, which involves identifying and structuring sources of risk and evaluating them separately, usually in point scores. Then, an integrated risk assessment is formulated. A major drawback of this method is the subjective nature of the evaluations. Furthermore, it is often difficult to justify the rules for integrating individual risk assessments into a comprehensive risk assessment. However, these disadvantages are offset by the flexibility of the approach

and its forward-looking nature, unlike the statistical method.

One of the most widely used modern tools for measuring risk is Value-at-Risk (VaR). This indicator quantifies potential losses with a given level of probability.

When calculating VaR and interpreting its results, it is essential to remember that this metric is not subadditive, meaning that the VaR of a metals portfolio may exceed the sum of the individual VaRs of its components. Therefore, it is advisable to reserve slightly more funds than the calculated value for a specific portfolio to cover potential losses.

Attention must also be paid to risk management strategies that companies should adopt when investing in precious metals.

It should be noted that in certain economic operations, strategies of risk absorption, avoidance, prevention, and transfer are employed. For several interconnected operations, hedging and diversification are most commonly used. Thus, with respect to investments in precious metals, diversification and hedging are generally the most applicable.

In diversification, companies distribute their free funds among several metals, thereby creating a metals portfolio. Geopolitical diversification is also implied, whereby physical metals are stored in safety deposit boxes in different countries or at licensed security firms. This approach further reduces political risk, which depends on the actions of a single state.

Diversification enables companies to cover losses from a significant decline in one metal's price by gains from another. Thus, the likelihood of all operations ending in loss is minimized.

Hedging involves the simultaneous purchase and sale

of a metal, which also helps minimize risks.

Summary. As a result of this study, it can be concluded that any company's investment activity is exposed to risk. Investments in precious metals are no exception, even though they are among the most reliable forms of investment. When engaging in investment activities in the precious metals market, companies must use both strategic and expert risk measurement approaches.

For effective risk management in precious metals investment, it is advisable to apply strategies of diversification and hedging, which will help minimize potential losses to the fullest extent.

A comprehensive approach to investment risk management—encompassing risk assessment through various methods and the use of diverse mitigation strategies—will enable investors to achieve the highest possible returns and increase their capital.

References

1. Holtdorf C., Rudolf M. Risk management: Challenge and opportunity. Berlin: Springer Verlag, 2000. 415 p.
2. Вітлінський В.В. Моделі оцінки ризику неплатежу операцій фінансового лізингу [Текст] / В.В. Вітлінський, С.Б. Долинська // Фінанси України. - 2005. - №6. - С. 62-68.
3. Дядюк М.А. Особливості економічного ризику підприємств торгівлі в сучасних умовах та його систематизація // Вісник Технологічного університету Поділля. - 2001. - № 6 (37). - С. 199-203.
4. Коваленко Л.О., Ремньова Л.М. Фінансовий менеджмент: Навч. посібник. / Л.О. Коваленко, Л.М. Ремньова. - 2-ге вид., перероб. і доп. - К.: Знання, 2005. - 485 с.
5. Лукасевич І. Принципи управління фінансовим ризиком / І. Лукасевич // Промисловий маркетинг. - 2009. - № 5. - С.38-41
6. Черданцева І.Г. Управління ризиками в підприємницькій діяльності [Текст]: навч.-метод. комплекс / [уклад.: І.Г. Черданцева, В.І. Гончар]; Чернівець. нац. ун-т ім. Ю. Федьковича. - Чернівці: ЧНУ, 2009. - 64 с.
7. Момот Т.В. Фінансовий менеджмент / Т.В. Момот - К.: ЦУЛ, 2011. - 712 с.
8. Яришенко О.Н. Управління фінансовими ризиками на підприємствах [Текст] / О.Н. Яришко, Є.М. Ткаченко // Економічний аналіз. - 2011. - №9 ч.3. - С. 361-365.
9. Шпандарук В.О. Вдосконалення управління ризиками підприємств на засадах реалізації превентивних заходів [Текст] / В.О. Шпандарук // Вісник Хмельницького національного університету. Економічні науки. - 2010. - №3, Т.1. - С. 241-244.
10. Rhodium Price. Сайт Metalary. URL : <https://www.metalary.com/rhodium-price>

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