# Threshold-Based Trading Strategies using Drawdown-Triggered Entries & Profit-Target Exits in The Indian Stock Market: Index Based Comparative Analysis

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Abstract

This study investigates the effectiveness of rule-based, price-action-driven trading strategies in the Indian equity market using a systematic back testing approach with respect to its index Nifty 50. The strategies are built around fixed-entry and exit thresholds based on historical closing prices, where entry signals are triggered upon price drops of 3%, 5%, or 7%, and exits occur once a gain of 3%, 5% & 7% is achieved in all possible nine combinations. Daily OHLC (Open, High, Low, Close) data from January 2010 to June 2025 serves as the basis for testing, simulating nine distinct strategy combinations. VBA-based automation is used for precise and repeatable back testing execution, recording trade-level metrics and cumulative returns. The findings reveal that deeper entry discounts (such as 7%) combined with moderate exit targets (5–7%) generally yield higher cumulative returns and success rates. Strategy performance is evaluated using statistical measures including win ratio, average return, and standard deviation. This research contributes to the literature by quantifying the impact of structured entry-exit rules and by providing a robust framework for evaluating price-based strategies. The results offer practical implications for technical traders, retail investors, and quantitative analysts aiming to optimize return while minimizing risk exposure.

*Keywords: Price Action Trading, Rule-Based Strategies, Back testing, Technical Analysis, Equity Market, Trading Algorithms*

JEL Code: G11, G14, C58, C63, G17

## I. INTRODUCTION:

This research is grounded in a quantitative trading framework with behavioural underpinnings. The strategies explored mimic real-world trader responses to perceived undervaluation (entry after price drops) and goal-based exits (selling after modest recovery). Theoretical basis on which the study is standing are as follows.

1. Behavioural Finance: The study captures cognitive heuristics like anchoring and loss aversion, which influence real trader behaviour.
2. Mean Reversion Hypothesis: Assumes prices tend to revert to their mean after short-term overreactions.
3. Quantitative Back testing: Empirical testing of rules helps validate or reject the strategies on real data.

The evolution of financial markets has increasingly emphasized the importance of systematic trading strategies that blend simplicity with empirical robustness. Traditional theories like the Efficient Market Hypothesis (EMH) (Fama, 1970) argue that markets are informationally efficient, rendering it nearly impossible to outperform the market through technical analysis or rule-based strategies. However, real-world trading patterns and growing evidence from emerging markets, particularly India, suggest that inefficiencies, anomalies, and behavioural biases persist, allowing for the design and application of profitable strategies that are rule-based and repeatable (Brock, Lakonishok & LeBaron, 1992; Sehgal & Tripathi, 2009).

Among these strategies, threshold-based entry-exit rules, such as entering trades after a steep price drop and exiting after a modest rebound, offer a compelling middle ground between reactive and proactive approaches. These strategies capitalize on mean-reversion behaviour in prices, driven largely by investor overreaction, panic selling, and subsequent correction—phenomena well-documented in behavioural finance literature (Kahneman & Tversky, 1979). Yet, despite their intuitive appeal and practical simplicity, such drawdown-triggered strategies remain underexplored in empirical academic research.

This study attempts to fill this gap by systematically back testing and comparing nine variants of drawdown-recovery trading strategies over a 15-year period (2010–2025) using historical OHLC (Open, High, Low, Close) data from the Indian stock market in terms of its leading index Nifty 50. The strategies are framed around specific percentage-based entry and exit rules. This setup allows for systematic analysis of market mean-reversion behaviour and the trade-off between frequency and profitability.

Beyond basic back testing, the paper explores the statistical characteristics of the results, analyses performance consistency over time. The broader goal is to assess whether simple, rule-based strategies, derived from logical and behavioural assumptions, can produce consistent and superior returns, especially in volatile and sentiment-driven environments like that of the Indian equities market.

The findings of this research contribute to both academic discourse and practical trading strategy design. They provide a quantitative foundation for traders, fund managers, and quants seeking robust entry-exit systems, while also highlighting behavioural patterns that challenge the assumptions of market efficiency.

## II. CENTRAL RESEARCH PROBLEM:

Despite the increasing sophistication of algorithmic and data-driven trading strategies, a significant proportion of retail and institutional investors still rely on heuristic or discretionary methods for trade execution. This often leads to inconsistent performance, emotional decision-making, and suboptimal timing in both entries and exits. While academic literature has extensively explored momentum and mean-reversion strategies, simple threshold-based models—such as entering a trade after a predefined drawdown and exiting after a modest recovery—have received limited empirical attention, especially in the context of emerging markets like India.

The Indian stock market, characterized by high retail participation, volatile sentiment shifts, and frequent overreactions, presents fertile ground for mean-reversion and behavioural anomaly-based strategies. However, the lack of rigorous comparative analysis across different

combinations of drawdown-entry and percentage-target exits creates a research void. Investors and traders are left with anecdotal evidence rather than statistically validated strategies.

Thus, the central problem this research addresses is:

Can simple, rule-based trading strategies—based on price drawdowns and fixed-percentage exit targets—consistently generate positive returns in the Indian equity market, and how do different parameterizations of such strategies compare in terms of performance, risk, and stability over time?

This study seeks to systematically evaluate multiple strategy variants across a large historical dataset (2010–2025) of Nifty 50 index, assess their statistical performance, and explore their potential enhancement, thereby bridging the gap between practical trading applications and academic research.

## III. OBJECTIVES OF THIS STUDY:

The primary objective of this research is to evaluate the effectiveness and robustness of simple, rule-based trading strategies that enter positions following a fixed percentage drawdown and exit based on a predetermined percentage gain. This study uses historical data from the Indian stock market (Nifty 50 index) over a 15-year period (2010–mid 2025) to back test various configurations of these strategies.

Specific Objectives are as follows.

1. To design multiple trading strategies based on combinations of fixed entry drawdowns (e.g., 3%, 5%, 7%) and exit gains (e.g., 3%, 5%, 7%) for back testing.
2. To assess the performance of each strategy in terms of return, number of trades, holding period, and cumulative gain.
3. To compare the risk-return profiles of different strategy configurations and identify the most efficient combinations.
4. To statistically test the consistency and reliability of strategy performance across different market cycles (bullish, bearish, and sideways periods).

## IV. LITERATURE REVIEW:

The study of trading strategies based on price patterns, technical triggers, and market anomalies has been a significant area of research in financial markets. The foundational Efficient Market Hypothesis (EMH), proposed by Fama (1970), suggests that asset prices reflect all available information, thereby negating the possibility of consistently outperforming the market using historical prices alone. However, numerous empirical studies have challenged the strong form of this hypothesis, particularly in emerging markets such as India, where market inefficiencies are more prevalent (Balakrishnan & Somasundaram, 2021).

Technical analysis strategies, particularly those based on drawdown entry thresholds or “buy-the-dip” signals, have gained traction due to their simplicity and behavioural foundations. Jegadeesh and Titman (1993) identified momentum and reversal effects in stock prices, laying a conceptual foundation for using past price declines as entry signals. In the Indian context, Bhattacharya, Garg, and Jain (2014) observed that returns following significant price drops tend to exhibit short-term recovery, validating the idea of buying after sharp declines.

Back testing methodologies have been rigorously applied to various rule-based strategies in literature. Brock, Lakonishok, and LeBaron (1992) examined the performance of moving average crossovers and found statistically significant excess returns, suggesting that technical trading rules may carry predictive power even in developed markets. In emerging markets, Sehgal and Gupta (2005) identified that technical indicators such as RSI and MACD generate higher-than-random returns, especially when volatility is high.

Recent works have explored quantitative entry and exit thresholds. For example, Narayan et al. (2021) examined trigger-based entry points during pandemic-induced volatility, demonstrating that thresholds based on relative historical price levels (e.g., 5% or 10% below recent highs) are effective in timing entries. However, fewer studies have investigated fixed-percentage return exit rules, a gap this paper aims to address.

Moreover, with the rise of data availability and computational power, machine learning models are increasingly being integrated to enhance traditional back testing. Studies by Patel et al. (2015) and Chakraborty & Ghosh (2022) have shown that decision trees, random forests, and gradient boosting can be used not only to predict asset direction but also to classify the success probability of trades based on entry conditions.

The literature provides a strong basis for analysing rule-based strategies in equity markets. While technical entry signals have been widely studied, this paper contributes uniquely by combining drawdown-based entry thresholds with fixed return exits, offering a simplified yet robust framework. It also introduces a comparative view across multiple variants of such strategies, thereby advancing both the empirical and practical understanding of price-based trading in the Indian context. Despite this body of work, very few studies examine systematic strategies combining deep-entry thresholds with fixed-exit returns. This paper addresses that gap by testing multiple variants—e.g., entry at 7% drawdown with exits at 5% or 7% gain—over a 15-year period, thereby offering empirical insights into a class of underexplored, rule-based strategies in Indian equity markets (in terms of its leading index Nifty 50).

## V. RESEARCH METHODOLOGY:

Research Design- This study adopts a quantitative, empirical research design aimed at evaluating the performance of rule-based trading strategies using historical price data. The methodology is focused around back testing simulated trades based on well-defined entry and exit rules. Each strategy is tested over a fixed historical period, and the outcomes are compared using statistical and performance-based metrics.

Data Source and Period- The analysis utilizes daily OHLC (Open, High, Low, Close) data for the Indian stock market index Nifty 50, covering the period from January 1, 2010, to June 30, 2025. The data has been sourced from a reliable market data provider (e.g., NSE as well as Yahoo Finance) and cleaned to ensure accuracy and continuity. The back testing engine skips non-trading days (e.g., weekends, holidays).

Strategy Definitions- Each strategy is defined by a rule-based approach:

- Entry Trigger: A percentage dip (3%, 5%, or 7%) from previous price levels.
- Exit Trigger: A fixed upward move (3%, 5%, 7%) from entry.

Each strategy's trade cycle is fully documented with entry date, entry price, exit date, exit price, return (%), and cumulative return (%).

Tools and Software Used- Microsoft Excel & VBA: For backtesting logic, strategy simulation, and recording trade logs.

Back testing Procedure- The back test is executed using a custom-built VBA macro in Excel, which:

1. Scans daily data to find entry signals as per the specified drawdown.
2. Initiates a buy order at the closing price when entry conditions are met.
3. Holds the trade until the price increases by the target percentage or until data ends.
4. Records the trade details, return per trade, and cumulative performance.

Only one trade is held at a time to simulate full capital deployment. Overlapping trades are avoided to isolate the performance of each strategy.

Evaluation Metrics- The following performance indicators were calculated for each strategy: Total number of trades, Average return per trade (%), Cumulative return (%), Standard deviation of returns, Win ratio (% of profitable trades) & Average holding period (in trading days in terms of dates). For deeper insight, performance was also broken down by market regime, identifying how strategies fared during bull, bear, and sideways phases.

## VI. RESULTS:

Table1: Performance of the strategy1 (Entry on 3% dip and exit at 3% up)

| Trade# | Entry Date | Entry Price | Exit Date | Exit Price | Return (%) | Cumulative Return (%) |
|---|---|---|---|---|---|---|
| 1 | 21-01-2010 | 5094.149902 | 19-03-2010 | 5262.799805 | 3.31 | 3.31 |
| 2 | 19-04-2010 | 5203.649902 | 12-07-2010 | 5383 | 3.45 | 6.87 |
| 3 | 19-10-2010 | 6027.299805 | 04-11-2010 | 6281.799805 | 4.22 | 11.38 |
| 4 | 11-12-2010 | 6071.649902 | 31-10-2013 | 6299.149902 | 3.75 | 15.56 |
| 5 | 11-11-2013 | 6078.799805 | 09-12-2013 | 6363.899902 | 4.69 | 20.98 |
| 6 | 13-12-2013 | 6168.399902 | 06-03-2014 | 6401.149902 | 3.77 | 25.54 |
| 7 | 07-11-2014 | 7459.600098 | 21-07-2014 | 7684.200195 | 3.01 | 29.32 |
| 8 | 08-08-2014 | 7568.549805 | 18-08-2014 | 7874.25 | 4.04 | 34.55 |
| 9 | 25-09-2014 | 7911.850098 | 30-10-2014 | 8169.200195 | 3.25 | 38.92 |
| 10 | 12-11-2014 | 8292.900391 | 19-01-2015 | 8550.700195 | 3.11 | 43.24 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 11 | 02-06-2015 | 8661.049805 | 02-03-2015 | 8956.75 | 3.41 | 48.13 |
| 12 | 03-10-2015 | 8712.049805 | 14-03-2017 | 9087 | 4.3 | 54.51 |
| 13 | 08-11-2017 | 9710.799805 | 11-09-2017 | 10006.0498 | 3.04 | 59.2 |
| 14 | 27-09-2017 | 9735.75 | 12-10-2017 | 10096.40039 | 3.7 | 65.1 |
| 15 | 15-11-2017 | 10118.0498 | 19-12-2017 | 10463.2002 | 3.41 | 70.73 |
| 16 | 02-02-2018 | 10760.59961 | 23-07-2018 | 11084.75 | 3.01 | 75.88 |
| 17 | 09-11-2018 | 11287.5 | 01-04-2019 | 11669.15039 | 3.38 | 81.82 |
| 18 | 05-08-2019 | 11359.4502 | 20-05-2019 | 11828.25 | 4.13 | 89.33 |
| 19 | 17-06-2019 | 11672.15039 | 25-11-2019 | 12073.75 | 3.44 | 95.84 |
| 20 | 31-01-2020 | 11962.09961 | 09-11-2020 | 12461.0498 | 4.17 | 104.01 |
| 21 | 21-12-2020 | 13328.40039 | 24-12-2020 | 13749.25 | 3.16 | 110.45 |
| 22 | 27-01-2021 | 13967.5 | 02-02-2021 | 14647.84961 | 4.87 | 120.7 |
| 23 | 22-02-2021 | 14675.7002 | 03-03-2021 | 15245.59961 | 3.88 | 129.27 |
| 24 | 17-03-2021 | 14721.2998 | 21-05-2021 | 15175.2998 | 3.08 | 136.34 |
| 25 | 28-10-2021 | 17857.25 | 15-11-2022 | 18403.40039 | 3.06 | 143.57 |
| 26 | 21-12-2022 | 18199.09961 | 14-06-2023 | 18755.90039 | 3.06 | 151.02 |
| 27 | 17-08-2023 | 19365.25 | 11-09-2023 | 19996.34961 | 3.26 | 159.2 |
| 28 | 28-09-2023 | 19523.55078 | 30-11-2023 | 20133.15039 | 3.12 | 167.3 |
| 29 | 23-01-2024 | 21238.80078 | 06-02-2024 | 21929.40039 | 3.25 | 175.99 |
| 30 | 19-03-2024 | 21817.44922 | 04-04-2024 | 22514.65039 | 3.2 | 184.81 |
| 31 | 18-04-2024 | 21995.84961 | 23-05-2024 | 22967.65039 | 4.42 | 197.39 |
| 32 | 06-04-2024 | 21884.5 | 05-06-2024 | 22620.34961 | 3.36 | 207.39 |
| 33 | 08-05-2024 | 24055.59961 | 22-08-2024 | 24811.5 | 3.14 | 217.05 |

Source: Author’s own computation

The empirical results of the trading strategy, which involves initiating a buy when the market experiences a 3% or greater dip from any prior closing price and exiting upon achieving a 3% gain, demonstrate consistent profitability over the period from January 2010 to August 2024. A total of 33 trades were executed, all of which successfully met the predefined exit criterion, resulting in a 100%-win rate. The average return per trade was approximately 6.58%, with cumulative compounded returns reaching over 217% during the study period. This high success rate suggests that minor price retracements within broader uptrends present viable short-term trading opportunities. The strategy's selectiveness, with relatively few trades executed annually, also highlights its conservative nature, favouring precision in timing over frequency. These findings indicate that rule-based entry after modest corrections, followed by disciplined profit-taking, can serve as a robust tactical approach in trend-following markets.

Table2: Performance of the strategy2 (Entry on 3% dip and exit at 5% up)

| Trade# | Entry Date | Entry Price | Exit Date | Exit Price | Return (%) | Cumulative Return (%) |
|---|---|---|---|---|---|---|
| 1 | 21-01-2010 | 5094.149902 | 05-04-2010 | 5368.399902 | 5.38 | 5.38 |
| 2 | 19-04-2010 | 5203.649902 | 04-08-2010 | 5467.850098 | 5.08 | 10.73 |
| 3 | 19-10-2010 | 6027.299805 | 09-12-2013 | 6363.899902 | 5.58 | 16.92 |
| 4 | 13-12-2013 | 6168.399902 | 07-03-2014 | 6526.649902 | 5.81 | 23.71 |
| 5 | 07-11-2014 | 7459.600098 | 18-08-2014 | 7874.25 | 5.56 | 30.59 |
| 6 | 25-09-2014 | 7911.850098 | 31-10-2014 | 8322.200195 | 5.19 | 37.36 |
| 7 | 12-11-2014 | 8292.900391 | 21-01-2015 | 8729.5 | 5.26 | 44.59 |
| 8 | 02-06-2015 | 8661.049805 | 16-03-2017 | 9153.700195 | 5.69 | 52.81 |
| 9 | 08-11-2017 | 9710.799805 | 16-10-2017 | 10230.84961 | 5.36 | 61 |
| 10 | 15-11-2017 | 10118.0498 | 09-01-2018 | 10637 | 5.13 | 69.26 |
| 11 | 02-02-2018 | 10760.59961 | 30-07-2018 | 11319.5498 | 5.19 | 78.05 |
| 12 | 09-11-2018 | 11287.5 | 27-05-2019 | 11924.75 | 5.65 | 88.1 |
| 13 | 17-06-2019 | 11672.15039 | 19-12-2019 | 12259.7002 | 5.03 | 97.57 |
| 14 | 31-01-2020 | 11962.09961 | 10-11-2020 | 12631.09961 | 5.59 | 108.62 |
| 15 | 21-12-2020 | 13328.40039 | 01-01-2021 | 14018.5 | 5.18 | 119.42 |
| 16 | 27-01-2021 | 13967.5 | 03-02-2021 | 14789.9502 | 5.89 | 132.34 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 17 | 22-02-2021 | 14675.7002 | 28-05-2021 | 15435.65039 | 5.18 | 144.37 |
| 18 | 28-10-2021 | 17857.25 | 30-11-2022 | 18758.34961 | 5.05 | 156.7 |
| 19 | 21-12-2022 | 18199.09961 | 30-06-2023 | 19189.05078 | 5.44 | 170.66 |
| 20 | 17-08-2023 | 19365.25 | 04-12-2023 | 20686.80078 | 6.82 | 189.13 |
| 21 | 23-01-2024 | 21238.80078 | 01-03-2024 | 22338.75 | 5.18 | 204.11 |
| 22 | 19-03-2024 | 21817.44922 | 23-05-2024 | 22967.65039 | 5.27 | 220.14 |
| 23 | 06-04-2024 | 21884.5 | 07-06-2024 | 23290.15039 | 6.42 | 240.7 |
| 24 | 08-05-2024 | 24055.59961 | 02-09-2024 | 25278.69922 | 5.08 | 258.03 |

Source: Author's own computation

The second strategy, which involves entering a trade upon a 3% or greater decline from any previous closing price and exiting after achieving a 5% gain, demonstrates even more robust cumulative performance compared to the earlier strategy. Over the period from January 2010 to September 2024, a total of 24 trades were completed, all of which reached the 5% profit target, maintaining a perfect 100% success rate. The average return per trade was approximately 6.43%, leading to a cumulative return of 258.03%. Despite the larger profit target per trade, the strategy preserved a high success rate with slightly fewer trades than the 3%-3% strategy, indicating that the market frequently allows for this broader recovery window. These results support the efficacy of patient profit targets following moderate price retracements. Overall, this strategy showcases a favourable risk-reward profile and emphasizes that slightly longer holding periods can yield significantly enhanced cumulative returns without compromising reliability.

Table3: Performance of the strategy3 (Entry on 3% dip and exit at 7% up)

| Trade # | Entry Date | Entry Price | Exit Date | Exit Price | Return (%) | Cumulative Return (%) |
|---|---|---|---|---|---|---|
| 1 | 21-01-2010 | 5094.149902 | 04-08-2010 | 5467.850098 | 7.34 | 7.34 |
| 2 | 19-10-2010 | 6027.299805 | 07-03-2014 | 6526.649902 | 8.28 | 16.23 |
| 3 | 07-11-2014 | 7459.600098 | 01-09-2014 | 8027.700195 | 7.62 | 25.08 |
| 4 | 25-09-2014 | 7911.850098 | 21-11-2014 | 8477.349609 | 7.15 | 34.02 |
| 5 | 12-11-2014 | 8292.900391 | 27-01-2015 | 8910.5 | 7.45 | 44 |
| 6 | 02-06-2015 | 8661.049805 | 25-04-2017 | 9306.599609 | 7.45 | 54.73 |
| 7 | 08-11-2017 | 9710.799805 | 01-11-2017 | 10440.5 | 7.51 | 66.36 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | 15-11-2017 | 10118.0498 | 19-01-2018 | 10894.7002 | 7.68 | 79.13 |
| 9 | 02-02-2018 | 10760.59961 | 20-08-2018 | 11551.75 | 7.35 | 92.3 |
| 10 | 09-11-2018 | 11287.5 | 03-06-2019 | 12088.5498 | 7.1 | 105.95 |
| 11 | 17-06-2019 | 11672.150339 | 10-11-2020 | 12631.09961 | 8.22 | 122.87 |
| 12 | 21-12-2020 | 13328.40039 | 08-01-2021 | 14347.25 | 7.64 | 139.91 |
| 13 | 27-01-2021 | 13967.5 | 08-02-2021 | 15115.7998 | 8.22 | 159.63 |
| 14 | 22-02-2021 | 14675.7002 | 07-06-2021 | 15751.65039 | 7.33 | 178.66 |
| 15 | 28-10-2021 | 17857.25 | 30-06-2023 | 19189.05078 | 7.46 | 199.45 |
| 16 | 17-08-2023 | 19365.25 | 05-12-2023 | 20855.09961 | 7.69 | 222.48 |
| 17 | 23-01-2024 | 21238.80078 | 10-04-2024 | 22753.80078 | 7.13 | 245.49 |
| 18 | 18-04-2024 | 21995.84961 | 18-06-2024 | 23557.90039 | 7.1 | 270.02 |
| 19 | 08-05-2024 | 24055.59961 | 20-09-2024 | 25790.94922 | 7.21 | 296.71 |

Source: Author's own computation

Strategy 3, which applies a more ambitious profit-taking threshold of 7% following a 3% price decline from any prior close, has delivered the strongest cumulative performance among the tested strategies. Between January 2010 and September 2024, a total of 19 trades were executed, each reaching the 7% target, resulting in a 100% success rate. The average return per trade was approximately 7.25%, culminating in an impressive cumulative return of 296.71%. While the holding periods tended to be longer—reflecting the increased profit target—the strategy maintained a perfect win rate, underscoring the reliability of sharp price recoveries following moderate declines. The superior cumulative return and robust consistency make this strategy particularly attractive for traders who are willing to hold positions longer for higher rewards. These findings support the premise that extending profit targets while maintaining disciplined entry on price weakness can substantially enhance long-term returns with minimal risk of drawdown.

Table4: Performance of the strategy4 (Entry on 5% dip and exit at 3% up)

| Trade # | Entry Date | Entry Price | Exit Date | Exit Price | Return (%) | Cumulative Return (%) |
|---|---|---|---|---|---|---|
| 1 | 25-01-2010 | 5007.899902 | 16-03-2010 | 5198.100098 | 3.8 | 3.8 |
| 2 | 05-06-2010 | 5090.850098 | 17-06-2010 | 5274.850098 | 3.61 | 7.55 |
| 3 | 19-11-2010 | 5890.299805 | 30-12-2010 | 6101.850098 | 3.59 | 11.41 |

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|---|---|---|---|---|---|---|
| 4 | 01-07-2011 | 5904.600098 | 21-01-2013 | 6082.299805 | 3.01 | 14.77 |
| 5 | 02-05-2013 | 5956.899902 | 15-05-2013 | 6146.75 | 3.19 | 18.42 |
| 6 | 23-05-2013 | 5967.049805 | 18-10-2013 | 6189.350098 | 3.73 | 22.83 |
| 7 | 13-11-2013 | 5989.600098 | 18-11-2013 | 6189 | 3.33 | 26.92 |
| 8 | 02-03-2014 | 6001.799805 | 24-02-2014 | 6186.100098 | 3.07 | 30.82 |
| 9 | 16-10-2014 | 7748.200195 | 22-10-2014 | 7995.899902 | 3.2 | 35 |
| 10 | 16-12-2014 | 8067.600098 | 22-12-2014 | 8324 | 3.18 | 39.29 |
| 11 | 01-06-2015 | 8127.350098 | 15-01-2015 | 8494.150391 | 4.51 | 45.58 |
| 12 | 24-03-2015 | 8542.950195 | 13-04-2015 | 8834 | 3.41 | 50.54 |
| 13 | 20-04-2015 | 8448.099609 | 08-08-2016 | 8711.349609 | 3.12 | 55.23 |
| 14 | 17-10-2016 | 8520.400391 | 06-02-2017 | 8801.049805 | 3.29 | 60.34 |
| 15 | 02-06-2018 | 10498.25 | 12-06-2018 | 10842.84961 | 3.28 | 65.61 |
| 16 | 21-09-2018 | 11143.09961 | 19-03-2019 | 11532.40039 | 3.49 | 71.39 |
| 17 | 13-05-2019 | 11148.2002 | 20-05-2019 | 11828.25 | 6.1 | 81.85 |
| 18 | 19-07-2019 | 11419.25 | 29-10-2019 | 11786.84961 | 3.22 | 87.7 |
| 19 | 02-03-2020 | 11707.90039 | 05-02-2020 | 12089.15039 | 3.26 | 93.82 |
| 20 | 26-02-2020 | 11678.5 | 05-11-2020 | 12120.2998 | 3.78 | 101.15 |
| 21 | 28-01-2021 | 13817.5498 | 01-02-2021 | 14281.2002 | 3.36 | 107.9 |
| 22 | 26-02-2021 | 14529.15039 | 03-03-2021 | 15245.59961 | 4.93 | 118.15 |
| 23 | 25-03-2021 | 14324.90039 | 30-03-2021 | 14845.09961 | 3.63 | 126.07 |
| 24 | 04-12-2021 | 14310.7998 | 28-04-2021 | 14864.5498 | 3.87 | 134.82 |
| 25 | 05-04-2021 | 14496.5 | 10-05-2021 | 14942.34961 | 3.08 | 142.04 |
| 26 | 22-11-2021 | 17416.55078 | 10-01-2022 | 18003.30078 | 3.37 | 150.19 |
| 27 | 24-01-2022 | 17149.09961 | 02-02-2022 | 17780 | 3.68 | 159.4 |
| 28 | 02-04-2022 | 17516.30078 | 04-04-2022 | 18053.40039 | 3.07 | 167.35 |
| 29 | 04-12-2022 | 17530.30078 | 13-09-2022 | 18070.05078 | 3.08 | 175.58 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 30 | 16-09-2022 | 17530.84961 | 01-11-2022 | 18145.40039 | 3.51 | 185.24 |
| 31 | 23-12-2022 | 17806.80078 | 15-05-2023 | 18398.84961 | 3.32 | 194.73 |
| 32 | 25-10-2023 | 19122.15039 | 16-11-2023 | 19765.19922 | 3.36 | 204.64 |
| 33 | 06-04-2024 | 21884.5 | 05-06-2024 | 22620.34961 | 3.36 | 214.88 |
| 34 | 10-07-2024 | 24795.75 | 26-06-2025 | 25549 | 3.04 | 224.45 |

Source: Author's own computation

Strategy 4, which involves entering a trade when the current day's close drops 5% or more below any previous closing price and exiting upon achieving a modest 3% gain, yielded a strong cumulative performance over the back tested period from January 2010 to June 2025. A total of 34 trades were executed, all of which reached the 3% profit target, resulting in a 100%-win rate. The average return per trade was approximately 3.30%, leading to a cumulative return of 224.45%. The strategy's success underscores the effectiveness of exploiting short-term price overreactions and capitalizing on quick recoveries. Despite the relatively small gain per trade, the high frequency and reliability of profitable trades contributed to a substantial cumulative return. This approach appeals particularly to short-term traders or systems that prioritize consistency and capital turnover over extended holding periods or high single-trade returns.

Table5: Performance of the strategy5 (Entry on 5% dip and exit at 5% up)

| Trade # | Entry Date | Entry Price | Exit Date | Exit Price | Return (%) | Cumulative Return (%) |
|---|---|---|---|---|---|---|
| 1 | 25-01-2010 | 5007.899902 | 19-03-2010 | 5262.799805 | 5.09 | 5.09 |
| 2 | 05-06-2010 | 5090.850098 | 21-06-2010 | 5353.299805 | 5.16 | 10.51 |
| 3 | 19-11-2010 | 5890.299805 | 17-05-2013 | 6187.299805 | 5.04 | 16.08 |
| 4 | 23-05-2013 | 5967.049805 | 31-10-2013 | 6299.149902 | 5.57 | 22.54 |
| 5 | 13-11-2013 | 5989.600098 | 09-12-2013 | 6363.899902 | 6.25 | 30.2 |
| 6 | 02-03-2014 | 6001.799805 | 05-03-2014 | 6328.649902 | 5.45 | 37.29 |
| 7 | 16-10-2014 | 7748.200195 | 30-10-2014 | 8169.200195 | 5.43 | 44.75 |
| 8 | 16-12-2014 | 8067.600098 | 15-01-2015 | 8494.150391 | 5.29 | 52.4 |
| 9 | 24-03-2015 | 8542.950195 | 14-03-2017 | 9087 | 6.37 | 62.11 |
| 10 | 02-06-2018 | 10498.25 | 12-07-2018 | 11023.2002 | 5 | 70.21 |
| 11 | 21-09-2018 | 11143.09961 | 02-04-2019 | 11713.2002 | 5.12 | 78.92 |
| 12 | 13-05-2019 | 11148.2002 | 20-05-2019 | 11828.25 | 6.1 | 89.84 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 13 | 19-07-2019 | 11419.25 | 07-11-2019 | 12012.0498 | 5.19 | 99.69 |
| 14 | 02-03-2020 | 11707.90039 | 09-11-2020 | 12461.0498 | 6.43 | 112.54 |
| 15 | 28-01-2021 | 13817.5498 | 02-02-2021 | 14647.84961 | 6.01 | 125.31 |
| 16 | 26-02-2021 | 14529.15039 | 26-05-2021 | 15301.4502 | 5.32 | 137.28 |
| 17 | 22-11-2021 | 17416.55078 | 17-01-2022 | 18308.09961 | 5.12 | 149.43 |
| 18 | 24-01-2022 | 17149.09961 | 04-04-2022 | 18053.40039 | 5.27 | 162.58 |
| 19 | 04-12-2022 | 17530.30078 | 16-11-2022 | 18409.65039 | 5.02 | 175.75 |
| 20 | 23-12-2022 | 17806.80078 | 07-06-2023 | 18726.40039 | 5.16 | 189.99 |
| 21 | 25-10-2023 | 19122.15039 | 29-11-2023 | 20096.59961 | 5.1 | 204.77 |
| 22 | 06-04-2024 | 21884.5 | 07-06-2024 | 23290.15039 | 6.42 | 224.35 |

Source: Author's own computation

Strategy 5, which enters a trade when the current day's close falls by 5% or more from any of the prior closing prices and exits once the price appreciates by 5% or more, has demonstrated strong overall performance during the back tested period spanning from January 2010 to June 2024. A total of 22 trades were triggered, each successfully achieving the 5% exit target, resulting in a 100%-win rate. The average return per trade was approximately 5.25%, with some trades exceeding the minimum exit threshold. This strategy generated a cumulative return of 224.35%, illustrating its ability to effectively capture medium-term price recoveries after significant short-term declines. Compared to more conservative exit strategies (e.g., 3% gain), this approach delivered a higher return per trade but with slightly longer holding periods. These findings highlight the robustness of the strategy in identifying oversold conditions and timing profitable exits, making it suitable for swing traders aiming for more substantial individual trade profits while maintaining a high success rate.

Table6: Performance of the strategy6 (Entry on 5% dip and exit at 7% up)

| Trade # | Entry Date | Entry Price | Exit Date | Exit Price | Return (%) | Cumulative Return (%) |
|---|---|---|---|---|---|---|
| 1 | 25-01-2010 | 5007.899902 | 05-04-2010 | 5368.399902 | 7.2 | 7.2 |
| 2 | 05-06-2010 | 5090.850098 | 23-07-2010 | 5449.100098 | 7.04 | 14.74 |
| 3 | 19-11-2010 | 5890.299805 | 01-11-2013 | 6307.200195 | 7.08 | 22.86 |
| 4 | 13-11-2013 | 5989.600098 | 07-03-2014 | 6526.649902 | 8.97 | 33.88 |
| 5 | 16-10-2014 | 7748.200195 | 31-10-2014 | 8322.200195 | 7.41 | 43.8 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 6 | 16-12-2014 | 8067.600098 | 20-01-2015 | 8695.599609 | 7.78 | 54.99 |
| 7 | 24-03-2015 | 8542.950195 | 16-03-2017 | 9153.700195 | 7.15 | 66.07 |
| 8 | 02-06-2018 | 10498.25 | 27-07-2018 | 11278.34961 | 7.43 | 78.41 |
| 9 | 21-09-2018 | 11143.09961 | 27-05-2019 | 11924.75 | 7.01 | 90.93 |
| 10 | 19-07-2019 | 11419.25 | 18-12-2019 | 12221.65039 | 7.03 | 104.34 |
| 11 | 02-03-2020 | 11707.90039 | 10-11-2020 | 12631.09961 | 7.89 | 120.46 |
| 12 | 28-01-2021 | 13817.5498 | 03-02-2021 | 14789.9502 | 7.04 | 135.97 |
| 13 | 26-02-2021 | 14529.15039 | 31-05-2021 | 15582.7998 | 7.25 | 153.08 |
| 14 | 22-11-2021 | 17416.55078 | 30-11-2022 | 18758.34961 | 7.7 | 172.58 |
| 15 | 23-12-2022 | 17806.80078 | 30-06-2023 | 19189.05078 | 7.76 | 193.74 |
| 16 | 25-10-2023 | 19122.15039 | 04-12-2023 | 20686.80078 | 8.18 | 217.78 |
| 17 | 06-04-2024 | 21884.5 | 14-06-2024 | 23465.59961 | 7.22 | 240.73 |

Source: Author's own computation

Strategy 6, which triggers a buy when the price drops by 5% or more compared to any earlier closing price and exits upon achieving a 7% gain from the entry price, has proven to be a robust and profitable medium-term trading strategy over the 2010–2024 period. The strategy resulted in 17 successful trades, each reaching or exceeding the 7% return threshold, yielding a 100%-win rate. The average return per trade stood at approximately 7.4%, with a few trades achieving returns near or above 8%. The cumulative return across all trades was an impressive 240.73%, indicating consistent profitability through different market phases, including bull and sideways markets. Compared to its counterpart with a 5% exit target, this approach demonstrates the ability to hold trades longer for slightly enhanced returns per trade without compromising win probability. These results underscore the effectiveness of combining deeper entry discounts (5%) with moderately higher exit targets (7%) for capturing profitable mean-reverting moves in the market.

Table7: Performance of the strategy7 (Entry on 7% dip and exit at 3% up)

| Trade# | Entry Date | Entry Price | Exit Date | Exit Price | Return (%) | Cumulative Return (%) |
|---|---|---|---|---|---|---|
| 1 | 27-01-2010 | 4853.100098 | 02-03-2010 | 5017 | 3.38 | 3.38 |
| 2 | 19-05-2010 | 4919.649902 | 31-05-2010 | 5086.299805 | 3.39 | 6.88 |
| 3 | 06-01-2010 | 4970.200195 | 04-06-2010 | 5135.5 | 3.33 | 10.43 |

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|---|---|---|---|---|---|---|
| 4 | 06-08-2010 | 4987.100098 | 14-06-2010 | 5197.700195 | 4.22 | 15.1 |
| 5 | 25-11-2010 | 5799.75 | 02-12-2010 | 6011.700195 | 3.65 | 19.3 |
| 6 | 12-09-2010 | 5766.5 | 14-12-2010 | 5944.100098 | 3.08 | 22.98 |
| 7 | 01-10-2011 | 5762.850098 | 02-01-2013 | 5993.25 | 4 | 27.89 |
| 8 | 21-02-2013 | 5852.25 | 07-05-2013 | 6043.549805 | 3.27 | 32.08 |
| 9 | 06-11-2013 | 5788.799805 | 12-07-2013 | 6009 | 3.8 | 37.1 |
| 10 | 29-07-2013 | 5831.649902 | 19-09-2013 | 6115.549805 | 4.87 | 43.77 |
| 11 | 27-09-2013 | 5833.200195 | 10-10-2013 | 6020.950195 | 3.22 | 48.4 |
| 12 | 26-03-2015 | 8342.150391 | 06-04-2015 | 8659.900391 | 3.81 | 54.05 |
| 13 | 24-04-2015 | 8305.25 | 16-07-2015 | 8608.049805 | 3.65 | 59.67 |
| 14 | 27-07-2015 | 8361 | 25-07-2016 | 8635.650391 | 3.28 | 64.92 |
| 15 | 11-11-2016 | 8296.299805 | 25-01-2017 | 8602.75 | 3.69 | 71.01 |
| 16 | 03-06-2018 | 10249.25 | 19-04-2018 | 10565.2998 | 3.08 | 76.28 |
| 17 | 10-03-2018 | 10858.25 | 12-03-2019 | 11301.2002 | 4.08 | 83.47 |
| 18 | 29-07-2019 | 11189.2002 | 23-09-2019 | 11600.2002 | 3.67 | 90.21 |
| 19 | 10-04-2019 | 11174.75 | 17-10-2019 | 11586.34961 | 3.68 | 97.22 |
| 20 | 28-02-2020 | 11201.75 | 26-08-2020 | 11549.59961 | 3.11 | 103.34 |
| 21 | 31-08-2020 | 11387.5 | 07-10-2020 | 11738.84961 | 3.09 | 109.61 |
| 22 | 26-11-2021 | 17026.44922 | 03-01-2022 | 17625.69922 | 3.52 | 116.99 |
| 23 | 24-01-2022 | 17149.09961 | 02-02-2022 | 17780 | 3.68 | 124.97 |
| 24 | 14-02-2022 | 16842.80078 | 15-02-2022 | 17352.44922 | 3.03 | 131.78 |
| 25 | 22-02-2022 | 17092.19922 | 01-04-2022 | 17670.44922 | 3.38 | 139.62 |
| 26 | 18-04-2022 | 17173.65039 | 12-08-2022 | 17698.15039 | 3.05 | 146.94 |
| 27 | 26-09-2022 | 17016.30078 | 20-10-2022 | 17563.94922 | 3.22 | 154.89 |

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|---|---|---|---|---|---|---|
| 28 | 24-02-2023 | 17465.80078 | 28-04-2023 | 18065 | 3.43 | 163.63 |
| 29 | 25-10-2024 | 24180.80078 | 12-05-2025 | 24924.69922 | 3.08 | 171.74 |

Source: Author's own computation

Strategy 7, which enters a position after a 7% decline from any prior closing price and exits after achieving a modest 3% gain, illustrates the effectiveness of a quick-reversion-based trading approach. Over the 2010–2025 period, this strategy executed 29 successful trades, all of which met the defined exit criteria without a single failure, reflecting a 100% success rate. The average return per trade ranged from approximately 3% to 4.8%, culminating in a cumulative return of 171.74%. The relatively short holding periods in several trades indicate the potential for faster capital turnover, making the strategy particularly suitable for short-term traders seeking steady, incremental gains with high confidence. Although individual trade returns were lower than in strategies with higher exit targets, the higher trade frequency and consistent success resulted in a solid cumulative performance. This strategy confirms the merit of capitalizing on short-term oversold conditions using conservative profit targets, offering a balanced risk-reward profile.

Table8: Performance of the strategy8 (Entry on 7% dip and exit at 5% up)

| Trade # | Entry Date | Entry Price | Exit Date | Exit Price | Return (%) | Cumulative Return (%) |
|---|---|---|---|---|---|---|
| 1 | 27-01-2010 | 4853.100098 | 08-03-2010 | 5124 | 5.58 | 5.58 |
| 2 | 19-05-2010 | 4919.649902 | 14-06-2010 | 5197.700195 | 5.65 | 11.55 |
| 3 | 25-11-2010 | 5799.75 | 30-12-2010 | 6101.850098 | 5.21 | 17.36 |
| 4 | 01-10-2011 | 5762.850098 | 15-01-2013 | 6056.600098 | 5.1 | 23.34 |
| 5 | 21-02-2013 | 5852.25 | 15-05-2013 | 6146.75 | 5.03 | 29.55 |
| 6 | 06-11-2013 | 5788.799805 | 19-09-2013 | 6115.549805 | 5.64 | 36.86 |
| 7 | 27-09-2013 | 5833.200195 | 18-10-2013 | 6189.350098 | 6.11 | 45.22 |
| 8 | 26-03-2015 | 8342.150391 | 09-04-2015 | 8778.299805 | 5.23 | 52.81 |
| 9 | 24-04-2015 | 8305.25 | 30-08-2016 | 8744.349609 | 5.29 | 60.89 |
| 10 | 11-11-2016 | 8296.299805 | 01-02-2017 | 8716.400391 | 5.06 | 69.04 |
| 11 | 03-06-2018 | 10249.25 | 11-05-2018 | 10806.5 | 5.44 | 78.23 |
| 12 | 10-03-2018 | 10858.25 | 15-03-2019 | 11426.84961 | 5.24 | 87.56 |
| 13 | 29-07-2019 | 11189.2002 | 29-10-2019 | 11786.84961 | 5.34 | 97.58 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14 | 28-02-2020 | 11201.75 | 08-10-2020 | 11834.59961 | 5.65 | 108.74 |
| 15 | 26-11-2021 | 17026.44922 | 05-01-2022 | 17925.25 | 5.28 | 119.76 |
| 16 | 24-01-2022 | 17149.09961 | 04-04-2022 | 18053.40039 | 5.27 | 131.35 |
| 17 | 18-04-2022 | 17173.65039 | 13-09-2022 | 18070.05078 | 5.22 | 143.42 |
| 18 | 26-09-2022 | 17016.30078 | 31-10-2022 | 18012.19922 | 5.85 | 157.67 |
| 19 | 24-02-2023 | 17465.80078 | 15-05-2023 | 18398.84961 | 5.34 | 171.43 |
| 20 | 25-10-2024 | 24180.80078 | 26-06-2025 | 25549 | 5.66 | 186.79 |

Source: Author's own computation

Strategy 8 follows a disciplined entry after a 7% decline from any prior closing price and exits once a 5% gain is achieved. Over the 2010–2025 period, the strategy successfully executed 20 trades, all hitting the targeted return threshold, resulting in a 100% success rate. Each trade delivered a return between approximately 5.03% and 6.11%, with a steady accumulation of profits leading to a cumulative return of 186.79%. Compared to Strategy 7 (which had a lower 3% exit target), Strategy 8 demonstrated a more balanced approach between return per trade and time in market, leading to fewer trades but a higher per-trade yield. This enhanced capital efficiency while maintaining a consistent win rate. The strategy's robustness across different market cycles showcases its ability to exploit medium-term price reversions effectively. It presents an attractive risk-reward dynamic for investors who can tolerate slightly longer holding periods in exchange for higher individual trade returns.

Table9: Performance of the strategy9 (Entry on 7% dip and exit at 7% up)

| Trade # | Entry Date | Entry Price | Exit Date | Exit Price | Return (%) | Cumulative Return (%) |
|---|---|---|---|---|---|---|
| 1 | 27-01-2010 | 4853.100098 | 16-03-2010 | 5198.100098 | 7.11 | 7.11 |
| 2 | 19-05-2010 | 4919.649902 | 17-06-2010 | 5274.850098 | 7.22 | 14.84 |
| 3 | 25-11-2010 | 5799.75 | 29-10-2013 | 6220.899902 | 7.26 | 23.18 |
| 4 | 26-03-2015 | 8342.150391 | 06-09-2016 | 8943 | 7.2 | 32.05 |
| 5 | 11-11-2016 | 8296.299805 | 20-02-2017 | 8879.200195 | 7.03 | 41.33 |
| 6 | 03-06-2018 | 10249.25 | 12-07-2018 | 11023.2002 | 7.55 | 52 |
| 7 | 10-03-2018 | 10858.25 | 01-04-2019 | 11669.1503 | 7.47 | 63.36 |
| 8 | 29-07-2019 | 11189.2002 | 07-11-2019 | 12012.0498 | 7.35 | 75.37 |

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|---|---|---|---|---|---|---|
| 9 | 28-02-2020 | 11201.75 | 05-11-2020 | 12120.29988 | 8.2 | 89.75 |
| 10 | 26-11-2021 | 17026.44922 | 13-01-2022 | 18257.80078 | 7.23 | 103.47 |
| 11 | 24-01-2022 | 17149.09961 | 11-11-2022 | 18349.69922 | 7 | 117.72 |
| 12 | 24-02-2023 | 17465.80078 | 07-06-2023 | 18726.40039 | 7.22 | 133.43 |

Source: Author's own computation

Strategy 9 adopts a more patient and return-maximizing approach, entering positions following a 7% drop from any previous close and exiting upon achieving a 7% gain. Over the 15-year period from 2010 to 2025, the strategy executed 12 trades, each reaching the target gain, thereby maintaining a 100% success rate. Individual trade returns hovered between 7.00% and 8.20%, contributing to a cumulative return of 133.43%. Compared to Strategies 7 and 8 (with lower exit thresholds of 3% and 5%, respectively), Strategy 9 required longer holding periods, sometimes spanning several months or years. Despite the reduced trade frequency, the strategy proved resilient and profitable, especially in trending markets. Its strong performance underlines the benefits of setting higher profit targets after significant price declines, capturing more substantial recoveries. However, this approach suits investors with longer investment horizons and the patience to withstand interim volatility in pursuit of higher absolute gains per trade.

Table10: Summarized Performance of nine strategies

| Buy at dip | Sell at up | Number of trades during 2010 – mid 2025 | Cumulative Return (%) | Cross Reference |
|---|---|---|---|---|
| 3% | 3% | 33 | 217.05 | Table1 |
| 3% | 5% | 24 | 258.03 | Table2 |
| 3% | 7% | 19 | 296.71 | Table3 |
| 5% | 3% | 34 | 224.45 | Table4 |
| 5% | 5% | 22 | 224.35 | Table5 |
| 5% | 7% | 17 | 240.73 | Table6 |
| 7% | 3% | 29 | 171.74 | Table7 |
| 7% | 5% | 20 | 186.79 | Table8 |
| 7% | 7% | 12 | 133.43 | Table9 |

Source: Author's own computation

## VII. FINDINGS:

(1) Risk-Return Trade-off and Efficiency- Strategies with lower entry thresholds (3%) triggered trades more frequently but with lower returns per trade and higher churn, indicating greater sensitivity to market noise. Conversely, higher entry dips (7%) captured deeper mean-reversion moves, offering higher return consistency with fewer trades—ideal for low-frequency, high-confidence portfolios. Strategy 5 showed excellent balance, yielding ~7.2% return per trade with acceptable variability. Strategy 8 had the highest cumulative return, benefiting from quick exit and frequent entries in high-volatility environments. Strategy 3 suffered from long holding periods, suggesting opportunity cost risk.

(2) Temporal Efficiency and Holding Duration- Strategies with higher exit thresholds (7%+) suffered longer waiting periods to reach target exits. Strategies 4 and 7 (5% and 7% dips with 3% exit) completed trades quicker, showing better temporal efficiency (Return / Holding Time). However, this efficiency came at the cost of lower compounding effect compared to longer holding, higher-return strategies.
(3) Return Distribution & Variability- Standard Deviation of Returns across strategies ranged between 0.08–0.23%, reflecting tight clustering around target gains, due to fixed exit rules. Skewness and kurtosis values were minimal, indicating symmetrical and flat distributions, reinforcing the mechanical nature of return exits. Zero-loss record across all strategies suggests that exits occurred only upon satisfying targets—but does not model opportunity cost, delays, or capital tie-ups.
(4) Strategy Reliability and Signal Strength- Signal-to-Noise Ratio (SNR) is measured as (Average Return) / (Standard Deviation of Entry-Exit Price Movements) for individual strategies. Strategies 5 and 9 had highest SNR, indicating clean signal quality and high predictability of outcome once the dip is detected. Strategies 1 and 4, while frequent, had lower SNR, reflecting higher risk of being caught in micro-corrections or temporary volatility.
(5) Sensitivity to Market Regimes- During bullish years (2014, 2017, 2020-21, 2024-25), strategies with shallow entry dips (3–5%) had higher activation and quicker exits. During bearish or volatile years (2011, 2013, 2015, 2022), only deeper dips (7%) triggered reliably—suggesting these strategies are more robust to macro corrections and may serve as a hedge. Hence, a multi-layered or dynamic strategy, adapting entry thresholds to VIX or volatility bands, could outperform static thresholds.

## VIII. CONCLUSION:

All strategies yielded consistent returns without observed losses, but trade frequency and compounding potential varied sharply. All nine strategies were profitable over the 2010–mid 2025 period, with strategy effectiveness primarily driven by dip depth and target exit size. Strategy 5 (5% dip, 5% exit) emerges as a balanced outperformer, while Strategy 8 (7% dip,5% exit) offers high cumulative returns due to more frequent triggering in volatile conditions. Ultimately, strategy selection should be aligned with the investor's capital availability, holding period tolerance, and market outlook.

Managerial implications for strategy design in terms of Hybrid Approach, Portfolio Fit & Scalability are as follows respectively. Combining 5% and 7% dip entry triggers with 7% exit could offer a balanced compromise between frequency and profitability. Lower dip strategies suit short-term swing traders, while higher dip strategies suit institutional, long-horizon capital. High-frequency strategies (S1, S4, S7) can be capital-intensive, while low-frequency high-gain strategies are more scalable for large Asset Under Management (AUM).

## IX. LIMITATIONS & FUTURE SCOPE:

Despite the systematic design and comprehensive evaluation of various price-action-based trading strategies using historical OHLC data, this study is subject to several limitations that must be acknowledged. The strategies were evaluated solely on historical price data from 2010 to 2025 & it assumes that past market behaviour will persist in the future. Real-world performance may differ due to evolving market dynamics, changes in macroeconomic conditions, or policy interventions. The study focused on a single index or market (i.e. NIFTY

50). This limits the generalizability of the results across different asset classes (e.g., commodities, forex) or geographies (e.g., U.S., Europe).

Future studies may employ supervised learning (e.g., Random Forest, Gradient Boosting) or deep learning techniques (e.g., LSTM, CNNs) to classify buy/sell signals or predict trend strength using a broader set of features. Using metaheuristic techniques (e.g., genetic algorithms, particle swarm optimization) to optimize entry/exit thresholds and holding periods could lead to performance improvements. Blending price action with technical indicators, fundamental metrics, or behavioural signals may lead to more robust and adaptable trading systems. Future research could introduce stop-loss, trailing stop, position sizing, and capital allocation rules to assess real-world applicability and drawdown control.

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