The Irrationality of Abnormal Volatility of Gold Market from the Perspective of Behavioral Finance

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Abstract: As a new discipline, behavioral finance provides a unique perspective for analyzing the volatility of the gold market. It emphasizes the role of irrationality in investment decisions, reveals the important influence of investors' psychology and behavior on the psychological and behavioral factors of investment decisions on the price of gold, and helps to deeply explore the irrational energy behind the volatility of the gold market. Based on behavioral finance, this paper proposes how to optimize investment decisions and enhance market benefits in view of current gold market volatility. This paper discusses the irrational characteristics of gold market fluctuation from the perspective of behavioral finance. By analyzing investors' psychological deviation, sentiment and market information asymmetry, this paper reveals the irrational behavior mechanism behind gold price fluctuation. The results show that investors' mood swings, overconfidence and herding are the main reasons leading to irrational fluctuations in the gold market.

Keywords: Behavioral Finance; the Gold Market; Irrational; Psychological Bias; Emotion

1. Introduction

Gold is a special precious metal. As early as BC, human beings have taken it as an important means of value circulation and wealth storage. It is a special commodity with both monetary, financial and consumption attributes. As an important safe haven asset, its market price is extremely sensitive to the global political and economic situation. Since 2023, due to the aggravation of geopolitical conflicts and the increase of gold reserves by monetary authorities in various countries [1], spot gold has risen from 313.68 yuan/gram in early 2023 to 620.44 yuan/gram in December 2024, an increase of 97.79%, and the gold market has shown an irrational exuberance.

Traditional financial theory often uses the Efficient-market hypothesis (EMH) to explain gold market price changes, which holds that the gold market price can quickly reflect all public information, but this hypothesis cannot explain the abnormal phenomenon of gold market volatility [2]. Behavioral finance believes that investors will be affected by various psychological biases in the decision-making process, which leads to irrational fluctuations in the market [3]. Common psychological biases include overconfidence, loss aversion, representation bias and so on. In addition, investor sentiment and herd effect are also important factors leading to irrational market fluctuations [4].

2. Efficient Market Hypothesis and Gold Market

The efficient market hypothesis believed that the market can be divided into weak efficient market, semi-strong efficient market and perfect efficient market [5]. Weak efficient market means that the market price has fully reflected all the past history of securities price information, including stock trading price, turnover, short selling amount, financing amount, etc. Semi-strong efficient market means that the market price has fully reflected all publicly available information about the company, including transaction price, trading volume, profit information, profit forecast value, company management status and other publicly disclosed financial information. Strong efficient markets further argue that market prices not only reflect publicly available information, but also include all information about a company's operations, including information that is not publicly available internally. The efficient market hypothesis holds that financial markets are efficient, that the market price of financial assets always reflects all available information, and that it is impossible for investors to consistently earn more than the average market rate of return. The theoretical basis of the efficient market hypothesis includes three premises: First, it is assumed that most investors are rational, and investors always make rational investment decisions according to their own information; Second, a small number of investors are irrational, but their transactions are generated randomly, often controlled within a certain range, and will offset each other so as to have no impact on the price; Third, the existence of hedgers will eliminate the impact of irrational fluctuations on prices in the market. However, some scholars have theoretically and empirically tested the efficient market hypothesis and found a lot of "anomalies". In history, the price of gold has repeatedly experienced sharp fluctuations, which are difficult to explain with fundamental factors.

Previous research has found that the Shanghai gold spot market basically reached the weak-form efficiency while the futures market did not [6]. Shanghai gold futures market price is more based on the spot market price to decide, and does not play its price discovery function. However, the weak-form effectiveness of the gold market is very fragile. And the changes in the market environment (such as the sudden outbreak of political and economic events) would cause the spot gold market to deviate from the weak efficient trend.

3. Behavioral Finance and Market Irrationality

The problem of market overreaction through empirical research, and questioned the first two premises of the efficient market hypothesis [7]. The market was not efficient, and individual investors in the market could not be completely rational, and irrationality was the normal state of most market participants. Their behavior also presents obvious group effects. The increasing uncertainty of economic environment will lead to frequent irrational behaviors of investors, and a large number of funds will pour into or withdraw from the commodity market, thus deepening the linkage of the international commodity futures market. Investors' information processing ability affects optimal decision making, investors tend to make empirical judgment over rational decision making, investors generally have overconfidence, and irrational communication among groups leads to decision-making convergence, which leads to investors' insufficient ability to process information and negates the rationality of the rational man hypothesis.

4. The Change of Gold Market Price

Since the creation of the Bretton Woods system after World War II, gold has been pegged to the dollar at $35 an ounce, and the market for trading gold has been essentially non-existent. Since the world gold price rose from $35 per ounce to the $2,600 range by the end of 2024, there have been several large and unusual fluctuations.

Historically, the world gold price has shown a fluctuating upward trend. From 1968 to 1980, the price of gold rose from $35 / oz to $634 / oz, an increase of about 1700%. The gold market's rise began with the end of the Bretton Woods system. In August 1971, after the United States announced the decoupling of the dollar and gold, the Bretton Woods system collapsed, the gold market resumed, and investors could trade freely. Subsequently, the world gold price rose to $64 / oz in 1972, broke through $100 / oz in 1973, and reached $850 / oz on January 20, 1980. After the policy intervention, gold prices fell back, falling sharply to $696.75 per ounce on February 13. The reason for the abnormal fluctuation of gold price is economic, political and other factors. In 1979, the success of Iran's Islamic Revolution and the Soviet Union's invasion of Afghanistan led to international tensions. At the same time, the United States experienced "stagflation" of economic stagnation and rising prices, with inflation reaching 13 percent in 1979. This has led to a sharp rise in the price of gold.

The second peak in gold prices came around 2008. From 1980 to 2005, the price of gold was relatively stable at around $500 per ounce. At the beginning of the 21st century, after the collapse of the Internet bubble in the United States, the subprime mortgage crisis is brewing, the price of gold began to climb from 2005, the price of gold rose from about 280 US dollars/ounce in 2003 to about 1855 US dollars/ounce in 2011, and once broke through 1920 US dollars/ounce on September 6, a new record high. The reason behind this is the subprime crisis, the downgrade of US national debt, the weakness of the euro, the multi-national debt crisis, the implementation of quantitative easing by central banks and other political and economic events, gold as a hedge, the biggest tool to attract a lot of funds.

The third peak in gold prices will occur around 2024. Slow global economic growth, Sino-US friction, global value chain restructuring, Russia-Ukraine conflict, Palestinian-Israeli conflict, the outbreak of COVID-19 and other "black swan" and "gray rhino" events have created good conditions for the gold market. With the massive injection of liquidity and the influx of global ETF gold, gold prices continue to rise. From around $1,200 / oz in 2018 to around $2,600 / oz in December 2024, an increase of more than 100%.

5. Abnormal Fluctuation and Irrationality of Gold Market

The volatility of the gold market price is affected by a variety of factors, including the US dollar exchange rate, other financial markets, economic status and expectations, political and military situation, scientific and technological development, etc [8-10]. However, investors' irrationality has played a role in promoting the volatility of the gold market. The existence of abnormal fluctuations proves the limited rationality of participants in the gold market, and also proves the limited nature of carry trade.

5.1 Overconfidence often Leads to Bubbles

Overconfidence in the gold market means that gold investors are too confident in the information and judgment they have, and often make investment decisions that deviate from the market trend [11]. In modern society, although investors can obtain unimaginable information through the Internet, many investors lack the ability to analyze the gold market, have high expectations for their own investment, and are prone to overconfidence. They may allocate too much capital when the gold price rises, causing the gold market to overheat, or they may sell gold assets excessively when the gold price falls. Making the gold market cold, thus exacerbating the irrational volatility of the gold market.

5.2 Herd Effect Leads to Price Failure

Herding behavior is a common phenomenon in economic life. Investors are easily affected by the behavior of other market participants when making decisions, and will imitate the successful decisions of others in the process of trading, which will lead to the market price deviating from the actual value in a short time [12-13]. Herd behavior is irrational, not caused by the information that investors have or the incomplete information that investors have, so the gold market often appears "chase up and kill down." The herd effect refers to the tendency of investors to be influenced by the actions of other market participants when making decisions. In the gold market, investors can create a herd mentality when they see others buying gold, leading to an irrational rise in the price. Especially in the case of policy intervention, large-scale geopolitical conflicts or large economic fluctuations, coupled with the support of authoritative media, an obvious herding effect will be formed, resulting in large ups and downs in gold prices. It can be seen from historical price changes that there have been many sudden rises and falls in gold prices, making the price adjustment function of the market malfunction.

5.3 Improper Response Exacerbated Market Volatility

The misreaction in the gold market includes overreaction and underreaction. Overreaction refers to the cognitive deviation of gold investors in the information they have, and they may sell too much gold or buy too much gold [14-16]. For example, when the gold price falls, investors may sell a large amount of gold out of loss aversion, causing unnecessary losses. Insufficient response means that gold investors do not pay enough attention to the information they have, or their ability to judge is not enough, and they do not make adjustments to changes in market trends in advance. Underreaction is a common behavior in the gold market, for example, the price of gold rises and falls in tandem with the dollar, and when the dollar rises or falls, the price of gold deviates from its actual value, which investors may not adjust for stability or other needs.

5.4 The Panic Instinct Creates the Need for Hedging

As a safe asset, gold is not subject to the returns of other assets, has the advantage of avoiding credit default risk, and can satisfy the panic instinct of mankind [17-18]. Generally speaking, the Volatility of the gold market can be explained to some extent by the VIX fear Index, which has a positive correlation with the gold price, and when the fear index rises, the gold price will also rise, and vice versa [19-20]. During the crisis, investors will put money into the gold market to avoid risks under the trend of panic, driving the price of gold to rise, such as the price of gold rose 5.77% in the 2008 financial crisis, 25.07% in the impact of the new coronavirus epidemic in 2020, the 9/11 terrorist attacks, the conflict between Russia and Ukraine and other events have also risen for a period of time [21].

6. Conclusion

Investors in the gold market show obvious irrational characteristics, resulting in abnormal fluctuations in the gold market, which leads to the weak efficiency of the gold market, and even in special cases, the gold market is also faced with resource allocation failure, the price can not reflect the intrinsic value of gold. In this regard, it is suggested to enhance the effectiveness of the gold market from three aspects: rationally guiding investors in the gold market, improving the information disclosure of the gold market and strengthening the supervision of the gold market.

First, rationally guide gold market investors. Overconfidence, herding effect and improper reaction are the irrational existence of behavioral finance to explain the abnormal fluctuation of gold market. Investors should keep rational thinking, collect all aspects of information to understand the real situation of politics, economy and finance, reduce the impact of psychological bias on investment decisions, and avoid misleading incomplete information. At the same time, take the initiative to learn behavioral finance to avoid being swayed by market sentiment.

Second, improve the disclosure of gold market information. Because of the particularity of gold, the gold market has the most frequent abnormal fluctuations. Improving the information disclosure of the gold market is of great importance to improve the market transparency, reduce the irrational behavior of investors and strengthen the price discovery mechanism. The gold market should release authoritative information in a timely manner, reasonably guide market expectations, and ensure that every gold investor can get full and transparent information.

Third, strengthen the supervision of the gold market. Institutional investors often use financial derivatives such as gold futures and option contracts to manipulate the market to obtain huge profits, resulting in sharp fluctuations in the gold market price and disturbing the market order. An unstable gold market also tends to spread risk to other financial markets and even economic fundamentals, adversely affecting financial stability and economic development. Therefore, the market supervision must strengthen the supervision of the gold market, establish a unified global regulatory framework, establish an international gold market supervision organization, formulate unified rules, and disclose gold trading data in real time to prevent information manipulation and abnormal market price fluctuations.

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