The 3HTMOSDSDT.*rp2*: Portfolio Diversification for 'Three-hour Timeframe Market Order Strategy with Defined Stoploss and Dynamic Takeprofit' Trading Model

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 https://github.com/algorembrant/QAT-QuantitativeAlgorithmicTrading

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Abstract

This study evaluates a diversified version of the 3HTMOSDSDT trading strategy across multiple tradable pairs. Initially, 28 currency and commodity pairs were individually tested to identify profitable instruments. Four pairs, such as NZDUSDc, USDJPYc, XAGUSDc, and XAUUSDc, demonstrated consistent profitability and were combined into a diversified portfolio. Backtesting used high-fidelity tick-level historical data with initial capital.

Figure 1: *Four pairs, Portfolio Diversification Equity performance*

The strategy produced a net return exceeding 1,272% of initial capital, with a profit factor of 1.12 and positive expected payoff per trade. Profitability relied on reward-to-risk asymmetry, with average gains approximately 2.2 times average losses, despite a low win rate of 33.73%. Risk-adjusted metrics were moderate (Sharpe ratio 1.29), and linear regression indicated a strong upward-trending equity curve (correlation 0.92).

However, the strategy exhibited significant risk, with a maximum equity drawdown of 52.48%, highlighting periods of concentrated losses. These findings indicate that while the strategy is statistically profitable, its current risk profile is aggressive. Improvements in position sizing, drawdown control, and risk management are essential to make the system robust, scalable, and suitable for live trading applications.

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1 Introduction

1.1 History of the Trading Model

This paper is the seventh produced by the company. Specifically, the 2nd paper for the said trading model.

1.1.1 Birth of 3HTMOSDSDT.*rp1*

The study evaluates the 3HTMOSDSDT as a fully algorithmic trading model. The strategy was backtested on 2000 H3-timeframe USDJPY candles using Python, covering one year of data, with all trade decisions executed automatically without human intervention. Across 247 trades, the algorithm recorded a total return of 137% while maintaining a win rate of 32.39%. This outcome reflects an asymmetric payoff structure, where the average gain per winning trade (3.59%) exceeds the average loss per losing trade (-0.90%). Risk-adjusted performance metrics were modest, with a Sharpe ratio of 0.15 and a Sortino ratio of 0.81, while the profit factor of 1.91 indicates nearly twice as much gross profit as gross loss. Algorithmic execution ensures strict adherence to the strategy without emotional bias. The study also emphasizes the importance of incorporating realistic market factors such as spread, slippage, commissions, and quotes aspect of the said currency pair for accurate live performance estimates [1].

1.2 Aim of the Study

This study evaluates a diversified version of the 3HTMOSDSDT trading strategy across multiple tradable pairs and find out which among these pairs are profitable. Then combine all profitable pairs and run in another final batch test.

The profitability evaluation metrics from the diversified portfolio are provided by MT5's backtesting platform, Strategy Tester.

2 Methodology

2.1 Dataset

The backtest is conducted using a fixed historical price chart composed of 2000 H3-timeframe OHLC data candles. Each H3 candle represents three consecutive hours of market activity, providing a consistent temporal structure for analysis.

Formally, the dataset is defined as

$$D = \{C_1, C_2, \ldots, C_{2000}\} \tag{1}$$

where each candle

$$C_i = (O_i, H_i, L_i, C_i, T_i) \tag{2}$$

contains the opening price, highest price, lowest price, closing price, and timestamp, respectively. The fixed dataset size ensures comparability and statistical stability across all evaluated trades.

2.2 Trading Setup

The trading setup is strictly session-based. Each setup spawns and begins exactly at 8:00 AM (UTC+8, Asia/Manila time zone) and ends at 11:00 AM, covering a single three-hour price range that aligns precisely with one H3 candle.

The session window is defined as

$$S = [08{:}00, 11{:}00]_{\text{UTC}+8} \tag{3}$$

The H3 candle formed during this session is the sole input used to determine trade direction, entry, and initial risk.

2.3 Trading Logic

Trade direction is determined by the directional bias of the session candle. If the candle closes above its open, it is classified as bullish. If the candle closes below its open, it is classified as bearish.

This rule is expressed as

$$\text{Direction} = \begin{cases} \text{Buy}, & C_s > O_s \\ \text{Sell}, & C_s < O_s \end{cases} \tag{4}$$

For a bullish setup, a buy order is executed at the close of the session candle, and the initial stop-loss is placed at the low of that candle. For a bearish setup, a sell order is executed at the close, and the initial stop-loss is placed at the high of the candle.

The entry and initial stop-loss are defined as

$$E = C_s \tag{5}$$

3

$$SL_0 = \begin{cases} L_s, & \text{bullish entry} \\ H_s, & \text{bearish entry} \end{cases} \tag{6}$$

No fixed take-profit level is defined at entry. Instead, the exit is governed entirely by the trailing stop-loss mechanism.

2.3.1 Trailing Mechanic

After trade entry, the stop-loss is dynamically adjusted based on the direction of subsequent processing candles.

For a bullish trade, the stop-loss is trailed only when a processing candle is bullish. In such cases, the stop-loss is moved to the low of that candle, provided it does not reduce the existing stop-loss level:

$$SL_t = \max(SL_{t-1}, L_t) \quad \text{when } C_t > O_t \tag{7}$$

For a bearish trade, the stop-loss is trailed only when a processing candle is bearish. The stop-loss is moved to the high of that candle, provided it does not increase the existing stop-loss level:

$$SL_t = \min(SL_{t-1}, H_t) \quad \text{when } C_t < O_t \tag{8}$$

This mechanism allows profits to expand while maintaining directional consistency with the original trade bias. It does not trail if the preceding candle is in the opposite direction of the entry setup. For example, if we entered bulllish then it will only trail on the bullish candle's lows. Vice versa.

2.3.2 Trade Limit

There's a maximum of two trades per day, either buy or sell. Places initial stoploss at the corresponding candle's extreme points and trails if the processing is similar candle. Cant open a trade if the stoploss distanse (the range itself) is less than the symbol's 'spread x 10'. Takeprofit will depend on the trailing mechanism. And all of these happen in the H3 timeframe with an equivalent to a year dataset (only trading days).

2.4 Prototyping

We will conduct a backtest for all 28 tradable Forex Currency Pairs available in Exness Broker's Standard cent account through MT5 platform.

2.4.1 Basic one backtest, one strategy, one pair, and stress parameter

With ech acounting Dataset, Trading setup, and Trading Logic. With an initial balance of 1000. Risk per trade is 1%, covering the full stoploss distance for individual trades. The catch is that it will not open a trade if the stoploss distance is less than the corresponding symbol's 'spread x 10' value.

Figure 2: *Stress Parameter, Latency P1*

Figure 3: *Stress Parameter, Latency P2*

The MT5 bactesting platform's stress parameter was set to 'random delay,' meaning from 0 ms to 1000 ms latency that causes random price slippage, which fills our orders at an unfair price or at a level we don't want it to be. Adjusting the leverage won't make any difference since we are risking 1% per trade and max trades of 2 per day, we don't need account protection, and it was set to a maximum of 1:500 as usual. There is no commission in a standard cent account.

2.5 Quotes for all Tradable Tickers in Exness Broker

Exness Broker's Standard cent account cannot trade all available trading pairs across different types of markets it offers, but 28 of the Forex currency pairs are tradable. The discussed trading strategy will be deployed individually on these pairs. Find all profitable pairs' performance. Then, we could proceed to the diversification approach, which consists of all profitable pairs and runs in one account across the dataset.

	symbol	needed_tick_points	needed_pips_points	needed_symbol_price_points	bid	ask	spread_tick_points	spread_pips_points	spread_price_points	price_difference	digits	volume_min	volume_max	volume_step	swap_long	swap_short
0	BTCUSDc	10000	1000.00000	100.00	87128.41	87146.41	1800	180.00000	18.00	0.18000	2	0.01000	1000.00000	0.01000	-1551.10000	0.00000
1	AUDCADc	138	13.80000	0.00138	0.91007	0.91029	22	2.20000	0.00022	0.15942	5	0.01000	200.00000	0.01000	-1.40000	-7.40000
2	AUDCHFc	80	8.00000	0.00080	0.52600	0.52609	9	0.90000	0.00009	0.11250	5	0.01000	200.00000	0.01000	0.00000	-8.20000
3	AUDJPYc	156	15.60000	0.156	102.991	103.010	19	1.90000	0.019	0.12179	3	0.01000	200.00000	0.01000	-0.20000	-1.90000
4	AUDNZDc	173	17.30000	0.00173	1.14628	1.14648	20	2.00000	0.00020	0.11561	5	0.01000	200.00000	0.01000	-1.40000	-8.50000
5	AUDUSDc	100	10.00000	0.00100	0.66055	0.66064	9	0.90000	0.00009	0.09000	5	0.01000	200.00000	0.01000	-1.50000	-0.10000
6	CADJPYc	156	15.60000	0.156	113.141	113.179	38	3.80000	0.038	0.24359	3	0.01000	200.00000	0.01000	0.00000	-7.90000
7	CHFJPYc	156	15.60000	0.156	195.788	195.812	24	2.40000	0.024	0.15385	3	0.01000	200.00000	0.01000	-6.00000	0.00000
8	EURAUDc	151	15.10000	0.00151	1.77401	1.77435	34	3.40000	0.00034	0.22517	5	0.01000	200.00000	0.01000	-13.80000	0.00000
9	EURCADc	138	13.80000	0.00138	1.61473	1.61502	29	2.90000	0.00029	0.21014	5	0.01000	200.00000	0.01000	-2.20000	-1.90000
10	EURCHFc	80	8.00000	0.00080	0.93319	0.93344	25	2.50000	0.00025	0.31250	5	0.01000	200.00000	0.01000	0.00000	-9.60000
11	EURGBPc	75	7.50000	0.00075	0.87809	0.87823	14	1.40000	0.00014	0.18667	5	0.01000	200.00000	0.01000	-8.50000	0.00000
12	EURJPYc	156	15.60000	0.156	182.730	182.754	24	2.40000	0.024	0.15385	3	0.01000	200.00000	0.01000	0.00000	-12.90000
13	EURNZDc	174	17.40000	0.00174	2.03362	2.03416	54	5.40000	0.00054	0.31034	5	0.01000	200.00000	0.01000	-8.80000	-2.90000
14	EURUSDc	100	10.00000	0.00100	1.17199	1.17207	8	0.80000	0.00008	0.08000	5	0.01000	200.00000	0.01000	-6.90000	0.00000
15	GBPAUDc	151	15.10000	0.00151	2.02023	2.02048	25	2.50000	0.00025	0.16556	5	0.01000	200.00000	0.01000	-0.50000	-5.10000
16	GBPCADc	138	13.80000	0.00138	1.83868	1.83916	48	4.80000	0.00048	0.34783	5	0.01000	200.00000	0.01000	0.00000	-11.60000
17	GBPCHFc	80	8.00000	0.00080	1.06266	1.06290	24	2.40000	0.00024	0.30000	5	0.01000	200.00000	0.01000	0.00000	-22.80000
18	GBPJPYc	156	15.60000	0.156	208.085	208.107	22	2.20000	0.022	0.14103	3	0.01000	200.00000	0.01000	0.00000	-27.50000
19	GBPNZDc	174	17.40000	0.00174	2.31576	2.31634	58	5.80000	0.00058	0.33333	5	0.01000	200.00000	0.01000	-1.30000	-19.70000
20	GBPUSDc	100	10.00000	0.00100	1.33461	1.33471	10	1.00000	0.00010	0.10000	5	0.01000	200.00000	0.01000	-1.00000	-1.60000
21	NZDJPYc	156	15.60000	0.156	89.827	89.870	43	4.30000	0.043	0.27564	3	0.01000	200.00000	0.01000	0.00000	-9.70000
22	NZDUSDc	100	10.00000	0.00100	0.57616	0.57634	18	1.80000	0.00018	0.18000	5	0.01000	200.00000	0.01000	-4.90000	0.00000
23	USDCADc	138	13.80000	0.00138	1.37797	1.37812	15	1.50000	0.00015	0.10870	5	0.01000	200.00000	0.01000	0.00000	-8.00000
24	USDCHFc	80	8.00000	0.00080	0.79625	0.79638	13	1.30000	0.00013	0.16250	5	0.01000	200.00000	0.01000	0.00000	-11.00000
25	USDHKDc	778	77.80000	0.00778	7.78015	7.78405	390	39.00000	0.00390	0.58129	5	0.01000	200.00000	0.01000	0.00000	-35.00000
26	USDJPYc	156	15.60000	0.156	155.913	155.923	10	1.00000	0.010	0.06410	3	0.01000	200.00000	0.01000	0.00000	-15.00000
27	XAGUSDc	20	2.00000	0.020	66.118	66.138	20	2.00000	0.020	1.00000	3	0.01000	200.00000	0.01000	-10.00000	0.00000
28	XAUUSDc	1000	100.00000	1.000	4323.456	4323.616	160	16.00000	0.160	0.16000	3	0.01000	200.00000	0.01000	-580.00000	0.00000

Figure 4: *List of all tradable tickers in Exness broker*

Half of the values shown above come directly from MetaTrader 5 (MT5). Since MT5 is already connected to the Exness account, these values were fetched automatically using Python.

2.5.1 Minimum Price Required

The remaining values were calculated manually by determining the minimum price movement needed to gain or lose one unit of account money when using a 0.01 lot size. In simple terms, this represents how far the price must move to result in a profit or loss of ± 1 account money unit with a 0.01 volume or lot size. We haven't figured out how to automatically fetch these values despite using the raw tick info in MT5, but we manually calculated these values by directly using Exness platform's calculator feature to plot the needed values.

Figure 5: *Exness Risk Calculator*

A key derived and crucial metric that we need the most is the *price difference*. We will use this to find the optimum stoploss distance criteria before placing any entry. This value is defined as

$$price\ difference = \frac{spread\ distance}{minimum\ price\ distance}.$$

The spread distance varies for different pairs. The same goes for the minimum price distance (stoploss distance) that accpunts the displacement of +1 or -1 using 0.01 volume or lot size. Calculating the 'price difference' will tell us the size of its spread relative to the minimum stop loss requirement to profit or loss 1 unit of the account using 0.01 volume. All values are shown on Figure: List of all tradable tickers in Exness broker.

2.6 How relevant is the Price difference

Figure 6: *Theoretical minimum distance required, buyside*

The Price difference will tell us the size of the spread relative to the minimum distance to get stoped out. As what shown above. In all case, each of 28 tradable assts have different spread, minimum distance, and price difference. This metric is crucial for both prototyping (one backtest, one strategy, one pair) across all tradable pairs and a diversification approach (one backtest, one strategy, a combination of multiple pairs).

2.6.1 Bid x Ask, and Spread Analysis

Action	Order Type	Liquidity Role	Execution Speed	Spread Cost	Typical Intent
Buy Bid	Limit Buy	Maker (adds liquidity)	Slow / conditional	None (price improvement)	Accumulation, cost control
Buy Ask	Market Buy or aggressive Limit Buy	Taker (removes liquidity)	Immediate	Pays full spread	Urgent entry
Sell Ask	Limit Sell	Maker (adds liquidity)	Slow / conditional	None (price improvement)	Distribution, cost control
Sell Bid	Market Sell or aggressive Limit Sell	Taker (removes liquidity)	Immediate	Pays full spread	Urgent exit
Buy Market	Market Buy	Taker (removes liquidity)	Immediate	Pays spread + slippage	Momentum, breakout
Sell Market	Market Sell	Taker (removes liquidity)	Immediate	Pays spread + slippage	Stops, panic exit

Figure 7: *Bid x Ask, and Spread Table Analysis*

1. Bid, Ask, and Spread

The bid is the highest price buyers are willing to pay, and the ask is the lowest price sellers are willing to accept.The spread is the transaction cost paid when crossing from bid to ask or ask to bid. The spread represents immediate execution cost and liquidity demand.

2. Buy the Bid and Buy the Ask.

Buying the bid is a limit order that adds liquidity and does not pay the spread unless price trades lower. Buying the ask removes liquidity and pays the full spread immediately.

Buying the bid seeks price improvement and lower transaction cost, while buying the ask prioritizes certainty of execution at a higher cost.

3. Sell the Ask and Sell the Bid

Selling the ask is a limit order that adds liquidity and does not pay the spread unless price trades higher. Selling the bid removes liquidity and pays the full spread immediately. Selling the ask targets better pricing with lower cost, while selling the bid guarantees execution at the expense of spread cost.

4. Buy-Market and Sell-Market

A buy-market order crosses the spread and pays the spread plus any additional slippage. A sell-market order crosses the spread and pays the spread plus any additional slippage. Market orders maximize execution speed but incur the highest transaction cost due to spread and potential depth exhaustion.

2.6.2   Optimum Minimum Price Required
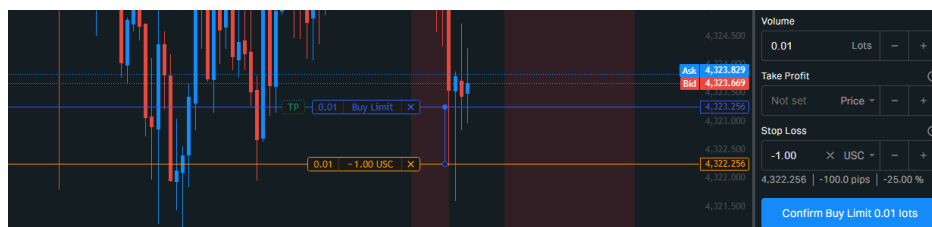
Figure 8: *The minimum distance required for XAUUSDc*

For example, the symbol XAUUSDc have a price difference value of 0.16000. That means that its spread (also 0.16000) covers 16% of the area of the minimum distance (relative to full risked cash). For instance, in a standard cent account, 0.01 lotsize equates to 1 USC (if its on a dollar account, it's $1), and we get exactly that amount of distance (1.00000) before we blow our position.
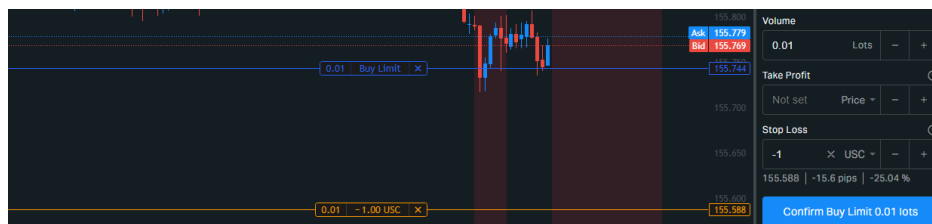
Figure 9: *The minimum distance required for USDJPYc, the spread is 6.4% (0.06410) as big as the minimum distance required*
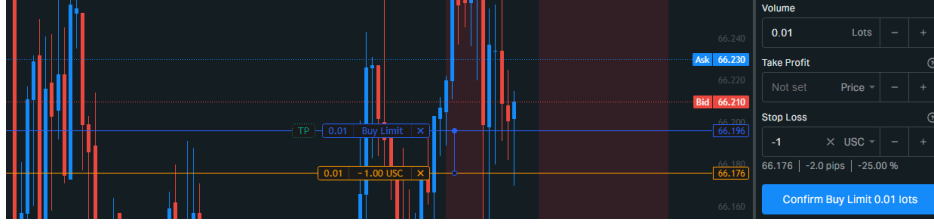
Figure 10: *The minimum distance required for XAGUSDc, the spread is 100% (1.00000) as big as the minimum distance required*

Upon reviewing Figure: List of all tradable tickers in the Exness broker, we decided to design a minimum stoploss distance required criterion before placing the trade. As for recall, each entry has a corresponding stoploss placement at extremes of the range, the low for buys and the high for sells. As stated in section 'Basic one backtest, one strategy, one pair, and stress parameter', if the range of the bar that triggered the trade signal is less than the 'spread x 10' value, then it won't open any trade.

2.6.3 Recall, Aim of the study

This study aims to develop a diversification version of 3HTMOSDSDT. Firstly, We test the trading strategy across all 28 tradable pairs and find out which among these pairs are profitable. Then combine all profitable pairs and run in another final batch test.

The profitability evaluation metrics from the diversified portfolio are provided by MT5's backtesting platform, Strategy Tester.

3 Results Discussion

3.0.1 0ne strategy, one backtest, one pair

Results

History Quality:	99%					
Bars:	2006	Ticks:	72364566	Symbols:	1	
Total Net Profit:	323.08	Balance Drawdown Absolute:	212.35	Equity Drawdown Absolute:	214.14	
Gross Profit:	1 906.48	Balance Drawdown Maximal:	237.18 (23.14%)	Equity Drawdown Maximal:	267.90 (25.42%)	
Gross Loss:	-1 583.40	Balance Drawdown Relative:	23.14% (237.18)	Equity Drawdown Relative:	25.42% (267.90)	
Profit Factor:	1.20	Expected Payoff:	0.91	Margin Level:	229.90%	
Recovery Factor:	1.21	Sharpe Ratio:	1.10	Z-Score:	2.12 (96.60%)	
AHPR:	1.0010 (0.10%)	LR Correlation:	0.81	OnTester result:	0	
GHPR:	1.0008 (0.08%)	LR Standard Error:	119.10			
Total Trades:	356	Short Trades (won %):	172 (24.42%)	Long Trades (won %):	184 (41.30%)	
Total Deals:	712	Profit Trades (% of total):	118 (33.15%)	Loss Trades (% of total):	238 (66.85%)	
		Largest profit trade:	331.57	Largest loss trade:	-14.38	
		Average profit trade:	16.16	Average loss trade:	-6.65	
		Maximum consecutive wins ($):	4 (52.48)	Maximum consecutive losses ($):	9 (-60.60)	
		Maximal consecutive profit (count):	331.57 (1)	Maximal consecutive loss (count):	-60.60 (9)	
		Average consecutive wins:	1	Average consecutive losses:	3	
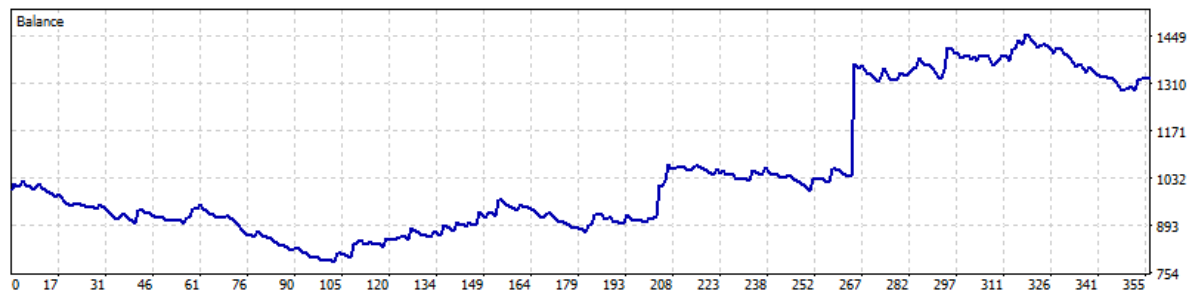
Figure 11: *XAUUSDc's*
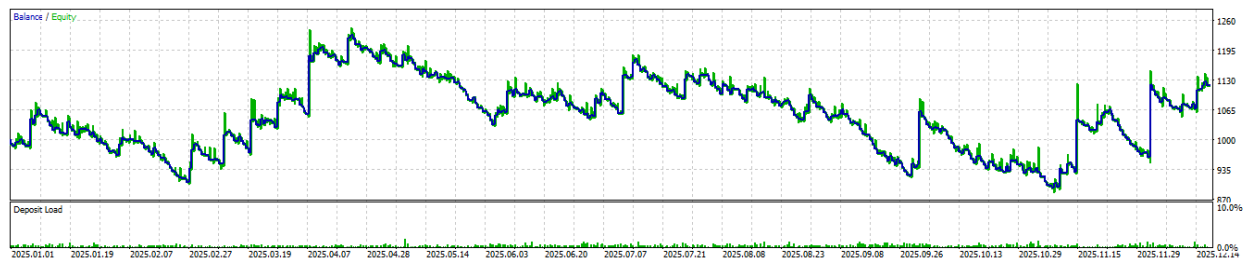
Figure 12: *BTCUSDc's*
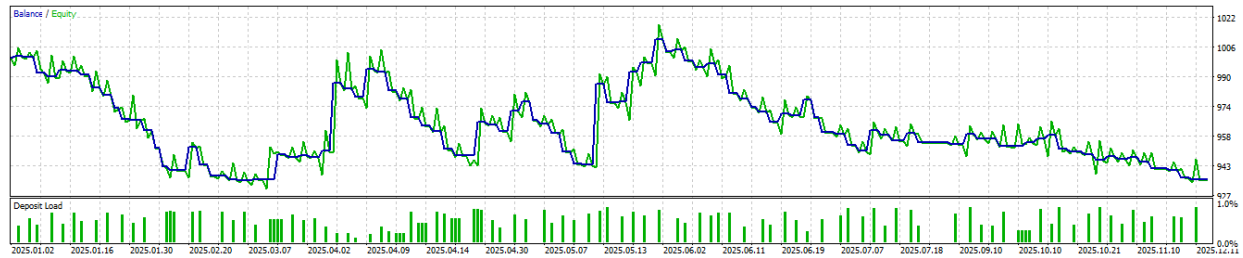
Figure 13: *AUDCADc's*
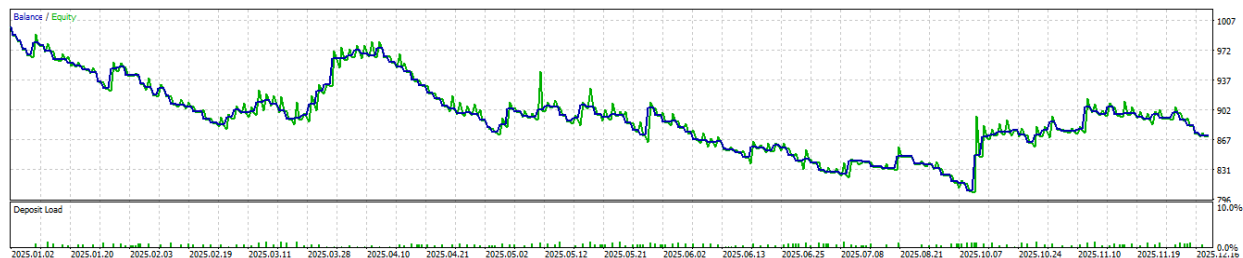
Figure 14: *AUDCHFc's*
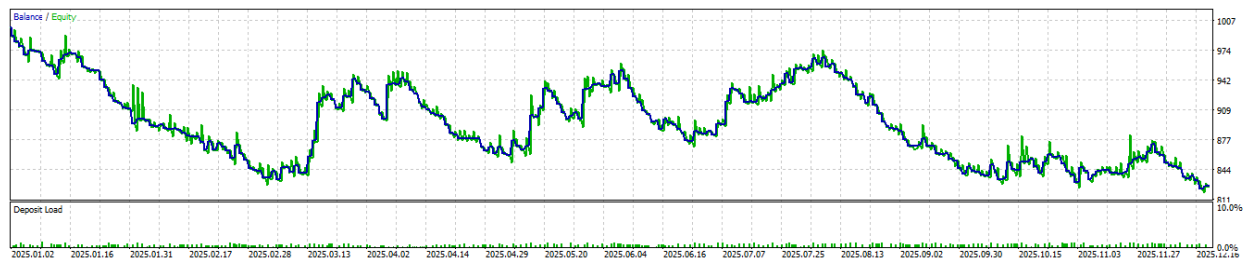
Figure 15: *AUDJPYc's*
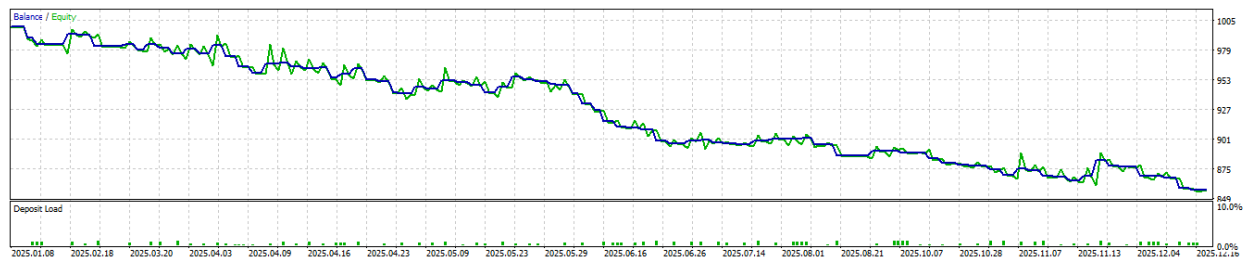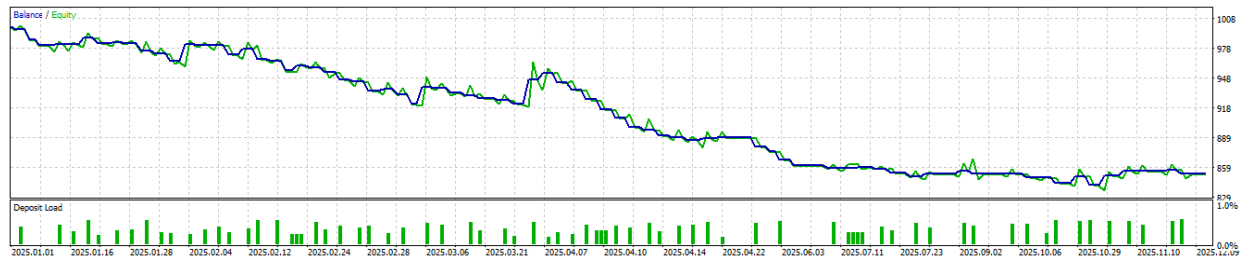

Figure 16: *AUDNZDc's*

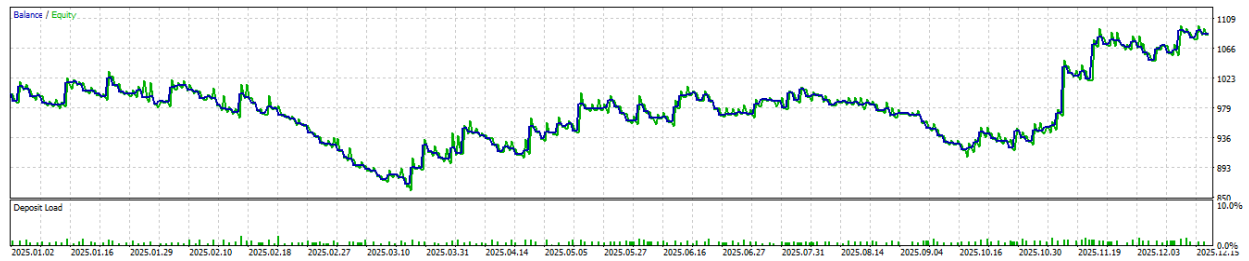Figure 17: *AUDUSDc's*

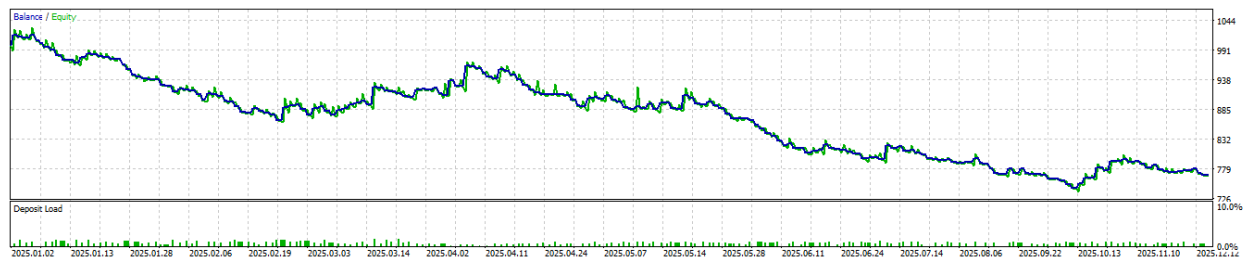Figure 18: *CADJPYc's*

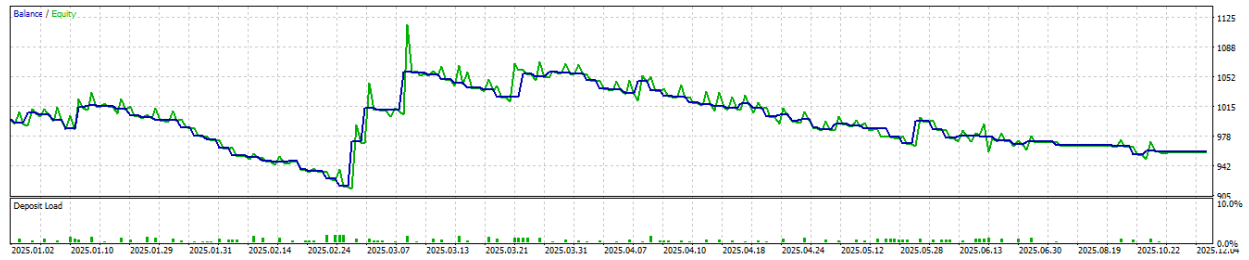Figure 19: *CHFJPYc's*

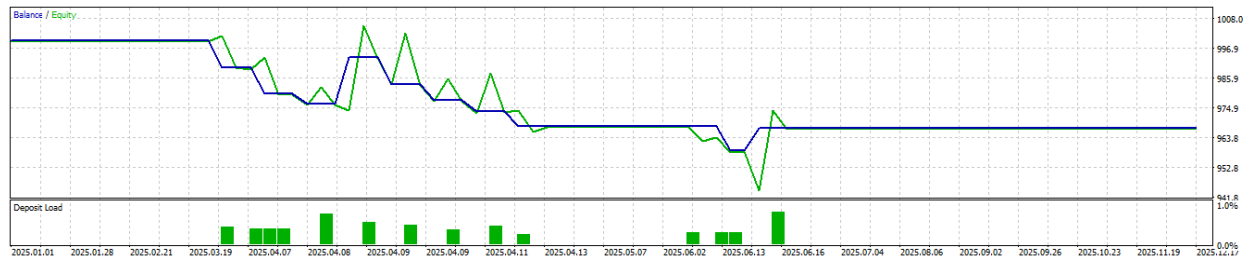Figure 20: *EURAUDc's*

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Figure 21: *EURCADc's*
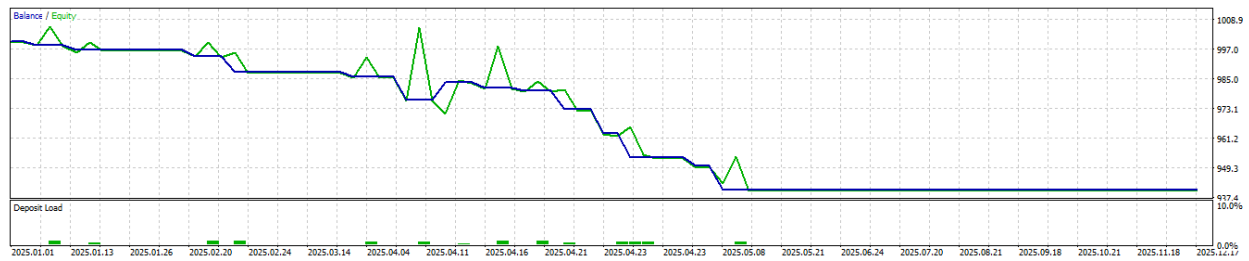

Figure 22: *AUDCADc's*
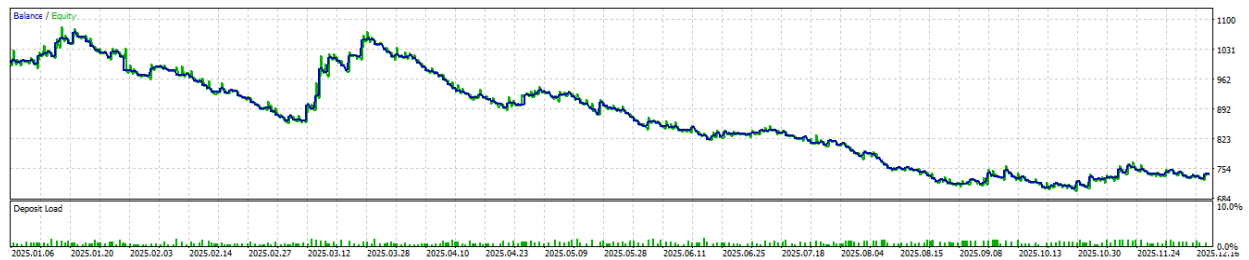
EURCHFc

Figure 23: *EURGBPc's*
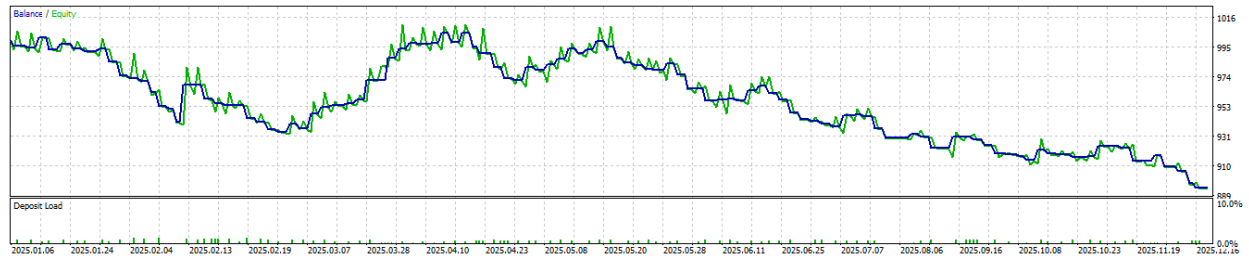

Figure 24: *EURJPYc's*
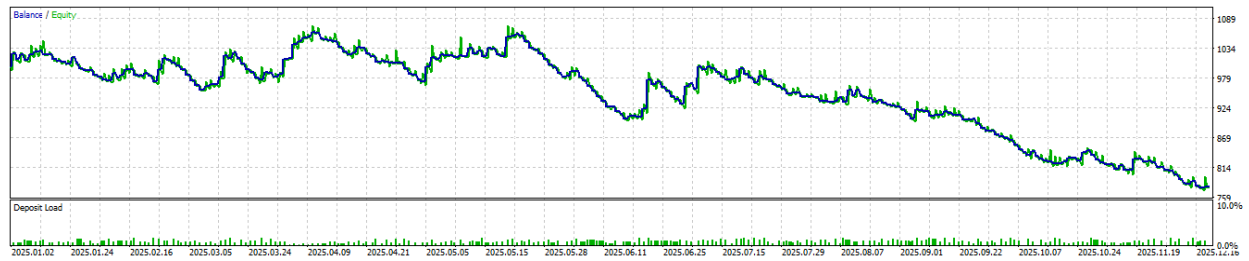
Figure 25: *EURNZDc's*

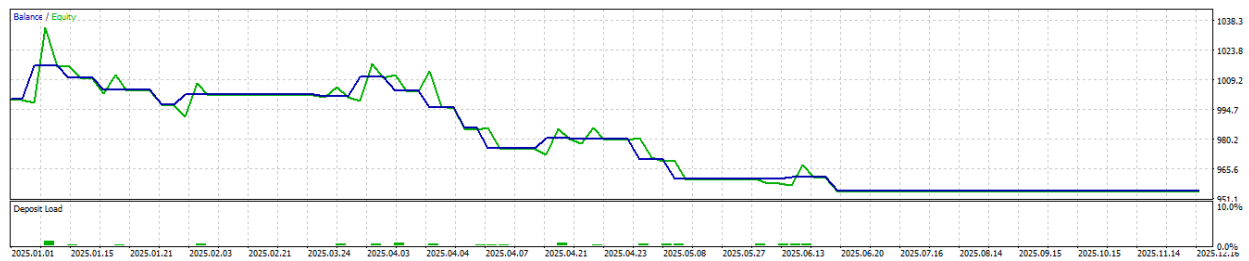
Figure 26: *EURUSDc's*

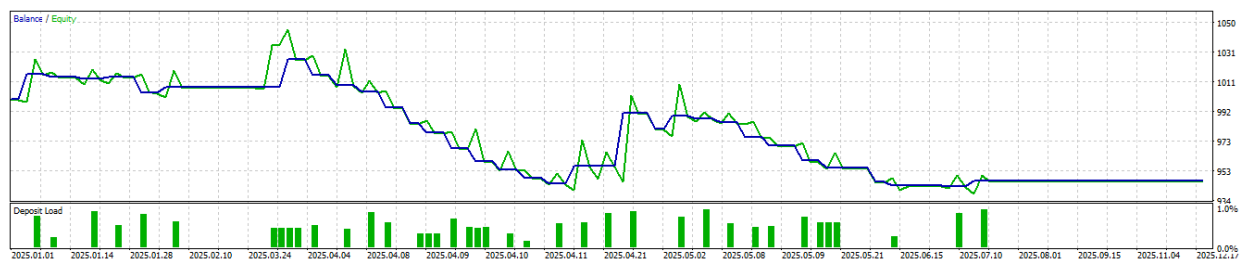Figure 27: *GBPAUDc's*

Figure 28: *GBPCADc's*

14
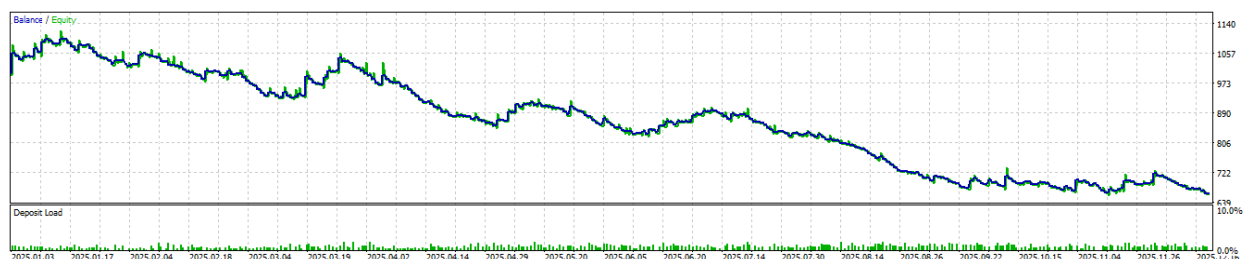
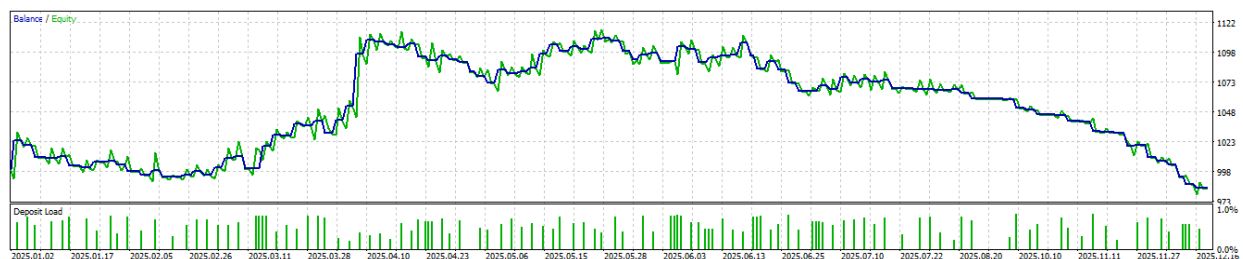Figure 29: *GBPCHFc's*

Figure 30: *GBPJPYc's*

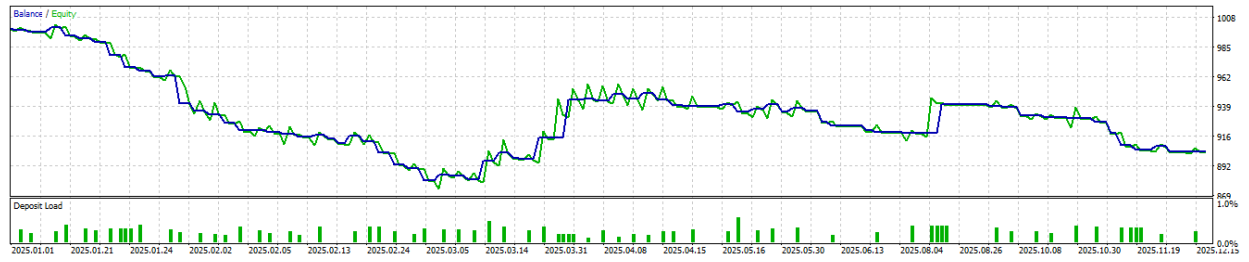Figure 31: *GBPNZDc's*

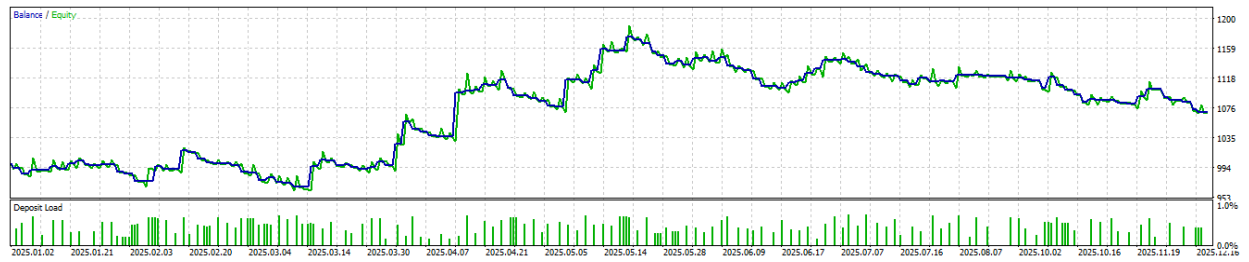Figure 32: *GBPUSDc's*

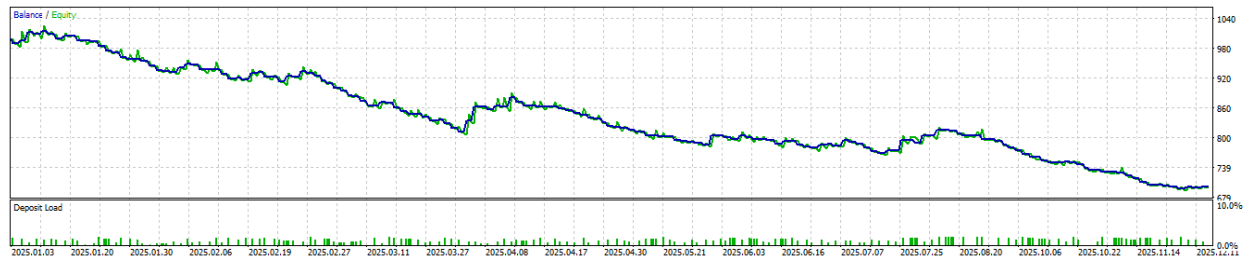Figure 33: *NZDJPYc's*

Figure 34: *NZDUSDc's*
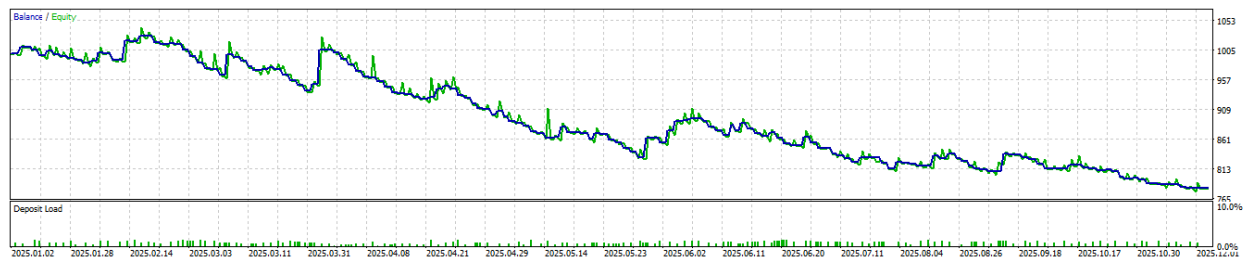

Figure 35: *USDCADc's*

Figure 36: *USDCHFc's*

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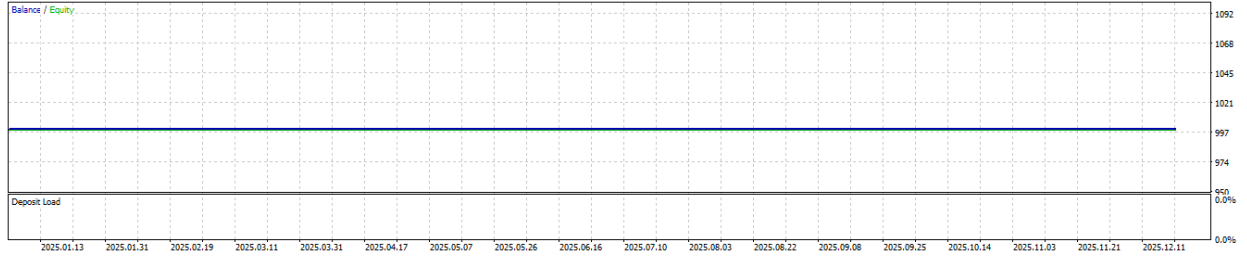
Figure 37: *USDHKDc's*

Figure 38: *USDJPYc's*

Figure 39: *XAGUSDc's*

3.0.2 Summary of: one strategy, one backtest, one pair

Among 28 tradable pairs, there are only 6 that ended up being profitable, which are the BTCUSDc, CHFJPYc, NZDUSDc, USDJPYc, XAGUSDc, and XAUUSDc. Among these profitable portfolios, BTCUSDc and CHFJPYc have a large drawdowns, and is not ideal to include. Hence, only the NZDUSDc, USDJPYc, XAGUSDc, and XAUUSDc will be included for the diversification phase.

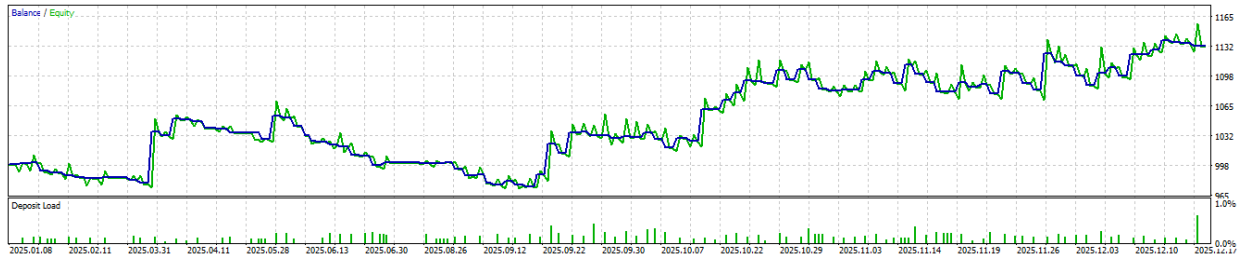## 3.1 One strategy, one backtest, combined multiple pairs

Figure 40: *Four pairs, Diversified*

Figure 41: *Trade Performance Metrics*

3.1.1 Discussion of : One strategy, one backtest, combined multiple pairs

Regardless of the currency ($), these are the statements.

The backtest was conducted with a history quality of 100%, ensuring that all calculations are based on complete and reliable historical data without interpolation or missing bars. The test evaluated 1,964 bars using 71,813,526 ticks across four traded symbols, indicating a high-fidelity simulation with precise execution modeling. The initial deposit for the strategy was set at $1,000, which magnifies both return and drawdown percentages and must be considered when interpreting risk metrics.

From a profitability standpoint, the strategy generated a total net profit of $12,724.62, representing a return of more than twelve times the initial capital. Gross profit amounted to $116,164.66, while gross loss reached $103,440.04. This combination reflects a high-turnover trading approach that produces substantial gains but also incurs significant losses. The resulting profit factor of 1.12 confirms marginal profitability, suggesting that the strategy's edge is relatively thin and vulnerable to execution costs and adverse market conditions. The expected payoff of $13.71 per trade is positive but modest relative to the overall exposure and drawdown profile.

Risk analysis reveals that capital volatility is the dominant weakness of the system. The absolute balance drawdown was $811.01, while the maximal balance drawdown reached $10,290.84, corresponding to 48.66% of account balance. The relative balance drawdown of

81.55% highlights that a large portion of capital was exposed during peak stress periods. Equity-based risk metrics further emphasize this issue, with a maximal equity drawdown of $12,599.33 or 52.48%, and a relative equity drawdown of 83.91%. The fact that equity drawdowns exceed balance drawdowns indicates prolonged floating losses, likely caused by wide stops, delayed exits, or adverse trend exposure. The recovery factor of 1.01 confirms that net profitability barely compensates for the maximum drawdown, signaling weak resilience.

Risk-adjusted performance metrics show mixed results. The Sharpe ratio of 1.29 indicates moderate risk-adjusted returns, but it is insufficient to justify the extreme drawdowns observed. The average holding period return (AHPR) of 1.0055, equivalent to 0.55% per trade, and the geometric holding period return (GHPR) of 1.0028, or 0.28% per trade, both confirm that profitability is achieved through trade frequency rather than a strong per-trade edge. A linear regression correlation of 0.92 suggests that the equity curve trends upward over time, but the linear regression standard error of 2,566.19 reflects substantial volatility around this trend.

Statistical stability analysis indicates non-random trade sequencing. The Z-score of -2.38, with a confidence level of 98.27%, implies significant clustering of wins and losses rather than random alternation. This behavior increases psychological stress and capital risk during extended losing periods. No custom optimization objective was applied, as reflected by an OnTester result of zero, meaning the results represent the raw behavior of the strategy.

In terms of execution and trade distribution, the strategy executed 928 trades resulting in 1,856 total deals. Long positions slightly outperformed short positions, with 477 long trades achieving a win rate of 38.57% compared to 451 short trades with a win rate of 28.60%. Overall, only 33.73% of trades were profitable, while 66.27% resulted in losses, confirming a low win-rate structure. Despite this, profitability is maintained through favorable payoff asymmetry.

Trade sizing statistics support this conclusion. The largest winning trade reached $3,890.51, while the largest losing trade was limited to $1,057.39. The average profit per winning trade was $371.13, compared to an average loss of $168.20, resulting in an average reward-to-risk ratio of approximately 2.2:1. However, streak analysis reveals structural risk, as the maximum consecutive loss sequence consisted of 17 trades totaling $7,486.15, compared to a maximum of 6 consecutive winning trades totaling $6,974.79. On average, losing streaks were longer than winning streaks, with three consecutive losses compared to two consecutive wins.

The margin level of 435.46% indicates moderate leverage usage on paper, but when viewed alongside the extreme drawdowns, it suggests that effective risk per trade remains excessive for the account size.

In summary, the strategy demonstrates genuine profitability and a statistically upward-trending equity curve, supported by favorable average win-to-loss ratios and high-quality historical data. However, the risk profile is excessively aggressive, characterized by severe drawdowns, weak recovery efficiency, and prolonged losing streaks. While the underlying edge appears real, the system is not suitable for live deployment in its current form. Substantial risk restructuring, including reduced position sizing, drawdown constraints, and improved exit logic, would be required to transform this strategy into a capital-preserving and professionally viable trading system.

4 Conclusion

This study evaluated the performance of a multi-symbol trading strategy using high-quality historical data and tick-level execution. The results confirm that the strategy is statistically profitable, generating a total net profit of $12,724.62 from an initial capital of $1,000, with a consistently upward-trending equity curve as indicated by a linear regression correlation of 0.92. Profitability is primarily driven by payoff asymmetry rather than win frequency, as evidenced by an average profit per winning trade of $371.13 compared to an average loss of $168.20, yielding an approximate reward-to-risk ratio of 2.2:1 despite a low win rate of 33.73%.

Several key metrics support the presence of a genuine trading edge. The profit factor of 1.12 and positive expected payoff of $13.71 per trade demonstrate that the strategy produces excess returns over losses on average. Risk-adjusted performance, measured by a Sharpe ratio of 1.29, further indicates that returns are not purely random, although they remain moderate relative to the volatility incurred. The positive average holding period return (AHPR) of 0.55% and geometric holding period return (GHPR) of 0.28% confirm that capital growth is incremental and achieved through sustained trade execution rather than isolated outlier trades.

However, the analysis also reveals critical structural weaknesses that materially limit practical deployability. Maximum relative drawdowns exceeding 80% on both balance and equity highlight extreme capital exposure and insufficient downside control. This risk is reinforced by a recovery factor of 1.01, indicating that cumulative profits only marginally exceed peak drawdown. Statistical dependence in trade outcomes, reflected by a Z-score of -2.38 at a 98.27% confidence level, further implies clustering of losses and elevated risk during unfavorable market regimes.

In summary, the strategy demonstrates measurable profitability and a verifiable statistical edge, supported by positive expectancy, favorable reward-to-risk characteristics, and long-term equity growth. Nevertheless, the magnitude of drawdowns and instability of returns significantly outweigh the observed gains. From a research and applied trading perspective, the findings suggest that while the underlying logic of the strategy is sound, meaningful improvements in risk management, position sizing, and drawdown control are essential before the strategy can be considered robust, scalable, and suitable for live trading environments.

5 Recommendations

Based on the findings of this study, optimal position sizing is crucial to manage risk effectively, especially when trading multiple instruments in a diversified portfolio. Excessive exposure on any single trade or pair can result in drawdowns that outweigh potential profits, as observed in this strategy. To maintain a controlled risk profile, it is recommended to allocate capital proportionally across all selected trading pairs using a mathematical formula that accounts for individual trade risk and portfolio diversification.

Let C represent total capital, n the number of trades or pairs, R_i the risk per trade (expressed as a fraction of capital), and V_i the volatility or historical standard deviation of each pair. The optimal bet size B_i for each pair i can be calculated as:

$$B_i = \frac{C \cdot R_i}{\sum_{j=1}^{n} V_j} \cdot V_i$$

This formula ensures that each trade contributes proportionally to the overall portfolio risk, taking into account both the size of the account and relative volatility of each instrument.

Or other methodologies regarding to risk management. This study's only risk rule was 1% risk per trade accounting the whole stoploss area. Hence we have a total maximum of 2 trades per day, and we have 4 pairs to trade in our portfolio, that's basically a potential account exposure of 8% (approx) per day. That is why we reached max equity drawdown of 50%+ and Relative equity drawdown of 80%+.

References

[1] Albeos, Rembrant. (2025, December 25). *The 3HTMOSDSDT.rp1 : Three-hour Time-frame Market Order Strategy with Defined Stoploss and Dynamic Takeprofit.* GitHub. https://github.com/algorembrant/QAT-QuantitativeAlgorithmicTrading/tree/main/Research%20Papers/The%203HTMOSDSDT.rp1%3A%20Three-hour%20Timeframe%20Market%20Order%20Strategy%20with%20Defined%20Stoploss%20and%20Dynamic%20Takeprofit