

Gold as a Tool for Hedging Financial Risks

T L Ischuk¹, D V Zhilkin², T Yu Aikina³

^{1,2} National Research Tomsk State University, 36 Lenin Ave., Tomsk, 634050, Russia

^{1,2,3} National Research Tomsk Polytechnic University, 30 Lenin Ave., Tomsk, 634050, Russia

E-mail: ¹tana.itl@mail.ru, ²postdvz@yandex.ru, ³aikina@tpu.ru

Abstract. The article discusses gold as a protective asset, which claims to be a high-efficiency tool for hedging financial risks. In the introductory part the general characteristics of hedging as a method of full or partial risk elimination is given, and the main known types of risk hedging typical for a financial asset portfolio holder are considered. Further, dynamics of the world prices for gold is analyzed in a historical retrospective, whereby the conclusion is drawn on a tendency of this asset to grow during the periods of financial instability, and also if new financial assets appear. In the final part of the article the assessment of gold as a tool for hedging financial risks is given.

Historically, gold plays a special role as an instrument for hedging financial risks. Many investors hold the view of gold as a universal protective asset and often connect rise in its value with temporary instability of the world markets.

It is known that hedging is the investment aimed at making profit from a situation, prevention or compensation of another possible risky or out-of-control situation [15]. Thus, purchase of gold can be both a direct investment under rise in its value, and a preventive mechanism (hedging) in case of demand growth and decrease in offer [1]. Purchase of gold is also hedging against consequences of inflation [2], since gold holds its value, when dollar loses in cost [10].

Transactions are hedged against probable price change by taking an opposite position in the parallel (forward or exchange) market. For example, real goods with a certain delivery time are purchased /sold alongside with purchasing /selling forward contracts with the same time of performance on the stock exchange. Thereby, change in price for real goods is compensated by a reverse transaction, which enables to avoid heavy losses involved with unfavourable price movement [14].

While hedging protects against probable losses, on the other hand, it reduces probability of receiving unplanned profit at favorable movements in the asset value. However in most cases the role of additional profit is not as important as risk of loss in target profit, when financial flows and obligations are planned. For this reason hedging is widely applied as an exposure-driven approach [13]. As a matter of actual practice, various hedging options have been formed (Table1).

Table 1. Types of hedging.

No	Types of hedging	Characteristics
1.	Classical (pure hedging).	When a transaction with real delivery in the commodity market is made, parallel opposite positions in forward markets open (in options market or futures market).



2. Proactive	A market contract replaces a real delivery contract during the period, which divides contracting in the forward market and trading with real delivery in the commodity market.
3. Full or partial	Full hedging definitely excludes both probability of losses and probability of extra profit from the change in insurable asset price. Both risk of insuring losses and probability of earning an additional profit from a transaction uninsured part remain with partial hedging.
4. Cross hedge	As an insurance tool the underlying asset is applied, which is close to the really traded one but not coinciding with it. For instance, an export-import transaction involving physical gold can be hedged by a gold futures contract, while an actual stock purchase can be hedged with the help of a stock index futures.
5. Selective	This type is the most risky and sometimes considered equivalent to exchange speculation: based on the analysts' predictions about presumable price movement, only a part of transaction amount (part of currencies or goods) is insured. Besides, contracting and trading time in the commodity and forward markets may not coincide.

The most widespread hedging tool is a futures contract; futures options or forward contracts are used less often [6]. Selecting this or that instrument for conducting a hedging operation is defined by the type of hedging chosen, taking into account specific terms of transaction. Thus, a gold futures contract can help an investor to avoid losses under a volatile political, financial and economic situation [8].

To get a fair view of the gold entity, as well as its adequate assessment as a protective asset, it is necessary to refer to the history of this precious metal.

Since 1867 Paris currency system has operated in the world. Within this system gold served as international means of payments [12]. Therefore, gold substantively operated as world money. As observed from the graph below, gold value practically did not change within that period, the balance was disturbed only in 1920 and gold reached 20.68 dollars per troy ounce. The world community required a new currency system.

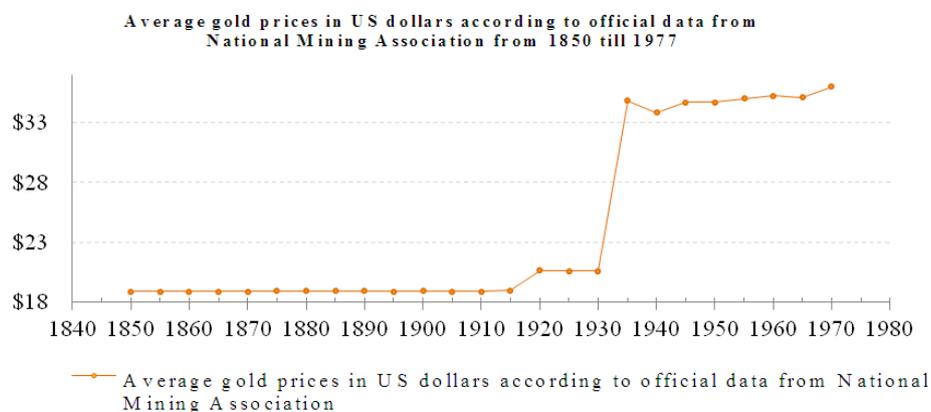


Fig. 1. Average gold prices between 1840 and 1980 [18].

Since 1922 Genoese currency system has begun to function. Gold ceased to be international money and became the international measure of value. Domestic-currency rates were measured by means of gold parity in international payments [12]. Currencies could be freely converted into gold before the Great Depression (1929-1933) and, as a consequence, World War II.

In 1944 the agreement was reached on transition to Bretton currency system which came into operation in 1946. That new currency system involved using US dollar rather than gold as the international measure of value. US dollar, in its turn, could be converted into gold at the fixed rate 35 dollars per troy ounce. The USA undertook the commitment to provide gold parity [12].

However, the given obligation was broken in 1971, when USA repudiated the dollar-gold exchange at a fixed rate.

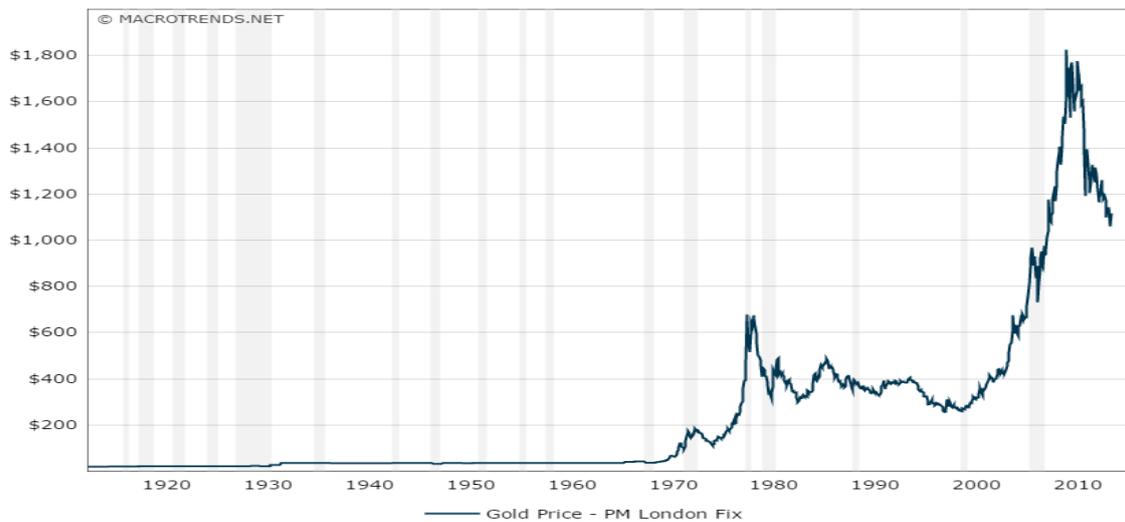


Fig. 2 Long-term graph of gold price in current prices at London fixing.

It is clearly seen from the given graph that the beginning of gold value intensive growth was observed around 1971, when gold guarantee of dollar was suspended. The growth spurted after 1976, when US dollar forfeited gold guarantee completely as a result of transition to Jamaican currency system assuming floating exchange rates. Gold volatility immediately reached unprecedented scale for the first time after 1971.

Introducing Euro – Common European Currency – was marked by a new round of sharp increase in gold value after 1999 [4].

Beyond all doubt, demand for gold as a protective asset increases due to investors’ negative expectations concerning the situation in the developed foreign exchange markets and the capital markets [7], at least, for the reason that famous and reputable financiers whose judgments are taken into account keep telling about unique protective financial properties of gold. Moreover, gold possesses the status of “the asset of final instance” i.e. is the asset investors rely on, when the developed world capital markets are not capable to provide desirable profitability [9]. To confirm this statement we will consider the time series of price values of a large-cap stock index (US Broad Market Index S&P 500 is taken as an example), gold itself for the same period, Brent crude oil and dollar index that reflects dollar value towards the basket of the most liquid and high-demand world currencies.



Fig. 3. Time series of price values of US indexes whose basket includes 500 US selected incorporated companies.

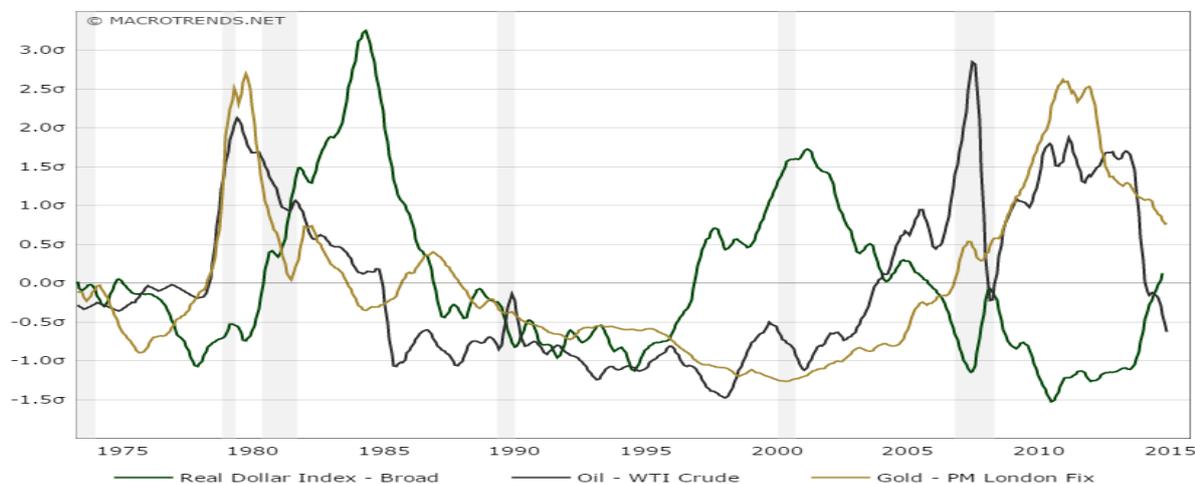


Fig. 4. Time series of price values of gold stock index, Brent crude oil, and dollar index.

As may be inferred from the graphs (Fig. 3, 4), gold correlates with both index of the developed capital market and oil and dollar. It is easy to note that the crash of US Broad Market Index S&P 500 in 1999 coincided with the moment when Common European Currency was introduced [3].

At present, non-deliverable futures and option contracts for high karat gold in bars are elaborated in the Russian Trading System [11]. The underlying asset of a futures contract is high karat gold in bars, the value of which is fixed during the morning fixing in London spot market of actual metal – “The London Gold Market Fixing Limited”. The amount of one futures underlying asset is equal to one troy ounce. Calculations are made in money based on values of London fixings. Futures price in the course of stock exchange trading is fixed in US dollars per troy ounce of the underlying asset accurate within 0.1 US dollar. The underlying asset of an option contract for high karat gold in bars is the abovementioned futures contract for high karat gold in bars.

Besides, it is important to emphasize that gold as a financial asset and derivative financial instruments on its basis can be applied in practical terms for hedging not only against currency or system risk, but also against price risk tangentially related to gold of goods. In particular, E.E. Spiridonov in the article “Futures contracts: calculating the efficiency of procurement activities hedging of enterprises” considers futures for high karat gold in bars as a market risk hedging tool at construction organizations which is connected with movements in prices for raw and construction materials. The article also discusses hedging against risk of changing prices for such specific construction materials as pipes and hollow profiles of foundry-iron with the help of futures contracts, the underlying asset of which is high karat gold in bars [16]. Thus, gold that has a negative correlation with US dollar value towards the basket of the major world currencies and a positive correlation with other commodity prices is quite a multifunctional instrument for hedging a non-uniform risk spectrum.

According to the report from US Commodity futures trading commission as of 02.02.2016 (Table 2) 40 376 long and 99 861 short positions on futures and option contracts for gold have been opened by companies hedging their risks in COMEX section of New York Mercantile Exchange.

Table 2. Total futures and option positions of hedgers in the gold market according to the report from US Commodity futures trading commission) as of 02.02.2016 [17].

Trading participants	positions	
	long	short
All participants in the market, executed contracts	314 142	314 142
Hedgers, executed contracts	40 376	99 861
Hedgers, market share	13%	32%

Thus, hedgers' positions occupy a substantial share in the major North American gold market. The observed imbalance of hedgers' long and short positions gives evidence of prevailing undesirability of decrease in gold prices for the given market participants group.

Studying the gold value movement, some foreign researchers point out the following peculiarity: there is a stable relation between the dynamics of the world gold market and that of PR China stock market, which is expressed in regular capital movements between them. This is also confirmed by the type of interdependence between these markets, which is expressed not only in prices, but also in volatility [5]. The aforesaid again fortifies the role of gold in the world financial market as a protective asset, which investors tend to resort to because of negative expectations concerning future profitability from both developed and emerging capital markets.

Conclusion

Gold is an excellent protective asset. It is pertinent to consider rise in gold value as market reaction to the emergence of new financial assets (or major change in the status of old ones), which causes a temporary condition of uncertainty.

References

- [1] Queralto A 2013 A Model of Slow Recoveries from Financial Crises *Board of Governors of the Federal Reserve System International Finance Discussion Papers* 1097
- [2] Farlow A 2013 Crash and Beyond: Causes and Consequences of the Global Financial Crisis *Oxford: Oxford University Press*
- [3] Breuss F 2011 Global Financial Crisis as a Phenomenon of Stock Market Overshooting *Empirica* **Vol.** 38 1 pp. 131-152
- [4] Pisani-Ferry J 2011 The Euro Crisis and its Aftermath *Jean Pisani-Ferry New York : Oxford University Press*
- [5] Arouri M 2015 World Gold Prices and Stock Returns in China: Insights for Hedging and Diversification Strategies *Mohamed El Hedi Arouri, Amine Lahiani, Duc Khuong Nguyen Elsevier* **Vol.** 44 pp. 273-282
- [6] Morris N 2014 Capital Failure: Rebuilding Trust in Financial Services *Nicholas Morris, David Vines, Oxford, United Kingdom : Oxford University Press*
- [7] Du W and Schreger J 2013 Local Currency Sovereign Risk *Board of Governors of the Federal Reserve System International Finance Discussion Papers* 1094.
- [8] Boboshko N M 2014 Financial Credit System: Manual for Graduate Students in Specialty "Accounting, Auditing and Analysis" and "Finance and Credit", "Law Enforcement" *N M Boboshko, S M Proyava M.: UNITI-DANA* 239 p
- [9] Jagerson J 2013 All about Investing in Gold *John Jagerson, Wade Hansen M.: Mann, Ivanov and Ferber* 248 p
- [10] Dirgin A 2010 Risk Hedging with the Help of Derivatives Market *Stock Market* **Vol.** 4 pp. 28-29
- [11] Lakhno Yu V 2013 To issue of Russian Derivatives Market's Development *Finance and credit* **Vol.** 15 (542) pp. 49-54
- [12] Lewis N 2011 Gold: The Once and Future Money *Nathan Lewis M.: Grafika.Ru* 296 p
- [13] Mishkin F S 2011 The Economics of Money, Banking, and Financial Markets 8th Edition Translated from English *M.: LCG "I.D. Williams"* 880 p
- [14] Ilyin V V et al 2011 Financial Management *M.: Omega-L* 560 p
- [15] Finance, Money Circulation and Credit 2012 *M.: Yurait, Yurait Publishing* p. 720
- [16] Yankina I A 2014 Futures Contracts: Calculating the Efficiency of Procurement Activities Hedging of Enterprises *I A Yankina, E E Spiridonov Finance and Credit* **Vol.** 44 (620) pp. 10-17
- [17] US Commodity Futures Trading Commission. [Electronic resource] URL: www.cftc.gov/dea/options/other_lof.htm (accessed: 09.02.2016)
- [18] Information resource NUMISMASTER.COM *Krause Publications* [Electronic resource] URL: www.numismaster.com/ta/inside_numis.jsp?page=history-gold-prices-historical-charts (accessed: 09.02.2016)
- [19] Vazim A A, Romanyuk V B, Akhmadeev K N, Matveenko I A 2015 Associated Petroleum Gas Utilization in Tomsk Oblast: Energy Efficiency and Tax Advantages (Article number 012078) *IOP Conference Series: Earth and Environmental Science* **Vol.** 27 (DOI: <http://dx.doi.org/10.1088/1755-1315/27/1/012078>)