



# EVALUATING RSI-BASED STRATEGIES IN ALGORITHMIC TRADING: A COMPARATIVE STUDY ACROSS LARGE-CAP AND SMALL-CAP STOCKS

<sup>1</sup>**Dr. P Pavan Kumar**

Assistant Professor, Dept. of Business Administration, Sri Chaitanya Degree College,  
Ballari 583123, Karnataka, India. Email: [prof.pa1mba@gmail.com](mailto:prof.pa1mba@gmail.com).

<sup>2</sup>**Dr. Archana H N**

Associate Professor, Dept. of Studies in Business Administration, Vijayanagara Sri Krishnadevaraya University,  
Ballari 583105, Karnataka, India, Email: [archana.hn@gmail.com](mailto:archana.hn@gmail.com), [archana@vskub.ac.in](mailto:archana@vskub.ac.in).

## Abstract

*This study evaluates the performance of multiple Relative Strength Index (RSI) trading strategies across selected large-cap and small-cap companies in the Indian equity market. Using algorithmic back-testing through the Streak platform, the research evaluates financial performance metrics such as gross profit, net profit, maximum drawdown, and Sharpe ratio. A multivariate analysis of variance (MANOVA) with bootstrapping addresses data non-normality, while Spearman's rho correlation quantifies signal reliability and risk mitigation potential. The study seeks to enhance understanding of the relative performance of various RSI-based trading strategies and to elucidate their application within algorithmic trading systems.*

**Keywords:** RSI trading strategies, large-cap, small-cap, algorithmic trading, streak platform, MANOVA.

## Introduction

In the dynamic landscape of financial markets, traders increasingly rely on technical indicators to take informed decision-making and automate strategies. Among these, the Relative Strength Index (RSI) remains one of the most widely used momentum oscillators, favoured for its simplicity and adaptability. Traditionally, RSI strategies employ fixed thresholds typically 30 for oversold and 70 for overbought conditions to signal entry and exit points. However, as markets evolve and volatility patterns shift, there is growing recognition that a one-size-fits-all approach may no longer be sufficient. This study emerges from the need to examine how different RSI configurations perform across companies of varying market capitalization specifically large-cap and small-cap stocks within the context of algorithmic trading. While past research has assessed RSI's predictive capabilities, much of it focuses on a limited range of strategies or specific asset classes, with little emphasis on threshold tuning, segmentation, or adaptability in algorithmic systems. This study addresses that gap by testing multiple RSI strategies including midline-based, traditional, and wide-band approaches and evaluating their performance across two distinct market segments using back-tested algorithmic models. By incorporating both empirical performance analysis and statistical validation through bootstrapped MANOVA, the research offers a comprehensive understanding of how RSI strategies behave under varying conditions. In doing so, the study aims to inform more context-aware, flexible, and data-driven trading strategies suitable for modern algorithmic environments.

## Statement of the Problem

Traders face challenges when utilizing technical indicators like the Relative Strength Index (RSI) to achieve optimal financial market returns. Unlike MACD, VORTEX, and ROC, RSI lacks standardized buy/sell rules, causing confusion among traders. This research compares RSI strategies comprehensively in trading large-cap and small-cap companies. By assessing risk-adjusted returns (Sharpe ratio), gross/net profit, and maximum drawdown, it aims to provide effective RSI approaches for diverse market, chart, and company scenarios. This study equips traders with practical guidelines and decision-making tools, enhancing trading performance amid market complexity.

## Objectives

1. To compare the performance of various RSI strategies across large-cap and small-cap companies using key performance indicators namely Gross Profit, Net Profit, Maximum Drawdown, and Sharpe Ratio.
2. To identify the most effective RSI strategies tailored for trading in large-cap and small-cap segments based on profitability and risk-adjusted outcomes.

## Hypothesis

**H<sub>01</sub>:** There is no significant impact of strategy type on key performance metrics, namely gross profit, net profit and maximum drawdown

**H<sub>02</sub>:** There is no significant impact of size on key performance metrics, namely gross profit, net profit and maximum drawdown.

**H<sub>03</sub>:** There is no significant combined effect of strategy type and size on key performance metrics, namely gross profit, net profit and maximum drawdown.

## Review of Literature

The Relative Strength Index (RSI), introduced by Wilder (1978), remains a cornerstone of technical analysis, though recent research underscores the need for strategy-specific customization. Studies by Țaran-Moroșan (2011) and Bhargavi et al. (2017) reaffirm RSI's utility but rely on traditional configurations, overlooking threshold flexibility and company-size segmentation. Choudhuri (2019) and Alhilfi (2019) confirmed RSI's short-term and volatility management benefits but lacked depth in strategic variation. Anderson and Li (2015) highlighted the limitations of static 30/70 thresholds, advocating for adaptive levels—a direction aligned with the present study's focus. Totakura (2019) and Shah & Patel (2015) acknowledged RSI's stock selection value but underexplored configuration diversity. More recent works, including Dolzhenko (2024), Sukma & Namahoot (2024), and Raul et al. (2024), stress the significance of algorithmic execution, integration with other indicators, and real-time validation. Collectively, the literature supports a shift toward dynamic RSI strategies, which this study extends by comparing varied thresholds across large-cap and small-cap firms.

## Research Gap

While RSI's utility is well-established, much of the existing literature—including works by Bhargavi et al. (2017), Choudhuri (2019), and Alhilfi (2019)—focuses on single or traditional configurations, often applied to limited market segments. Although Anderson and Li (2015) advocate for threshold flexibility, comprehensive comparisons of diverse RSI strategies remain underexplored.

## Research Methodology

- **Time Period:** The study spans from July 3, 2020, to June 30, 2025, encompassing a total of 1241 trading days.
- **Research Design:** The research design employs an analytical and exploratory approach, enabling a comprehensive assessment of various RSI strategies.
- **Sample Selection:** The study carefully selects a sample of top 10 large-cap and top 10 small-cap companies. The selection is based on the market capitalization and their respective weightage in Nifty 50 and Nifty Small-Cap 50 indices. The following table shows the list of large-cap and small companies.
- **Statistical Tools:** The study uses MANOVA with bootstrapping to assess the effects of strategy type and company size on trading metrics under non-normal data conditions. IBM SPSS 26 ensures statistical rigor, while Streak 4 supports back-testing and validation of the research outcomes.

**RSI Strategies:** The study systematically evaluates the following RSI-based trading strategies to facilitate a comparative performance analysis across large cap and small cap companies.

1. Buying below 30 and selling above 70.
2. Buying above 30 and selling below 70.
3. Buying below 20 and selling above 80.
4. Buying above 20 and selling below 80.
5. Buying above the middle line (50) and selling above 70.
6. Buying above the middle line (50) and selling below 70.
7. Buying above the middle line (50) and selling above 80.
8. Buying above the middle line (50) and selling below 80.

**Risk-Adjusted Return:** The evaluation of risk-adjusted return, as quantified by the Sharpe ratio, incorporates the risk-free rate of return of 7.14% from government bonds over the preceding 5 years. This metric provides a comprehensive evaluation of returns, accounting for associated risk.

**Source of Data:** The study relies solely on secondary data obtained from various trusted sources such as financial websites and journal articles.

### Interpretive Analysis

This section analyzes trading strategies across large-cap and small-cap companies using various performance metrics such as gross and net profit. Signal behavior is assessed with Spearman correlation, and bootstrapped MANOVA ensures robustness despite data non-normality. Zerodha brokerage charges (0.44% per transaction) are factored in, though taxes and DP charges are excluded. Each trade assumes an investment of ₹1,00,000. The analysis, conducted via the Streak algorithmic trading platform, presents detailed tables that highlight strategy effectiveness by company size. These findings offer actionable insights for traders, promoting more informed decision-making within dynamic market environments.

**Table 1: Performance Comparison of RSI Strategies for Large Cap Companies**

RSI Strategy	Performance Metrics	HDF C Bank	ICICI Bank	Reliance	Infosys	Bharti Airtel	L&T	ITC	TC S	Axis Bank	SBI	Total	Sharpe Ratio
Strategy 1 Buy > 30 & Sell < 70	Gross Profit	26.39	38.53	31.15	5.64	52.01	62.18	21.26	20.44	42.43	35.77	335.8	2.001012
	Net Profit	25.48	37.62	30.01	4.86	51.51	61.24	20.45	19.63	41.28	34.84	326.92	1.947696
	Max Drawdown	0	0	-0.05	0	0	0	0	-0.3	0	0	-0.35	
Strategy 2 Buy < 30 & Sell > 70	Gross Profit	25.93	39.48	-4.61	20.75	39.16	50.53	20.75	16.77	35.56	27.18	271.5	1.725117
	Net Profit	25.01	38.53	-5.38	19.95	38.68	49.59	19.95	15.96	34.4	26.29	262.98	1.673385
	Max Drawdown	0	0	0	0	0	0	0	-0.43	0	-0.08	-0.51	
Strategy 3 Buy > 20 & Sell < 80	Gross Profit	NTH	NTH	NTH	NTH	NTH	NTH	26.97	NTH	NTH	NTH	26.97	#DIV/0!
	Net Profit	NTH	NTH	NTH	NTH	NTH	NTH	26.72	NTH	NTH	NTH	26.72	#DIV/0!
	Max Drawdown	NTH	NTH	NTH	NTH	NTH	NTH	0	NTH	NTH	NTH	0	#DIV/0!
Strategy 4 Buy < 20 & Sell > 80	Gross Profit	NTH	NTH	NTH	NTH	NTH	NTH	24.98	NTH	NTH	NTH	24.98	#DIV/0!
	Net Profit	NTH	NTH	NTH	NTH	NTH	NTH	24.73	NTH	NTH	NTH	24.73	#DIV/0!
	Max Drawdown	NTH	NTH	NTH	NTH	NTH	NTH	0	NTH	NTH	NTH	0	
Strategy 5 Buy < 50 Sell < 70	Gross Profit	96.69	148.46	20.97	57.18	107.52	89.27	50.22	72.62	158.68	113.98	915.59	2.104891
	Net Profit	92.89	144.88	18.73	54.71	104.07	85.73	47.61	69.57	154.66	110.63	883.48	2.055762
	Max Drawdown	-0.17	-0.05	-0.28	-0.49	-0.01	-0.3	0.08	0.26	-0.05	-0.04	-1.73	
Strategy 6 Buy < 50 Sell > 70	Gross Profit	82.71	135.58	20.38	53.06	89.4	79.49	52.66	75.19	122.16	129.92	840.55	2.250628
	Net Profit	78.93	132.02	18.13	50.6	86.07	75.97	50.05	72.13	118.18	126.55	808.63	2.192353
	Max Drawdown	-0.2	-0.05	-0.3	-0.53	-0.03	-0.28	0.12	0.22	-0.07	-0.05	-1.85	
Strategy 7 Buy < 50 Sell < 80	Gross Profit	60.13	198.65	30.02	60.6	169.4	161.65	94.39	55.86	39.36	182.66	1052.7	1.596562
	Net Profit	59.5	197.66	29.42	59.73	168.21	160.92	93.07	55.24	38.97	181.69	1044.4	1.588052
	Max Drawdown	0	0	0	0	0	0	0	0	0	0	0	
Strategy 8 Buy < 50 Sell > 80	Gross Profit	57.8	197.21	27.65	66.57	161.36	159.05	92.66	62.66	37.75	175.03	1037.7	1.637491
	Net Profit	57.17	196.23	27.06	65.69	160.18	158.33	91.28	62.03	37.37	174.06	1029.4	1.628715
	Max Drawdown	0	0	0	0	0	0	0.02	0	0	0	-0.02	

Note: NTH denotes for No Trades Happened and the figures expressed are in percentage.



Table 2: Performance Comparison of RSI Strategies for Small Cap Companies

RSI Strategy	Performance Metrics	MCX	CDSL	Laurus labs	Crompton	Radico	CAMS	Delhivery	Angel One	PNB Housing	Kaynes	Total	Sharpe Ratio
Strategy 1 Buy > 30 & Sell < 70	Gross Profit	71.45	5.98	30.08	7.96	34.47	6.02	-3.82	84.89	82.91	10.52	330.46	0.94
	Net Profit	70.49	5.11	28.92	7.16	33.76	5.12	-4.71	83.47	81.95	10.29	321.56	0.92
	Max Drawdown	0	-0.47	-2.58	0	0	-0.47	-1.27	-0.07	-0.09	0	-4.95	
Strategy 2 Buy < 30 & Sell > 70	Gross Profit	60	4.83	11.39	10.11	17.79	-9.21	17.13	65.16	79.17	2.72	259.09	0.83
	Net Profit	59.05	3.92	10.26	9.32	17.71	-10.09	15.98	63.77	78.19	2.5	250.61	0.80
	Max Drawdown	-0.24	0	-5.36	0	0	-2.33	-0.83	-0.21	-0.54	0	-9.51	-0.98
Strategy 3 Buy > 20 & Sell < 80	Gross Profit	NTH	124.26	25.55	NTH	NTH	46.55	-6.41	58.59	-9.57	NTH	238.97	0.79
	Net Profit	NTH	123.46	25.3	NTH	NTH	46.06	-6.63	58.3	-9.79	NTH	236.7	0.78
	Max Drawdown	NTH	0	0	NTH	NTH	0	0	0	0	NTH	0	
Strategy 4 Buy < 20 & Sell > 80	Gross Profit	NTH	117.46	24.75	NTH	NTH	56.22	-32.79	174.85	-20.97	NTH	319.52	0.65
	Net Profit	NTH	116.67	24.51	NTH	NTH	55.72	-32.98	174.23	-21.18	NTH	316.97	0.65
	Max Drawdown	NTH	0	0	NTH	NTH	0	0	0	0	NTH	0	
Strategy 5 Buy < 50 & Sell < 70	Gross Profit	90.9	138.16	80.07	15.96	160.05	86.23	28.56	113.42	109.16	207.3	1029.8	1.78
	Net Profit	88.2	134.66	77.33	14.94	156.79	83.61	-29.88	110.32	106.18	204.74	946.89	1.40
	Max Drawdown	-1.36	-0.49	-1.05	-0.62	-0.13	-0.66	-3.23	-0.24	-1.07	0	-8.85	-1.71
Strategy 6 Buy < 50 & Sell > 70	Gross Profit	101.52	152.59	73.79	17.18	152.96	65.45	-33.27	107.72	117.08	190.05	945.07	1.40
	Net Profit	98.81	149.07	71.05	16.15	149.71	62.84	-34.59	104.63	114.08	187.5	919.25	1.38
	Max Drawdown	-0.97	-0.56	-1.05	-0.65	-0.14	-0.87	-4.1	-0.45	-1.43	0	-10.22	
Strategy 7 Buy < 50 & Sell < 80	Gross Profit	110.62	221.52	54.63	59.27	194.02	86.85	-32.03	150.05	295.64	343.72	1484.3	1.27
	Net Profit	109.62	219.95	54.01	58.86	192.6	85.98	-32.22	148.89	294.16	342.57	1474.4	1.27
	Max Drawdown	0	-0.03	-0.14	0	0	-0.2	0	0	-0.31	0	-0.68	-7.06
Strategy 8 Buy < 50 & Sell > 80	Gross Profit	112.01	209.49	43.16	58.13	186.35	93.21	-32.79	166.51	324.6	329.38	1490.1	1.25
	Net Profit	111.02	207.93	42.55	57.73	184.94	92.33	-32.98	165.34	323.09	328.25	1480.2	1.25
	Max Drawdown	0	-0.2		0	0	-0.19	0	0	-0.25	0		

Note: NTH denotes for No Trades Happened and the figures expressed are in percentage.

### Interpretation

The analysis reveals distinct differences in RSI strategy performance across large- and small-cap stocks. Midline-based strategies especially Strategy 7 (Buy < 50, Sell < 80) and Strategy 8 (Buy < 50, Sell > 80) in general are most profitable. Strategy 7 slightly outperformed in large-caps, while Strategy 8 delivered higher gains in small-caps but with increased risk. Broad-band strategies like Strategy 3 and 4 worked better in small-caps due to higher volatility. In contrast, traditional RSI thresholds (30/70 or 20/80) and trend confirmation strategies showed weaker performance. Overall, midline-based strategies offer superior returns with more stability in large-cap environments.

### Bootstrapped MANOVA Results

This study used a combined bootstrapping and MANOVA approach to assess how RSI strategies and company size affect net profit, gross profit, and drawdown. Bootstrapping addressed non-normal data distributions common in financial markets. Pillai's Trace, chosen for its robustness, enabled reliable evaluation of multiple factors, offering deeper insights than traditional statistical methods.

Sampling Method	Simple
Number of Samples	1000
Confidence Interval Level	95 percent
Confidence Interval Type	Percentile

(Source: SPSS output)

**Table 3: Bootstrap Specifications.**

Effect	Value	F	Hypothesis df	Error df	Significance
Intercept	0.657	90.618	3.000	142.000	0.000
Strategy type	0.653	5.724	21.000	432.000	0.000
Size	0.147	8.148	3.000	142.000	0.000
Strategy type and size	0.148	1.066	21.000	432.000	0.382

(Source: SPSS output)

**Interpretation:** Table 8 reveals that both strategy type and company size significantly influence financial metrics ( $p < 0.05$ ), while their interaction is not significant ( $p > 0.05$ ). The model overall is robust, indicating meaningful effects of independent variables on outcomes.

**Table 4: Tests of Between-Subject Effects.**

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Gross Profit	360364.199 <sup>a</sup>	15	24024.280	6.906	0.000
	Net Profit	349130.338 <sup>b</sup>	15	23275.356	6.605	0.000
	Max Drawdown	20.880 <sup>c</sup>	15	1.392	3.756	0.000
Intercept	Gross Profit	702651.532	1	702651.532	201.977	0.000
	Net Profit	670016.400	1	670016.400	190.128	0.000
	Max Drawdown	9.658	1	9.658	26.061	0.000
Strategy Type	Gross Profit	333027.949	7	47575.421	13.676	0.000
	Net Profit	322427.117	7	46061.017	13.071	0.000
	Max Drawdown	9.693	7	1.385	3.736	0.001
Size	Gross Profit	15829.457	1	15829.457	4.550	0.035
	Net Profit	14809.605	1	14809.605	4.202	0.042
	Max Drawdown	5.772	1	5.772	15.576	0.000
Strategy Type and Size	Gross Profit	11506.793	7	1643.828	0.473	0.853
	Net Profit	11893.616	7	1699.088	0.482	0.846
	Max Drawdown	5.416	7	0.774	2.088	0.048
Error	Gross Profit	500958.203	144	3478.876		
	Net Profit	507460.080	144	3524.028		
	Max Drawdown	53.365	144	0.371		
Total	Gross Profit	1563973.935	160			
	Net Profit	1526606.818	160			
	Max Drawdown	83.903	160			
Corrected Total	Gross Profit	861322.402	159			
	Net Profit	856590.418	159			
	Max Drawdown	74.245	159			
a. R Squared = 0.418 (Adjusted R Squared = 0.358)						
b. R Squared = 0.408 (Adjusted R Squared = 0.346)						
c. R Squared = 0.281 (Adjusted R Squared = 0.206)						

(Source: SPSS output)

a. Design: Intercept + Strategy type + Size + StrategyType and Size

b. Exact statistic

c. The statistic is an upper bound of F that yields a lower bound on the significance level.

**Interpretation:** Table 9 shows that Strategy Type and Company Size significantly impact Gross Profit, Net Profit, and Max Drawdown ( $p < 0.05$ ), while their interaction is not significant. The model explains varying degrees of variance, with R-squared values highlighting the individual influence of each factor on trading performance metrics.

## Findings and Suggestions

### Findings

1. RSI strategy type strongly impacts trading outcomes, with midline-based strategies (Buy < 50) yielding the best results in both large- and small-cap stocks.
2. Large-cap stocks offer stable, lower-risk returns, while small-caps provide higher profits but with increased volatility and drawdowns.
3. Broader RSI thresholds work better in volatile small-cap markets but are ineffective in stable large-cap stocks.
4. Traditional RSI strategies using 30/70 or 20/80 thresholds underperform due to lack of adaptability to market dynamics.

5. The interaction between strategy type and company size shows no significant combined effect on trading performance.

### Suggestions

1. Prioritize midline-based RSI strategies (Buy < 50) due to their superior profitability and risk-adjusted performance.
2. Apply stricter risk controls for small-cap stocks to manage higher drawdowns effectively.
3. Use wider RSI bands like 20/80 only in volatile markets or small-cap segments for better returns.
4. Avoid default reliance on 30/70 RSI thresholds as they underperform and lack adaptability.
5. Combine RSI with indicators like MACD or volume to enhance signal reliability and reduce false entries.

### Limitations

1. The study focused solely on RSI, ignoring the benefits of combining it with complementary indicators as recommended by trading experts.
2. Only strategy type and company size were considered, omitting broader macroeconomic or industry-specific variables.
3. Brokerage costs from only Zerodha were included, excluding other charges like taxes and variations across firms.
4. The five-year data span may limit insights into long-term market trends and evolving dynamics.

### Scope for Further Research

The study's limitations offer promising directions for future research. Exploring a broader range of trading strategies accounting for diverse market conditions, could enhance the findings' applicability. Incorporating additional factors like macroeconomic indicators and tax implications would provide a more comprehensive analysis. Further investigation into various brokerage structures and platforms, along with a longer time frame, could uncover valuable insights. Additionally, delving into specific market segments and behavioral factors could enrich the understanding of trading strategy performance.

### Conclusion

This study comprehensively examined the performance of multiple RSI-based trading strategies across large-cap and small-cap stocks, combining both empirical analysis and vigorous statistical testing. The results affirm that strategy type plays a pivotal role in determining trading success, with midline-based strategies (Buy < 50) particularly Strategies 7 and 8 delivering consistently superior returns and Sharpe ratios in both market segments. Large-cap stocks demonstrated greater return with stability and lower risk, whereas small-cap stocks offered higher returns at the expense of increased drawdowns, highlighting a clear risk-return trade-off. Wider RSI thresholds (20/80 bands) were notably more effective in the volatile small-cap segment but failed to generate meaningful results in the more stable large-cap context. Traditional RSI configurations (30/70 or 20/80) underperformed across all scenarios, indicating their limited adaptability in contemporary market conditions. From a statistical standpoint, strategy type and company size independently influenced key performance metrics, while their combined effect was not significant, leading to the acceptance of Hypothesis H03. Overall, the study reinforces that no single strategy works for all situations. Success depends on matching the strategy with the market's nature and level of risk. Going forward, trading systems especially algorithmic ones should focus on being flexible, checking the reliability of signals and adjusting for different types of stocks to perform well in changing market conditions.

### References

#### Journal Articles

1. Wilder, J. W. (1978). *New concepts in technical trading systems*. Trend Research.
2. Taran-Moroşan, A. (2011). The relative strength index revisited. *African Journal of Business Management*, 5(14), 5855-5862.
3. Dr. Bhargavi et. al. (2017). Relative Strength Index for Developing Effective Trading Strategies in Constructing Optimal Portfolio. *International Journal of Applied Engineering Research*, 12(19), 8926-8936.
4. Choudhuri, S. (2019). A Research On Trading Of Sensex Stocks By Using RSI. *International Journal Of Innovative Technology And Exploring Engineering (IJITEE)*, 8(9S2), 14-22. DOI: 10.35940/Ijitee.I1004.0789S219.
5. Alhilfi, M. (2019). Role of using the Relative Strength Index in Making Speculation Decision in Stock Applied Research in the Iraq Stock Exchange. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 9(1), 123–135. E-ISSN: 2225-8329, P-ISSN: 2308-0337.
6. Anderson, B., & Li, S. (2015). An Investigation Of The Relative Strength Index. *Banks And Bank Systems*, 10(1), 92-96.
7. Totakura, V. (2019). Selection Of Stocks Using Relative Strength Index (RSI) In Indian Stock Market For Swing Trades. In *Proceedings Of ICICSE-2019: International Conference On Innovations In Computer Science And Engineering*. Hyderabad, Telangana, India.

8. Shah, N. P., & Patel, T. M. (2015). A Comparative Study On Technical Analysis By Bollinger Band And RSI. *International Journal In Management And Social Science*, 03(06), 234-251.
9. Dolzhenko, V. (2024). Algorithmic Trading Systems and Strategies: A New Approach—Design, build, and maintain an effective strategy search mechanism. Apress. <https://doi.org/10.1007/979-8-8688-0357-4>
10. Sukma, N., & Namahoot, C. S. (2024). Enhancing trading strategies: A multi-indicator analysis for profitable algorithmic trading. *Computational Economics*, 65(6), 3807–3840. <https://doi.org/10.1007/s10614-024-10669-3>
11. Raul, G., Jadhav, R., Kamble, T., & Satpute, K. (2024). Algorithmic trading with an API. *International Research Journal of Engineering and Technology (IRJET)*, 11(10), 483–488. <https://www.irjet.net>
12. Stan Lipovetsky (2015). MANOVA, LDA, and FA criteria in clusters parameter estimation. *Cogent Mathematics* 2(1), 1-9.

#### Books

1. Elder, A. (1993). *Trading for a Living: Psychology, Trading Tactics, Money Management*. John Wiley & Sons
2. Elder, A. (2002). *Come Into My Trading Room: A Complete Guide to Trading*. John Wiley & Sons.
3. Wilder, J. W. (1978). *New Concepts in Technical Trading Systems*. Trend Research.

#### Websites

1. NSE- URL: <https://www.nseindia.com/>
2. Yahoo Finance- URL: <https://finance.yahoo.com/>
3. Streak- URL: <https://streak.zerodha.com/>