

Valuation of Investments in Gold

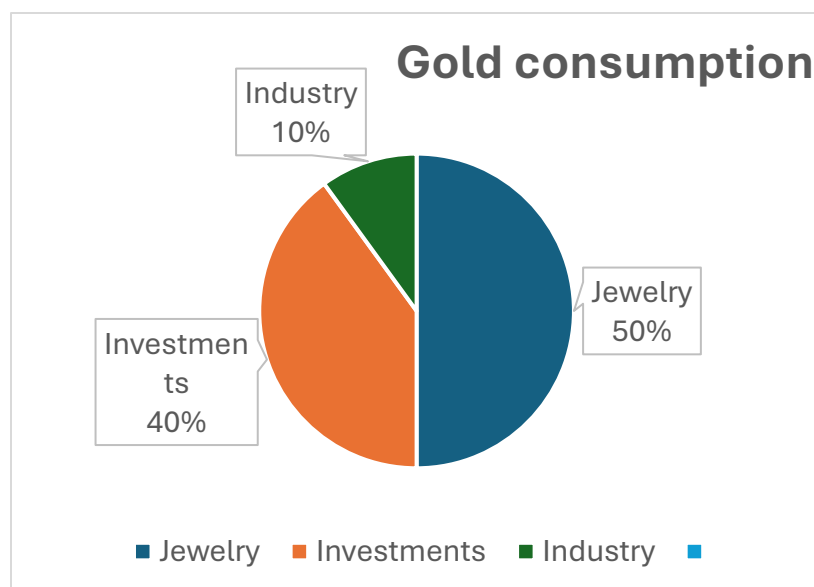
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Abstract

In the article it considered investment in the gold and uncertainty of the gold market. Constructed the synthetic portfolio to protect price drop of the gold and estimated amount to support this portfolio.

Gold is the most popular precious metal for investment. Regardless of its popularity the gold market is highly uncertain and consequently risky. Sources of price volatility cannot be determined uniquely and should be considered from different points of view.

Biggest producers of gold are the following countries [1]: China, Australia, United States, South Africa, Russia, Peru, Indonesia. The biggest consumers of gold jewelry: India, China, United States, Turkey, Saudi Arabia, Russia, UAE



Different types of investments in gold [2]:

- Bullion (i.e., gold bars)
- Mutual funds
- Futures
- Mining companies
- Jewelry
- Exchange-traded funds (ETFs)
- Shares of gold mining companies or other gold-related investments
- Purchasing a physical product such as coins or bullion
- Trading options and futures contracts

Investments in gold can be used for different purposes. Most frequently it can be one of the tools against inflation or can be used for investment portfolio diversification. Can be one of the elements of the hedging strategy and so on.

Different countries use gold as a reserve. Below in the table are countries with highest gold reserves [3]:

United States Gold Reserves	8133.46
Russia Gold Reserves	2335.85
Italy Gold Reserves	2451.84
India Gold Reserves	840.76
Germany Gold Reserves	3351.53
France Gold Reserves	2436.97
China Gold Reserves	2264.32

The table shows gold reserves per country in tons for June 2024. For comparison Georgian reserves of gold is 30.798 tons.

Gold is mostly traded on the:

- The OTC London market,
- The US futures market (COMEX)
- The Shanghai Gold Exchange (SGE).

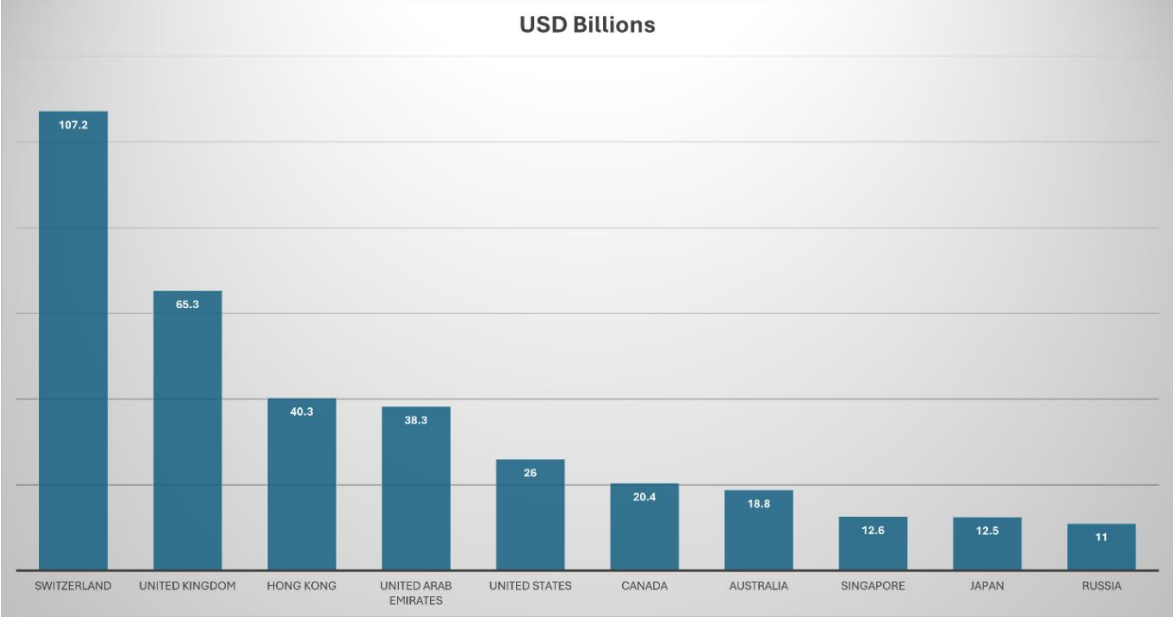
The standard future contract is 100 troy ounces. 100 Troy Ounces \approx 3.1103477 Kilograms

Historically gold prices steadily rise but are very volatile [4].



Gold prices have very weak dependences on consumption and production. Mostly prices depend on big investments banks trading gold on commodity markets. The huge market makers of the gold market are the following investment banks: J.P. Morgan Chase & Co and Citigroup Inc.

Several countries are huge exporters of gold worldwide. Top gold exporters in 2023 are:



Gold mining in Georgia is approximately 2 tons per year. Georgia actively exports gold in different countries: Switzerland, Turkey, United Arab Emirates. Export of gold in 2023 year was 2.72 tons. And gains from gold export was \$88 765.99 thousand in income.

Regardless of the historically bullish market of gold and purpose of gold investments, as we already mention gold prices are highly volatile. Therefore, the simple portfolio can contain long position of gold or gold certificates (which is practically call option of the gold) and put options of gold to protects portfolio from price drops. We have calculated synthetical portfolio to keep gold price in the range of 2600 – 2700 for 100 troy ounces of gold. In model has been used Monte Carlo simulation of gold monthly price returns. Given the current price of 2,659.95 and annual volatility of gold price returns 13.37%, with annual interest rate of 6.14% calculation shows that per each 100 troy ounces of gold will be required \$21.76 cash flow to support such hedging strategy.

Therefore, if we are considering amount of gold reserves in Georgia which is 30.798 tons of gold, 215,462.88 US dollars should be reserved to overcome price volatility of the gold.

Bibliography

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