BACKTESTING REPORT: Intraday with Open Range Breakout and VWAP Trend Strategies

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1 Objective and Constraint

Capital Size	50 milion VND
Return Objective	1-2% daily return
Liquidity needs	
Time Horizon	Asia/Ho Chi Minh
Other Specific Constraint	

2 Trading Algorithm

Algorithm Name	Opening Range Breakout, VWAP
Target Market	VN30F1M
Decision-making schedule	Every day

3 Backtesting Assumption

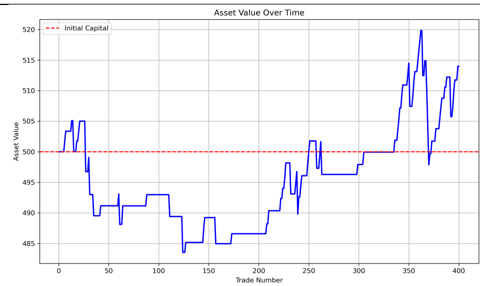
Liquidity	VN30F1M has decent liquidity, but it varies. Higher at market open.
Price slippage	Estimated 0.5 - 2 ticks per trade (depends on volatility & volume).
Market impact	Low for small positions, but large orders (e.g., 50+ contracts) may move price.
Simulated fill price	Matched price.
Transaction fee and taxes	0.47 for every position, which including price slippage.
Sales proceeds advance	

4 Backtesting Performance Evaluation

4.1 Using VWAP signal

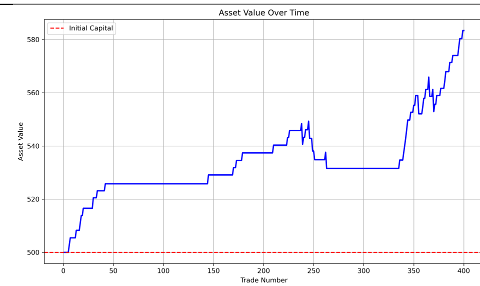
Time Period	In-Sample 2021 - 2022		Out-of-Sample 2023 - 2024
	Initial Parameters	Optimal Parameters	Optimal Parameters

In-Sample 2021 - 2022, Initial Parameters



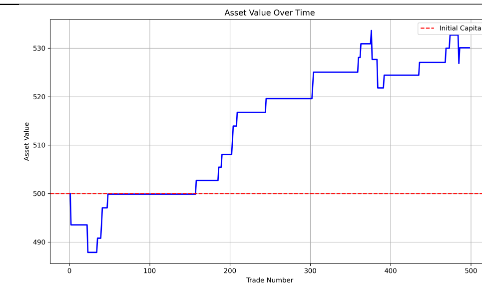
YEAR	2021	2022
YEARLY	-7.92%	48.61%
JAN	0.00%	5.34%
FEB	0.00%	4.35%
MAR	0.00%	4.05%
APR	0.00%	7.26%
MAY	0.00%	6.70%
JUN	4.07%	-8.17%
JUL	-18.71%	4.35%
AUG	0.40%	0.69%
SEP	-0.64%	5.39%
OCT	8.94%	3.62%
NOV	-4.36%	-3.26%
DEC	2.38%	18.29%

In-Sample 2021 - 2022, Optimal Parameters



YEAR	2021	2022
YEARLY	29.10%	54.29%
JAN	0.00%	2.73%
FEB	0.00%	5.56%
MAR	0.00%	0.00%
APR	0.00%	8.39%
MAY	0.00%	-7.69%
JUN	16.58%	-6.51%
JUL	9.19%	0.00%
AUG	0.00%	0.00%
SEP	0.00%	0.00%
OCT	0.00%	20.50%
NOV	0.00%	9.60%
DEC	3.33%	21.71%

Out-of-Sample 2023 - 2024, Optimal Parameters



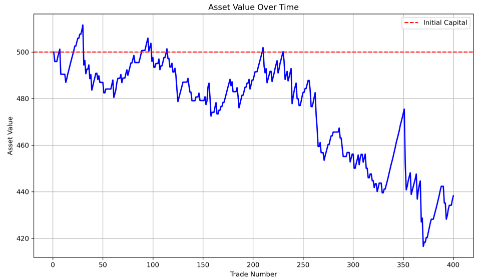
YEAR	2023	2024
YEARLY	19.59%	10.49%
JAN	-6.47%	0.00%
FEB	-2.74%	0.00%
MAR	9.09%	5.46%
APR	0.00%	0.00%
MAY	0.00%	0.00%
JUN	0.00%	5.86%
JUL	0.00%	-6.48%
AUG	2.83%	0.00%
SEP	0.00%	0.00%
OCT	11.22%	2.63%
NOV	2.83%	5.66%
DEC	2.83%	-2.64%

Time Period	**In-Sample** 2021 - 2022			**Out-of-Sample** 2023 - 2024	
	Initial Parameters		**Optimal Parameters**	**Optimal Parameters**	
	Portfolio	VNINDEX	Portfolio	Portfolio	VNINDEX
HPR	8.14%	-22.68%	16.68%	6.02%	44.58%
Excess HPR	30.81%	n/a	39.35%	-38.56%	n/a
Annual Return	5.01%	-12.11%	10.12%	2.98%	20.33%
Annual Excess Return	17.12%	n/a	22.23%	-17.35%	n/a
Maximum Drawdown	4.88%	67.91%	3.23%	2.43%	30.97%
Longest Drawdown	182	246	98	156	141
Turnover Ratio	79.07%	n/a	74.85%	96.93%	n/a
Sharpe Ratio	0.40	-0.26	1.75	0.02	0.55
Sortino Ratio	0.49	-0.30	1.52	0.05	0.65
Information Ratio	-0.23	n/a	-0.13	-0.55	n/a
No. stocks in periods	1	1	1	1	1
No. held stocks in periods	0	n/a	0	0	n/a
Excess returns in periods	30.81%	n/a	39.35%	-38.56%	n/a

4.2 Using ORB signal

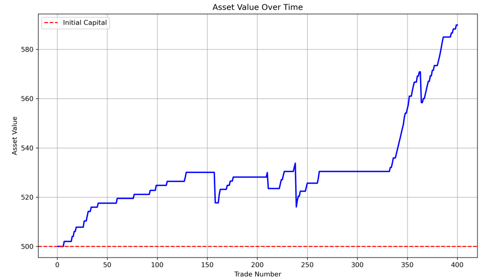
Time Period	**In-Sample** 2021 - 2022		**Out-of-Sample** 2023 - 2024
	Initial Parameters	**Optimal Parameters**	**Optimal Parameters**

In-Sample 2021 - 2022, Initial Parameters



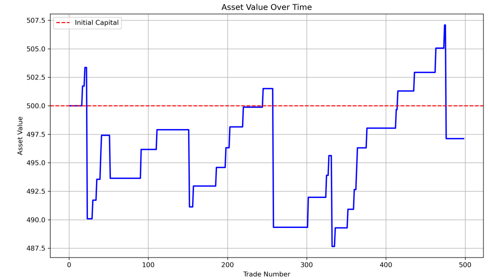
YEAR	2021	2022
YEARLY	-20.82%	-40.90%
JAN	0.00%	-0.78%
FEB	0.00%	-2.34%
MAR	0.00%	23.71%
APR	0.00%	-1.23%
MAY	0.00%	-17.56%
JUN	2.55%	-27.45%
JUL	-11.69%	1.63%
AUG	-2.14%	-9.12%
SEP	6.76%	0.26%
OCT	-3.05%	0.23%
NOV	-7.09%	-18.30%
DEC	-6.16%	10.05%

In-Sample 2021 - 2022, Optimal Parameters



YEAR	2021	2022
YEARLY	30.08%	59.83%
JAN	0.00%	-5.28%
FEB	0.00%	3.36%
MAR	0.00%	0.00%
APR	0.00%	2.28%
MAY	0.00%	-6.39%
JUN	7.82%	6.39%
JUL	9.75%	0.00%
AUG	1.93%	0.00%
SEP	1.63%	3.36%
OCT	3.66%	31.28%
NOV	5.29%	8.36%
DEC	0.00%	16.47%

Out-of-Sample 2023 - 2024, Optimal Parameters



YEAR	2023	2024
YEARLY	1.51%	-4.39%
JAN	0.00%	-12.17%
FEB	-6.45%	0.00%
MAR	0.09%	2.63%
APR	0.00%	1.93%
MAY	2.53%	-4.61%
JUN	1.73%	7.02%
JUL	0.00%	1.73%
AUG	-4.94%	1.63%
SEP	0.00%	1.63%
OCT	5.19%	1.63%
NOV	1.73%	-5.81%
DEC	1.63%	0.00%

Time Period	**In-Sample** 2021 - 2022			**Out-of-Sample** 2023 - 2024	
	Initial Parameters		**Optimal Parameters**	**Optimal Parameters**	
	Portfolio	VNINDEX	Portfolio	Portfolio	VNINDEX
HPR	-12.34%	-22.68%	17.98%	-0.58%	44.58%
Excess HPR	10.33%	n/a	40.66%	-45.15%	n/a
Annual Return	-7.90%	-12.11%	10.89%	-0.29%	20.33%
Annual Excess Return	4.21%	n/a	23.00%	-20.62%	n/a
Maximum Drawdown	18.58%	67.91%	3.33%	3.12%	30.97%
Longest Drawdown	370	246	96	440	141
Turnover Ratio	84.22%	n/a	75.33%	100.38%	n/a
Sharpe Ratio	-1.03	-0.25	1.73	-0.91	0.55
Sortino Ratio	-0.91	-0.30	0.66	-0.32	0.65
Information Ratio	-0.44	n/a	-0.12	-0.64	n/a
No. stocks in periods	1	1	1	1	1
No. held stocks in periods	0	n/a	0	0	n/a
Excess returns in periods	10.43%	n/a	40.66%	-45.15%	n/a