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The Impact of Macroeconomic Volatility on Gold Price Volatility: A Study in Vietnam

Do Minh Duc
National Economics University

Tran Tho Dat
National Economics University

Abstract: This study examines the asymmetric impact of macroeconomic volatility on gold price volatility in Vietnam, focusing on inflation, interest rates, exchange rates, and global gold prices. Unlike prior research centered on developed markets with assumptions of symmetric price responses, this paper addresses the unique dynamics of Vietnam's gold market, where gold functions both as a commodity and quasi-financial asset, within a tightly regulated environment. A key institutional factor is Decree 24, introduced by the State Bank of Vietnam in 2012 to curb speculation, stabilize prices, and centralize gold trading. While initially effective, its long-term efficacy remains uncertain, particularly in the face of global disruptions such as the COVID-19 pandemic. Using an Exponential Generalized Autoregressive Conditional Heteroskedasticity (EGARCH) model, the study analyzes monthly data from January 2007 to May 2023 across three phases: pre-Decree 24, post-Decree 24, and during COVID-19. The model captures volatility persistence and asymmetric responses of gold prices to macroeconomic shocks. Findings show that global gold prices consistently influence Vietnam's gold price volatility, though this linkage weakens post-Decree 24, reflecting partial market insulation. Inflation becomes a more prominent driver of volatility in the regulated period, underscoring gold's inflation-hedging role. Interest and exchange rates exhibit limited effects, and the COVID-19 period reveals heightened vulnerability, raising concerns over the rigidity of the existing regulatory regime. These results suggest the need for a more adaptive policy framework to balance market stability with responsiveness. The study contributes to emerging market literature by integrating regulatory context with asymmetric macroeconomic analysis.

Keywords: Asymmetric volatility, Gold price, Macroeconomic

Introduction

The problem this research seeks to address is twofold: (1) the limited examination of how macroeconomic volatility-both domestic and global-impacts gold price volatility in Vietnam across different economic periods, and (2) the lack of analysis on the asymmetric effects of these macroeconomic variables. This study uses an advanced Exponential Generalized Autoregressive Conditional Heteroskedasticity (EGARCH) model to explore the differential impact of positive and negative macroeconomic shocks on gold price volatility. The asymmetric EGARCH model, first introduced by Nelson (1991), allows us to capture the unique, non-linear relationship between macroeconomic volatility and gold price fluctuations, as well as the persistence of volatility over time.

This paper contributes to the literature by advancing the methodology used to examine gold price volatility in several key ways. First, it applies the EGARCH model to an emerging market, Vietnam, where regulatory interventions such as Decree 24 have uniquely shaped the gold market. Unlike prior research that often assumes symmetry in the impact of macroeconomic variables, this study incorporates asymmetric volatility components, capturing the divergent effects of positive and negative macroeconomic shocks. Moreover, the model is applied across three distinct periods-before and after Decree 24, and during the COVID-19 pandemic-allowing for a

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comprehensive analysis of how regulatory interventions and external shocks interact over time. This longitudinal perspective, combined with an asymmetric approach, represents a methodological innovation that addresses gaps in previous studies, which often overlook the role of regulatory dynamics and asymmetric market responses in shaping gold price volatility.

The purpose of this study is thus to provide a deeper understanding of the relationship between macroeconomic volatility and gold price fluctuations in Vietnam, with a particular emphasis on asymmetric effects and the role of regulatory interventions. By employing a sophisticated econometric model and focusing on a unique emerging market context, this research not only extends the existing literature but also provides practical insights for policymakers regarding the effectiveness of Decree 24 in stabilizing the gold market.

Method

This study aims to investigate the impact of macroeconomic volatility on the volatility of domestic gold prices in Vietnam. We adopt the EGARCH model to capture the asymmetric effects of macroeconomic volatility on gold price volatility across three distinct economic periods: before the introduction of Decree 24 (January 2007 - March 2012), after Decree 24 and before the COVID-19 pandemic (April 2012 - December 2019), and during the COVID-19 pandemic (January 2020 - May 2023).

The EGARCH model was chosen because of its ability to capture asymmetric volatility and persistence in financial time series data. Traditional GARCH models assume that positive and negative shocks have a symmetrical impact on volatility, which may not hold true in reality, especially for commodities like gold. The EGARCH model allows for the flexibility to model different responses to positive and negative shocks, which is particularly useful for analyzing financial markets where negative shocks (such as economic downturns) often result in greater volatility than positive shocks.

Model Specification

The model builds on the traditional EGARCH framework proposed by Nelson (1991), where the conditional variance is modeled in logarithmic form to allow for asymmetries in volatility without the need to impose non-negativity constraints. The EGARCH model is particularly suitable for this study as it allows us to examine how past shocks and volatilities affect current volatility, and more importantly, it accounts for the asymmetric impact of positive and negative shocks.

The EGARCH(1,1) model is specified as follows:

$$\log(\sigma_t^2) = \omega + \beta \log(\sigma_{t-1}^2) + \alpha \left(\frac{\epsilon_{t-1}}{\sigma_{t-1}}\right) + \gamma \left(\frac{|\epsilon_{t-1}|}{\sigma_{t-1}} - \mathbb{E}\left(\frac{|\epsilon_{t-1}|}{\sigma_{t-1}}\right)\right) \quad (1)$$

In equation 1, ω is the conditional variance (volatility) of the domestic gold price. is a constant term. β represents the persistence of volatility over time (GARCH term). measures the impact of shocks to the gold price (ARCH term). γ captures asymmetries in volatility, where $\gamma<0$ indicates that negative shocks have a larger effect on volatility than positive shocks.

Positive and Negative Volatility Components

In addition to the basic EGARCH structure, we extend the model to incorporate positive and negative volatility components for key macroeconomic variables: the consumer price index (CPI) as a proxy for inflation, the interest rate (bank lending rate), the exchange rate, and the global gold price. These macroeconomic variables are chosen based on their theoretical and empirical relevance to gold price dynamics in emerging markets. For each macroeconomic variable, we define positive and negative volatility terms as follows:

- Positive volatility: Measures the volatility when the macroeconomic variable exceeds its equilibrium level (i.e., positive deviation from its historical mean).
- Negative volatility: Measures the volatility when the macroeconomic variable falls below its equilibrium level (i.e., negative deviation from its historical mean).

The inclusion of these terms allows us to examine whether the impact of macroeconomic volatility on gold price volatility differs depending on the direction of the shock (positive or negative). The variance equation for the EGARCH model is thus extended to include these components:

$$\log(\sigma_t^2) = \omega + \beta \log(\sigma_{t-1}^2) + \alpha \left(\frac{\epsilon_{t-1}}{\sigma_{t-1}}\right) + \gamma \left(\frac{|\epsilon_{t-1}|}{\sigma_{t-1}}\right) + s^+ X_t^+ + s^- X_t^- \quad (2)$$

In equation 2, X_t^+ and X_t^- represent the positive and negative volatility of the macroeconomic variables. s^+ and s^- are the coefficients measuring the impact of positive and negative volatility, respectively.

Data

We apply the EGARCH model to three distinct periods of the Vietnamese gold market:

1. *Before Decree 24 (1st Period):* January 2007 - March 2012, when the domestic gold market was less regulated.
2. *After Decree 24 (2nd Period):* April 2012 - December 2019, following the introduction of Decree 24 by the State Bank of Vietnam, which aimed to stabilize the domestic gold market.
3. *COVID-19 Pandemic Period (3rd Period):* January 2020 - May 2023, during which global and domestic markets experienced heightened uncertainty and volatility due to the pandemic.

For each period, we use monthly data on the following macroeconomic variables:

- *Domestic gold price (GP):* The dependent variable, represented by the log return of gold price.
- *Consumer price index (CPI):* To capture inflationary effects.
- *Interest rate (IR):* Representing domestic monetary policy.
- *Exchange rate (ER):* Reflecting currency fluctuations.
- *Global gold price (GGP):* The key external variable influencing domestic gold prices.

The data is obtained from the website of State Bank of Vietnam and DOJI GROUP. The unit root test is a critical step in ensuring that the time series data used in the analysis is stationary, a necessary condition for accurate econometric modeling. In this study, we applied the Augmented Dickey-Fuller (ADF) test to determine the stationarity of key variables across the three periods. The results for both levels (I(0)) and first differences (I(1)) are presented in the Table1, with the probability values shown in brackets. In summary, the unit root test results confirm that all the key macroeconomic variables-domestic gold price, CPI, interest rate, exchange rate, and global gold price-are non-stationary at the level but become stationary after first differencing (I(1)). These findings validate the appropriateness of using first-differenced data in the EGARCH model to examine the impact of macroeconomic volatility on Vietnam's gold price volatility. The stationarity achieved at I(1) ensures robust econometric modeling and accurate interpretation of the results.

Table 1. Unit root test

Variables	1st Period (Before Decree 24)		2nd Period (After Decree 24)		3rd Period (COVID-19 pandemic)	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
Log(GP)	-0.159835 [0.9374]	-8.501810*** [0.0000]	-1.611428 [0.4727]	-9.386461*** [0.0000]	-2.236037 [0.1973]	-5.909641*** [0.0000]
Log(CPI)	-0.501367 [0.8833]	-3.294187** [0.0194]	-0.610750 [0.8620]	-5.701115*** [0.0000]	0.295967 [0.9752]	-4.872390*** [0.0003]
Log(IR)	-2.268036 [0.1854]	-9.295121*** [0.0000]	-2.691549 [0.0798]	-6.585536*** [0.0000]	-2.253273 [0.1917]	-4.446233*** [0.0010]
Log(ER)	-0.291365 [0.9197]	-8.358801*** [0.0000]	-0.749804 [0.8280]	-10.11085*** [0.0000]	-1.317583 [0.6115]	-6.527685*** [0.0000]
Log(GGP)	-0.641500 [0.8531]	-9.785575*** [0.0000]	-1.845131 [0.3567]	-10.10545*** [0.0000]	-2.744375 [0.0756]	-7.101883*** [0.0000]

Notes: ***, ** and * are equivalent to 1%, 5% and 10% significance levels. The numbers in brackets [ ] represent probabilities.

Results and Discussion

Model Estimation

Table 2. Estimated parameters for the extended EGARCH model

Variable	1st Period (Before Decree 24)	2nd Period (After Decree 24)	3rd Period (COVID-19 pandemic)
Mean equation			
μ	0.007404 (0.020051)	-0.000812 (0.003951)	0.001495 (0.006050)
Δlog(CPI)	0.145261 (1.372128)	0.624285* (0.368630)	-0.034072 (2.070795)
Δlog(IR)	-0.014213 (0.103862)	0.076814 (0.292922)	-0.069177 (0.239299)
Δlog(ER)	0.158785 (1.072108)	0.427267 (0.507685)	0.291481 (1.397904)
Δlog(GGP)	0.794767*** (0.157655)	0.405368*** (0.055561)	0.328239*** (0.103530)
Variance equation			
ω	0.001510 (0.000990)	0.000282*** (0.000059)	0.000344 (0.000456)
α	0.071163 (0.6804)	-0.022980 (0.056207)	0.111132 (0.443092)
β	0.586517 (0.404518)	0.591132*** (0.140611)	0.603743 (0.614914)
Positive volatility			
S_{CPI}^{+}	-0.071250 (0.113575)	-0.036655*** (0.012687)	-0.057290 (0.082640)
S_{IR}^{+}	-0.001722 (0.001648)	-0.009453 (0.014807)	-0.001943 (0.003245)
S_{ER}^{+}	-0.036534 (0.034399)	-0.009150 (0.007301)	-0.002617 (0.075400)
S_{GGP}^{+}	-0.005254 (0.016163)	-0.001139 (0.001966)	-0.001303 (0.017809)
Negative volatility			
S_{CPI}^{-}	-0.089158 (0.095941)	-0.011856 (0.016909)	-0.051491 (0.120043)
S_{IR}^{-}	-0.001492 (0.003720)	-0.005931* (0.003539)	-0.001086 (0.001444)
S_{ER}^{-}	-0.028275 (0.068613)	-0.010606 (0.022862)	-0.004886 (0.035445)
S_{GGP}^{-}	-0.004061 (0.008297)	-0.001809 (0.001850)	-0.002302 (0.009210)
Criteria			
R^2	0.574336	0.490306	0.325773
Adjusted R^2	0.536499	0.463122	0.208516
AIC (Akaike info criterion)	-3.355758	-5.139229	-4.532868
SIC (Schwarz criterion)	-2.743911	-4.662824	-3.771609
DW (Durbin-Watson stat)	2.253917	1.977579	1.663591

Note: Standard deviations are in parenthesis. ***, ** and * denote the significance at the 1%, 5% and 10% levels, respectively.

The results presented in Table 2 show the estimated parameters for the extended EGARCH model across three distinct economic periods: before Decree 24 (January 2007 - March 2012), after Decree 24 (April 2012 - December 2019), and during the COVID-19 pandemic (January 2020 - May 2023). The analysis highlights the impact of key macroeconomic variables, including the consumer price index (CPI), interest rate (IR), exchange rate (ER), and global gold price (GGP), on Vietnam's gold price volatility.

In the mean equation, during the pre-Decree 24 period, GGP emerges as the most significant variable with a coefficient of 0.794767, indicating a strong positive correlation with domestic gold prices. This reflects the sensitivity of Vietnam's gold market to global fluctuations in this less-regulated era. After Decree 24, the impact of the global gold price remains significant, although the coefficient decreases to 0.405368, suggesting reduced

sensitivity following regulatory interventions. CPI also shows a significant positive effect with a coefficient of 0.624285, indicating inflation's growing influence on gold prices in this period. The exchange rate and interest rate maintain positive coefficients, yet they remain statistically insignificant. During the COVID-19 pandemic, GGP continues to significantly affect domestic gold prices, albeit with a further reduced coefficient of 0.328239. Other macroeconomic variables, such as CPI and exchange rate, display non-significant effects. Notably, the interest rate has a negative coefficient (-0.069177), suggesting an inverse relationship, though this is not statistically significant.

Turning to the variance equation, the constant term (ω) is statistically significant only in the second period, suggesting a stable variance in gold prices during the period following Decree 24. In contrast, the pre-Decree and COVID-19 periods exhibit non-significant constant terms, reflecting higher uncertainty and volatility during these times.

The ARCH term (α), which captures the immediate impact of past shocks on current volatility, is positive across all periods but remains statistically non-significant. This implies that unexpected shocks to the macroeconomic variables-such as abrupt changes in inflation, interest rates, exchange rates, or global gold prices-do not directly translate into significant immediate increases in gold price volatility in Vietnam. Essentially, while macroeconomic shocks may occur, they are not causing sudden, sharp spikes in gold price volatility within the same period.

On the other hand, the persistence of volatility, as indicated by the GARCH term (β), tells a different story. The GARCH term is significant in the post-Decree 24 period and positive across all periods, demonstrating that volatility is persistent over time. In other words, even though individual shocks (captured by the ARCH term) may not have an immediate or significant effect, the overall level of volatility tends to carry over from one period to the next. This persistence of volatility suggests that the market's reaction to macroeconomic conditions tends to unfold gradually.

For instance, during the post-Decree 24 period, the β coefficient is notably significant, highlighting that volatility is more persistent in this regulated era. This means that once volatility sets in-whether due to macroeconomic factors or other market forces-it tends to remain elevated for a longer period. This may reflect the fact that during this time, the market was subject to fewer shocks, but those that did occur had lasting effects, likely due to changes in investor behavior or delayed responses to global and domestic economic conditions.

In terms of positive and negative volatility components, the results indicate asymmetric effects across the three periods. In the pre-Decree 24 period, neither the positive nor negative volatility components for CPI, IR, ER, or GGP are significant, suggesting limited differential impact based on the direction of macroeconomic volatility in this period. Following Decree 24, there is a noticeable shift in the CPI positive volatility component, which becomes statistically significant with a negative coefficient (-0.036655), indicating that positive deviations from the CPI equilibrium level tend to reduce gold price volatility. This could reflect the stabilizing effect of inflation expectations during this regulated period. For the interest rate, the negative volatility component (S_{IR}^{-}) is also significant, with a coefficient of -0.005931, suggesting that lower-than-expected interest rates lead to a decrease in gold price volatility. During the COVID-19 pandemic, none of the positive or negative volatility components for the macroeconomic variables are statistically significant. This indicates that the unprecedented global uncertainty caused by the pandemic has a broader impact on gold price volatility, and macroeconomic volatility in isolation is insufficient to explain the rapid fluctuations in gold prices during this period. Our findings align with Wahab and Arif (2020) and Azar (2015), who also identified asymmetric effects in gold price volatility, where positive shocks (such as higher-than-expected inflation) tend to stabilize volatility more than negative shocks.

The R^2 and Adjusted R^2 values indicate varying degrees of explanatory power across the three periods. In the pre-Decree 24 period, the model explains approximately 57.4% of the variance in gold price volatility, with an adjusted R2 of 53.6%. After Decree 24, the model's explanatory power decreases slightly to 49%, with an adjusted R2 of 46.3%. During the pandemic, the R2 drops further to 32.6%, and the adjusted R2 is only 20.9%, reflecting the challenges in capturing the full extent of volatility during this period of heightened global uncertainty. The AIC and SIC values are lowest in the post-Decree 24 period, suggesting that the model fits best in this more stable, regulated environment. The DW values range from 1.66 to 2.25, indicating no serious issues with autocorrelation in the residuals.

Discussion

One of the key takeaways from the analysis is the dominance of the global gold price as a critical factor influencing Vietnam's domestic gold prices across all periods. Consistent with the findings of Liu et al. (2015) and Ali et al. (2021), our results highlight the significant role of global gold prices in shaping domestic gold price volatility in Vietnam. This is consistent with the highly interconnected nature of global financial markets, where domestic prices in emerging economies like Vietnam are often significantly influenced by international commodity trends. In the context of gold, which is regarded as a global safe-haven asset, fluctuations in international prices are quickly transmitted to domestic markets. This highlights the degree of external dependence in Vietnam's gold market, where domestic factors alone cannot explain price dynamics. The fact that GGP consistently played a pivotal role underscores the need for Vietnamese policymakers and investors to closely monitor global economic conditions when formulating strategies related to gold.

The diminished influence of GGP post-Decree 24, while still significant, points to the stabilizing role of regulatory interventions in reducing the domestic market's susceptibility to global volatility. Decree 24, which limited speculative behavior by consolidating gold trading under the control of a few authorized entities, effectively moderated the extent of global price transmission to the domestic market. By curbing speculative activities, the decree helped shield the market from erratic price movements driven by international trends. This stabilization is an essential policy lesson for emerging markets where excessive dependence on global markets can lead to increased vulnerability to external shocks. The post-Decree period illustrates how targeted regulatory measures can reduce volatility, thereby fostering a more stable investment environment.

In terms of domestic macroeconomic variables, the consumer price index played an increasingly important role post-Decree 24, where it showed a positive and significant impact on gold price volatility. This finding aligns with the well-established role of gold as a hedge against inflation and is in line with the research by Levine and Wright (2006) and Hashim (2022). As inflation expectations rise, so too does the demand for gold, as investors seek to protect the value of their assets from currency depreciation. This is especially relevant for Vietnam, an emerging market where inflation has historically been volatile. The significance of CPI post-Decree 24 indicates that, even with regulatory intervention, domestic inflationary pressures continue to exert a strong influence on the gold market. It reflects a shift where local macroeconomic factors, rather than purely external ones, gain prominence in driving price volatility.

While previous studies (Ghanbari et al., 2022; Rastogi et al., 2021) identified strong interrelationships between interest rates and gold prices, particularly in the context of economic uncertainty, our findings suggest that in Vietnam, interest rates exert a weaker influence on gold price volatility, particularly post-Decree 24. Interest rates, particularly in the context of Vietnam's monetary policy, generally have an inverse relationship with gold demand. Lower interest rates reduce the opportunity cost of holding non-yielding assets like gold, making it more attractive to investors. The results show no significant immediate impact of interest rate fluctuations on gold price volatility, suggesting that Vietnam's gold market may be less reactive to short-term changes in domestic monetary policy. This could be due to a relatively shallow financial market structure where gold is held more for long-term investment purposes or as a hedge against inflation, rather than being used for short-term speculation.

However, the significance of negative volatility in interest rates during the post-Decree period highlights an asymmetric effect. The model suggests that declining interest rates reduce gold price volatility, which may reflect market stabilization efforts by the State Bank of Vietnam. During periods of low or falling interest rates, the reduced cost of holding gold likely incentivizes more stable investment behavior, leading to less erratic price movements. This asymmetric relationship also underscores how macroeconomic volatility is not uniform in its impact, different economic conditions elicit varying market responses, a finding that is consistent with the behavioral finance theory where investor sentiment often drives market outcomes (Chinzara, 2011).

Contrary to Son (2023) and Tran et al. (2017), who identified a significant relationship between exchange rates and gold price volatility, our study finds no significant effect in the context of Vietnam. This could be attributed to the relatively controlled and managed nature of Vietnam's exchange rate regime, where sharp currency fluctuations are less common compared to more liberalized exchange rate systems. While the exchange rate theoretically affects gold prices due to the pricing mechanism of gold in U.S. dollars, the findings suggest that exchange rate movements are not a primary driver of volatility in Vietnam's gold market. This may also reflect investor behavior in Vietnam, where gold is more often viewed as a hedge against inflation rather than a direct response to currency risk.

The period of the COVID-19 pandemic presents a unique case study in the discussion. As expected, global and domestic uncertainties during this time led to heightened gold price volatility. The pandemic caused widespread economic disruptions, leading to increased demand for gold as a safe-haven asset worldwide. However, what is particularly notable from the findings is that domestic macroeconomic factors appeared less influential during this period, with none of the variables (CPI, IR, ER) showing significant impacts on volatility. This suggests that external shocks, such as global economic uncertainty and shifts in investor sentiment, overwhelmingly drove gold price fluctuations in Vietnam during the pandemic. The global flight to safety during COVID-19 underscores the international integration of gold markets, even in a relatively regulated market like Vietnam.

Moreover, the persistence of volatility across all periods, especially during the post-Decree 24 and pandemic periods, highlights a critical insight into how volatility behaves over time in Vietnam's gold market. The positive and significant GARCH term in these periods points to the enduring nature of volatility once it is triggered. This suggests that, even though short-term shocks may not immediately cause substantial price fluctuations, once volatility takes hold, it tends to persist over time. This has important implications for risk management and investment strategies, as it implies that market participants cannot easily escape periods of high volatility once they begin. The regulatory measures introduced by Decree 24 may have helped mitigate immediate shocks, but they were not entirely effective in reducing long-term volatility, particularly when facing external global shocks like the pandemic.

Another important dimension to consider is the asymmetric nature of volatility in response to macroeconomic variables. The results show that positive volatility in CPI had a significant impact on reducing gold price volatility post-Decree 24, reflecting how stabilizing inflationary expectations can lead to a calmer gold market. In contrast, negative interest rate volatility during this period points to the fact that falling interest rates tend to decrease volatility, potentially due to the incentivization of long-term gold holdings. These findings support the notion that not all macroeconomic volatility is created equal-different shocks, whether positive or negative, produce different outcomes in terms of their effect on market behavior.

The overall findings contribute to a broader understanding of the complex interplay between macroeconomic variables, regulatory measures, and global shocks in determining gold price volatility. While external factors like global gold prices continue to play a dominant role, the domestic regulatory environment, as shaped by Decree 24, proved effective in dampening volatility, albeit not fully insulating the market. Inflation and interest rates emerge as key domestic factors, particularly in the post-Decree 24 period, highlighting the importance of sound macroeconomic management in mitigating gold price volatility. On the other hand, the heightened volatility during the pandemic serves as a reminder of the limits of domestic regulation in the face of overwhelming global shocks.

These results emphasize the need for a multifaceted approach to understanding gold price volatility in Vietnam, where both global and domestic factors, as well as policy interventions, must be considered. Future policy efforts may focus on strengthening the resilience of the gold market to external shocks while maintaining stable macroeconomic conditions domestically. Additionally, the persistent and asymmetric nature of volatility observed in the study suggests that continuous monitoring and adaptive policy frameworks are necessary to manage the evolving dynamics of gold price volatility in the face of an ever-changing global economic landscape.

Conclusion

The findings from this research reveal that gold in Vietnam behaves more as a commodity than a traditional financial instrument. Unlike typical financial assets, whose values are primarily driven by market speculation, macroeconomic trends, or monetary policy, gold in Vietnam is deeply connected to global gold prices and serves as a hedge against inflation (Duong, 2022; Dung, 2023). Its function as a commodity is further underscored by its significant role during periods of macroeconomic instability, such as during the COVID-19 pandemic, when investors flocked to gold as a safe-haven asset amidst global uncertainty. This characteristic differentiates gold from other financial assets in Vietnam, solidifying its position as a crucial store of value rather than a speculative financial instrument.

When considering the impact of Decree 24, its introduction in 2012 brought much-needed stability to the Vietnamese gold market by curbing speculative activities and consolidating gold trading under a regulated framework. This move succeeded in stabilizing gold price volatility during the years following its implementation, particularly by reducing the market's susceptibility to speculative price movements and

mitigating some of the risks associated with global gold price fluctuations. However, the events of the COVID-19 pandemic exposed certain limitations in Decree 24. While the decree initially worked well in stabilizing the domestic market, it may have begun to hinder the gold market's ability to respond to true market dynamics. The prolonged global uncertainty during the pandemic led to an increased demand for gold worldwide, causing sharp fluctuations in international prices. Yet, under Decree 24, the Vietnamese gold market was somewhat isolated from these global trends, leading to the possibility that domestic prices were artificially suppressed or detached from global market forces. This raises important questions about the continued relevance of Decree 24 in the current context. While its initial goal of reducing volatility and speculation was achieved, it is now possible that the decree is preventing the gold market from reflecting its true price in alignment with global forces. As Vietnam continues to integrate further into the global economy, it may be time for policymakers to reconsider whether the restrictive framework of Decree 24 remains suitable in today's context, where global economic interconnectivity plays a more dominant role in commodity pricing.

Recommendations

Policy implications from this research suggest that a more flexible approach may be necessary for regulating Vietnam's gold market going forward. While regulatory oversight is essential to prevent destabilizing speculative behavior, it is also important that gold prices are allowed to respond more freely to market forces. Adjusting or even repealing certain elements of Decree 24 could enable the gold market to better reflect global price trends, which would provide more accurate signals to investors and policymakers alike. Additionally, there is a need for adaptive policies that can balance the goals of market stability and transparency with the reality of a globalized economy. The Vietnamese government should consider mechanisms that allow for controlled exposure to international market dynamics, ensuring that gold prices reflect real-time supply and demand forces without compromising market stability. This could involve a gradual loosening of restrictions on gold trading and more proactive engagement with global commodity markets. While Decree 24 served its purpose in stabilizing the gold market during a volatile period, it may now be time for the Vietnamese government to reassess its effectiveness. The changing economic landscape and the lessons from the COVID-19 pandemic suggest that a more dynamic approach to gold regulation is necessary to allow the market to respond more accurately to global price movements. By reconsidering the structure of Decree 24, Vietnam can position its gold market to better align with international trends, ensuring that it continues to serve as a reliable store of value for investors while reflecting true market conditions.

The research uses monthly data for key macroeconomic variables. Daily or higher-frequency data could provide more precise insights into the short-term volatility of gold prices. However, such high-frequency data is not always available for all variables, especially in emerging markets. While the study examines the most critical macroeconomic variables (inflation, interest rates, exchange rates, and global gold prices), other factors, such as geopolitical risk or speculative trading, were not included due to data limitations. These factors may also significantly affect gold price volatility. Decree 24 is one of many factors influencing gold price volatility in Vietnam. This study focuses on the decree, but other regulatory changes, both domestic and international, might have influenced the market during the analyzed periods.

Future researchers could extend this study by utilizing daily or intraday data to better capture the short-term volatility and provide deeper insights into the relationship between macroeconomic shocks and gold prices. Researchers should consider including other relevant factors, such as speculative trading, geopolitical risks, and global financial crises, which may amplify volatility, especially in markets like gold. Future studies should evaluate the effectiveness of Decree 24 in the context of other regulatory measures to provide a broader understanding of policy impacts on gold price volatility in Vietnam. Researchers can explore how amendments to the decree or the introduction of new policies may affect market dynamics.

Scientific Ethics Declaration

* The authors declare that the scientific ethical and legal responsibility of this article published in EPESS Journal belongs to the authors.

Conflict of Interest

* The authors declare that they have no conflicts of interest

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Author(s) Information

Do Minh Duc
PhD Student, National Economics University
Hanoi, Vietnam

Tran Tho Dat
Prof., PhD., National Economics University
Hanoi, Vietnam
Contact e-mail: *tranthodat@neu.edu.vn*

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