The 1CPMOTS.*rp1*: Is Treating Trading Worse Than a Coin Flip, but with a Slight Edge, Profitable?

Albeos Rembrant[1,2,*]

[1]Founder & Chief Executive Officer
[2]*Wildmind Quasars, Mangangalakal ng Kumikinang na Ginto*
 https://github.com/algorembrant/QAT-QuantitativeAlgorithmicTrading

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Abstract

Trading can be seen as a coin flip, with only two outcomes: buy or sell. Unlike a fair coin, where outcomes are fully realized, trading often gives partial results relative to the risk taken. This study treats trading like a biased coin flip, using the One Candle Pattern Market-order Trading Strategy (1CPMOTS). The single candle provides a directional bias, giving an advantage over pure chance. Trades enter at the candle close, stop-loss is at the candle's extreme, and take-profit is set at the next candle close. Each trade risks 1% of balance if the stop-loss exceeds ten times the spread. No daily trade limits or trading costs are considered. Tested over 252 days,
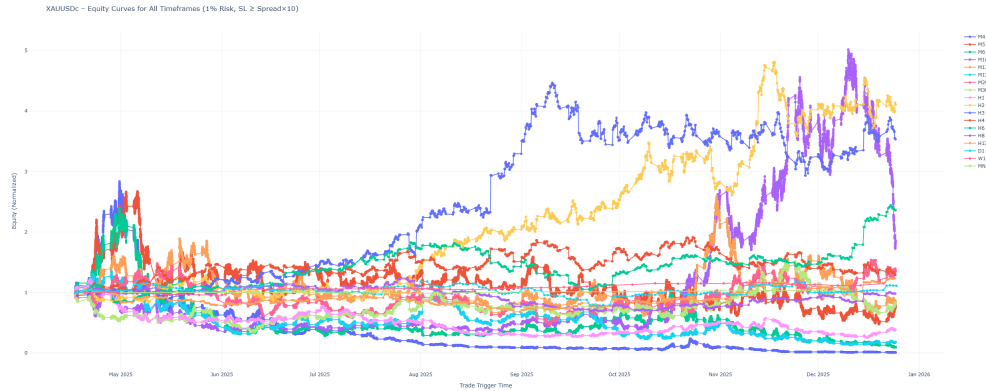
Figure 1: *All equity curves across 18 timeframes*

Results show performance strongly depends on timeframe. Short and some intermediate timeframes cause heavy losses, while H2, H3, and H6 consistently generate profits. H2 gives the highest net return +310.85%, Sharpe 0.80, Sortino 1.15, max drawdown 34.11%, with 2,101 trades. H3 returns +253.55%, Sharpe 0.93, Sortino 1.35, drawdown 34.35%, 1,420 trades. H6 shows +136.10% net return, highest R-multiple 0.133, Sharpe 1.11, Sortino 1.52, drawdown 43.29

Other profitable but lower-return timeframes include H12 (23.37%) and D1 (11.13%) with better drawdown control. Weekly (W1) and monthly (MN1) returns are positive but statistically weak due to very few trades. There are 10 profitable timeframes overall.

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1 Introduction

1.1 History of the Trading Model

This paper is the eighth produced by the company. Specifically, the 1st paper for the said trading model.
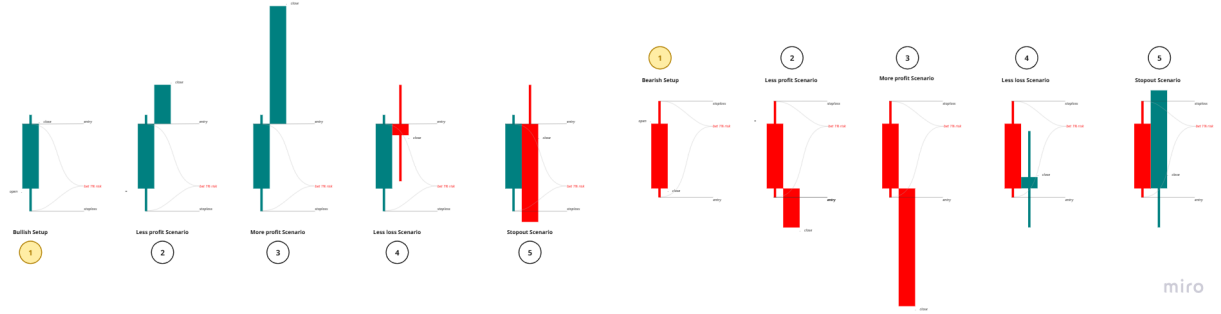

Figure 2: *The all theoretical possible outcomes*

Treating trading like a coin flip, where there are only two sides, head and tail, or buy and sell, is a bit tricky to compare relative to the outcome. If we flip a coin, we get a full head or a full tail. To put it simply, its 100% guarantee that we get the outcome we wanted.

This study will treat trading like a coin flip with only two sides. It will be designed with a disadvantage, unlike flipping a coin, not getting the full rewards from what was risked, but an advantage of having a bias by using only 1 candle.

1.2 Aim of the study

This study aims to find out if the One Candle Pattern Market-order Trading Strategy (1CP-MOTS) is profitable and which among all timeframes are most successful.

2 Methodology

2.1 The Dataset

Figure 3: *Sample candlestick chart, standard template*

Python is used to fetch data from the MT5 platform, which is already connected to a broker. What is shown above is the standard chart template that we use for all projects, ensuring all OCHL & trading time is exactly what is in the live market of XAUUSDc. Although this is a backtest, the environment is designed to be realistic.

```
TIMEFRAMES = {
    "M1": mt5.TIMEFRAME_M1,
    "M2": mt5.TIMEFRAME_M2,
    "M3": mt5.TIMEFRAME_M3,
    "M4": mt5.TIMEFRAME_M4,
    "M5": mt5.TIMEFRAME_M5,
    "M6": mt5.TIMEFRAME_M6,
    "M10": mt5.TIMEFRAME_M10,
    "M12": mt5.TIMEFRAME_M12,
    "M15": mt5.TIMEFRAME_M15,
    "M20": mt5.TIMEFRAME_M20,
    "M30": mt5.TIMEFRAME_M30,
    "H1": mt5.TIMEFRAME_H1,
    "H2": mt5.TIMEFRAME_H2,
    "H3": mt5.TIMEFRAME_H3,
    "H4": mt5.TIMEFRAME_H4,
    "H6": mt5.TIMEFRAME_H6,
    "H8": mt5.TIMEFRAME_H8,
    "H12": mt5.TIMEFRAME_H12,
    "D1": mt5.TIMEFRAME_D1,
    "W1": mt5.TIMEFRAME_W1,
    "MN1": mt5.TIMEFRAME_MN1,
}
```

Figure 4: All available time frames in MT5 through python

Two hundred fifty-two (252) days were fetched for all available individual timeframes. Hence, the number of candles within a day varies due to the time frame variations. The trading strategy will be deployed in all timeframes.

2.2   Setup 1: The bullish candle
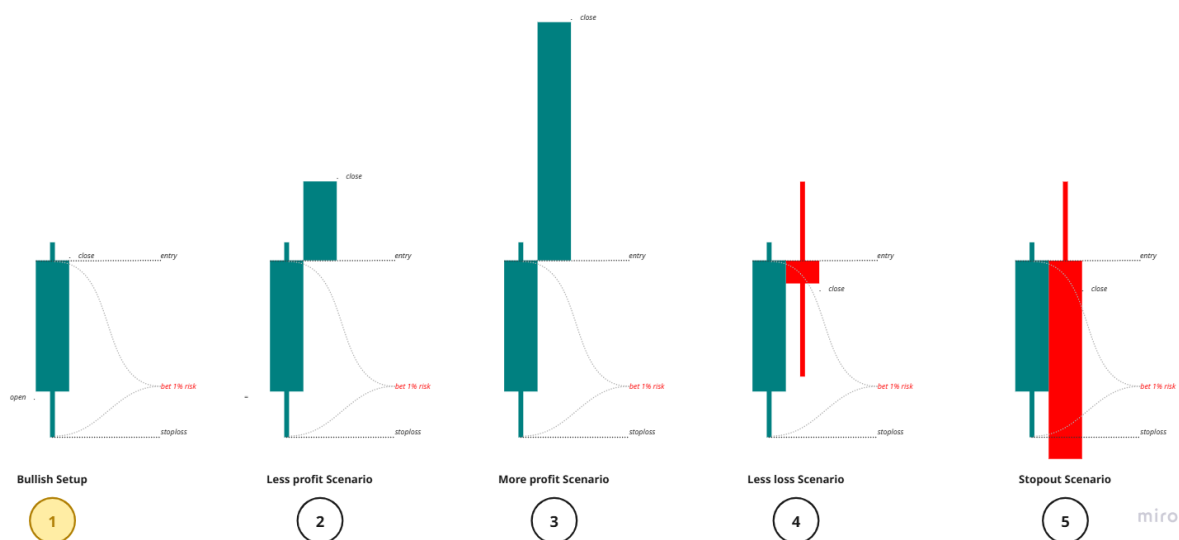
Figure 5: *ALL theoretical possible outcomes, The buyside*

It's simple, if the current candle is bullish, then we buy the close and the stoploss is at its low. And the take profit is at the next candle's close. The outcome is not guaranteed that we get 100% from what we risked with this TP approach. It could either get less profit, more profit, less loss, or a full loss from what we initialy risked, or simply get stopout.

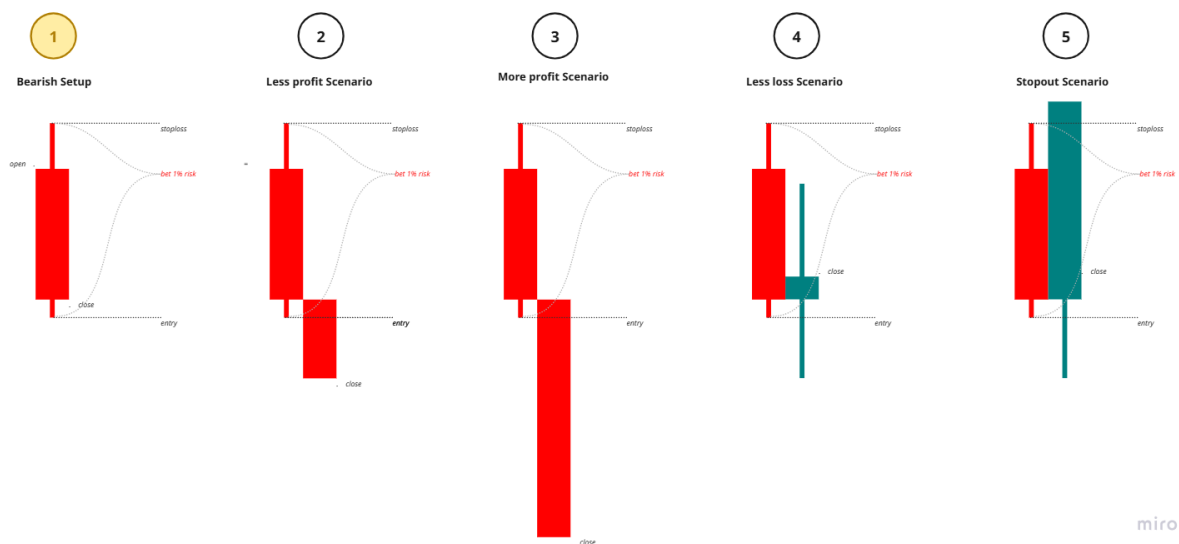## 2.3   Setup 1: The bullish candle

Figure 6: *ALL theoretical possible outcomes, The sellside*

Same goes for the sell side. If the current candle is bearish, then we sell the close, and the stoploss is at its high. And the take profit is at the next candle's close. The outcome is not guaranteed that we get 100% from what we risked with this TP approach. It could either get less profit, more profit, less loss, or a full loss from what we initially risked, or simply get stopout.

2.4   Trading Logic Clarification

The entry is defines correspond to its candle bias, place the stoploss at the extreme point, and the take profit is the next candle close. The risk per trade is 1% of the available balance, accounting for the full stoploss distance. Here is the catch: it does not open a trade if the stoploss is ¡ 'spread x 10'. This constraint is crucial because we connat just open a trade less than what is the minimum distance required to blow up a position with risking the minimum lot size (0.01 volume) in XAUUSDc [1]. There is no trade limit in the day, no daily max drawdown either.

There are no stress parameters implemented in this study, such as slippage/latency and commission/costs per trade.

3 Results & Discussion

3.1 Complete Trading Performance Metrics Across All Timeframes

Table 1: *Trading Performance Metrics - Part 1*

TF	Profit trades	Loss trades	Max SL	Min SL	Avg SL	Max TP	Min TP	Avg TP	Avg +R mult.	WR (%)
M4	16552	17361	42.81	1.6	3.42	32.42	0.0	1.98	-0.009	48.81
M5	14625	15309	39.8	1.6	3.61	42.37	0.0	2.13	0.004	48.86
M6	13109	13802	45.84	1.6	3.81	45.71	0.0	2.29	-0.004	48.71
M10	9202	9734	57.22	1.6	4.45	56.33	0.0	2.76	0.009	48.60
M12	8026	8497	84.83	1.6	4.76	83.95	0.0	2.98	0.005	48.57
M15	6712	7059	59.73	1.6	5.17	59.35	0.0	3.30	-0.006	48.74
M20	5409	5488	58.11	1.6	5.77	52.81	0.001	3.73	0.010	49.64
M30	3745	3859	63.06	1.6	6.79	62.61	0.0	4.46	0.006	49.25
H1	1945	2042	65.23	1.6	9.41	62.27	0.001	6.42	-0.015	48.78
H2	1061	1040	84.75	1.63	13.05	79.25	0.002	8.86	0.080	50.50
H3	746	674	118.58	1.64	15.80	114.39	0.004	10.72	0.105	52.54
H4	564	537	124.49	1.71	17.90	114.79	0.002	12.23	0.037	51.23
H6	391	357	146.28	1.71	22.36	142.10	0.015	15.44	0.133	52.27
H8	280	291	163.28	2.22	25.82	159.92	0.005	17.64	0.012	49.04
H12	194	199	164.35	2.53	31.62	160.16	0.083	22.34	0.077	49.36
D1	103	112	279.13	2.53	41.78	267.33	0.083	28.58	0.092	47.91
W1	19	16	268.50	11.83	102.53	240.54	0.199	79.66	0.413	54.29
MN1	5	2	425.90	64.52	207.37	414.98	22.78	181.20	0.531	71.43

Table 2: *Trading Performance Metrics - Part 2*

| TF	Max DD (%)	DD Abs (%)	Rel DD (%)	Sharpe ratio	Sortino ratio	Trades (+)/(-)	Net Ret (%)
M4	-99.68	99.66	99.68	-0.163	-0.231	16552/17361	-99.03
M5	-82.20	71.68	82.20	0.061	0.085	14625/15309	-24.28
M6	-96.13	96.04	96.13	-0.066	-0.093	13109/13802	-90.49
M10	-69.30	62.88	69.30	0.133	0.190	9202/9734	86.26
M12	-74.85	67.61	74.85	0.070	0.102	8026/8497	-16.08
M15	-89.92	86.48	89.92	-0.075	-0.102	6712/7059	-81.75
M20	-67.96	12.39	67.96	0.133	0.186	5409/5488	35.05
M30	-65.73	45.25	65.73	0.070	0.094	3745/3859	-17.03
H1	-79.04	68.08	79.04	-0.171	-0.227	1945/2042	-61.20
H2	-34.11	14.65	34.11	0.795	1.147	1061/1040	310.85
H3	-34.35	20.86	34.35	0.926	1.345	746/674	253.55
H4	-32.55	32.55	32.55	0.354	0.475	564/537	29.16
H6	-43.29	3.45	43.29	1.112	1.523	391/357	136.10
H8	-43.62	20.02	43.62	0.107	0.152	280/291	-1.74
H12	-35.01	0.0	35.01	0.557	0.807	194/199	23.37
D1	-33.71	6.22	33.71	0.491	0.696	103/112	11.13
W1	-4.55	1.44	4.55	3.242	10.023	19/16	14.76
MN1	-1.42	0.0	1.42	7.278	17.262	5/2	3.74
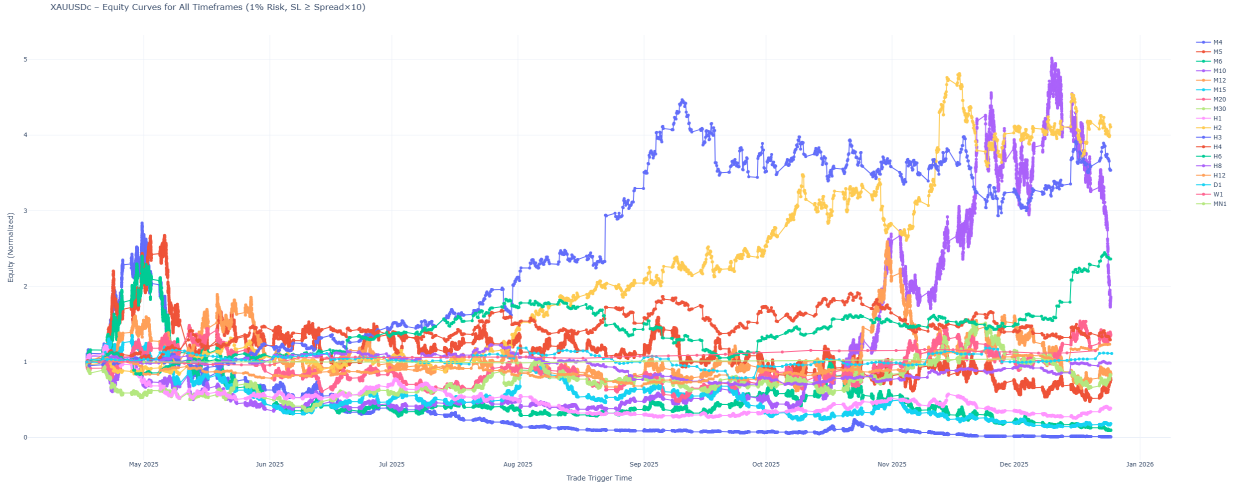
Figure 7: *All equity curves across 18 timeframes*

3.2 Performance of all timeframes

There was no trade log of M1-M3 timeframes, not because the trading logic requires a minimum stoploss distance before entering a trade that is less than 'spread x 10'. It's because it exceeds -100% net, which is viewed as no longer relevant to the study. The dataset presents a comprehensive analysis of trading strategy performance across 18 distinct timeframes, ranging from ultra-short 4-minute (M4) intervals to monthly (MN1) periods. This multi-timeframe examination reveals critical insights into the relationship between trading frequency, risk management parameters, and ultimate profitability. The following discussion examines each timeframe individually, analyzing the intricate dynamics between win rates, risk-reward ratios, drawdown characteristics, and risk-adjusted returns.

3.2.1 M4 (4-Minute) Timeframe

The M4 timeframe represents the highest frequency trading approach in this dataset, with 33,913 total trades (16,552 profitable, 17,361 unprofitable). Despite a nearly balanced win rate of 48.81%, this timeframe demonstrates catastrophic performance with a net return of -99.03%. The average stop-loss distance of 3.42 pips contrasts with an average take-profit distance of only 1.98 pips, yielding an unfavorable risk-reward structure. The negative average R-multiple of -0.009423 indicates that losses systematically exceed gains when normalized for risk. The strategy experienced maximum and relative drawdowns exceeding 99%, essentially wiping out the entire trading capital. Both Sharpe (-0.16) and Sortino (-0.23) ratios are deeply negative, confirming that returns fail to compensate for volatility and downside risk. The extremely tight stop-loss parameters (minimum 1.6 pips) suggest vulnerability to market noise and spread costs at this ultra-short timeframe, where transaction costs and slippage disproportionately impact profitability.

3.2.2 M5 (5-Minute) Timeframe

The M5 timeframe executed 29,934 trades with a marginally improved win rate of 48.86%. Performance improves relative to M4 but remains substantially negative with a -24.28% net return. The slightly positive R-multiple of 0.003659 suggests a near break-even scenario on a risk-adjusted basis. Average stop-loss distance increases to 3.61 pips while take-profit distance rises to 2.13 pips, maintaining an unfavorable risk-reward ratio. Maximum drawdown of -82.20% indicates severe equity deterioration, though notably less catastrophic than M4. The marginally positive Sharpe (0.061) and Sortino (0.085) ratios represent the first emergence of potentially viable risk-adjusted performance, though values remain extremely low. The reduction in trade frequency compared to M4 appears to provide marginal protection against transaction cost erosion, yet the strategy remains fundamentally unprofitable. The improved but still negative performance suggests that 5-minute intervals may be approaching, but not reaching, a viable trading frequency threshold.

3.2.3 M6 (6-Minute) Timeframe

With 26,911 total trades, the M6 timeframe exhibits a win rate of 48.71% and produces a devastating -90.49% net return. The negative R-multiple of -0.004026 confirms systematic underperformance relative to risk taken. Average stop-loss distance extends to 3.81 pips with take-profit at 2.29 pips, perpetuating the unfavorable risk-reward structure. Maximum drawdown reaches -96.13%, nearly eliminating capital. Negative Sharpe (-0.066) and Sortino (-0.093) ratios indicate returns fail to justify risk exposure. This timeframe demonstrates that marginally extending the interval from M5 does not necessarily improve performance; in fact, returns deteriorate significantly. The data suggests that the M6 interval may represent a particularly unfavorable market structure where neither very short-term momentum nor slightly longer patterns provide exploitable edges. The near-complete capital destruction highlights the critical importance of timeframe selection in strategy viability.

3.2.4 M10 (10-Minute) Timeframe

The M10 timeframe marks a critical inflection point in strategy performance. With 18,936 trades and a 48.60% win rate, this interval delivers the first substantially positive net return of +86.26%. The positive R-multiple of 0.008995 indicates that winning trades begin to systematically exceed losing trades when normalized for risk. Average stop-loss distance increases to 4.45 pips while take-profit extends to 2.76 pips, though the risk-reward ratio remains suboptimal. Maximum drawdown of -69.30% demonstrates significant but more manageable equity deterioration. Sharpe (0.133) and Sortino (0.190) ratios turn decisively positive, suggesting meaningful risk-adjusted returns. This timeframe appears to represent a frequency threshold where price patterns become sufficiently persistent to exploit, while transaction costs remain proportionally smaller relative to profit targets. The dramatic shift from negative to strongly positive returns between M6 and M10 suggests that optimal trading frequency may be highly sensitive to specific market microstructure characteristics.

3.2.5 M12 (12-Minute) Timeframe

The M12 timeframe encompasses 16,523 trades with a 48.57% win rate, producing a modest negative return of -16.08%. The small positive R-multiple of 0.004777 suggests near break-even performance on a risk-adjusted basis. Average stop-loss distance reaches 4.76 pips with take-profit at 2.98 pips, maintaining an approximately 1.6:1 risk-reward ratio. Maximum drawdown of -74.85% indicates substantial capital risk. Sharpe (0.070) and Sortino (0.102) ratios are marginally positive but extremely low, suggesting minimal compensation for risk undertaken. This timeframe demonstrates inconsistent performance relative to M10, despite similar structural characteristics. The regression from strong profitability at M10 to marginal losses at M12 highlights the non-linear relationship between timeframe duration and strategy efficacy. The results suggest that this particular 12-minute interval may coincide with reduced market efficiency or unfavorable trading pattern characteristics specific to this strategy's logic.

3.2.6 M15 (15-Minute) Timeframe

The M15 timeframe executed 13,771 trades with a 48.74% win rate, yielding a severely negative -81.75% return. Despite the positive M10 performance, this interval reverts to substantial losses with a negative R-multiple of -0.005517. Average stop-loss distance extends to 5.17 pips while take-profit reaches 3.30 pips, maintaining the characteristic unfavorable risk-reward structure. Maximum drawdown of -89.92% approaches capital elimination. Negative Sharpe (-0.075) and Sortino (-0.102) ratios confirm that risk-adjusted performance is unacceptable. The M15 interval represents a commonly used timeframe in retail trading, yet this strategy demonstrates catastrophic failure at this frequency. The dramatic underperformance relative to the nearby M10 timeframe suggests that popular timeframe choices may not necessarily align with optimal strategy performance, and that conventional wisdom regarding "standard" trading intervals may be strategy-dependent.

3.2.7 M20 (20-Minute) Timeframe

The M20 timeframe shows 10,897 trades with a notably improved win rate of 49.64%, delivering a positive +35.05% return. The R-multiple of 0.010386 represents the strongest risk-adjusted performance among shorter timeframes. Average stop-loss distance of 5.77 pips and take-profit of 3.73 pips maintain the persistent risk-reward asymmetry, yet overall profitability emerges. Maximum drawdown of -67.96% remains substantial but is the most controlled among profitable short-term intervals. Sharpe (0.133) and Sortino (0.186) ratios indicate meaningful risk-adjusted returns comparable to M10. Interestingly, absolute drawdown of only 12.39% contrasts sharply with the maximum drawdown, suggesting significant recovery following the worst equity trough. This timeframe demonstrates that win rate improvements can overcome unfavorable risk-reward ratios when combined with sufficient trade frequency. The M20 interval appears to capture intermediate-term price patterns that provide exploitable edges while maintaining trade volume adequate for statistical robustness.

3.2.8 M30 (30-Minute) Timeframe

With 7,604 trades and a 49.25% win rate, the M30 timeframe produces a modest negative return of -17.03%. The small positive R-multiple of 0.00558 indicates near break-even risk-adjusted performance. Average stop-loss distance reaches 6.79 pips while take-profit extends to 4.46 pips, showing gradual improvement in risk-reward structure as timeframes lengthen. Maximum drawdown of -65.73% represents the most controlled among sub-hourly intervals. Sharpe (0.070) and Sortino (0.094) ratios are marginally positive but extremely low. The M30 interval, another commonly used retail trading timeframe, demonstrates that this strategy struggles to achieve consistent profitability despite improved risk-reward parameters. The performance suggests that the 30-minute interval may represent a transitional frequency where very short-term patterns lose predictability while longer-term trends have not yet established sufficient momentum for reliable exploitation.

3.2.9 H1 (1-Hour) Timeframe

The H1 timeframe encompasses 3,987 trades with a 48.78% win rate, producing a substantial negative return of -61.20%. The negative R-multiple of -0.014588 represents the worst risk-adjusted performance among all timeframes examined, indicating systematic value destruction. Average stop-loss distance increases significantly to 9.41 pips while take-profit reaches 6.42 pips, continuing the unfavorable but improving risk-reward structure. Maximum drawdown of -79.04% indicates severe equity deterioration. Sharpe (-0.171) and Sortino (-0.227) ratios are deeply negative, confirming unacceptable risk-adjusted returns. The H1 interval represents a critical threshold where many retail traders transition from scalping to swing trading approaches. The catastrophic underperformance at this popular timeframe suggests the strategy's logic may be fundamentally incompatible with hourly price dynamics, potentially due to overnight gaps, news events, or session transitions that disrupt intraday pattern consistency.

3.2.10 H2 (2-Hour) Timeframe

The H2 timeframe marks a dramatic performance transformation with 2,101 trades and a 50.50% win rate, delivering an exceptional +310.85% return. This represents the strongest absolute return across all timeframes. The R-multiple of 0.07983 indicates meaningful risk-adjusted profitability. Average stop-loss distance extends to 13.05 pips with take-profit at 8.86 pips, maintaining the strategy's characteristic risk-reward profile. Maximum drawdown improves substantially to -34.11%, representing the first truly manageable equity decline. Sharpe (0.795) and Sortino (1.147) ratios surge into highly attractive territory, indicating excellent risk-adjusted returns. The absolute drawdown of only 14.65% demonstrates remarkable recovery characteristics. This timeframe appears to represent an optimal balance between trade frequency and pattern persistence, where price movements contain sufficient directional momentum to overcome the unfavorable risk-reward structure. The extraordinary shift from H1's catastrophic losses to H2's exceptional gains suggests a critical structural break in market dynamics at this frequency.

3.2.11   H3 (3-Hour) Timeframe

With 1,420 trades and a 52.54% win rate, the H3 timeframe produces an impressive +253.55% return. The R-multiple of 0.104634 represents the second-highest risk-adjusted performance among all intervals. Average stop-loss distance reaches 15.80 pips while take-profit extends to 10.72 pips, showing continued gradual improvement in risk-reward parameters. Maximum drawdown of -34.35% remains comparable to H2, indicating consistent risk control. Sharpe (0.926) and Sortino (1.345) ratios are exceptional, representing the highest Sortino ratio among short-to-medium term timeframes. The strategy achieves its first win rate exceeding 52%, suggesting improved directional prediction accuracy. The H3 interval appears to capture sustained price trends while filtering out noise that plagues shorter timeframes. The strong performance with reduced trade frequency indicates that pattern quality may be more important than quantity for this strategy's logic.

3.2.12   H4 (4-Hour) Timeframe

The H4 timeframe encompasses 1,101 trades with a 51.23% win rate, yielding a modest +29.16% return. The R-multiple of 0.036647 represents a significant decline from H2 and H3 performance. Average stop-loss distance extends to 17.90 pips with take-profit at 12.23 pips, continuing the gradual risk-reward improvement trend. Maximum drawdown of -32.55% remains well-controlled and represents the lowest among profitable timeframes up to this point. However, Sharpe (0.354) and Sortino (0.475) ratios decline substantially from H3 levels, indicating reduced risk-adjusted efficiency. The absolute and relative drawdowns coincide at 32.55%, suggesting the strategy experienced its maximum equity decline at the end of the testing period. While profitable, H4 demonstrates that extending timeframes beyond H3 begins to yield diminishing returns for this strategy, possibly due to reduced trade frequency compromising statistical robustness or fundamental shifts in the dominant price dynamics.

3.2.13   H6 (6-Hour) Timeframe

With 748 trades and a 52.27% win rate, the H6 timeframe delivers a strong +136.10% return. The R-multiple of 0.132572 represents the highest among all hourly timeframes, indicating excellent risk-adjusted profitability. Average stop-loss distance reaches 22.36 pips while take-profit extends to 15.44 pips, showing continued evolution toward more favorable risk-reward structures. Maximum drawdown of -43.29% increases relative to shorter hourly intervals, suggesting increased individual trade impact due to reduced frequency. However, absolute drawdown of only 3.45% indicates substantial recovery and current equity near peak levels. Sharpe (1.112) and Sortino (1.523) ratios are exceptional, with the Sortino ratio representing the highest among hourly timeframes. The H6 interval demonstrates that the strategy can maintain high profitability even with significantly reduced trade frequency, provided that captured price movements are sufficiently large and directionally persistent.

3.2.14 H8 (8-Hour) Timeframe

The H8 timeframe executed 571 trades with a 49.04% win rate, producing a near break-even result of -1.74% return. The minimal R-multiple of 0.011653 suggests essentially flat risk-adjusted performance. Average stop-loss distance extends to 25.82 pips with take-profit at 17.64 pips, continuing the trend toward improved risk-reward parameters. Maximum drawdown of -43.62% remains elevated, similar to H6. Sharpe (0.107) and Sortino (0.152) ratios collapse to marginal levels, indicating minimal risk-adjusted value creation. The performance represents a substantial deterioration from H6, despite similar structural characteristics. The near-zero return with nearly balanced win rate suggests that the 8-hour interval may coincide with a frequency where the strategy's logic becomes ineffective, possibly due to multi-session dynamics that disrupt pattern consistency. The results indicate that optimal timeframe selection is not monotonic and that intermediate frequencies can underperform both shorter and longer alternatives.

3.2.15 H12 (12-Hour) Timeframe

With 393 trades and a 49.36% win rate, the H12 timeframe yields a modest +23.37% return. The R-multiple of 0.076544 indicates reasonable risk-adjusted profitability. Average stop-loss distance reaches 31.62 pips with take-profit at 22.34 pips, representing the best risk-reward ratio among intraday timeframes relative to their absolute values. Maximum drawdown of -35.01% improves substantially from H6 and H8, indicating better risk control. Notably, absolute drawdown is 0.0%, suggesting the strategy concluded testing at its maximum equity peak. Sharpe (0.557) and Sortino (0.807) ratios recover to moderate levels, indicating acceptable risk-adjusted returns. The H12 interval represents a semi-daily frequency that captures major session-based price movements while filtering intraday noise. The improved drawdown characteristics with maintained profitability suggest this timeframe provides a favorable balance between opportunity capture and risk management for capital preservation-focused traders.

3.2.16 D1 (Daily) Timeframe

The D1 timeframe encompasses 215 trades with a 47.91% win rate, producing a modest +11.13% return. This represents the lowest win rate among profitable timeframes, yet positive returns persist. The R-multiple of 0.091853 indicates solid risk-adjusted profitability despite the sub-50% win rate. Average stop-loss distance extends to 41.78 pips with take-profit at 28.58 pips, maintaining approximately 1.5:1 risk-reward ratios. Maximum drawdown of -33.71% is well-controlled, representing among the lowest in the dataset. Sharpe (0.491) and Sortino (0.696) ratios indicate moderate risk-adjusted returns. The daily timeframe demonstrates that profitability can be sustained even with unfavorable win rates when risk-reward structures improve sufficiently and when capturing larger price movements. The reduced trade frequency introduces greater parameter uncertainty, yet the strategy maintains consistent directional edge. Daily trading eliminates intraday noise and overnight gap risk while capturing sustained trend movements.

3.2.17 W1 (Weekly) Timeframe

With only 35 trades and a 54.29% win rate, the W1 timeframe delivers a +14.76% return despite extreme statistical uncertainty. The R-multiple of 0.412969 represents a dramatic improvement in risk-adjusted performance. Average stop-loss distance reaches 102.53 pips with take-profit at 79.66 pips, showing substantial absolute values while maintaining characteristic risk-reward asymmetry. Maximum drawdown of only -4.55% represents the lowest across all timeframes, indicating exceptional risk control. Sharpe (3.242) and Sortino (10.023) ratios are extraordinary, with the Sortino ratio reaching double digits—the highest in the dataset. However, with only 35 total trades, statistical reliability is severely limited. The exceptional risk-adjusted metrics may reflect sample size artifacts rather than true strategy characteristics. The weekly timeframe captures major market trends while avoiding intraweek volatility, but the minimal trade count precludes confident assessment of long-term viability.

3.2.18 MN1 (Monthly) Timeframe

The MN1 timeframe represents the longest interval with only 7 trades (5 profitable, 2 unprofitable) and a 71.43% win rate, yielding a +3.74% return. The R-multiple of 0.531283 represents the highest across all timeframes, indicating the best risk-adjusted trade outcomes. Average stop-loss distance reaches 207.37 pips with take-profit at 181.20 pips, representing the largest absolute values while showing the most balanced risk-reward ratio. Maximum drawdown of -1.42% is remarkably low, indicating minimal equity volatility. Sharpe (7.278) and Sortino (17.262) ratios are exceptional, with the Sortino ratio representing the absolute highest in the dataset. However, with only 7 trades, these metrics are statistically meaningless and likely artifacts of extreme small sample size. The monthly timeframe theoretically captures macro trends while eliminating all intramonth volatility, but the sample is insufficient for any reliable inference about strategy efficacy at this frequency.

3.3 Profitable Timeframes Ranked by Net Return

The strategy achieved positive net returns across 10 of the 18 tested timeframes. In ascending order of profitability:

1. **MN1 (Monthly): +3.74%** — With only 7 total trades (5 profitable, 2 unprofitable), this represents the lowest absolute return among profitable timeframes, though risk-adjusted metrics are exceptional due to minimal drawdown (-1.42% maximum) and extremely small sample size effects. The 71.43% win rate and 0.531 R-multiple represent the highest values dataset-wide, though statistical reliability is negligible.

2. **D1 (Daily): +11.13%** — Generated from 215 trades (103 profitable, 112 unprofitable) with a 47.91% win rate, demonstrating that sub-50% win rates can sustain profitability when combined with improved risk-reward structures (average SL: 41.78 pips, average TP: 28.58 pips) and reduced transaction cost impacts. Maximum drawdown of -33.71% remains well-controlled with moderate risk-adjusted returns (Sharpe: 0.49, Sortino: 0.70).

3. **W1 (Weekly): +14.76%** — Based on only 35 trades (19 profitable, 16 unprofitable) with a 54.29% win rate, this timeframe exhibits extraordinary risk-adjusted returns (Sharpe: 3.24, Sortino: 10.02) and minimal drawdown (-4.55%), though statistical reliability is severely limited. Average stop-loss distance of 102.53 pips with take-profit at 79.66 pips demonstrates substantial absolute values while the 0.413 R-multiple indicates strong risk-adjusted trade quality.

4. **H12 (12-Hour): +23.37%** — Executed 393 trades (194 profitable, 199 unprofitable) with a 49.36% win rate, achieving zero absolute drawdown at testing conclusion, indicating the strategy finished at peak equity with moderate risk-adjusted performance (Sharpe: 0.56, Sortino: 0.81). Average stop-loss of 31.62 pips and take-profit of 22.34 pips with maximum drawdown of -35.01% demonstrates balanced risk management.

5. **H4 (4-Hour): +29.16%** — Encompassed 1,101 trades (564 profitable, 537 unprofitable) with a 51.23% win rate, though risk-adjusted metrics (Sharpe: 0.35, Sortino: 0.48) declined substantially from shorter hourly timeframes, suggesting diminishing returns as frequency decreases from the H3 optimal zone. Average stop-loss of 17.90 pips and take-profit of 12.23 pips with -32.55% maximum drawdown and a modest 0.037 R-multiple indicate acceptable but unexceptional performance.

6. **M20 (20-Minute): +35.05%** — The most profitable sub-hourly timeframe with 10,897 trades (5,409 profitable, 5,488 unprofitable) and 49.64% win rate, demonstrating that high-frequency profitability is achievable when trade volume remains sufficient and win rates exceed 49.5%. Average stop-loss of 5.77 pips and take-profit of 3.73 pips with 0.010 R-multiple and moderate risk-adjusted returns (Sharpe: 0.13, Sortino: 0.19) overcome the unfavorable risk-reward structure through volume and consistency. Maximum drawdown of -67.96% remains substantial, though absolute drawdown of only 12.39% indicates strong recovery characteristics.

7. **M10 (10-Minute): +86.26%** — Represents the critical inflection point with 18,936 trades (9,202 profitable, 9,734 unprofitable) and a 48.60% win rate where the strategy first achieves substantial profitability, marking the frequency threshold where price patterns become exploitable despite unfavorable risk-reward ratios. Average stop-loss distance of 4.45 pips with take-profit at 2.76 pips maintains the characteristic 1.6:1 risk-reward asymmetry, yet the 0.009 R-multiple and positive risk-adjusted metrics (Sharpe: 0.13, Sortino: 0.19) confirm systematic edge capture. Maximum drawdown of -69.30% demonstrates significant but manageable equity deterioration, while the dramatic performance shift from adjacent unprofitable timeframes suggests this frequency captures exploitable market microstructure dynamics.

8. **H6 (6-Hour): +136.10%** — Generated from 748 trades (391 profitable, 357 unprofitable) with a 52.27% win rate and the highest R-multiple (0.133) among hourly timeframes, achieving exceptional risk-adjusted performance (Sharpe: 1.11, Sortino: 1.52) despite elevated maximum drawdown (-43.29%). Average stop-loss of 22.36 pips and take-profit of 15.44 pips demonstrate continued evolution toward larger absolute trade sizes while maintaining profitability. The minimal absolute drawdown of 3.45% indicates substantial recovery and current equity near peak levels.

9. **H3 (3-Hour): +253.55%** — Produced from 1,420 trades (746 profitable, 674 unprofitable) with a 52.54% win rate, this timeframe achieves the second-highest absolute return with outstanding risk-adjusted metrics (Sharpe: 0.93, Sortino: 1.35) and well-controlled maximum drawdown (-34.35%). Average stop-loss of 15.80 pips and take-profit of 10.72 pips with 0.105 R-multiple demonstrates strong risk-adjusted trade quality. The strategy achieves its first win rate exceeding 52% in the medium-term frequency range, with absolute drawdown of 20.86% indicating healthy equity curve characteristics.

10. **H2 (2-Hour): +310.85%** — Represents the absolute best performing timeframe with 2,101 trades (1,061 profitable, 1,040 unprofitable) and 50.50% win rate, delivering exceptional returns with manageable maximum drawdown (-34.11%), minimal absolute drawdown (14.65%), and strong risk-adjusted performance (Sharpe: 0.80, Sortino: 1.15). Average stop-loss of 13.05 pips and take-profit of 8.86 pips with 0.080 R-multiple indicates meaningful risk-adjusted profitability. This timeframe appears to represent an optimal balance between trade frequency and pattern persistence, where price movements contain sufficient directional momentum to overcome the unfavorable risk-reward structure.

3.4 Critical Strategic Insights

First The data reveals a distinct performance regime structure: catastrophic failure zones (M4-M6, M12, M15, M30, H1, H8) characterize 8 of 18 timeframes with returns ranging from -99.03% to -1.74%, demonstrating that timeframe selection represents an existential rather than optimization decision for this strategy. The failure zones cluster around ultra-short intervals (sub-10 minutes) and specific intermediate frequencies (15, 30, 60 minutes), suggesting that market microstructure and dominant trading psychology at these popular retail timeframes may create unfavorable conditions for this particular strategy logic.

Second The optimal performance zone clearly centers on the H2-H3-H6 cluster, which collectively accounts for the three highest absolute returns. This 2-6 hour frequency range appears to capture intermediate-term price momentum while maintaining sufficient trade frequency (748-2,101 trades) for statistical robustness. The exceptional performance in this zone, with returns exceeding 136% and Sharpe ratios above 0.9, suggests these timeframes balance pattern persistence, noise filtration, and transaction cost efficiency optimally for this strategy's logic.

Third The strategy demonstrates a persistent structural characteristic of unfavorable individual trade risk-reward ratios across nearly all timeframes, with average stop-loss distances consistently exceeding average take-profit distances by approximately 1.5-1.7x. Profitability emerges not through favorable risk-reward structures on individual trades, but rather through three compensating mechanisms: (1) improved win rates at optimal timeframes (H2-H6 cluster achieving 50.5%-52.5% win rates), (2) reduced proportional transaction cost impact as timeframes lengthen and pip values increase, and (3) superior risk-adjusted capture of directional price movements at intermediate frequencies.

This finding challenges conventional trading wisdom that emphasizes favorable risk-reward ratios as prerequisite for profitability, demonstrating that systematic win rate advantages can overcome structural risk-reward disadvantages when combined with appropriate frequency selection.

Forth The drawdown characteristics reveal a clear dichotomy between failure and success regimes. Unprofitable timeframes exhibit catastrophic maximum drawdowns ranging from -65% to -99%, essentially eliminating capital and rendering the strategy non-viable regardless of theoretical recovery potential. In contrast, profitable medium-term timeframes (H2-D1) demonstrate maximum drawdowns clustering in the 30-40% range, which, while substantial, remain within potentially acceptable risk tolerance boundaries for aggressive growth strategies. Notably, the longest timeframes (W1, MN1) show exceptionally low drawdowns (under -5%), though this reflects insufficient sample sizes rather than superior risk management.

Fifth The risk-adjusted performance metrics demonstrate that raw returns alone provide incomplete strategy assessment. While H2 delivers the highest absolute return (+310.85%), H6 achieves superior R-multiple (0.133 vs 0.080) and comparable Sharpe/Sortino ratios with lower maximum drawdown on a relative basis. The H3 timeframe presents perhaps the most balanced profile, combining exceptional returns (+253.55%), strong risk-adjusted metrics (Sortino: 1.35), controlled drawdown (-34.35%), and sufficient trade frequency (1,420 trades) for statistical confidence. Weekly and monthly timeframes, despite exhibiting extraordinary Sharpe ratios exceeding 3.0 and Sortino ratios reaching 17.3, suffer from extreme parameter uncertainty due to sample sizes of 35 and 7 trades respectively, rendering these metrics statistically unreliable and potentially dangerously misleading for capital allocation decisions.

Sixth The dramatic performance discontinuities between adjacent timeframes—particularly the M6 (-90.49%) to M10 (+86.26%) transition representing a 176 percentage point swing, and the H1 (-61.20%) to H2 (+310.85%) transition representing a 372 percentage point swing—underscore that timeframe selection constitutes a highly sensitive parameter with non-linear, threshold-dependent effects on strategy viability. These discontinuities suggest that dominant market dynamics undergo fundamental regime shifts at specific frequency boundaries, possibly related to participant time horizons, algorithmic trading frequencies, or information processing timescales. The finding implies that strategies optimized at one timeframe cannot be assumed to perform even marginally at adjacent timeframes, and that comprehensive multi-timeframe testing is essential for robust strategy validation.

3.5 Metric Trends and Relationships

Short-term trades are frequent but risky and often lose money. Medium-term trades are safer but less profitable. Long-term trades have higher SL and TP, better winrate, improved risk-adjusted ratios, and positive net returns. Increasing timeframe improves trade quality despite fewer opportunities.
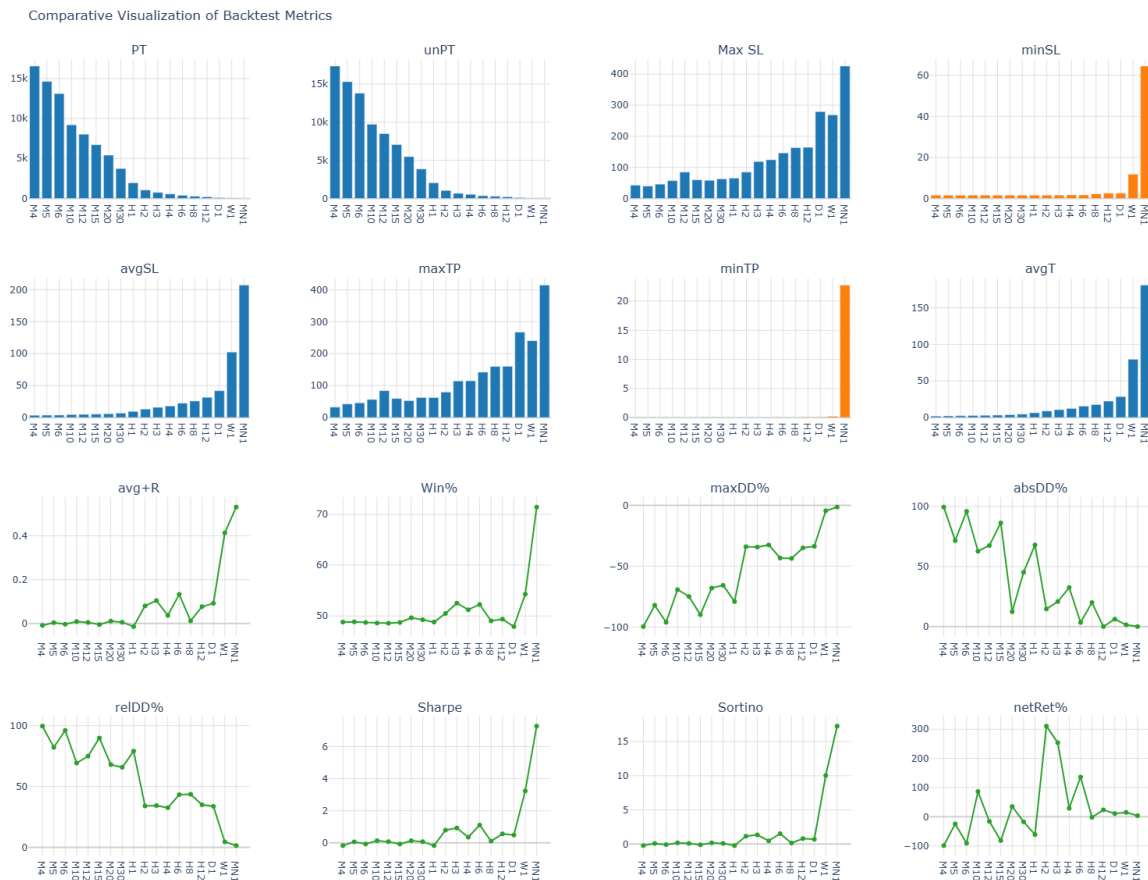

Figure 8: *Comparative Visualization of Backtest Metrics*

Profitable Trades (PT) and Unprofitable Trades (unPT): Both PT and unPT decrease as the timeframe increases. Short timeframes have many trades, while long timeframes have fewer opportunities.

Stop Loss (Max SL, minSL, avgSL): Stop loss distances increase with longer timeframes. Short-term trades have small stops, while long-term trades require larger stops to handle bigger price swings.

Take Profit (maxTP, minTP, avgT): Take profit distances also increase with timeframe. Max and average TP grow as the timeframe increases. MinTP is close to zero for most timeframes.

Risk-Reward (avg+R): The average R multiple is near zero for short to medium time-frames, showing small gains or losses. Longer timeframes show higher avg+R, meaning trades are more profitable relative to risk.

Winrate (Win%): Winrate is stable around 48-50% for short and medium frames. Long-term timeframes have higher winrates, reaching over 70% in MN1.

Drawdown (maxDD%, absDD%, relDD%): Maximum drawdowns are very high in short-term frames. Absolute and relative drawdowns decrease in medium-term frames, then rise slightly for long-term frames due to larger SL and TP.

Risk-Adjusted Ratios (Sharpe, Sortino): Short-term timeframes have low or negative Sharpe and Sortino ratios. Longer timeframes show large positive ratios, indicating better risk-adjusted performance.

Net Return (netRet%): Net returns are very negative in short-term frames. Medium-term frames show mixed results. Long-term frames have positive net returns, with H2, H3, and MN1 performing best.

4 Conclusion

TF	PT	unPT	Max SL	minSL	avgSL	maxTP	minTP	avgT	avg+R	Win%	maxDD%	absDD%	relDD%	Sharpe	Sortino	netRet%
M4	16552	17361	42.8060	1.6000	3.4222	32.4160	0.0000	1.9778	-0.0094	48.8072	-99.6799	99.6569	99.6799	-0.1626	-0.2307	-99.0265
M5	14625	15309	39.8000	1.6000	3.6112	42.3660	0.0000	2.1266	0.0037	48.8575	-82.1974	71.6770	82.1974	0.0608	0.0847	-24.2787
M6	13109	13802	45.8440	1.6000	3.8091	45.7050	0.0000	2.2851	-0.0040	48.7124	-96.1263	96.0359	96.1263	-0.0659	-0.0929	-90.4908
M10	9202	9734	57.2210	1.6000	4.4515	56.3340	0.0000	2.7624	0.0090	48.5953	-69.2972	62.8847	69.2972	0.1334	0.1904	86.2554
M12	8026	8497	84.8320	1.6000	4.7585	83.9450	0.0000	2.9768	0.0048	48.5747	-74.8544	67.6060	74.8544	0.0701	0.1021	-16.0786
M15	6712	7059	59.7280	1.6000	5.1677	59.3450	0.0000	3.2951	-0.0055	48.7401	-89.9184	86.4847	89.9184	-0.0749	-0.1018	-81.7458
M20	5409	5488	58.1140	1.6000	5.7677	52.8140	0.0010	3.7319	0.0104	49.6375	-67.9629	12.3858	67.9629	0.1331	0.1861	35.0534
M30	3745	3859	63.0630	1.6010	6.7883	62.6060	0.0000	4.4621	0.0056	49.2504	-65.7295	45.2455	65.7295	0.0699	0.0940	-17.0308
H1	1945	2042	65.2310	1.6020	9.4133	62.2690	0.0010	6.4202	-0.0146	48.7835	-79.0377	68.0774	79.0377	-0.1711	-0.2266	-61.2033
H2	1061	1040	84.7490	1.6250	13.0460	79.2530	0.0020	8.8583	0.0798	50.4998	-34.1075	14.6467	34.1075	0.7952	1.1468	310.8535
H3	746	674	118.5800	1.6410	15.7976	114.3940	0.0040	10.7150	0.1046	52.5352	-34.3452	20.8581	34.3452	0.9258	1.3455	253.5510
H4	564	537	124.4890	1.7060	17.9012	114.7910	0.0020	12.2311	0.0366	51.2262	-32.5502	32.5502	32.5502	0.3542	0.4751	29.1573
H6	391	357	146.2810	1.7060	22.3629	142.0950	0.0150	15.4401	0.1326	52.2727	-43.2930	3.4497	43.2930	1.1123	1.5229	136.1016
H8	280	291	163.2790	2.2230	25.8212	159.9150	0.0050	17.6384	0.0117	49.0368	-43.6161	20.0177	43.6161	0.1069	0.1519	-1.7426
H12	194	199	164.3460	2.5290	31.6237	160.1600	0.0830	22.3377	0.0765	49.3639	-35.0095	0.0000	35.0095	0.5574	0.8071	23.3709
D1	103	112	279.1310	2.5290	41.7762	267.3270	0.0830	28.5820	0.0919	47.9070	-33.7124	6.2162	33.7124	0.4914	0.6959	11.1334
W1	19	16	268.5030	11.8290	102.5316	240.5370	0.1990	79.6641	0.4130	54.2857	-4.5544	1.4386	4.5544	3.2417	10.0233	14.7551
MN1	5	2	425.8990	64.5200	207.3656	414.9750	22.7760	181.1964	0.5313	71.4286	-1.4245	0.0000	1.4245	7.2780	17.2619	3.7375

Table 3: *Backtest metrics across multiple timeframes.*

The multi-timeframe analysis of this trading strategy demonstrates that timeframe selection is a decisive determinant of profitability, risk management, and risk-adjusted performance. Across the 18 tested intervals, performance exhibits highly non-linear behavior, with catastrophic failure zones at ultra-short timeframes (M4–M6) and certain intermediate intervals (M12, M15, M30, H1, H8), while intermediate-term hourly timeframes (H2–H6) consistently deliver exceptional absolute and risk-adjusted returns. The H2, H3, and H6 timeframes constitute the strategy's optimal operating zone. H2 yields the highest net return of +310.85% with a Sharpe ratio of 0.80 and Sortino ratio of 1.15, while H3 provides a balanced profile (+253.55% return, Sortino 1.35) and H6 offers the highest R-multiple (0.133) with strong risk-adjusted returns. Maximum drawdowns in these intervals remain moderate (34–43%), and trade counts (748–2,101) ensure sufficient statistical reliability.

Extremely short-term (M4–M6) and select intermediate (M12, M15, M30, H1, H8) timeframes suffer catastrophic losses ranging from -99% to -1.74%, often associated with negative R-multiples and severely negative Sharpe and Sortino ratios. These failure zones demonstrate that inappropriate frequency selection can destroy capital regardless of other favorable metrics. Across nearly all timeframes, average stop-loss distances exceed average take-profit distances by 1.5–1.7 times, highlighting that profitability arises not from favorable risk-reward ratios per trade, but from higher win rates, improved capture of directional price movements, and reduced proportional transaction costs at optimal timeframes. Maximum drawdowns further differentiate failure and success regimes. Profitable intermediate-term timeframes exhibit drawdowns clustered in the 30–40% range, whereas catastrophic timeframes experience drawdowns above 65–99%. The longest timeframes (W1, MN1) show minimal drawdowns (¡5%), but extremely small sample sizes render these metrics statistically unreliable.

Sharp performance discontinuities between adjacent timeframes—for example, M6 (-90.49%) to M10 (+86.26%) and H1 (-61.20%) to H2 (+310.85%)—indicate highly sensitive, non-linear effects of timeframe on strategy viability. This underscores the necessity of comprehensive multi-timeframe testing before deployment. For practical implementation, H2–H3 intervals provide the best combination of absolute returns, risk-adjusted performance,

and controlled drawdowns, while H6 offers the highest R-multiple for risk-conscious traders. Daily (D1) and 12-hour (H12) intervals may suit conservative capital preservation strategies, though at the expense of lower returns. Weekly (W1) and monthly (MN1) timeframes are unsuitable for reliable systematic trading due to insufficient trade counts despite superficially attractive metrics.

5 Recommendations

1. For practical deployment, the H2–H3 timeframes represent the optimal choice, delivering exceptional absolute returns (250–310%), robust risk-adjusted performance (Sharpe ratios 0.80–0.93, Sortino ratios 1.15–1.35), manageable drawdowns (34–35%), and sufficient trade samples (1,420–2,101 trades) to ensure confidence in parameter estimates. The H6 timeframe provides an alternative for traders prioritizing maximum R-multiples while maintaining substantial profitability, offering strong risk-adjusted returns even if absolute returns are slightly lower than H2–H3. Conservative traders seeking lower volatility may consider D1 or H12 timeframes, which provide better drawdown control and capital preservation at the expense of reduced returns (11–23%), though they forgo the superior performance attainable in the intermediate-term zone.

2. High-frequency timeframes such as M10 and M20 can be considered by traders willing to engage in intensive monitoring, but their returns (35–86%) remain well below the H2–H3 optimum and demand significantly greater management effort. Weekly and monthly timeframes, despite superficially attractive risk-adjusted metrics, should be avoided for systematic trading due to insufficient trade counts and statistical reliability; their apparent performance is likely an artifact of limited sample sequences rather than sustainable strategy characteristics.

3. Importantly, diversification by combining the profitable H2, H3, and H6 timeframes can further enhance profitability and reduce exposure to timeframe-specific risks. By allocating trades across these complementary intervals, traders can capture multiple independent price movements, smooth equity curve volatility, and increase overall risk-adjusted performance. Conversely, all timeframes outside this explicitly profitable set should be unconditionally avoided, as they not only underperform but can also lead to catastrophic capital destruction, with eight of eighteen tested frequencies generating losses exceeding 16% and five frequencies eroding more than 60% of capital.

References

[1] Albeos, Rembrant. (2025, December 27). *The 3HTMOSDSDT.rp2 : Portfolio Diversification for 'Three-hour Timeframe Market Order Strategy with Defined Stoploss and Dynamic Takeprofit' Trading Model*. GitHub.
https://github.com/algorembrant/QAT-QuantitativeAlgorithmicTrading/
tree/main/Research%20Papers/The%203HTMOSDSDT.rp2%20%3A%20Portfolio%
20Diversification%20for%20%E2%80%99Three-hour%20Timeframe%20Market%
20Order%20Strategy%20with%20Defined%20Stoploss%20and%20Dynamic%
20Takeprofit%E2%80%99%20Trading%20Model