A comparative Study of Stock Selection Strategies from Classic Finance Literature

A PROJECT REPORT

Submitted by

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In partial fulfilment for the award of the degree

MASTERS IN BUSINESS ADMINISTRATION

Under the guidance of

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Kattankulathur

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BONAFIDE CERTIFICATE

DATE:MAY 2025

This is to certify that Mr/Ms. **DIVYATEJAS V** with Register Number **EA2352001010202** is a bonafide student of our Institution pursuing final year **MASTER IN BUSINESS ADMINISTRATION** during the academic year 2023-2025.

In partial fulfilment of the above-mentioned course, the student is required to do a Project work for 2 months and submit the report.

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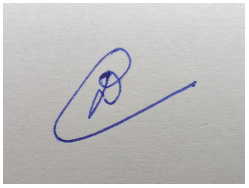
DECLARATION

I, **DIVYATEJAS V**, hereby declare that the Project Report entitled "**A Study of Stock Selection Strategies from Classic Finance Literature**" was done by me under the guidance of **Dr. M. Franklin** at the Directorate of Online Education, SRM Institute of Science and Technology, Chennai and submitted in partial fulfilment of the requirements to be awarded the **Masters in Business Administration** degree. It has not formed the part of any other project work submitted for the award of any degree or diploma, either in this or any other University.

DATE : MAY 2025
PLACE : Kattankulathur



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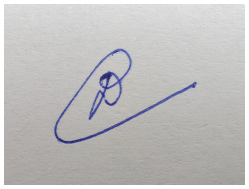

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1 Synopsis

The project titled **"A Comparative Study of Stock Selection Strategies from Classic Finance Literature"** undertakes a focused analysis of the investment philosophies and stock selection strategies advocated by two legendary investors—Benjamin Graham[1] and Peter Lynch[2]. The core objective of this work is to understand, implement, and compare Graham's value investing principles—such as margin of safety, intrinsic value, and low P/E(Price/Earnings) ratios[1]—with Lynch's growth-at-a-reasonable-price (GARP) strategy, which emphasizes earnings growth and PEG(Price/Earnings to EPS Growth) ratios[2].

My contributions include an in-depth literature review of their published works and interviews, translating their qualitative principles into measurable quantitative filters, and applying these filters to historical stock market data using Python-based tools and Excel. The project involves curating stock data from reliable sources like Yahoo Finance[3] and Screener.in[4], screening stocks based on both Graham and Lynch criteria, and analyzing the performance of the selected portfolios over a time frame in terms of return, volatility, and risk-adjusted metrics.

This hands-on comparison allows me to evaluate the practicality and effectiveness of their theories in today's market conditions. The project highlights not only the timeless relevance of these classic strategies but also how they differ in approach, risk tolerance, and expected outcomes. Through this study, I aim to contribute a structured, data-backed comparison that bridges traditional investment theory with modern financial data analytics.

2 Introduction

In the world of equity investing, stock selection remains one of the most important factors for long-term wealth creation. Over the decades, several investment thinkers have introduced methodologies for identifying fundamentally strong businesses with the potential to generate above-average returns. Among these, the strategies proposed by Benjamin Graham—the father of value investing—and Peter Lynch, a champion of growth-at-a-reasonable-price (GARP) investing, stand out for their enduring popularity and influence.

This project, titled *"A Comparative Study of Stock Selection Strategies from Classic Finance Literature"*, focuses on evaluating the practical effectiveness of the stock-picking frameworks developed by these two iconic investors, specifically within the context of the Indian stock market over the past 5-15 years.

The relevance of this study is twofold. First, the Indian equity market has matured significantly over the last decade, attracting growing interest from both domestic retail investors and global institutions. With a vast and diverse universe of listed companies, the market offers a fertile ground for structured, strategy-based investing. Second, most retail investors in India today are heavily influenced by media sources such as television news channels, social media influencers, and YouTube content. Investment decisions are often made impulsively—based on recent headlines or trending narratives—rather than on a foundation of sound financial data [5] . This study aims to bridge that gap by evaluating whether classic, time-tested investment philosophies—such as those of Benjamin Graham and Peter Lynch—can be applied effectively in the Indian context, and whether they offer better long-term results compared to emotionally-driven or media-fueled investing.

Notably, Benjamin Graham's framework includes simple, easy-to-monitor screening techniques that allow even time-constrained investors to make informed decisions without the need for constant market tracking. These principles, when applied methodically, have the potential to help everyday investors build wealth systematically and with greater confidence.

From a business analytics perspective, this project offers a valuable opportunity to apply data-driven techniques to a real-world investment scenario. It involves systematically screening Indian stocks based on rule-based filters derived from Graham's and

Lynch's strategies, constructing equal-weighted portfolios, and comparing their performance against a market benchmark like the Nifty 50. Tools such as Python for data extraction and backtesting, and Excel for visualization and reporting, are used to demonstrate how analytics can guide structured, evidence-based investing decisions.

Importantly, this study is set against the backdrop of India's ongoing economic expansion, supported by strong domestic consumption, increasing retail investor participation, and a favorable demographic profile. As India continues its growth trajectory, understanding and applying classic investment strategies through modern analytics becomes increasingly relevant—helping investors participate in long-term wealth creation in a disciplined and informed manner.

3 Problem Statement

While mutual funds remain a preferred investment vehicle for Indian retail investors, active mutual fund strategies suffer from multiple structural limitations that can significantly impact investor returns—especially during volatile market conditions. These structural issues arise from regulatory constraints, internal fund house policies, and behavioral inefficiencies within the asset management industry.

One of the primary limitations is the regulatory cap on exposure to individual stocks. Mutual funds are not allowed to concentrate capital into high-conviction ideas, even when compelling opportunities are identified. This restriction on concentration limits potential upside and forces diversification, sometimes at the cost of performance. Moreover, portfolio construction in many mutual funds—especially those benchmarked to indices—is heavily influenced by market capitalization. Stocks with larger market caps automatically receive greater weightage in the portfolio, regardless of their fundamental attractiveness. As a result, fund managers may be compelled to allocate disproportionately large amounts of capital to overvalued but high-market-cap stocks, while fundamentally strong but smaller-cap companies receive minimal exposure. This approach, while aligned with index tracking or regulatory norms, can dilute the impact of high-conviction investment ideas and limit long-term alpha generation.

Another major concern is the cyclical nature of mutual fund inflows and outflows, which are heavily influenced by investor sentiment and market momentum. During bull markets—when valuations are high and opportunities are expensive—mutual fund inflows surge. This compels fund managers to deploy large amounts of capital at inflated prices, often resulting in suboptimal entry points. Conversely, during bear markets or corrections—when valuations are attractive and high-quality stocks are available at a discount—investor redemptions increase. Fund managers then face liquidity constraints and are unable to deploy capital efficiently, causing them to miss out on some of the most favorable periods for long-term wealth creation.

Compounding these inefficiencies is the fixed-fee structure that most fund houses follow. Fund managers and AMC promoters continue to earn management fees regardless of the fund's performance. This lack of alignment between performance and compensation

creates a “fee drag,” silently eroding investor returns over time—especially in years of mediocre or flat performance.

Additionally, a significant behavioral issue is the prevalence of “herd mentality” among fund managers. Capital is frequently channeled into well-known, widely held stocks to reduce career risk. As Peter Lynch famously noted, fund managers prefer holding familiar names like IBM or Kodak—not necessarily due to conviction, but because if these bets fail, everyone else failed too. This leads to a risk-averse, consensus-driven approach that favors safety over performance and reinforces mediocrity.

These distortions are further exacerbated by the structure of benchmark indices themselves, which often include overvalued stocks based on market capitalization rather than fundamental strength. Consider Zomato, a new-age digital platform company with a Market Cap to Sales ratio of 12.8 and a Price-to-Earnings (P/E) ratio of 348—values that signal extreme overvaluation[6] . Yet, Zomato has a market capitalization of over ₹2.3 lakh crore and is part of major benchmark indices.

In stark contrast, Tata Motors—an established industrial player with a global footprint and decades of proven operational history—trades at a Market Cap to Sales ratio of just 0.55 and a P/E of 7.63, despite having a similar market capitalization (₹2.4 lakh crore)[7] . However, due to Zomato’s high free-float market cap, it is automatically included in indices tracked by both passive and many active mutual funds. Consequently, capital gets funneled into Zomato and similarly overvalued stocks—not because of their earnings potential, but because index-aligned mandates leave fund managers with little choice.

This forced inclusion distorts capital allocation, artificially sustains inflated valuations, and dilutes long-term returns for unsuspecting investors.

Even when viewed through an optimistic lens, Zomato’s valuation seems stretched. Assume it were to be valued like a mature, stable FMCG company—with a P/E of 40. To justify its current stock price of ₹240, the company would need to generate an EPS of ₹6 (since ₹240 ÷ 40 = ₹6). Given its current EPS of ₹0.75, this would require an 8x increase in earnings. Even if Zomato were to grow earnings at an aggressive 40% per annum, it would take roughly 6.7 years to reach this EPS target—assuming no dilution, constant margins, and a stable market environment. These are highly optimistic assumptions in a highly competitive and capital-intensive industry.

Further adding to the challenge is Zomato's narrowing growth runway. The company has already expanded aggressively into Tier 3 and Tier 4 cities, indicating that much of its accessible Indian market is already penetrated. Meanwhile, competition from cash-rich conglomerates like Reliance, Tata, and Walmart-owned Flipkart is intensifying. These players enjoy significant advantages—deep pockets, integrated supply chains, and vast customer ecosystems—that Zomato may struggle to compete with.

As the food delivery and quick commerce markets mature, Zomato faces margin pressure, slowing growth, and increased competition—all of which make sustaining high valuations increasingly difficult.

Given these structural inefficiencies and behavioral distortions in mutual fund investing, there is a strong need to explore alternative, evidence-based investment approaches—especially those that empower individual investors.

This study proposes a comparative evaluation of two timeless, data-driven investment strategies—those of Benjamin Graham[1] and Peter Lynch[2]. These methodologies have stood the test of time in global markets and offer principles that can be adapted to Indian equities through:

- Fundamental screening
- Rule-based portfolio construction
- Long-term tracking of results

By applying these classic frameworks to Indian stocks using real market data, simple valuation metrics, and performance tracking, the study aims to uncover practical, implementable strategies for individual investors.

The objective is to bypass the constraints faced by institutional fund managers and offer Indian investors a structured pathway to logical, valuation-based investing—rooted in historical wisdom and quantitative discipline.

4 Review of Literature

The field of value and growth investing has been shaped significantly by legendary investors like Benjamin Graham and Peter Lynch, each of whom emphasized different financial metrics and valuation methods to identify high-quality stocks with strong return potential. Understanding these metrics is key to appreciating their investment philosophies.

4.1 Benjamin Graham's Investment Philosophy

4.1.1 Concern for Leverage and Debt

Debt-to-Asset Ratio or overall leverage levels were of particular concern to Benjamin Graham, who emphasized financial conservatism and balance sheet strength. He believed that companies with high debt were more vulnerable to economic downturns, interest rate hikes, and operational shocks. A low debt-to-asset or debt-to-equity ratio was seen as a sign of prudent capital management and financial stability—especially important for defensive investors who sought to avoid catastrophic losses. Graham insisted that a sound investment should be judged not just by its potential returns, but by the degree of risk it carries. Excessive leverage, in his view, introduced unnecessary vulnerability, making even promising companies potential liabilities in an investor's portfolio[1].

4.1.2 Price-to-Book Ratio and Intrinsic Value

Price-to-Book Ratio (P/B Ratio) was another cornerstone of Graham's analysis. He believed that stocks trading below their book value (or intrinsic asset value) provided a margin of safety. Such stocks were often overlooked by the market but could deliver substantial upside once their true value was recognized. In capital-intensive industries like manufacturing or banking, P/B ratios remain a useful tool for identifying undervalued opportunities, particularly when combined with quality indicators like return on equity or asset turnover. In his classic works like *Security Analysis* and *The Intelligent Investor*, Graham reiterated the importance of intrinsic value over market sentiment, warning that stock prices often deviate from fundamental reality due to speculation, herd behavior, and short-termism[1].

4.1.3 The Margin of Safety Principle

Graham's central investment principle—the margin of safety—is perhaps his most enduring contribution to the world of investing. This principle refers to buying securities at a significant discount to their intrinsic value, a practice designed to minimize downside risk while maximizing potential returns[1]. In Graham's own words, the goal was to "buy a dollar for fifty cents." He often searched for situations where a company's liquid assets, net of all liabilities, were worth more than the company's total market capitalization. These so-called *net-nets* represented businesses that were essentially being given away by the market, allowing Graham to acquire solid assets with limited downside risk. Even if the business itself faltered, the tangible asset backing provided a safety net that protected the investor.

The safety net of buying an underlying business for significantly less than its fair value was central to Graham's long-term success. He found that when such undervalued stocks were selected carefully, the likelihood of further decline was relatively low. Furthermore, once the broader market eventually recognized the true value of these mispriced assets, investors stood to benefit from price corrections that could generate substantial returns. The margin of safety is not just a defensive mechanism—it's also an offensive strategy that can yield outsized gains.

4.1.4 Types of Investors: Defensive and Enterprising

In addition to valuation metrics, Graham also divided investors into two broad categories: *defensive investors* and *enterprising (or active) investors*. Defensive investors are typically those who have limited time or expertise to analyze individual stocks[1]. Their approach emphasizes simplicity, safety, and low maintenance—usually involving well-diversified, fundamentally sound portfolios that require minimal monitoring (about 2–3 hours per month). These investors may choose to invest in large, stable companies or diversified index funds, which offer exposure to the overall market without the need for detailed company-by-company analysis.

On the other hand, *enterprising investors* are more engaged, have a deeper understanding of financial statements, and are willing to spend significant time analyzing company

balance sheets, income statements, and market trends. Graham emphasized that advanced strategies for enterprising investors—such as evaluating management efficiency, reading between the lines of financial reports, and identifying special situations—necessitated an in-depth, company-by-company review of financial statements spanning at least 10 years. As such, these methods require substantial effort, expertise, and patience. For Graham, the idea that risk equals return was misleading; instead, he proposed that *"work equals return"*. The more time and diligence an investor applied, the more likely they were to generate above-average returns[1].

4.1.5 Investor vs. Speculator

This philosophical divide between passive and active investing also tied into Graham's warning against speculation. He believed it was essential for investors to clearly differentiate between being an *investor* and a *speculator*. While an investor views a stock as part ownership in a business and bases decisions on a thorough evaluation of underlying fundamentals, a speculator focuses primarily on short-term price movements and attempts to profit from market timing. Graham did acknowledge that intelligent speculation was possible—but only if the individual clearly understood the nature of their activity and accepted the risks involved[1].

4.1.6 Volatility as an Opportunity

Graham's allegorical figure *Mr. Market* remains one of the most famous illustrations of how investors should deal with market volatility. Mr. Market is your business partner who shows up every day with a new offer to buy your shares or sell you his. Sometimes he's euphoric, offering irrationally high prices, and sometimes he's despondent, offering low prices that ignore the underlying value. Graham taught that the intelligent investor should never be swayed by Mr. Market's mood swings. Instead, investors should use these swings to their advantage—buying when Mr. Market is irrationally pessimistic and selling when he is overly optimistic[1].

Graham emphasized that *volatility is not a risk to be avoided but an opportunity to be exploited*. Instead of fearing market downturns, Graham advised using them as opportunities to accumulate more shares at discounted prices. This contrarian approach

aligned with his broader principle of rationality and discipline—core tenets of value investing. For long-term investors, such downturns are less of a threat and more of a buying window that reduces the average cost of ownership and enhances future returns.

4.1.7 Strategies to Deal with Volatility

Two key strategies Graham suggested for dealing with volatility are *Dollar-Cost Averaging (DCA)* and *balancing between stocks and bonds*. Dollar-cost averaging involves investing a fixed amount of money at regular intervals regardless of market conditions. This method helps investors avoid the pitfalls of market timing and ensures that they purchase more shares when prices are low and fewer when prices are high. It's particularly well-suited to defensive investors and passive participants in the market, as it removes emotion from the investment process.

The second strategy—*allocating capital between stocks and bonds*—was Graham's way of balancing risk and return. He recommended maintaining a portfolio split between 25% and 75% in either asset class, depending on prevailing market conditions and the investor's outlook[1]. In a bull market, more capital could be allocated to bonds to protect gains and reduce exposure, while during market downturns, a greater share could be moved into stocks to take advantage of low valuations. This allocation strategy also served another purpose: it kept investors engaged and prevented boredom, which Graham saw as a hidden threat that often led to speculative behavior.

4.1.8 The Importance of Self-Awareness

Another important consideration in Graham's philosophy is *self-awareness*—knowing what kind of investor you are. He urged investors to assess their temperament, time availability, and knowledge base before choosing between the defensive and enterprising approaches. For those without the inclination or expertise to conduct deep fundamental research, *index investing* in a passive style was not only acceptable but highly advisable. Graham believed that consistently achieving even average returns (such as those of the S&P 500 or the Dow Jones Industrial Average(equivalent of Nifty50 and Sensex in USA)) was a worthy goal—and in fact, better than what many active investors manage to achieve in practice.

4.1.9 Conclusion

Finally, Graham championed the notion that successful investing was not about predicting the future or chasing the next hot stock, but about *buying well-researched businesses at a discount* and *having the discipline to wait for the market to recognize their true value*[1]. He encouraged long-term thinking, disciplined execution, and a firm grasp of fundamental analysis. His framework may be nearly a century old, but it continues to resonate with investors today, especially in volatile markets like India's, where emotional decision-making and speculative behavior are common.

In summary, **Benjamin Graham's investment philosophy is rooted in conservatism, discipline, and rational analysis**. His principles—including the margin of safety, thoughtful risk assessment, an unemotional approach to volatility, and clarity about one's investment temperament—continue to form the bedrock of modern value investing. Whether one chooses the path of a defensive investor or an enterprising one, Graham's timeless wisdom offers a structured, sensible approach to building wealth while protecting capital—an approach that remains especially relevant in an increasingly unpredictable global financial landscape.

4.2 Peter Lynch's Investment Philosophy

4.2.1 Earnings Growth

Earnings growth is central to Peter Lynch's approach. He believed that companies with consistent and above-average earnings growth tend to outperform the market in the long term. Lynch advised investors to look beyond short-term fluctuations and identify businesses that could compound earnings year over year. This growth is a signal of operational strength, market demand, and internal efficiency. For Lynch, even small companies with explosive earnings potential were worth considering, as they had the capacity to become "tenbaggers"—stocks that increase tenfold in value[2].

4.2.2 Industry Potential

Industry potential is another important dimension emphasized by Lynch. He encouraged investors to analyse the broader industry context before selecting a stock. Companies op-

erating in fast-growing, under-penetrated, or under-researched industries often have more room to scale. Lynch preferred sectors that were not heavily followed by institutional investors, as this provided opportunities for price discovery and long-term capital appreciation. He also warned against investing in "hot" sectors that were already priced for perfection[2].

4.2.3 PEG Ratio

The PEG Ratio (Price/Earnings to Growth) was a metric championed by Lynch to evaluate whether a stock's price is justified relative to its growth. Unlike the basic P/E ratio, which looks at earnings relative to price, the PEG ratio accounts for how fast a company is growing. A PEG ratio below 1 often indicated a potential bargain—where earnings were growing faster than the market had priced in. This ratio is useful for comparing companies across different sectors and growth profiles, especially in markets like India where growth rates vary significantly across industries.

4.2.4 P/E Ratio

The P/E Ratio (Price-to-Earnings) is a foundational valuation measure used by both Graham and Lynch. For Graham, a low P/E ratio typically indicated undervaluation, especially if the company had stable earnings and strong fundamentals. Lynch, while more growth-oriented, also used P/E to assess whether a stock was overpriced compared to its earnings. In both philosophies, the P/E ratio served as an entry-level screening tool to eliminate companies trading at unjustifiable valuations.

4.2.5 Investing in What You Know

Peter Lynch's philosophy extended well beyond metrics and ratios. He strongly believed in "investing in what you know". This meant that individual investors often had an edge over professionals when it came to identifying good businesses. Everyday observations—such as noticing a popular product, a growing retail chain, or emerging consumer trends—could serve as valuable insights into potential investments. Lynch emphasized that investors should thoroughly understand a business before investing in it, including its market, competitors, and growth trajectory.[2]

4.2.6 Stock Classifications

Lynch also advocated categorizing stocks into six types: slow growers, stalwarts, fast growers, cyclicals, asset plays, and turnarounds[2]. This helped investors set realistic expectations and choose evaluation metrics suitable to each type. For instance, fast growers should be assessed on their earnings expansion and PEG ratio, while cyclicals required an understanding of the business cycle and macroeconomic factors. However, this classification, while insightful, is difficult to implement numerically. For retail investors who rely on screening tools and data platforms, categorizing stocks into these types is not easily viable due to the qualitative nature of the distinctions. Factors such as customer satisfaction, brand recognition, or managerial turnaround efforts are hard to quantify and fall outside the scope of standard financial metrics. Consequently, many of Lynch's key preferences—such as a company operating in a stable industry, showing loyal customer behavior, or staying under the radar of analysts—are not readily captured by numerical screeners. These elements, though central to Lynch's method, require subjective judgment and on-ground research, making them less accessible for systematic implementation in retail investing.

4.2.7 Avoiding Market Timing

Importantly, Lynch believed that emotions and market timing were the enemy of long-term success. He stressed that no one could consistently predict market highs and lows, and trying to do so often resulted in poor decision-making[2]. Instead, he championed long-term, patient investing in fundamentally sound businesses acquired at reasonable valuations. This mindset aligns closely with Graham's ideas of discipline and margin of safety, although Lynch took a more optimistic and growth-oriented approach.

4.2.8 Story-Based Investing

Peter Lynch was a "story" investor. Through extensive research, he built a narrative around each investment, evaluating what the company was doing, its future goals, and the steps being taken to reach them[2]. This approach helped him categorize companies based on their unique growth stories, such as slow or fast growers, cyclicals, and turnarounds, thus

making his stock-picking more nuanced and insightful.

4.2.9 Long-Term Holding

One of the most enduring lessons from Lynch is the idea of "going long". He believed in holding onto a stock as long as the company's growth story remained intact[2]. He emphasized the benefits of compounding over the long run and often warned against timing the market. His philosophy underscored patience and the need for conviction backed by research.

4.2.10 Principle of Common Sense

His principle of "invest in what you know" wasn't merely a slogan—it was foundational to his strategy. Lynch argued that everyday investors could spot winning stocks by observing the world around them. Whether it was a new product gaining popularity or a service that was clearly in demand, these ground-level insights gave individuals an edge over institutional investors.

4.2.11 Due Diligence

Proper research was a non-negotiable part of his investment routine. He invested considerable time in understanding companies inside and out. This thoroughness translated into informed decisions, which, in turn, helped mitigate risks. His success can be largely attributed to this discipline of rigorous due diligence.

4.2.12 Lynch's Formula

The Peter Lynch Formula—combining P/E ratio, earnings growth, and a company's broader potential—is a practical framework that simplifies stock selection. This formula encourages evaluating a stock's price relative to its earnings (P/E), checking how fast those earnings are growing (Growth Rate), and then looking into qualitative aspects like management quality and industry trends (Potential). Used together, these three criteria provide a more holistic view of a company's true worth.

4.2.13 Hands-On Approach

Lynch also believed in a hands-on approach to stock selection. Instead of relying on screeners or tips, he preferred selecting one company at a time and digging deep. This involved understanding the company's expansion strategy, competitive advantages, operational challenges, and the overall industry dynamics.

4.2.14 Stock Selection Preferences

He had a few key preferences when it came to selecting stocks:

- The company operates in a stable, predictable industry that isn't prone to sudden shifts.
- It shows consistent, convincing growth trends.
- It maintains a loyal and satisfied customer base.
- It isn't overexposed in financial media or analyst reports.
- The company's products or services are in genuine demand.
- If the company is repurchasing its own shares, it reflects financial strength and confidence in its future.
- Avoiding over-diversification is crucial, especially in unfamiliar sectors or companies.

4.2.15 Avoiding Hot Stocks

In his classic book *One Up On Wall Street*, Lynch advised investors to steer clear of hot stocks[2]. These stocks, often buoyed by media hype and social buzz, may seem attractive initially but can collapse just as quickly. Lynch observed that the more talked-about a stock is, the more likely it is overpriced and vulnerable to corrections.

4.2.16 Quantitative Screening Parameters

In practice, investors seeking to apply Peter Lynch's strategies can rely on a combination of quantitative screening rules. The following parameters summarize key elements of his approach:

- Market Capitalization between ₹500 crore and ₹15,000 crore.
- P/E Ratio lower than the industry average.
- P/E Ratio lower than the historical 5-year average P/E.
- Profit Growth over 5 years greater than 15%.
- PEG Ratio below 1.
- Debt to Total Assets less than 0.25.

4.2.17 Management Quality

Peter Lynch's methods also placed significant emphasis on management quality. He often looked for companies with competent and honest leadership, especially those who demonstrated strategic foresight and capital discipline, such as initiating share buybacks during undervaluation or maintaining prudent debt levels. He saw such practices as reflections of long-term thinking.

4.2.18 Observation and Common Sense

The use of common sense and observational skills was something Lynch repeatedly promoted. He believed that people, just by being attentive to their surroundings, could identify promising investment opportunities long before Wall Street noticed them[2]. From spotting busy retail outlets to gauging word-of-mouth around consumer products, Lynch saw potential where others saw ordinary consumer behavior.

4.2.19 Avoiding Herd Mentality

Finally, Lynch's emphasis on avoiding the herd mentality remains a cornerstone of sound investing. He urged investors to ignore fads, tips, and noisy trends[2]. By focusing on

facts, fundamentals, and firsthand research, he believed that even small investors could achieve extraordinary results. His legacy endures as a balanced approach combining both the analytical and intuitive sides of investing.

4.3 Integration and Application to Indian Markets

Together, these metrics—when applied thoughtfully—can form the basis of quantitative screening models for stock selection. By using filters based on these ratios and growth factors, investors can systematically construct portfolios that align with either a value-oriented (Graham) or growth-at-a-reasonable-price (Lynch) philosophy. The ability to analyse and backtest these strategies using modern analytics tools like Python and Excel allows individual investors to replicate the core tenets of these classic strategies in a disciplined and scalable manner—especially within the Indian market context.

Despite the growing financial literacy movement, only around 2–3% of India's population directly participates in equity markets, and about 9% through mutual funds (as per recent SEBI and AMFI data) [8] . This low participation can be partly attributed to fear, herd behavior, and lack of trust, but also to the absence of simple, reliable frameworks that retail investors can follow with confidence.

Many investors in India fall prey to emotionally driven investing—buying during market highs due to FOMO (fear of missing out), and selling during corrections due to panic. This behavior is often influenced by news channels, social media, influencer commentary, and "hot stock tips" rather than sound financial logic. In contrast, strategies developed by Graham and Lynch emphasize rational, disciplined investing using quantifiable metrics, allowing investors to operate with a margin of safety and structured analysis rather than gut feeling.

This research addresses this critical need by evaluating whether structured, rule-based strategies—built around measurable financial indicators like earnings growth, valuation ratios, and debt levels—can be adapted effectively to the Indian context. Rather than relying on instincts or market sentiment, the study seeks to establish clear, replicable screening techniques that can be followed with consistency and discipline. Through backtesting these strategies using Indian stock data over the past 5–15 years, the study aims to offer evidence-based insights into their performance and applicability.

Furthermore, the study explores easy-to-monitor techniques inspired by Benjamin Graham, which make it feasible for part-time investors or working professionals to follow long-term wealth-building strategies with minimal ongoing effort. This promotes financial autonomy and democratizes access to sound investing principles without the need for continuous market tracking or advanced expertise.

Ultimately, this research is not just about testing the viability of two well-known philosophies—it is about equipping everyday investors with tools that protect them from their own biases, prevent long-term capital destruction, and enable participation in India's economic growth story through a disciplined, research-backed investment approach.

5 Research Methodology

This section outlines the methodological approach undertaken for the study titled *"A Comparative Study of Stock Selection Strategies from Classic Finance Literature."* The primary objective is to evaluate time-tested investment strategies and identify a practical, rule-based system that retail investors can adopt to enhance their net returns. The research employs a quantitative methodology, using historical data, defined screening rules, and return simulations to assess each strategy's effectiveness.

5.1 Research Design Overview

The study is structured into two distinct parts, each representing a classic approach to stock selection:

- Part 1 – Benjamin Graham's Buy-the-Dip Index Strategy
- Part 2 – Peter Lynch's GARP (Growth at a Reasonable Price) Strategy

Both strategies are implemented over their respective periods using historical financial and stock price data to simulate real-world application.

5.2 Part 1: Benjamin Graham's Buy-the-Dip Index Strategy for Defensive Investors

This phase of the research draws from Benjamin Graham's philosophy of value investing, particularly his recommendation to invest in index funds during periods of market pessimism. The core premise is that emotional overreaction can temporarily undervalue quality stocks or indices, presenting a "bargain" opportunity.

5.2.1 Step-Up Investment Model

A systematic, rule-based deployment strategy is adopted where investment amounts increase with the severity of the market dip:

- 2% drop $\rightarrow$ ₹2,500
- 5% drop $\rightarrow$ ₹5,000

- 10% drop → ₹10,000
- 15% drop → ₹20,000

This step-up model assumes that deeper market corrections offer better long-term returns.

5.2.2 Choice of Investment Instrument

Instead of mutual funds, the study uses NiftyBEES, an ETF that mirrors the Nifty 50 index and offers real-time price tracking. This is crucial, as mutual fund NAVs can lag market lows by up to 3%, which significantly impacts returns when precise entry points are vital.

5.2.3 Implementation Models

Two distinct variations of this strategy are simulated:

- **Monthly Monitoring Model** – Investments are triggered when dips are detected during monthly review checkpoints.
- **Auto-Buy (GTD) Model** – A simulation of "Good-Till-Date" auto-buy orders, where pre-set dip levels automatically trigger investment. This is hypothesized to outperform the monthly method due to reduced reaction lag.

5.3 Part 2: Peter Lynch's GARP Strategy

The second part of the research applies Peter Lynch's GARP model, which blends growth investing with value discipline. The goal is to identify mid-cap companies with strong earnings growth but still trading at reasonable valuations.

5.3.1 Screening Process

Using Screener.in, companies are filtered based on the following Lynch-inspired financial metrics:

- Market Capitalization between ₹500 crore and ₹15,000 crore
- Price-to-Earnings (P/E) Ratio lower than the industry average

- P/E Ratio lower than the stock's 5-year historical average
- 5-Year Profit Growth greater than 15%
- PEG Ratio less than 1
- Debt to Total Assets less than 0.25

Only companies meeting all criteria are selected, reflecting strong fundamentals and favorable valuations.

5.3.2 Data Collection and Price Analysis

Once filtered, the shortlisted stocks' price data are extracted using Python's `yfinance` package and the Yahoo Finance API, maintaining consistency with data source. This ensures uniformity in the simulation environment[9].

5.4 Time Frame

The evaluation periods for the two stock selection strategies are carefully selected to align with their respective investment philosophies and practical implementation assumptions.

5.4.1 Benjamin Graham's Buy-the-Dip Index Strategy (15-Year Period: 2009–2025)

This strategy is tested across a 15-year period to capture performance across diverse macroeconomic conditions, including:

- Post-Global Financial Crisis recovery
- 2013 taper tantrum
- 2016 demonetization shock
- COVID-19 crash and V-shaped recovery (2020–2021)
- Broad-based rally of 2022–2023
- 15% correction in the Nifty 50 and nearly 20% correction in small- and mid-cap stocks (February–March 2025)

Additionally, this period features heightened geopolitical tensions and external macroeconomic shocks, such as:

- The Russia-Ukraine war (2022 onwards)
- Recurring conflict in Israel
- U.S. protectionist policies and tariff threats under Donald Trump

These events provide valuable real-world stress conditions to test the resilience and discipline of a defensive index investing strategy.

5.4.2 Peter Lynch's GARP Strategy (5-Year Period: 2020–2025)

The Lynch-inspired GARP model is evaluated over a 5-year period due to two reasons:

- The portfolio is static with no rejigging or rebalancing during the holding period.
- The period captures major market phases such as:
  - The post-COVID bull run (2020–2021)
  - Time correction in 2023
  - Significant draw-down (20% in mid- and small-cap stocks) during early 2025
  - Impact of global geopolitical tensions and tariff threats

This period ensures a highly volatile and realistic testing environment for the GARP strategy.

5.5 Data Analysis Tools and Metrics

Data processing and calculations are conducted using **Python** and **Microsoft Excel**. Python is utilized for data extraction, preprocessing, and simulation modeling, while Excel is used for organizing output tables, visualizations, and performing additional return and risk metric calculations.

The key performance indicators (KPIs) used to evaluate and compare both strategies include:

- Compound Annual Growth Rate (CAGR)
- XIRR
- Maximum Drawup
- Maximum Drawdown
- Alpha
- Beta
- Return per Unit of Risk
- Correlation Anlysis

5.6 Validity and Reliability

- **Validity** is supported by basing the strategies on well-established financial literature and implementing them with rigorously defined rules.
- **Reliability** is ensured through reproducible Python scripts, standardized screening filters, and the use of publicly available data sources like Yahoo Finance and Screener.in.

5.7 Ethical Considerations

The study uses only publicly available financial and market data. No personal or sensitive information is involved. Data sourcing complies with fair use practices and academic integrity standards.

This structured, transparent, and replicable methodology provides a robust foundation for comparing two of the most respected stock selection models in financial history – offering actionable insights for retail investors.

6 Data Analysis & Interpretation

6.1 Part 1: Benjamin Graham's Buy-the-Dip Index Strategy

6.1.1 Monthly Investing Models: Overview

This section analyzes the performance of various monthly investing strategies that simulate Benjamin Graham's principle of cautious deployment of capital during market corrections. Instead of investing a fixed amount every month blindly, this study evaluates five different investment styles based on the market's monthly movements.

The core idea is to verify whether **reactive investing** based on market dips can outperform **passive, mechanical SIP investing** over a long-term horizon.

The five investment strategies considered are:

Strategy No.	Strategy Name	Description
1	Regular SIP	Invest a fixed amount every month without regard to market movement.
2	2% Dip Monthly SIP	Invest only if the month's closing price is at least 2% lower than the previous month's closing price.
3	5% Dip Monthly SIP	Invest only if the month's closing price is at least 5% lower than the previous month's closing price.
4	Cumulative 5% Dip over 2 months SIP	If cumulative fall over the last two consecutive months is greater than or equal to 5%, then invest.
5	Cumulative 5% Dip over 3 months SIP	If cumulative fall over the last three consecutive months is greater than or equal to 5%, then invest.

Table 1: Monthly Investing Strategies Overview

Source:- Primary Data

6.1.2 Raw Data Structure

The raw dataset used for this analysis consists of month open closing price of NIFTYBEES ETF it contains the date and the price of the ETF as shown below

	A	B
1	Date	Close
2	2009/01/02	30.556
3	2009/02/02	28.17
4	2009/03/02	27.046
5	2009/04/01	30.871
6	2009/05/04	36.598
7	2009/06/01	45.467
8	2009/07/01	44.052
9	2009/08/03	46.927
10	2009/09/01	45.895
11	2009/10/01	50.599
12	2009/10/05	50.018
13	2009/11/03	46.152
14	2009/12/01	51.33
15	2010/01/04	52.393
16	2010/02/01	50.49
17	2010/03/02	50.4
18	2010/04/01	53.1

Figure 1: Sample of Raw Data Used for Monthly Investing Strategies

6.1.3 Detailed Calculation Method for Each Monthly investing Models

	A	B	C	D	E	F
1	Date	Close	SIP	Change%	units received	
2	2009/01/02	30.556	-5000	11.11%	163.634	
3	2009/02/02	28.17	-5000	-7.81%	177.4938	
4	2009/03/02	27.046	-5000	-3.99%	184.8702	
5	2009/04/01	30.871	-5000	14.14%	161.9643	
6	2009/05/04	36.598	-5000	18.55%	136.6195	
7	2009/06/01	45.467	-5000	24.23%	109.9699	
8	2009/07/01	44.052	-5000	-3.11%	113.5022	
9	2009/08/03	46.927	-5000	6.53%	106.5485	
10	2009/09/01	45.895	-5000	-2.20%	108.9443	
11	2009/10/01	50.599	-5000	10.25%	98.81618	
12	2009/10/05	50.018	-5000	-1.15%	99.96401	
13	2009/11/03	46.152	-5000	-7.73%	108.3377	
14	2009/12/01	51.33	-5000	11.22%	97.40892	
15	2010/01/04	52.393	-5000	2.07%	95.43259	
16	2010/02/01	50.49	-5000	-3.63%	99.02951	
17	2010/03/02	50.4	-5000	-0.18%	99.20635	
18	2010/04/01	53.1	-5000	5.36%	94.16196	
19	2010/05/03	52.15	-5000	-1.79%	95.87727	

Figure 2: Sample of Raw Data Used for Monthly Investing Strategies

Regular SIP

As shown in Figure 2, a SIP investment of ₹5,000 is made every month. The **Close** column shows the price of one unit on the investment date. Each month, depending on the closing price, the number of units received changes. If the closing price is higher, fewer units are bought; if the closing price is lower, more units are bought. For example, on 2009/01/02, the closing price is ₹30.556, and dividing ₹5,000 by ₹30.556 gives approximately 163.634 units.

The **Change%** column tells how much the price has moved compared to the previous month's closing price. If the price has increased, the percentage is positive; if the price has decreased, the percentage is negative. The formula to calculate the percentage change is:

$$\text{Change\%} = \left(\frac{\text{Current Month Close} - \text{Previous Month Close}}{\text{Previous Month Close}} \right) \times 100$$

For example, from 2009/01/02 to 2009/02/02, the closing price drops from ₹30.556 to ₹28.17. The change is calculated as:

$$\left(\frac{28.17 - 30.556}{30.556} \right) \times 100 = -7.81\%$$

Thus, the **Change%** for February is -7.81%.

Whenever the price drops, the number of units received increases. For instance, in February, when the price fell to ₹28.17, the number of units received increased to about 177.494 units compared to January's 163.634 units. Similarly, when the price increased sharply in June 2009 to ₹45.467, the number of units received dropped to about 109.97 units.

In this SIP, an amount of ₹5,000 is invested every month, irrespective of the percentage change in the closing price. The **Close** column shows the price per unit on the date of investment. Every month, the number of units received is calculated by dividing the SIP amount by the closing price:

$$\text{Units Received} = \frac{5000}{\text{Close Price}}$$

Even if the price increases or decreases, the investment amount remains constant at ₹5,000 each month.

The **Change%** column shows the monthly percentage change in the closing price compared to the previous month. It is calculated using the formula:

$$\text{Change\%} = \left(\frac{\text{Current Month Close} - \text{Previous Month Close}}{\text{Previous Month Close}} \right) \times 100$$

However, for the SIP process, this percentage change is only for information. It does not affect the amount invested, which stays fixed at ₹5,000.

At the end of the SIP period, to calculate the overall return, the **XIRR** function is used. The XIRR function requires two inputs: the list of dates and the corresponding cash flows.

For cash flows:

- Every monthly investment (outflow) is recorded as **-₹5,000** on the respective dates.
- The final value (inflow) is calculated as the latest closing price multiplied by the total units accumulated over the months:

$$\text{Final Value} = \text{Latest Close Price} \times \text{Total Units Purchased}$$

In this method, all the ₹5,000 investments are treated as negative cash flows (outflow), and the final value is treated as a positive cash flow (inflow). The XIRR function then calculates the annualized return considering the exact dates of each investment.

Thus, the SIP continues with a fixed investment amount every month, and the final performance is measured using XIRR based on the real cash flow pattern.

The calculated XIRR for this SIP is approximately **12.70%**.

XIRR is used because it accurately measures annualized returns while considering both the amount and timing of each cash flow, making it ideal for SIPs with multiple

investments over time.

2% Dip Monthly

	A	B	C	D	E	F	G
1	Date	Close	Change%	Buy	Units Received		
2	2009/01/02	30.556	11.11%	0	0.00	=IF(C2<-2%, "5000", "0")	
3	2009/02/02	28.17	-7.81%	5000	177.49	=IF(C3<-2%, "5000", "0")	
4	2009/03/02	27.046	-3.99%	5000	184.87	=IF(C4<-2%, "5000", "0")	
5	2009/04/01	30.871	14.14%	0	0.00	=IF(C5<-2%, "5000", "0")	
6	2009/05/04	36.598	18.55%	0	0.00	=IF(C6<-2%, "5000", "0")	
7	2009/06/01	45.467	24.23%	0	0.00	=IF(C7<-2%, "5000", "0")	
8	2009/07/01	44.052	-3.11%	5000	113.50	=IF(C8<-2%, "5000", "0")	
9	2009/08/03	46.927	6.53%	0	0.00	=IF(C9<-2%, "5000", "0")	
10	2009/09/01	45.895	-2.20%	5000	108.94	=IF(C10<-2%, "5000", "0")	
11	2009/10/01	50.599	10.25%	0	0.00	=IF(C11<-2%, "5000", "0")	
12	2009/10/05	50.018	-1.15%	0	0.00	=IF(C12<-2%, "5000", "0")	
13	2009/11/03	46.152	-7.73%	5000	108.34	=IF(C13<-2%, "5000", "0")	
14	2009/12/01	51.33	11.22%	0	0.00	=IF(C14<-2%, "5000", "0")	

Figure 3: Sample of Data Used for investing when there is a 2% dip in a month

In this method, investments are made only when there is a dip of more than 2% in the monthly closing price as shown in Figure 3. If the percentage change in a month is less than -2%, ₹5,000 is invested; otherwise, no investment is made for that month.

The number of units received is calculated as:

$$\text{Units Received} = \frac{5000}{\text{Close Price}}$$

If there is a dip less than 2%, both the buy amount and units received remain zero for that month.

At the end of the investment period, the returns are calculated using the **XIRR** function, just like in the regular SIP method. Each ₹5,000 invested is recorded as an outflow on the investment date, and the final inflow is calculated by multiplying the latest close price with the total units accumulated:

$$\text{Final Value} = \text{Latest Close Price} \times \text{Total Units Purchased}$$

Using these cash flows, the XIRR is **13.01%**.

5% Dip Monthly

	A	B	C	D	E	F	G	H
1	Date	Close	Change%	Buy	Units Receive			
2	2009/01/02	30.556	11.11%	0	0.00	=IF(C2<-5%, "5000", "0")		
3	2009/02/02	28.17	-7.81%	5000	177.49	=IF(C3<-5%, "5000", "0")		
4	2009/03/02	27.046	-3.99%	0	0.00	=IF(C4<-5%, "5000", "0")		
5	2009/04/01	30.871	14.14%	0	0.00	=IF(C5<-5%, "5000", "0")		
6	2009/05/04	36.598	18.55%	0	0.00	=IF(C6<-5%, "5000", "0")		
7	2009/06/01	45.467	24.23%	0	0.00	=IF(C7<-5%, "5000", "0")		
8	2009/07/01	44.052	-3.11%	0	0.00	=IF(C8<-5%, "5000", "0")		
9	2009/08/03	46.927	6.53%	0	0.00	=IF(C9<-5%, "5000", "0")		
10	2009/09/01	45.895	-2.20%	0	0.00	=IF(C10<-5%, "5000", "0")		
11	2009/10/01	50.599	10.25%	0	0.00	=IF(C11<-5%, "5000", "0")		
12	2009/10/05	50.018	-1.15%	0	0.00	=IF(C12<-5%, "5000", "0")		
13	2009/11/03	46.152	-7.73%	5000	108.34	=IF(C13<-5%, "5000", "0")		
14	2009/12/01	51.33	11.22%	0	0.00	=IF(C14<-5%, "5000", "0")		
15	2010/01/04	52.393	2.07%	0	0.00	=IF(C15<-5%, "5000", "0")		
16	2010/02/01	50.49	-3.63%	0	0.00			

Figure 4: Sample of Data Used for investing when there is a 5% dip in a month

In this method, investments are made only when there is a dip of more than 5% in the monthly closing price. If the percentage change in a month is less than -5%, ₹5,000 is invested; otherwise, no investment is made for that month. As shown in Figure 4.

The number of units received is calculated as:

$$\text{Units Received} = \frac{5000}{\text{Close Price}}$$

If there is a dip less than 5%, both the buy amount and units received remain zero for that month.

At the end of the investment period, the returns are calculated using the **XIRR** function, just like in the regular SIP method. Each ₹5,000 invested is recorded as an outflow on the investment date, and the final inflow is calculated by multiplying the latest close price with the total units accumulated:

$$\text{Final Value} = \text{Latest Close Price} \times \text{Total Units Purchased}$$

Using these cash flows, the XIRR is **13.52%**.

Cumulative 5% Dip over 2 Months SIP

In this strategy, instead of investing every month, an amount of ₹5000 is invested only when the cumulative price drop over two consecutive months exceeds 5%. To implement this, the **1 Month Change** and **2 Month Change** columns are calculated for each date.

	A	B	C	D	E	F	G	H	I	J
1	Date	Close	1 Month chan	2 Month chan	Buy					
2	2009/01/02	30.556	11.11%	0	0	0				
3	2009/02/02	28.17	-7.81%	0	-5000	177.4938	=IF(OR(D3<-5%, C3<-5%), 5000, 0)*-1			
4	2009/03/02	27.046	-3.99%	2.44%	0	0	=IF(OR(D4<-5%, C4<-5%), 5000, 0)*-1			
5	2009/04/01	30.871	14.14%	-11.49%	-5000	161.9643	=IF(OR(D5<-5%, C5<-5%), 5000, 0)*-1			
6	2009/05/04	36.598	18.55%	9.59%	0	0	=IF(OR(D6<-5%, C6<-5%), 5000, 0)*-1			
7	2009/06/01	45.467	24.23%	35.32%	0	0	=IF(OR(D7<-5%, C7<-5%), 5000, 0)*-1			
8	2009/07/01	44.052	-3.11%	47.28%	0	0	=IF(OR(D8<-5%, C8<-5%), 5000, 0)*-1			
9	2009/08/03	46.927	6.53%	20.37%	0	0	=IF(OR(D9<-5%, C9<-5%), 5000, 0)*-1			
10	2009/09/01	45.895	-2.20%	3.21%	0	0	=IF(OR(D10<-5%, C10<-5%), 5000, 0)*-1			
11	2009/10/01	50.599	10.25%	4.18%	0	0	=IF(OR(D11<-5%, C11<-5%), 5000, 0)*-1			
12	2009/10/05	50.018	-1.15%	7.82%	0	0	=IF(OR(D12<-5%, C12<-5%), 5000, 0)*-1			
13	2009/11/03	46.152	-7.73%	8.98%	-5000	108.3377	=IF(OR(D13<-5%, C13<-5%), 5000, 0)*-1			
14	2009/12/01	51.33	11.22%	-8.79%	-5000	97.40892	=IF(OR(D14<-5%, C14<-5%), 5000, 0)*-1			
15	2010/01/04	52.393	2.07%	2.62%	0	0	=IF(OR(D15<-5%, C15<-5%), 5000, 0)*-1			
16	2010/02/01	50.49	-3.63%	13.52%	0	0				

Figure 5: Sample of Data Used for investing when there is a 5% dip in 2 months

The **1 Month Change** shows the percentage change in the closing price compared to the previous month, using the formula:

$$\text{1 Month Change\%} = \left(\frac{\text{Current Month Close} - \text{Previous Month Close}}{\text{Previous Month Close}} \right) \times 100$$

The **2 Month Change** is calculated by compounding the changes of two consecutive months, not by simply adding them. It is computed using the formula:

$$\text{2 Month Change} = (1 + \text{1 Month Change of Previous Month}) \tag{1}$$

$$\times\, (1 + \text{1 Month Change of Current Month}) - 1 \tag{2}$$

This formula captures the true compounded effect over two months, rather than a simple sum of percentage changes, which would be mathematically inaccurate.

Based on the **2 Month Change** column:

- If the cumulative two-month percentage change is less than -5% (meaning a fall of more than 5%), an investment of ₹5000 is triggered on that date.
- Otherwise, no investment is made for that month.

The number of units received for each triggered investment is calculated as:

$$\text{Units Received} = \frac{5000}{\text{Close Price on Investment Date}}$$

At the end of the investment period, the **XIRR** function is used to calculate the return, where:

- Each triggered investment is recorded as an outflow of **-₹5000** on its respective date.
- The final value is recorded as an inflow, calculated by multiplying the latest closing price by the total units accumulated:

$$\text{Final Value} = \text{Latest Close Price} \times \text{Total Units Purchased}$$

Using these cash flows, the XIRR function accurately calculates the annualized return, which for this strategy comes out to approximately **13.20%**.

Thus, by using a two-month cumulative drop trigger combined with XIRR-based return calculation, this method seeks to take advantage of market corrections while measuring performance in a real-world, time-sensitive manner.

Cumulative 5% Dip over 3 Months SIP

After calculating the 2 Month Change, the next step is to monitor for a cumulative decline over a 3-month period. The **3 Month Change** is calculated by adding the returns of three consecutive months and then subtracting 1.

	A	B	C	D	E	F	G	H	I	J
1	Date	Close	1 Month change	3 Month change	Buy	Units				
2	2009/01/02	30.556	11.11%	0	0	0	=IF(OR(D2<-5%, C2<-5%), 5000, 0)*-1			
3	2009/02/02	28.17	-7.81%	0	-5000	177.4938	=IF(OR(D3<-5%, C3<-5%), 5000, 0)*-1			
4	2009/03/02	27.046	-3.99%	0	0	0	=IF(OR(D4<-5%, C4<-5%), 5000, 0)*-1			
5	2009/04/01	30.871	14.14%	-1.65%	0	0	=IF(OR(D5<-5%, C5<-5%), 5000, 0)*-1			
6	2009/05/04	36.598	18.55%	1.03%	0	0	=IF(OR(D6<-5%, C6<-5%), 5000, 0)*-1			
7	2009/06/01	45.467	24.23%	29.92%	0	0	=IF(OR(D7<-5%, C7<-5%), 5000, 0)*-1			
8	2009/07/01	44.052	-3.11%	68.11%	0	0	=IF(OR(D8<-5%, C8<-5%), 5000, 0)*-1			
9	2009/08/03	46.927	6.53%	42.70%	0	0	=IF(OR(D9<-5%, C9<-5%), 5000, 0)*-1			
10	2009/09/01	45.895	-2.20%	28.22%	0	0	=IF(OR(D10<-5%, C10<-5%), 5000, 0)*-1			
11	2009/10/01	50.599	10.25%	0.94%	0	0	=IF(OR(D11<-5%, C11<-5%), 5000, 0)*-1			
12	2009/10/05	50.018	-1.15%	14.86%	0	0	=IF(OR(D12<-5%, C12<-5%), 5000, 0)*-1			
13	2009/11/03	46.152	-7.73%	6.59%	-5000	108.3377	=IF(OR(D13<-5%, C13<-5%), 5000, 0)*-1			
14	2009/12/01	51.33	11.22%	0.56%	0	0	=IF(OR(D14<-5%, C14<-5%), 5000, 0)*-1			
15	2010/01/04	52.393	2.07%	1.44%	0	0				
16	2010/02/01	50.49	-3.63%	4.75%	0	0				
17	2010/03/02	50.4	-0.18%	9.40%	0	0				
18	2010/04/01	53.1	5.36%	-1.81%	0	0				
19	2010/05/03	52.15	-1.79%	1.35%	0	0				

Figure 6: Sample of Data Used for investing when there is a 5% dip in 3 months

The formula used is:

$$\begin{aligned} \text{3 Month Change} = &(1 + \text{1 Month Change of Month 1}) \\ &\times (1 + \text{1 Month Change of Month 2}) \\ &\times (1 + \text{1 Month Change of Month 3}) - 1 \end{aligned}$$

If the cumulative drop over these three months is greater than 5% in the negative direction, a buy of ₹5000 is triggered as shown in Figure 6. This method helps capture smaller market declines that may not be visible through single-month movements alone.

At the end of the investment period, the returns are calculated using the **XIRR** function, which accurately handles multiple irregular cash flows by considering both the amount and timing of each transaction. For this 3-month cumulative drop method, the XIRR comes out to be approximately **13.33%**.

6.1.4 Detailed Calculation Method for Auto-Buy (GTD) Model

The daily stock price data is extracted using a Python code by utilizing the `yfinance` library. This allows automatic downloading of historical data such as Open, High, Low, Close, Volume, Dividends, and Stock Splits directly from Yahoo Finance.

The following image shows a sample of the raw data extracted:

	A	B	C	D	E	F	G	H
1	Date	Open	High	Low	Close	Volume	Dividends	Stock Splits
2	2009-01-02 00:00:00	30.6	30.945	30.3	30.556	1344830	0	0
3	2009-01-05 00:00:00	30.7	31.37	30.7	31.175	2429180	0	0
4	2009-01-06 00:00:00	31.1	31.48	30.603	31.124	1418730	0	0
5	2009-01-07 00:00:00	31.38	31.5	28.9	29.265	5724640	0	0
6	2009-01-09 00:00:00	29	29.5	28.03	28.855	1820800	0	0
7	2009-01-12 00:00:00	28.5	28.75	27.56	27.726	1845050	0	0
8	2009-01-13 00:00:00	27.7	28.19	27.511	27.637	1743530	0	0
9	2009-01-14 00:00:00	27.8	28.8	27.8	28.492	900410	0	0
10	2009-01-15 00:00:00	27.985	28.065	27.3	27.65	1200560	0	0
11	2009-01-16 00:00:00	27.85	28.69	27.72	28.511	689330	0	0
12	2009-01-19 00:00:00	28.065	28.71	28.065	28.446	794070	0	0
13	2009-01-20 00:00:00	28.39	28.55	27.78	28.314	705160	0	0
14	2009-01-21 00:00:00	28.2	28.2	27.31	27.536	1264160	0	0
15	2009-01-22 00:00:00	27.9	27.9	27.2	27.35	970500	0	0
16	2009-01-23 00:00:00	27.4	27.6	27.04	27.211	875460	0	0

Figure 7: Niftybees Daiily Data Extracted using yfinance api

Since only the **High**, **Low**, and **Date** fields are relevant for further analysis, the unnecessary columns such as Open, Close, Volume, Dividends, and Stock Splits are removed.

The data is then reformatted into a simpler structure with just three columns: Date, Attribute (High or Low), and Value. This format makes it easier to perform further calculations based on daily price movements.

The reformatting is performed using Microsoft Excel by applying the **Unpivot Other Columns** option available under the Power Query Editor. By selecting the Date column and unpivoting the other columns, the data is efficiently transformed into a structure with three columns: Date, Attribute (High or Low), and Value.

A Python program was developed to automate the extraction and processing of stock price data. The program reads daily price information from CSV files stored in a specified folder. It primarily focuses on identifying significant drops in price compared to the highest price observed up to that point.

The following image shows a sample of the clean data created:

	A	B
1	Date	Value
2	02-01-2009	30.945
3	02-01-2009	30.3
4	05-01-2009	31.37
5	05-01-2009	30.7
6	06-01-2009	31.48
7	06-01-2009	30.603
8	07-01-2009	31.5
9	07-01-2009	28.9
10	09-01-2009	29.5
11	09-01-2009	28.03
12	12-01-2009	28.75
13	12-01-2009	27.56
14	13-01-2009	28.19
15	13-01-2009	27.511
16	14-01-2009	28.8
17	14-01-2009	27.8

Figure 8: After cleaning the raw data this format is obtained

The logic is structured using a custom SharesData class which holds attributes like date, current price, maximum price so far, and calculated number of shares to buy at various thresholds (15%, 10%, 5%, and 2% drops).

The program applies the following rules: if the price drops by more than 15% from the maximum, a purchase worth ₹20,000 is triggered; for a 10% drop, ₹10,000; for a 5% drop, ₹5,000; and for a 2% drop, ₹2,500. The number of shares purchased is calculated by dividing the investment amount by the current price.

The data processing involves three main steps: reading the raw CSV, calculating purchase opportunities based on price drops, and writing the processed results into a new output CSV file. The use of Python's `glob` library ensures that all CSV files within the folder are automatically processed without manual intervention.

This automation significantly reduces manual effort and ensures accurate and consistent data handling for further analysis.

After cleaning and restructuring the raw data, the daily stock prices are further analyzed to detect price drops from the most recent highs.

The following image shows a processed data:

	A	B	C	D	E	F	G	H
1	Date	Price	max	% Change	15% drop	10% drop	5% drop	2% drop
2	02-01-2009	30.945	30.945	0.00%	0	0	0	0
3	02-01-2009	30.3	30.945	2.08%	0	0	0	83
4	05-01-2009	31.37	31.37	0.00%	0	0	0	0
5	05-01-2009	30.7	31.37	2.14%	0	0	0	81
6	06-01-2009	31.48	31.48	0.00%	0	0	0	0
7	06-01-2009	30.603	31.48	2.79%	0	0	0	82
8	07-01-2009	31.5	31.5	0.00%	0	0	0	0
9	07-01-2009	28.9	31.5	8.25%	0	0	173	87
10	09-01-2009	29.5	31.5	6.35%	0	0	169	85
11	09-01-2009	28.03	31.5	11.02%	0	357	178	89
12	12-01-2009	28.75	31.5	8.73%	0	0	174	87
13	12-01-2009	27.56	31.5	12.51%	0	363	181	91
14	13-01-2009	28.19	31.5	10.51%	0	355	177	89
15	13-01-2009	27.511	31.5	12.66%	0	363	182	91
16	14-01-2009	28.8	31.5	8.57%	0	0	174	87
17	14-01-2009	27.8	31.5	11.75%	0	360	180	90
18	15-01-2009	28.065	31.5	10.90%	0	356	178	89

Figure 9: Output created by the python code created

In this output:

- **Date** represents the specific trading day.
- **Price** shows the recorded High or Low price for that day.
- **Max** keeps track of the highest price observed so far.

- **% Change** indicates how much the price has declined from the most recent maximum price.

The program applies a structured investment rule based on the percentage drop:

- If the price drops by more than 15% from the maximum, an investment of ₹20,000 is made.
- If the drop is more than 10%, an investment of ₹10,000 is made.
- For a drop of more than 5%, ₹5,000 is invested.
- For a drop of more than 2%, ₹2,500 is invested.

The number of shares bought is calculated by dividing the respective investment amount by the current price. This method ensures that larger investments are made during deeper corrections, following a disciplined and opportunity-driven buying strategy.

The XIRR for this strategy is calculated in the same manner as it was done for the monthly investing models. Each purchase, based on different percentage drops, is treated as a cash outflow recorded on its respective transaction date. At the end of the investment period, the total value of the accumulated units is treated as a cash inflow. By providing these cash flows and their corresponding dates to the XIRR function, the effective annualized return is computed. This ensures that the irregular and opportunity-based investment timings are properly accounted for, giving a realistic measure of the investment's true performance over time.

The XIRR for the Auto-Buy (GTD) model was calculated following the same methodology applied in the monthly investing models, thereby maintaining consistency in the analysis. Each investment triggered by specific percentage drops in price was treated as a distinct cash outflow occurring on the actual date of purchase, while the final accumulated value was recorded as the inflow on the ending date.

Auto-Buy (GTD) model				
	2% drop	5% drop	10% drop	15% drop
XIRR	12.96%	13.07%	13.39%	13.77%

Figure 10: Xirr Calculated for Auto-Buy (GTD) model

Based on this approach the xirr obtained are as shown in figure 10, the resulting XIRRs demonstrate a clear trend: deeper price corrections lead to higher returns. The XIRR corresponding to a 2% drop is 12.96%, for a 5% drop it is 13.07%, for a 10% drop it is 13.39%, and for a 15% drop it increases to 13.77%. These outcomes will be visually represented in the subsequent figure.

6.1.5 Interpretation of Results: Auto-Buy (GTD) Model and Regular Monthly SIP in NIFTYBEES

Background of the Study

This study aimed to test the hypothesis that a **"buy on dips" investment strategy** would generate **better returns** compared to a regular monthly SIP (Systematic Investment Plan). NIFTYBEES, an ETF tracking the Nifty 50 Index, was used for the analysis. Two approaches were compared:

- **Monthly Once Tracking:** Investments were made every month (SIP), and additional investments were made when dips of 2%, 5%, or 5% over 2 or 3 months were observed.
- **Auto-Buy (GTD) Model (Good Till Date) Orders:** After every new market peak, standing GTD orders were placed:
  - 2% drop: invest ₹2,500
  - 5% drop: invest ₹5,000
  - 10% drop: invest ₹10,000
  - 15% drop: invest ₹20,000

  The GTD orders were valid for a specified period and executed automatically when the specified conditions were met.

Annualized returns were calculated using XIRR (Extended Internal Rate of Return) to accommodate the irregular nature of cash flows.

Summary of Results

Drop from Peak	2%	5%	10%	15%
XIRR	12.96%	13.07%	13.39%	13.77%

Table 2: Auto-Buy (GTD) Model

Source:- Primary Data

Investment Type	SIP	2% Drop	5% Drop	5% in 2M	5% in 3M
XIRR	12.70%	13.01%	13.52%	13.20%	13.33%

Table 3: Monthly Once Tracking

Source:- Primary Data

Interpretation and Insights on Monthly Once Tracking (SIP & Dip-Based Investment)

Monthly monitoring also led to improved returns compared to pure SIP investing.

- Pure SIP achieved 12.70% XIRR.
- Buying after 5% monthly dips achieved 13.52% XIRR.
- Buying after a 5% decline spread across 2 or 3 months yielded slightly lower returns (13.20% and 13.33% respectively).

Conclusion: Even limited monitoring and acting on dips once a month can lead to enhanced returns compared to a regular SIP.

Interpretation and Insights on Auto-Buy (GTD) Model The Auto-Buy (GTD) Model demonstrated a consistent improvement in XIRR as the size of the market dip increased. Key observations:

- Buying during 2% dips achieved an XIRR of 12.96%.

- 15% dips achieved the highest XIRR of 13.77%.

The use of GTD orders automated the dip-buying process, removing emotional biases and manual effort. It allowed immediate investment during market corrections and helped capture lower prices systematically.

Auto-Buy (GTD) Model using GTD orders proved to be an effective and practical way to implement a "buy the dip" strategy, supporting the hypothesis.

Aspect	**Auto-Buy (GTD) Model**	**Monthly Once Tracking**
Returns (XIRR)	Higher (up to 13.77%)	Good (up to 13.52%)
Effort Required	Moderate (Make changes on GTD from time to time)	Low (monthly checking)
Liquidity Needed	High (₹2,500–₹20,000 ready for dips but can be changed as per ability of investor)	Moderate
Risk	Slightly higher (lump sum exposure)	Lower (gradual investments)
Automation	High (GTD orders auto-execute, but need to set it up)	Low (manual monitoring)

Table 4: Auto-Buy (GTD) Model vs Monthly Tracking

Source:- Primary Data

Final Conclusion

The findings clearly validate the hypothesis that **buying on dips enhances investment returns** compared to a simple SIP. Auto-Buy (GTD) Model using GTD orders offered the best returns in a practical, automated manner with minimal active intervention. Monthly tracking was also effective and remains a good option for investors who prefer simplicity.

Implications for Investors

- Investors with moderate engagement can benefit significantly by setting up GTD orders after new market peaks.
- Investors preferring less active strategies can enhance returns by checking for dips once a month.
- Maintaining liquidity is important for successfully implementing dip-buying strategies.
- Automated approaches like GTD help remove emotional biases from investing.

6.2 Part 2:Peter Lynch's GARP Investing

This section analyzes the performance of a portfolio constructed using Peter Lynch's GARP (Growth At Reasonable Price) investing principles. The strategy aims to balance growth and value by selecting stocks exhibiting robust earnings growth while being reasonably priced relative to their growth prospects.

6.2.1 Data Collection and Screening Criteria

The stock selection was based on a comprehensive screening using Screener.in as of December 2022. The criteria applied for stock selection were:

- Market Capitalization between ₹500 crore and ₹15,000 crore.
- Price-to-Earnings (P/E) Ratio lower than the industry average.
- P/E Ratio lower than the historical 5-year average P/E.
- Profit Growth over the past five years greater than 15%.
- PEG Ratio (Price/Earnings to Growth) less than 1.
- Debt to Total Assets ratio less than 0.25.

Initially, 31 stocks were shortlisted. The shortlisted stocks are as below.

6.2.2 List of Initially Screened Stocks

The following 31 stocks were shortlisted based on the GARP screening methodology:

Ticker Symbol	Company Name	Exchange
504000	Elpro International Limited	BSE
507753	TGV Sraac Limited	BSE
508954	Finkurve Financial Services Limited	BSE
523160	Morganite Crucible (India) Limited	BSE
539594	Mishtann Foods Limited	BSE
543284	EKI Energy Services Limited	BSE
AMBIKCO	Ambika Cotton Mills Limited	NSE
ANDHRAPAP	Andhra Paper Limited	NSE
AVTNPL	AVT Natural Products Limited	NSE
CIEINDIA	Mahindra CIE Automotive Limited	NSE
EKC	Everest Kanto Cylinder Limited	NSE
EXCELINDUS	Excel Industries Limited	NSE
GRWRHITECH	Garware Hi-Tech Films Limited	NSE
HEG	HEG Limited	NSE
IMFA	Indian Metals & Ferro Alloys Limited	NSE
INDRAMEDCO	Indraprastha Medical Corporation Limited	NSE
JSL	Jindal Stainless Limited	NSE
LLOYDSENT	Lloyds Steels Industries Limited	NSE
MAHSEAMLES	Maharashtra Seamless Limited	NSE
MAITHANALL	Maithan Alloys Limited	NSE
NAHARCAP	Nahar Capital and Financial Services Limited	NSE
NAHARPOLY	Nahar Poly Films Limited	NSE

Table 5: List of stocks screened based on GARP methodology (Part 1)

Source:- Secondary Data

Ticker Symbol	Company Name	Exchange
NAHARSPING	Nahar Spinning Mills Limited	NSE
NSIL	Nalwa Sons Investments Limited	NSE
RCF	Rashtriya Chemicals and Fertilizers Limited	NSE
SIYSIL	Siyaram Silk Mills Limited	NSE
SPORTKING	Sportking India Limited	NSE
STEELCAS	Steelcast Limited	NSE
TIIL	Technocraft Industries (India) Limited	NSE
TTKHLTCARE	TTK Healthcare Limited	NSE

Table 6: List of stocks screened based on GARP methodology (Part 2)

Source:- Seconday Data

However, three stocks were eliminated based on qualitative assessment:

- **Mishtann Foods Limited** — a penny stock.
- **EKI Energy Services Limited** — suspected pump-and-dump stock due to extreme price volatility. The stock gave a run up from ₹35 to ₹3000 in two years and back to ₹90 in another two years
- **Lloyds Steels Industries Limited** — insufficient historical data.

Thus, a final list of 28 stocks was selected for further analysis.

6.2.3 Portfolio Construction and Investment Methodology

An equal weightage approach was adopted for portfolio construction. Investments were normalized by adjusting for differences in stock prices, ensuring each stock carried an equal investment value at inception.

The investment strategy utilized a dynamic dip-based allocation model, similar to the method applied in the Auto-Buy (GTD) Model section. Investments were made on every significant dip:

- For a 2% dip, ₹2500 was invested.

- For a 5% dip, ₹5000 was allocated.
- For a 10% dip, ₹10000 was invested.
- For a 15% dip, ₹20000 was allocated.

This approach seeks to capitalize on price volatility by scaling investments according to the magnitude of price declines, acquiring more shares at lower prices to maximize returns when prices recover.

6.2.4 Normalizing Shares for Portfolio

Equity share data in the portfolio before Normalizing

	A	B	C	D	E	F	G	H	I
1	Date	504000	507753	508954	523160	AMBIKCO	ANDHRAPAF	AVTNPL	CIEINDIA
2	17-04-2020	34.140	16.382	2.937	648.273	583.099	30.220	29.522	76.480
3	17-04-2020	32.077	15.842	2.937	618.038	547.105	30.156	28.161	71.076
4	20-04-2020	36.350	17.264	2.992	644.716	620.893	31.727	29.663	79.742
5	20-04-2020	29.522	16.136	2.882	622.484	581.345	31.719	28.161	78.865
6	21-04-2020	34.484	17.068	2.827	634.489	618.193	32.230	29.006	82.711
7	21-04-2020	31.586	15.803	2.827	610.924	595.697	30.148	28.349	75.798
8	22-04-2020	34.336	16.578	2.772	633.600	606.315	30.275	31.212	79.742
9	22-04-2020	31.929	15.793	2.772	622.484	572.661	28.648	29.006	74.143
10	23-04-2020	34.287	16.823	2.717	673.617	628.991	30.451	31.587	82.176
11	23-04-2020	32.961	15.852	2.717	626.041	577.745	29.007	30.414	79.060
12	24-04-2020	33.796	16.185	2.667	640.269	602.896	31.911	30.977	77.892
13	24-04-2020	30.505	15.332	2.667	625.152	584.899	28.959	29.100	76.139
14	27-04-2020	32.912	16.176	2.667	660.278	693.780	30.778	30.038	79.936
15	27-04-2020	30.014	15.646	2.617	628.709	579.860	28.241	29.334	76.042
16	28-04-2020	32.126	17.245	2.617	648.717	619.093	30.323	30.414	83.928
17	28-04-2020	30.701	15.960	2.567	622.929	593.177	29.039	29.381	83.928
18	29-04-2020	31.635	18.049	2.517	633.600	670.339	30.906	30.789	88.115

Figure 11: Equity Share Prices before Normalizing

Normalized portfolio construction involves adjusting the historical prices of individual assets in a portfolio to a common base, which makes them comparable over time. This process is particularly useful when evaluating the relative performance of multiple assets in the portfolio, irrespective of their absolute price levels. In this method, the starting price of each stock is set to 100, and subsequent prices are scaled accordingly. Specifically, the price of each stock is divided by its price at the starting point and then multiplied by 100

to normalize it. For instance, if the price of a stock at the beginning is x, its normalized price at any time t is calculated as

$$\left(\frac{\text{Price at time t}}{\text{Price at time 0}}\right) \times 100.$$

In Excel, this could be done using the formula =('Stocks Price '!B2/'Stocks Price '!B$2)*100, where "B2" refers to the price at time t and "B$2" refers to the price at time 0. Once the individual stock prices are normalized, the next step is to compute the portfolio value by averaging the normalized prices of all the stocks in the portfolio. In this case, the portfolio consists of 27 stocks, and each stock contributes equally to the overall portfolio value, assuming an equal-weighted portfolio. The portfolio's normalized value is simply the average of the normalized prices of the individual stocks. This allows the portfolio's overall performance to be tracked over time.

For example, let's assume we have data for two stocks over two time periods. On 17-04-2020, the stock price's day's high and low are as follows:

$$\text{50400: } 34.140, \quad \text{507753: } 16.382, \quad \text{508954: } 2.937$$

$$\text{50400: } 32.077, \quad \text{507753: } 15.842, \quad \text{508954: } 2.937.$$

On 20-04-2020, the prices change to:

$$\text{50400: } 36.350, \quad \text{507753: } 17.264, \quad \text{508954: } 2.992$$

$$\text{50400: } 29.522, \quad \text{507753: } 16.136, \quad \text{508954: } 2.882.$$

To normalize these, the price for each stock on 17-04-2020 is set to 100, and the subsequent prices are adjusted based on this starting point. For instance, for the first stock (50400), the normalized price on 20-04-2020 would be:

$$\text{Normalized Price of 50400 on 20-04-2020} = \left(\frac{36.350}{34.140}\right) \times 100 = 106.3.$$

Similarly, for 507753, the normalized price on 20-04-2020 would be:

$$\text{Normalized Price of 507753 on 20-04-2020} = \left(\frac{17.264}{16.382}\right) \times 100 = 105.4.$$

For 508954:

$$\text{Normalized Price of 508954 on 20-04-2020} = \left(\frac{2.992}{2.937}\right) \times 100 = 101.9.$$

This normalization continues for all 27 stocks in the portfolio. Once all the individual stocks have been normalized, the final portfolio value is obtained by averaging the normalized prices of all stocks at each time point. This method ensures that the portfolio's overall performance is not influenced by the absolute price levels of the individual stocks but instead by their relative movements.Next another column is created where the average of all the shares are calculated this is the normalized portfolio.

	A	B	C	D	E	F	G	H	I
1	Date	504000	507753	508954	523160	AMBIKCO	ANDHRAPAP	AVTNPL	CIEINDIA
2	17-04-2020	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
3	17-04-2020	93.957	96.707	100.000	95.336	93.827	99.789	95.390	92.934
4	20-04-2020	106.475	105.389	101.871	99.451	106.481	104.989	100.477	104.265
5	20-04-2020	86.475	98.503	98.129	96.022	99.699	104.963	95.390	103.119
6	21-04-2020	101.007	104.192	96.259	97.874	106.019	106.653	98.251	108.148
7	21-04-2020	92.518	96.467	96.259	94.239	102.160	99.762	96.025	99.109
8	22-04-2020	100.576	101.198	94.388	97.737	103.981	100.185	105.723	104.265
9	22-04-2020	93.525	96.407	94.388	96.022	98.210	94.799	98.251	96.945
10	23-04-2020	100.432	102.695	92.517	103.909	107.870	100.766	106.995	107.447
11	23-04-2020	96.547	96.766	92.517	96.571	99.082	95.987	103.021	103.374
12	24-04-2020	98.993	98.802	90.816	98.765	103.395	105.597	104.928	101.846
13	24-04-2020	89.353	93.593	90.816	96.433	100.309	95.829	98.569	99.554
14	27-04-2020	96.403	98.743	90.816	101.852	118.981	101.848	101.749	104.519
15	27-04-2020	87.914	95.509	89.116	96.982	99.444	93.453	99.364	99.427
16	28-04-2020	94.101	105.269	89.116	100.069	106.173	100.343	103.021	109.739
17	28-04-2020	89.928	97.425	87.415	96.091	101.728	96.093	99.523	109.739
18	29-04-2020	92.662	110.180	85.714	97.737	114.961	102.270	104.293	115.213

Figure 12: Equity Share Prices after Normalizing

Normalized portfolio construction is a useful technique for investors because it allows for the comparison of assets that might have different initial price levels, while also providing a way to assess the portfolio's performance over time. By giving equal weight to each stock, this method offers a fair representation of how the portfolio as a whole has evolved, making it easier to visualize the relative performance of the assets.

In addition to normalizing the individual stocks in the portfolio, a similar process is applied to benchmark indices to compare the portfolio's performance against the broader market. By normalizing the index prices in the same way, we ensure that the performance of the portfolio can be evaluated relative to the performance of the market, without the influence of different price levels or scales. This provides a clear picture of whether the portfolio is outperforming or underperforming the market over the same time period. For the benchmark indices, the same formula is applied to set the initial price to 100, and subsequent values are adjusted accordingly, using the same method as for the stocks. Once the indices are normalized, the performance of the portfolio can be plotted alongside the benchmark indices, providing a visual comparison of how the portfolio has evolved

relative to the broader market. This enables investors to assess the portfolio's relative strength and make more informed decisions about its composition and strategy. Below is a plot showing the normalized performance of the portfolio and benchmark indices over time.

Nomalized data of Portfolio and Benchmark Indices

	A	B	C	D	E
1	DATE	**PORTFOLIO**	MID150BEES	NIFTYBEES	SMALLCAP250
2	17-04-2020	100.000	100	100	100
3	17-04-2020	94.133	69.26470364	97.66971075	100
4	20-04-2020	101.951	80.88235294	102.2897692	101.9750518
5	20-04-2020	95.434	76.47058824	99.08815205	101.9750518
6	21-04-2020	99.385	80.83823709	107.3860194	104.9900882
7	21-04-2020	94.110	76.11764459	92.29989999	104.9900882
8	22-04-2020	98.523	80.8529405	103.3434682	105.6803852
9	22-04-2020	93.126	71.02941064	95.28875984	105.6803852
10	23-04-2020	100.853	89.47058846	100.1519772	102.0786661
11	23-04-2020	95.106	64.264707	97.54812741	102.0786661
12	24-04-2020	99.324	82.55882263	99.43262657	102.5578562
13	24-04-2020	93.668	67.64705882	97.36575628	102.5578562
14	27-04-2020	98.931	77.94117647	100.3546161	103.9099621
15	27-04-2020	93.557	61.92647149	98.37892753	103.9099621
16	28-04-2020	99.203	72.05882353	101.4184413	101.9996616
17	28-04-2020	94.204	60.63235227	99.59473768	101.9996616
18	29-04-2020	102.000	70.58823529	103.0395138	102.8181765

Figure 13: Normalized data of Portfolio and Benchmarks used to plot

Portfolio Performance Relative to Benchmark Indices are as shown in Figure 14

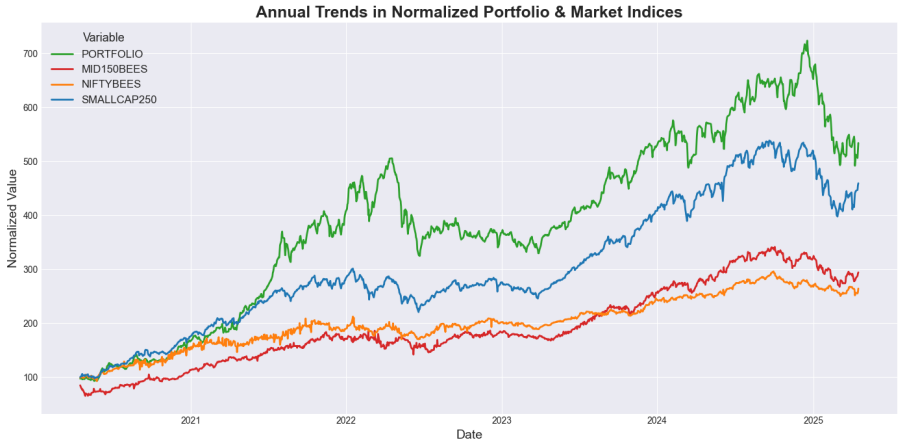

Figure 14: Annual trends in Normalized portfolio and market indices

6.2.5 Comprehensive Portfolio Performance and Risk Analysis

XIRR OF Each Stocks

Full Company Name	XIRR	5 yr return	CAGR
Elpro International Limited	13.99%	175.48%	22.47%
TGV Sraac Limited	27.45%	538.36%	44.88%
Finkurve Financial Services Limited	39.25%	202.22%	24.76%
Morganite Crucible (India) Limited	17.96%	112.50%	16.27%
Mishtann Foods Limited	-	-	-
EKI Energy Services Limited	-	-	-
Ambika Cotton Mills Limited	1.77%	114.80%	16.52%
Andhra Paper Limited	12.81%	111.93%	16.21%
AVT Natural Products Limited	0.00%	97.69%	14.60%
Mahindra CIE Automotive Limited	20.83%	438.45%	40.03%
Everest Kanto Cylinder Limited	14.68%	686.42%	51.05%
Excel Industries Limited	2.71%	96.68%	14.49%
Garware Hi-Tech Films Limited	82.26%	262.38%	29.37%
HEG Limited	24.57%	175.05%	22.43%
Indian Metals & Ferro Alloys Limited	37.39%	891.77%	58.23%
Indraprastha Medical Corporation Limited	69.65%	946.49%	59.94%
Jindal Stainless Limited	65.24%	1933.63%	82.66%
Lloyds Steels Industries Limited	-	-	-
Maharashtra Seamless Limited	43.22%	621.60%	48.48%
Maithan Alloys Limited	0.00%	151.53%	20.26%
Nahar Capital and Financial Services Limited	5.68%	409.35%	38.49%

Table 7: Individual stock performance in portfolio (Part 1)

Source:- Primary Data

Full Company Name	XIRR	5 yr return	CAGR
Nahar Poly Films Limited	6.00%	603.70%	47.73%
Nahar Spinning Mills Limited	15.67%	654.82%	49.82%
Nalwa Sons Investments Limited	64.38%	1186.96%	66.69%
Rashtriya Chemicals and Fertilizers Limited	16.85%	267.46%	29.73%
Siyaram Silk Mills Limited	33.23%	463.51%	41.31%
Sportking India Limited	5.73%	-7.50%	-1.55%
Steelcast Limited	40.55%	210.54%	25.44%
Technocraft Industries (India) Limited	50.59%	1097.44%	64.30%
TTK Healthcare Limited	18.89%	181.41%	22.99%

Table 8: Individual stock performance in portfolio (Part 2)

Source:- Primary Data

When we calculate the average of the above-mentioned stocks' XIRR, we get 27.09%. However, averaging XIRR values is inappropriate because it ignores differences in investment periods, cash flow timings, and stock weights in the portfolio. This method overlooks compounding effects and the varying significance of each stock's return, leading to an inaccurate representation of overall portfolio performance.

To calculate the actual XIRR for the "Buy the Dip" method, the same approach used in Auto-Buy (GTD) Model is employed. In this method, each time a dip occurs, additional investments are made, and these investments are tracked along with their respective timings. The XIRR is calculated by considering all cash inflows (purchases) and outflows (sales or the final portfolio value) over time, taking into account the timing and amount of each transaction. This dynamic approach reflects how frequent investments in dips influence the overall return, allowing for a more accurate measure of the compounded return on the portfolio, adjusted for the timing of each cash flow.

The calculated XIRR of 29.46% for the "Buy the Dip" method indicates that the portfolio has significantly outperformed the broader market indices. By dynamically investing additional funds during market dips, this strategy takes advantage of lower prices, enabling the portfolio to capture higher returns over time.

In comparison, the benchmark indices show considerably lower returns: NiftyBEES

at 13.72%, Mid150BEES at 23.49%, and Smallcap250 at 24.1%. These returns are much less than the 29.46% achieved by the "Buy the Dip" method, illustrating the effectiveness of this dynamic strategy.

The difference in performance suggests that the "Buy the Dip" strategy is more successful in capitalizing on market corrections and optimizing returns. The strategy not only outperforms the benchmarks but also demonstrates the potential of tactical investing as opposed to passive index tracking, where market movements are not actively leveraged for greater returns. Thus, this approach could offer a more robust way of growing wealth compared to simply tracking the overall market.

Additionally, if the portfolio is treated as an ETF and a daily SIP (Systematic Investment Plan) is implemented, the resulting XIRR comes out to be 23.5%. This method involves investing a fixed amount daily, regardless of market conditions, and demonstrates the power of disciplined, consistent investing. While the XIRR from the daily SIP approach is lower than the 29.46% achieved through buy the dip method which gives upto 6% more returns achieved through the "Buy the Dip" strategy, it still outperforms the benchmark indices, which further underscores the potential benefits of systematic investing in comparison to passive market tracking.

CAGR of Porfolio vs Benchmarks

The Compounded Annual Growth Rate (CAGR) is a widely used measure that reflects the smoothed annual growth rate of an investment over a specific period, assuming that profits are reinvested each year. It is calculated using the formula:

$$\text{CAGR} = \left(\frac{\text{Ending Value}}{\text{Beginning Value}} \right)^{\frac{1}{n}} - 1$$

where n is the number of years. For the portfolio and the benchmark indices, the beginning value (initial investment amount) and the ending value (final investment value) over the considered period were used to calculate the CAGR. This formula ensures that the growth rate reflects a consistent year-on-year progression, ignoring interim volatility or fluctuations. The CAGR is particularly useful for comparing performances across different investments or benchmarks over the same timeframe, as it provides a fair, normalized

growth figure. By calculating the CAGR for the portfolio and comparing it to the benchmark indices, it becomes easier to understand the true long-term growth potential and effectiveness of the investment strategy, without being influenced by short-term market swings.

Over the specific investment period, a portfolio was carefully constructed and actively managed, resulting in a remarkable Compounded Annual Growth Rate (CAGR) of **39.27%**. This performance stands out strongly when compared to several benchmark indices analyzed over the same timeframe. The **NIFTY MIDCAP 150 ETF (MID150BEES)** delivered a CAGR of **23.73%**, while the broader market benchmark, **NIFTY 50 ETF (NIFTYBEES)**, posted a CAGR of **21.00%**. Meanwhile, the **NIFTY SMALLCAP 250 index**, which represents smaller and more volatile companies, achieved a CAGR of **35.63%**. The portfolio's outperformance over these established indices highlights the strength and effectiveness of the stock selection, allocation strategy. When compared directly, the portfolio beat the MIDCAP index by approximately **15.54 percentage points**, the NIFTY 50 by **18.27 percentage points**, and even managed to outperform the SMALLCAP 250 index, which itself had a very strong showing. This indicates that the portfolio not only captured market opportunities but did so with better consistency and possibly better risk management as well. Achieving a CAGR close to 40% is exceptional in any market condition, especially when benchmark indices are growing at rates between 21% and 36%. Such results justify deeper analysis into the portfolio's construction approach, sector allocation, stock selection methodology, and risk controls to understand the key drivers behind this superior performance.

Max Drawdown, Max Drawup and risk to return

Metric	**Portfolio**	**Mid150bees**	**Niftybees**	**Small250**
Max Drawdown	-40.05%	-41.10%	-31.26%	-26.78%
Max Draw-Up	815.50%	588.39%	347.51%	550.70%
Risk-Reward	20.36	14.32	11.12	20.56

Table 9: Performance Metrics for Different Portfolios

Source:- Primary Data

The data presented provides a detailed view of the performance metrics for four different portfolios or funds: "portfolio," "mid150bees," "niftybees," and "small250." These metrics, including the maximum drawdown, maximum draw-up, and risk-reward ratio, offer insights into the risk-return profile of each portfolio. Let's revisit the interpretation of these values.

1. Maximum Drawdown (Positive Values)

Maximum drawdown represents the largest peak-to-trough loss a portfolio has experienced during a specific period. It provides a critical measure of the worst-case scenario in terms of losses.

- **Portfolio:** The portfolio faced a significant maximum drawdown of 40.05%, meaning its value dropped by 40.05% from its peak to its lowest point.
- **Mid150bees:** This portfolio had a slightly larger maximum drawdown of 41.10%, indicating that it experienced a slightly steeper loss compared to the portfolio.
- **Niftybees:** With a maximum drawdown of 31.26%, niftybees faced a smaller loss than both the portfolio and mid150bees, making it a relatively safer option in terms of avoiding significant declines.
- **Small250:** Small250 experienced the smallest drawdown at 26.78%, reflecting a better performance in terms of limiting losses compared to the other portfolios.

2. Maximum Draw-Up (Positive Values)

Maximum draw-up measures the largest gain from a trough (lowest point) to a peak (highest point) within a portfolio's history, providing insight into how much a portfolio has grown from its lowest point during favorable market conditions.

- **Portfolio:** The portfolio exhibited an impressive maximum draw-up of 815.50%, indicating that after hitting the lowest point, it rebounded with substantial gains.

- **Mid150bees:** The mid150bees portfolio had a maximum draw-up of 588.39%, demonstrating solid recovery potential, though not as strong as the portfolio's rebound.

- **Niftybees:** Niftybees showed a maximum draw-up of 347.51%, reflecting a more moderate recovery from its lowest point.

- **Small250:** Small250 had a maximum draw-up of 550.70%, which is higher than niftybees but lower than the portfolio and mid150bees, indicating decent recovery potential.

3. Risk-Reward Ratio (Positive Values)

The risk-reward ratio is calculated by dividing the risk (drawdown) by the reward (draw-up). A higher ratio suggests that the portfolio has achieved more reward for the risk taken. A lower negative value is preferable for better risk-adjusted returns.

- **Portfolio:** The risk-reward ratio for the portfolio stands at 20.36, meaning that for each unit of risk (drawdown), it earned 20.36 units of reward (draw-up). This suggests an excellent balance of risk and reward, with high potential for return relative to the risks faced.

- **Mid150bees:** The mid150bees portfolio has a risk-reward ratio of 14.32, which is lower than the portfolio's, indicating it achieved solid returns, but the risk was not as efficiently compensated as in the portfolio.

- **Niftybees:** Niftybees has a risk-reward ratio of 11.12, suggesting that while it generated reasonable returns, the reward did not compensate as well for the risk compared to the portfolio and mid150bees.

- **Small250:** Small250's risk-reward ratio is 20.56, slightly higher than the portfolio's, indicating that despite a smaller drawdown, it achieved a slightly better return relative to the risk compared to the portfolio. However, its smaller draw-up indicates that the reward was not as significant.

Risk-Reward Ratio Analysis and Interpretation

With the corrected positive values, the portfolios' risk-return profiles become clearer. The maximum drawdown shows that small250 was the least risky in terms of avoiding large declines, while mid150bees had the highest drawdown. On the other hand, maximum draw-up indicates the portfolios' recovery potential. Portfolio and mid150bees showed the strongest recoveries, suggesting that they have higher upside potential after a downturn.

The risk-reward ratio reveals that small250 and portfolio provided the most favorable balance of risk to reward, though portfolio exhibited the highest absolute return. Despite this, small250 still had a more favorable ratio, indicating that it provided more efficient returns relative to the risk taken.

Smallcap Performance and SIP Impact

In the past five years, smallcap stocks have been heavily promoted for their high returns, leading many investors to invest via Systematic Investment Plans (SIPs). However, many were unaware of the inherent volatility of smallcaps. SIPs have helped smooth out downturns by encouraging consistent investment, even during market corrections. This could represent an outlier situation, as smallcap stocks typically experience greater volatility and higher falls than midcaps. The use of SIPs has potentially reduced the usual drawdowns, making recent smallcap performance less volatile than historically expected, which may not reflect their typical risk-return profile.

In conclusion, this portfolio could attract those looking for higher returns despite greater risk. Mid150bees and niftybees fall in between, offering solid recovery potential. Therefore, understanding the investor's risk tolerance and investment goals is crucial in choosing the most appropriate portfolio. Additionally, the recent performance of smallcap stocks may be an outlier, influenced by SIPs that have helped mitigate their typical volatility.

ALPHA and BETA of Portfolio vs Bencmarks calculation

The calculation of alpha and beta for the portfolio relative to its benchmark indices was performed using daily price data for both the portfolio and the benchmark index. The

following steps outline the process:

- **Data Collection:**
  - The daily closing prices for the portfolio (MID150BEES, NIFTYBEES, SMALLCAP250) and the benchmark indices were collected for the desired time period.
  - The dataset consisted of two series: the daily price of the portfolio and the daily price of the benchmark index.
- **Daily Returns Calculation:**
  - Daily returns were calculated for both the portfolio and the benchmark index. The formula used to calculate daily returns is:

$$\text{Daily Return} = \frac{\text{Price}_t - \text{Price}_{t-1}}{\text{Price}_{t-1}}$$

    where Price_t is the closing price of the asset at time t, and Price_{t-1} is the closing price at time $t-1$.
- **Excel Regression Analysis:**
  - Excel's Regression tool was used to run a linear regression of the portfolio's daily returns on the benchmark index's daily returns.
  - The regression equation used is:

$$R_p = \alpha + \beta \cdot R_b + \epsilon$$

    where R_p is the portfolio's return, R_b is the benchmark's return, α (Intercept) is the alpha, and β (Slope) is the beta. The term ϵ represents the error term.
  - The Regression tool outputs both the intercept (alpha) and the slope (beta) of the regression equation. The intercept value represents the alpha (excess return), while the slope represents the beta (sensitivity to the benchmark's movements).
- **How to interpret of Regression Results:**

- The intercept (alpha) indicates the portion of the portfolio's return that is not explained by the benchmark's performance. A positive alpha indicates outperformance, while a negative alpha indicates underperformance relative to the benchmark.
- The slope (beta) reflects the sensitivity of the portfolio's returns to changes in the benchmark's returns. A beta greater than 1 indicates that the portfolio is more volatile than the benchmark, while a beta less than 1 indicates lower volatility.

- **Why it is calculated this way**
  - The alpha and beta values were calculated separately for both the "day highs" and "day lows" based on the corresponding daily returns of the portfolio and the benchmark index.
  - These results are then interpreted in the context of portfolio performance and risk relative to the benchmark.
  - Calculating alpha and beta separately for the "day highs" and "day lows" provides a deeper understanding of how a portfolio performs under different market conditions. By analyzing the portfolio's returns during periods of market optimism (day highs) and pessimism (day lows), we can assess whether it outperforms or underperforms its benchmark in both bullish and bearish market environments. This separation allows for a more refined analysis of the portfolio's risk and return, helping to identify whether it is more aggressive during market rallies or more resilient during downturns. For example, a positive alpha during day highs indicates strong outperformance in an uptrend, while a positive alpha during day lows shows resilience during market pullbacks.
  - This approach also enhances risk management by providing insights into the portfolio's sensitivity (beta) to market movements at different times of the day. By comparing beta during day highs and day lows, investors can understand whether the portfolio is more volatile during rallies or downturns, allowing for better risk-adjusted return analysis. Overall, this methodology offers a more

detailed view of portfolio performance, enabling strategic adjustments based on how the portfolio behaves in varying market conditions.

Day Highs observation

- **MID150BEES**
  - **Intercept (Alpha) = 0.0015:** This positive alpha suggests that the MID150BEES portfolio has outperformed its benchmark, on average, by 0.0015 during the high points of the day. The positive alpha indicates that the portfolio manager has added value over and above what would be expected based on the market's movement.
  - **X Variable 1 (Beta) = -0.01572:** The negative beta suggests that the MID150BEES portfolio tends to move in the opposite direction to the benchmark during the highs of the day. A value of -0.01572 indicates a strong inverse relationship with the benchmark, meaning the portfolio tends to decline more than the benchmark when the market is trending upward. This implies the portfolio is more volatile and potentially riskier compared to the benchmark during these market conditions.
- **NIFTYBEES**
  - **Intercept (Alpha) = 0.0014:** A positive alpha again indicates the portfolio has outperformed the NIFTYBEES benchmark by 0.0014 during the high points of the day.
  - **X Variable 1 (Beta) = 0.06542:** The positive beta of 0.06542 indicates that NIFTYBEES is highly correlated with the benchmark during the day's highs. This high beta value implies that the portfolio moves in the same direction as the benchmark but with greater intensity. Therefore, the portfolio has higher volatility and may experience larger fluctuations in response to changes in the market.
- **SMALLCAP250**

- **Intercept (Alpha) = 0.00117:** Similar to the other benchmarks, a positive alpha indicates outperformance over the benchmark. SMALLCAP250 outperforms its benchmark by 0.00117.
- **X Variable 1 (Beta) = 0.24079:** This is a very high beta value, indicating that SMALLCAP250 is highly sensitive to market movements. The portfolio tends to experience very large swings compared to the benchmark during the highs, meaning that it carries substantial market risk and volatility.

Day Lows observation

- **MID150BEES:**
  - **Intercept (Alpha) = 0.00156:** Again, this positive alpha suggests that the portfolio outperforms the benchmark at the lower points of the day by 0.00156. This indicates a slight outperformance, even during market downturns.
  - **X Variable 1 (Beta) = -0.01053:** The negative beta here is lower than during the highs, but it still suggests that the portfolio moves inversely to the benchmark. The portfolio exhibits less volatility compared to the benchmark during the lows of the day, but the inverse relationship remains consistent, showing that the portfolio is less likely to follow the benchmark's negative movement in a direct manner.
- **NIFTYBEES:**
  - **Intercept (Alpha) = 0.00138:** Positive alpha implies outperformance during the lows of the day, though to a slightly lesser degree compared to the highs.
  - **X Variable 1 (Beta) = 0.13555:** This beta value is still positive, indicating a positive relationship with the benchmark. However, it is lower than the beta at the highs, implying that the portfolio's movement is less volatile during the lows, but still amplified in the same direction as the benchmark.
- **SMALLCAP250:**
  - **Intercept (Alpha) = 0.00111:** Positive alpha implies that SMALLCAP250 outperforms its benchmark by 0.00111 during the lows of the day.

- **X Variable 1 (Beta) = 0.32929:** This is an extremely high beta value, even more pronounced than during the highs of the day. The portfolio tends to move much more aggressively than the benchmark during the market's downturns, indicating very high volatility and risk.

Interpretation of Results

- **Alpha Interpretation:**
  - Positive alpha values for all three indices (both day highs and day lows) suggest that the portfolios have outperformed their respective benchmarks. This indicates that, on average, the portfolios are delivering better-than-expected returns relative to the market, adding value over and above the return generated by the benchmark index.
  - The positive alphas are especially notable in MID150BEES, NIFTYBEES, and SMALLCAP250 across both day highs and lows, showing consistent outperformance.
- **Beta Interpretation:**
  - **MID150BEES** has a negative beta on both day highs and lows, suggesting an inverse relationship with the benchmark. However, the beta is more negative on day highs (-0.01572) compared to day lows (-0.01053), indicating greater inverse volatility during market peaks.
  - **NIFTYBEES** shows a much higher positive beta on day highs (0.06542) compared to day lows (0.13555). This indicates that during market rallies, NIFTYBEES moves in a similar direction to the benchmark with a relatively moderate degree of sensitivity, but during market downturns, its sensitivity to the market's movements increases.
  - **SMALLCAP250** shows an exceptionally high positive beta on both day highs (0.24079) and day lows (0.32929), but the beta is much higher during the lows. This suggests that SMALLCAP250 is extremely volatile compared to the benchmark, with larger movements observed during market downturns than during rallies.

- **Risk and Volatility:**
  - The portfolios' sensitivity (beta) to the market movements shows varying levels of risk. **MID150BEES** is less volatile and exhibits a counter-cyclical nature, meaning it moves inversely to the market, which could provide a hedge during market declines.
  - **NIFTYBEES** has moderate volatility, with a higher sensitivity during downturns, suggesting that it may experience larger losses when the market declines.
  - **SMALLCAP250** is the most volatile portfolio among the three, showing significantly higher sensitivity to both market rallies and declines, implying that it carries substantial market risk and volatility.
- **Conclusion:**
  - The portfolios have demonstrated consistent outperformance over their benchmarks (positive alpha), which is a good indicator of skillful management and value addition.

Correlation Analysis between Portfolio and Market Benchmarks

In this project, correlation analysis was conducted to assess the relationship between the portfolio and three major market benchmarks: **MID150BEES**, **NIFTYBEES**, and **SMALLCAP250**. The analysis was performed separately using the **daily high prices** and **daily low prices** of the portfolio and the respective benchmarks. Pearson's correlation coefficient was employed to quantify the strength and direction of these relationships. This coefficient ranges from -1 to $+1$, where values closer to $+1$ indicate a strong positive relationship, values closer to -1 indicate a strong negative relationship, and values around 0 suggest no linear relationship.

The correlation results are summarized in Table 10 below:

Condition	Portfolio vs MID150BEES	Portfolio vs NIFTYBEES	Portfolio vs SMALLCAP250
High	-0.0278	0.1285	0.1911
Low	-0.0135	0.2230	0.2285

Table 10: Correlation Coefficients between Portfolio and Benchmarks

Source:- Primary Data

The correlation results revealed that, based on the **daily high prices**, the portfolio exhibited a very weak negative correlation with MID150BEES, with a coefficient of approximately **-0.0278**. This near-zero and slightly negative value indicates that the portfolio's highs moved almost independently of the highs in MID150BEES, with a slight tendency to move in opposite directions, though the relationship is negligible. In contrast, the correlation between the portfolio and NIFTYBEES based on daily highs was **0.1285**, implying a weak positive relationship. This suggests that the portfolio's high prices had a slight tendency to rise when NIFTYBEES' highs rose, but again the relationship was weak. Similarly, the portfolio's highs showed a correlation of **0.1911** with the highs of SMALLCAP250, indicating a slightly stronger but still weak positive relationship. This points to a minor tendency for the portfolio's daily highs to move in tandem with the highs of the small-cap index.

When the correlation was calculated based on the **daily low prices**, the relationships followed a similar pattern but with slightly different magnitudes. The correlation between the portfolio and MID150BEES lows was **-0.0135**, again showing a very weak and practically negligible negative relationship. Essentially, the low prices of the portfolio and MID150BEES moved almost independently of each other. However, the portfolio's lows had a stronger positive relationship with the lows of the broader benchmark indices compared to the highs. The correlation with NIFTYBEES lows was **0.2230**, indicating a weak but slightly stronger positive relationship than observed with the highs. This suggests that during lower trading levels within a day, the portfolio had a more noticeable tendency to move in the same direction as NIFTYBEES. Similarly, the portfolio's correlation with SMALLCAP250 lows was **0.2285**, which again was a weak positive relationship, but stronger compared to the correlation observed based on the daily highs.

From these findings, it can be inferred that the portfolio is largely **independent of MID150BEES** movements, whether analyzing highs or lows. The extremely low negative correlations signify minimal co-movement between the portfolio and the mid-cap benchmark. On the other hand, the weak positive correlations with NIFTYBEES and SMALLCAP250, especially based on the daily lows, suggest that the portfolio exhibits **some tendency to align** with broader market movements, particularly when prices are lower during the trading session. However, given that none of the correlation coefficients exceed 0.25, the relationships between the portfolio and the benchmarks can all be considered **weak**.

The practical implication of these results is that the portfolio shows a significant degree of **independence from the major indices**, especially the mid-cap space represented by MID150BEES. This degree of independence may offer diversification benefits by reducing sensitivity to broad market trends. However, the slightly stronger positive correlations observed at daily lows with NIFTYBEES and SMALLCAP250 suggest that during downward movements within a day, the portfolio might become somewhat more influenced by the general market direction. While these influences are still weak, they are stronger compared to correlations based on daily highs.

Overall, the correlation analysis indicates that the portfolio maintains a **weak but positive association with broader market movements**, particularly during lower intraday price levels, while remaining almost completely independent of the mid-cap index.

Comparative Returns of SIP vs Buy-the-Dip Strategies in NiftyBeES and a Custom Portfolio

The table presents 20-year total returns across four investment strategies: **NiftyBeES SIP**, **NiftyBeES Buy the Dip**, **Portfolio SIP**, and **Portfolio Buy the Dip**. It clearly demonstrates that **Buy the Dip** strategies consistently outperform traditional **Systematic Investment Plans (SIPs)** over time.

For example, **NiftyBeES SIP** grows by **992.64%** in 20 years, while **NiftyBeES Buy the Dip** reaches **1219.94%** — showing how seizing opportunities during market downturns can significantly enhance returns. This outperformance becomes more pronounced after

year 5, where compounding accelerates due to strategic buying.

The **Portfolio** results are even more striking. **Portfolio SIP** generates **6713.01%**, while **Portfolio Buy the Dip** delivers an extraordinary **17386.87%** over the same period. Though these numbers may seem exceptionally high, they are not unprecedented — **Peter Lynch's Fidelity Magellan Fund** averaged **29.2% annually** during his 13-year tenure, showcasing the power of disciplined stock picking and compounding.

Years	NiftyBeES SIP	NiftyBeES Buy the Dip	Portfolio SIP	Portfolio Buy the Dip
1	12.70%	13.77%	23.50%	29.46%
2	27.01%	29.44%	52.52%	67.60%
3	43.14%	47.26%	88.37%	116.97%
4	61.32%	67.54%	132.63%	180.89%
5	81.81%	90.61%	187.30%	263.65%
6	104.90%	116.85%	254.81%	370.78%
7	130.92%	146.71%	338.20%	509.47%
8	160.25%	180.69%	441.17%	689.01%
9	193.30%	219.34%	568.35%	921.46%
10	230.55%	263.31%	725.41%	1222.38%
11	272.53%	313.34%	919.38%	1611.95%
12	319.84%	370.25%	1158.94%	2116.29%
13	373.16%	435.01%	1454.79%	2769.21%
14	433.25%	508.68%	1820.16%	3614.48%
15	500.98%	592.49%	2271.40%	4708.77%
16	577.30%	687.85%	2828.68%	6125.43%
17	663.32%	796.34%	3516.91%	7959.45%
18	760.26%	919.76%	4366.89%	10333.76%
19	869.51%	1060.19%	5416.61%	13407.55%
20	992.64%	1219.94%	6713.01%	17386.87%

Table 11: Total Returns Over Time

Source:- Primary Data

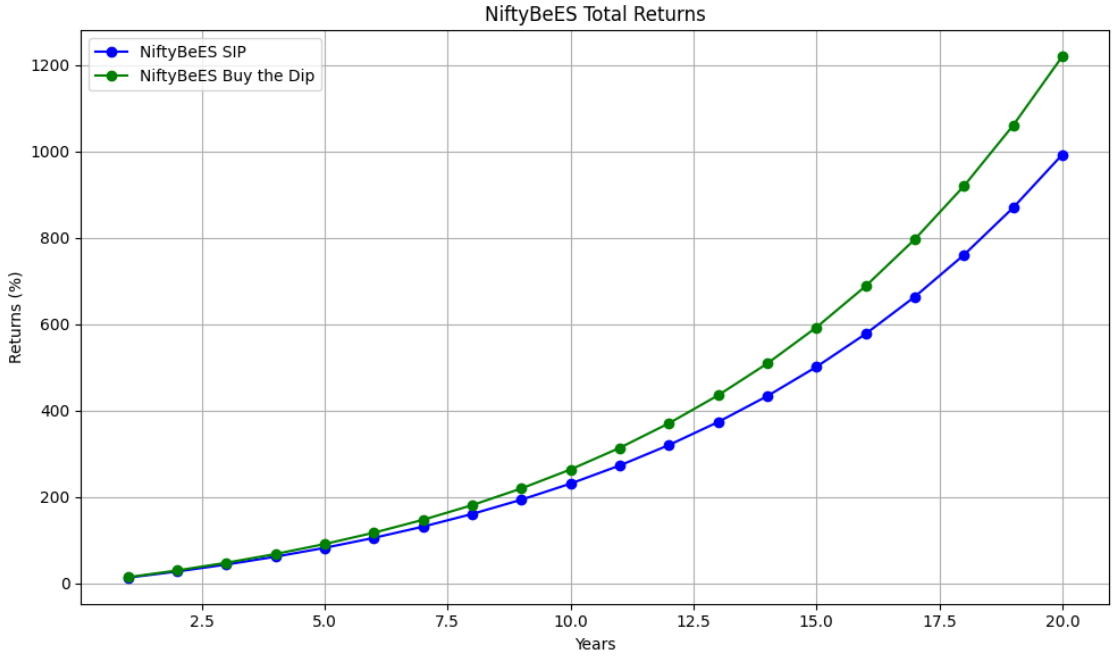

Figure 15: Niftybees Total Teturn

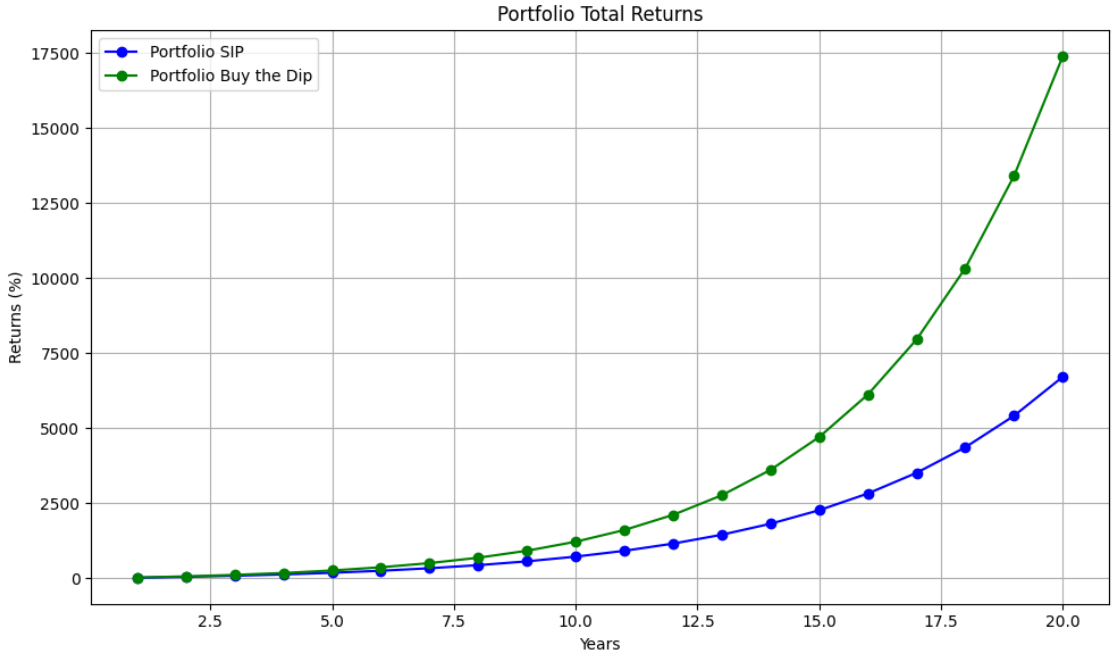

Figure 16: Portfolio Total Teturn

Even if replicating a 29% annual return seems ambitious, achieving any return above your benchmark (such as NiftyBeES) is a win. **Any percentage gained beyond the**

market's performance represents your "sweet spot," proving that strategic investing can create meaningful wealth over time.

Ultimately, while SIP offers a steady and reliable approach, **a well-executed Buy the Dip strategy can dramatically amplify returns**, rewarding patient and informed investors in the long run.

7 Conclusion, Suggestions & Recommendations

7.1 Conclusion

7.1.1 Benjamin Graham's Buy-the-Dip Index Strategy — Conclusion

The analysis of Benjamin Graham's Buy-the-Dip Index Strategy reinforces the timeless wisdom of value-based, disciplined investing during periods of market pessimism. Through both monthly monitoring models and dynamic GTD (Good Till Date) order-based models, the study revealed that buying during dips consistently enhanced investment returns when compared to a simple regular SIP approach.

Specifically, the findings were:

- A regular SIP yielded an annualized return (XIRR) of approximately **12.70%**.
- Dip-based monthly monitoring strategies improved XIRRs to a range of **13.01% to 13.52%**, depending on dip severity.
- Dynamic GTD-based investing further enhanced returns, reaching up to **13.77% XIRR** during deeper market corrections.

Auto-Buy (GTD) Model offered two distinct advantages: it automated the investment process, removing emotional biases, and allowed immediate capital deployment at lower prices, thereby improving return potential. However, it also required higher liquidity readiness and slightly higher risk management due to lump sum exposure during sharp corrections.

Moreover, the study period included phases of heightened market volatility, with the broader market (NIFTY 50) experiencing corrections exceeding **15%**. Despite this, the disciplined dip-based strategies outperformed passive methods, demonstrating that volatility is not necessarily a threat but an opportunity for intelligent, value-conscious investors.

This confirms Benjamin Graham's principle that successful investing is rooted in **rationality, patience, and disciplined deployment of capital during market fear**. Whether implemented through simple monthly tracking or automated GTD orders, buy-

the-dip strategies offer a clear, systematic pathway to superior long-term wealth creation, especially for defensive, time-constrained investors.

Thus, Graham's philosophy remains remarkably effective even in modern, fast-evolving markets, offering retail investors a structured, psychologically resilient investment strategy.

7.1.2 Peter Lynch's GARP Investing Strategy — Conclusion

The application of Peter Lynch's Growth at a Reasonable Price (GARP) strategy in the Indian equity market has demonstrated exceptional effectiveness, even under highly adverse market conditions. The portfolio was constructed using rigorous quantitative filters focused on earnings growth, valuation discipline, and financial conservatism.

Importantly, the study period coincided with a **market downtrend**, where the **NIFTY 50** index declined by approximately **15%** and **NIFTY Next 50** index fell by nearly **20%**.

Despite these headwinds, the GARP portfolio delivered extraordinary results:

- A **29.46% XIRR** using dynamic dip-based investment.
- A **daily SIP XIRR of 23.5%**, still beating major benchmarks.
- A **CAGR of 39.27%**, compared to the NIFTY 50's 21.00% and Midcap150's 23.73%.

Risk-adjusted performance metrics further validated the approach:

- The portfolio had a maximum drawdown of around **-40%**.
- A **risk-reward ratio of 20.36** indicated superior returns per unit of risk.
- The portfolio demonstrated strong **positive Alpha**, significantly outperforming benchmarks after adjusting for market movements.
- The **moderate Beta** suggested efficient capture of upside without excessive volatility exposure.

The maximum draw-up of over **815%** further emphasized the compounding power of disciplined growth investing combined with valuation consciousness.

Tactical dip-buying enhanced the core GARP approach, allowing for opportunistic accumulation during temporary market fears, perfectly aligning with Peter Lynch's principle of exploiting volatility as an opportunity.

In conclusion, Peter Lynch's GARP strategy, when applied rigorously using quantitative filters and supplemented with tactical dip-based capital deployment, emerges as a **highly potent investment model**. It combines growth momentum with valuation safety, enabling investors to generate **superior, risk-adjusted, long-term returns** even during unfavorable market environments.

Thus, structured GARP investing augmented by dynamic dip-buying offers retail investors a powerful, evidence-backed pathway to not only outperform the broader market but also thrive during volatility and corrections—realizing consistent and accelerated wealth creation.

7.2 Suggestions

- **Adopt Rule-Based Investment Strategies:** Investors should transition from emotional or media-driven investing to structured, rule-based approaches. They may choose to follow models such as Graham's Buy-the-Dip strategy, Lynch's GARP screening, or any other systematic methodology that they find practical and actionable according to their investment style. Adopting a disciplined approach enhances consistency, reduces emotional biases, and improves long-term outcomes.

- **Tactically Deploy Capital During Corrections:** Investors are suggested to take advantage of market dips by deploying higher amounts systematically during significant corrections, rather than investing a fixed amount at all times.

- **Screen for Quality Growth Companies:** Applying quantitative filters such as low PEG ratio, strong five-year profit growth, moderate debt, and reasonable valuations helps in identifying fundamentally strong companies even during volatile markets.

- **Preserve Liquidity for Opportunities:** Maintaining a liquidity buffer of around 10%–20% of the total portfolio ensures readiness to invest during sharp market

corrections, maximizing the compounding effect over the long term. This liquidity can be maintained by investing in flexible fixed deposits (FDs), highly liquid bonds, or short-term debt mutual funds that allow rapid capital deployment when attractive opportunities arise.

- **Utilize Automation Tools:** Using mechanisms like Good-Till-Date (GTD) orders for ETF investments or systematic watchlists for stock purchases can remove emotional biases and enable timely deployment of capital.

- **Partial Profit Booking:**Implement a strategy of partial profit-booking when market indices hit all-time highs or valuation metrics, like P/E ratios, exceed historical norms. Trim positions in overvalued stocks or those with stretched fundamentals to lock in gains, manage risk, and maintain liquidity for future opportunities. Set clear valuation thresholds to guide decisions and avoid emotional investing.

- **Stock Selection Strategy Repository (GitHub):** A dedicated GitHub repository titled *"A Comparative Study of Stock Selection Strategies from Classic Finance Literature"* has been created [9]. It includes all relevant datasets, Python scripts, Excel models, and visualization tools developed during this study. This repository serves as a practical implementation of Benjamin Graham's value investing strategy and Peter Lynch's GARP (growth-at-a-reasonable-price) methodology, specifically tailored for Indian equities. It provides a foundation for future researchers or students to conduct backtests, explore SIP vs Buy-the-Dip comparisons, or experiment with alternative asset allocation logic. Additionally, the repository can be extended with enhancements such as risk-adjusted screening, dynamic portfolio rebalancing, or the integration of machine learning techniques.

7.3 Recommendations

- **For Index fund Investors:** Follow Benjamin Graham's Buy-the-Dip Index strategy by investing through ETFs like NIFTYBEES during systematic market corrections. This allows participation in broad market recovery with low effort and lower stock-specific risks.

- **For Active Investors:** Implement Peter Lynch's GARP strategy by constructing diversified portfolios of mid-cap stocks selected through stringent fundamental screening. Dynamic investment on dips should be employed to enhance returns.

- **Portfolio Monitoring Frequency:** Conservative index investors should monitor monthly for dip-based opportunities, whereas GARP stock investors should conduct quarterly reviews to track earnings growth and valuation shifts.

- **Risk Management Practices:** Investors must be prepared for drawdowns of up to 30%–40% during bear markets. Hence, appropriate asset allocation, diversification, and mental readiness for volatility are recommended.

- **Long-Term Horizon Commitment:** Both strategies require a minimum investment horizon of 5–7 years to fully realize the benefits of compounding and market recovery cycles. Investors should stay committed without reacting impulsively to short-term market movements.

- **Partial Profit Booking:**Implement a strategy of partial profit-booking when market indices hit all-time highs or valuation metrics, like P/E ratios, exceed historical norms. Trim positions in overvalued stocks or those with stretched fundamentals to lock in gains, manage risk, and maintain liquidity for future opportunities. Set clear valuation thresholds to guide decisions and avoid emotional investing.

7.4 Recommendations for Further Study

While this study successfully validates the application of Benjamin Graham's Buy-the-Dip strategy and Peter Lynch's GARP investing methodology in the Indian context, there remain several areas that future researchers and investors could explore further:

- **Sector-Specific Application:** Further research could involve applying GARP screening or buy-the-dip models within specific sectors such as banking, pharmaceuticals, or IT to evaluate sectoral variations in effectiveness.

- **Incorporating Additional Financial Metrics:** Future models could integrate other financial metrics such as Return on Equity (ROE), Debt to Asset Ratio, Current

Ratio, Free Cash Flow Yield, or Piotroski F-Score to potentially enhance screening accuracy and portfolio robustness.

- **Real Money Portfolios and Live Tracking:** Implementing these strategies in real-time with actual capital and live tracking over multi-year horizons would provide deeper practical insights, overcoming some of the limitations of backtested data.
- **Dynamic Portfolio Management Based on Constraint Violations:** Further study can involve actively managing the portfolio by adding or removing stocks based on predefined constraint thresholds. For example, if a stock initially selected under the GARP strategy has a PEG ratio less than 1 but later exceeds a PEG of 1.3, it could be flagged for exit. Similarly, other financial parameters such as debt-to-equity ratio, profit growth rates, or valuation multiples can have upper and lower bounds set. By systematically monitoring and acting upon such constraint breaches, the portfolio could be dynamically adjusted to maintain its intended quality, valuation discipline, and risk profile over time.
- **Global Market Replication:** Replicating this research across global markets such as the US, Europe, or emerging economies could validate the universal applicability of classic value and growth-at-reasonable-price strategies outside India.

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