DIGITAL ECONOMY-BASED TECHNICAL ANALYSIS AND TRADING STRATEGIES IN CRYPTOCURRENCY AND GOLD ASSET MARKETS

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Abstract. *This paper explores the technical analysis techniques and trading strategies utilized in the gold XAU/USD markets. The research emphasizes a trend-focused approach, market dynamics, and the supportive function of momentum indicators such as RSI and MACD. The empirical analysis is grounded in a real-world XAU/USD H1 trading scenario, which includes actual entry and exit points, an organized buy-take table, and profit assessments. The results indicate that technical indicators are more methodologically dependable when employed as confirmation tools within a structure-first framework instead of being used as independent predictive measures.*

Keywords: *cryptocurrency, gold (XAU/USD), technical analysis, market structure, trading strategy, buy, sell.*

Introduction

Growing cryptocurrency market volatility and the sustained strategic significance of gold have heightened academic interest in technical analysis-based trading strategies. Cryptocurrencies are subject to frequent regime shifts and evolving market microstructure, which complicates the stability of indicator-driven strategies [1]. Empirically reviewed cryptocurrency trading literature reveals that most technical trading methods have been found to suffer from overfitting and data-snooping bias when assessed in the absence of strict testing and control [2].

On the other hand, gold still stands as an internationally liquid asset with significant macroeconomic sensitivity and a safe-haven nature. The recent gold price prediction studies depend less on simple indicator rules and more on structured and hybrid frameworks. These differences inform the need for a unifying yet flexible methodological approach.

Methodology

Data and Timeframe.

[1] Zatwarnicki, M. Timing Usage of Technical Analysis in the Cryptocurrency Market. Applied Sciences, 2025.
[2] Nguyen, D.T.A., et al. Cryptocurrency Trading: A Systematic Mapping Study. 2024.

The empirical analysis focuses on XAU/USD (gold) utilizing the H1 timeframe within the MetaTrader platform. All computations are derived solely from authentic historical price data and actual trade execution levels, incorporating well-defined entry BUY and exit TAKE points. There is no use of simulated prices, hypothetical trades, or artificial datasets, adhering to empirical guidelines in technical trading studies that highlight the importance of data authenticity and transparency. [3].

The H1 timeframe has been chosen due to its ability to strike a balance between immediate market reactions and stable price structures, which makes it effective for recognizing both trend continuations and corrections within the gold market. This selection aligns with recent empirical research that emphasizes the significance of intraday dynamics and minimized noise in the analysis of financial markets.[4].

Results

The main analytical approach utilized in this research is the Fibonacci Urvin framework, which identifies significant horizontal price levels based on prevailing impulsive and corrective price trends. These levels serve as critical areas for making trading decisions regarding entry BUY and exit TAKE, rather than acting as exact prediction markers, in alignment with contemporary structure-oriented trading methodologies.[5].

This framework allows for a flexible yet disciplined interpretation of market reactions and reflects the growing academic emphasis on structure-driven technical analysis over isolated indicator-based strategies [6].

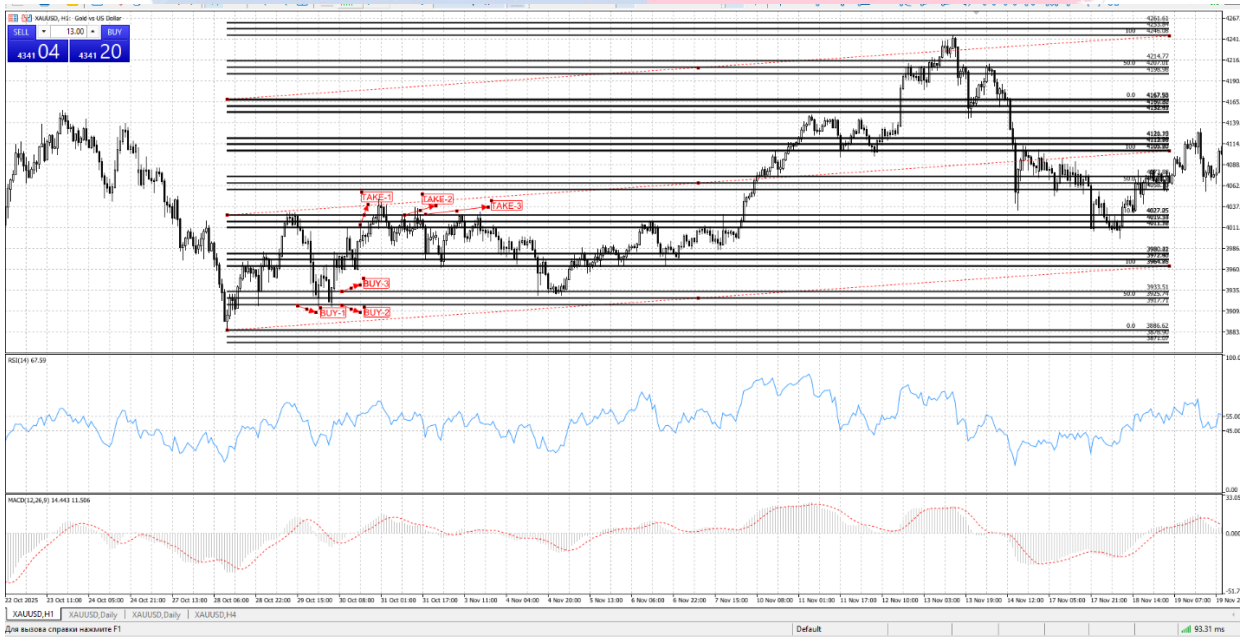


Figure 1.

[3] Jin, J.H., et al. Do Technical Trading Rules Outperform Buy-and-Hold? 2024.
[4] Taneva-Angelova, G., et al. Gold Price Prediction Framework. 2025.
[5] Romo, A., et al. Adaptive Optimization of Moving Average Strategies. 2025.
[6] Anguiano, J.Á.I., et al. Technical Analysis Meets Machine Learning: Bitcoin. 2025.

Trade Execution and Profit Calculation

All positions are executed with a fixed lot size of 0.01. Profit is calculated as the difference between exit and entry prices.

Trade	Entry Type	Price Level	Exit Type	Exit Level	Price Difference (points)	Lot Size	Profit (USD)
1	BUY-1	P_1	TAKE-1	T_1	$(T_1 - P_1) \times 100$	L	$(T_1 - P_1) \times 100 \times L$
2	BUY-2	P_2	TAKE-2	T_2	$(T_2 - P_2) \times 100$	L	$(T_2 - P_2) \times 100 \times L$
3	BUY-3	P_3	TAKE-3	T_3	$(T_3 - P_3) \times 100$	L	$(T_3 - P_3) \times 100 \times L$
Total							Σ Profit

Table 1.1

Trade	Entry Type	Entry Price	Exit Type	Exit Price	Price Difference	Lot Size	Profit (USD)
1	BUY-1	3917.71	TAKE-1	4011.22	93.51	0.01	93.51
2	BUY-2	3925.74	TAKE-2	4019.53	93.79	0.01	93.79
3	BUY-3	3933.51	TAKE-3	4027.25	93.74	0.01	93.74
Total							281.04 USD

Table 1.2

Empirical Result Description

Figure 1 and Table 1.2 showcase the empirical findings from a real XAU/USD H1 trading scenario utilizing a structure-first technical approach. The examination reveals a lower structural support area, where three long positions BUY-1, BUY-2, and BUY-3 are initiated at price points of 3917.71, 3925.74, and 3933.51, respectively. These entry levels align with established horizontal thresholds based on the Fibonacci Urvin framework, suggesting accumulation within a stable bullish configuration.

The exit targets TAKE-1, TAKE-2, and TAKE-3 are set at 4011.22, 4019.53, and 4027.25, corresponding to upper resistance zones identified before executing the trades. Each position is established with a fixed lot size of 0.01 to maintain uniformity in profit calculations.

The price variations observed range from 93.51 to 93.79 USD, yielding individual profits of 93.51 USD for BUY-1, 93.79 USD for BUY-2, and 93.74 USD for BUY-3; this results in a total cumulative profit of 281.04 USD. The close alignment of profit figures across all trades indicates both structural

consistency and controlled execution rather than dependence on an isolated significant price shift.

DISCUSSION

The results of this study indicate that structure-based technical analysis provides a more reliable methodological foundation than indicator-only approaches. The empirical XAU/USD case shows that trade decisions grounded in predefined structural zones are less sensitive to noise and discretionary bias than strategies relying solely on indicator signals.

The application of the Fibonacci Urvin framework demonstrates that adaptive horizontal price zones derived from dominant price movements can serve as effective decision areas for trade execution. This finding is consistent with research suggesting that adaptive and structurally informed methods outperform static technical rules in volatile markets.

Conclusion

This study examined technical analysis methods and trading strategies in cryptocurrency and gold markets, with an empirical focus on an XAU/USD H1 case. The findings show that technical indicators are most effective when used as confirmation tools within a structure-first framework, rather than as standalone predictors.

The empirical results based on real entry and exit prices indicate that the Fibonacci Urvin method, combined with clearly defined trade zones, offers a transparent and reproducible approach to technical trading analysis. Overall, the study supports viewing technical analysis as a decision-support system rather than a predictive model. Future research should focus on out-of-sample validation and cost-adjusted performance evaluation to further assess robustness.

REFERENCES

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