Valuing S&P 500 Index

Approach & Methodology Paper

S&P 500®

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Contents

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1. Introduction

S&P 500

1.1 Background

- The S&P 500 Index is the benchmark index for the United States, maintained by S&P Dow Jones indices. It tracks the performance of **500 of the largest publicly traded companies** listed on the U.S. stock exchanges. Established in 1957, the index is designed to reflect the overall performance of the U.S. equity market.
- The S&P 500 covers multiple sectors of the economy including information technology, healthcare, financial services, energy, and etc. It serves as the primary index for investment portfolios, mutual funds, ETFs and derivatives trading, making it the most widely followed equity index in the world.

1.2 Key Statistics

- As of August 2025, the S&P 500 Index represents approximately **80% of the total free-float market capitalization** of the U.S. equities.
- It consists of large-cap companies from various sectors, making it an **ideal indicator of U.S.'s economic health**.
- The total traded value of S&P 500 constituents is significantly high, ensuring strong liquidity and active investor participation.

The Compound Annual Growth Rate (CAGR) returns for different periods indicate the long-term growth potential of the Indian stock market:

- 15 years CAGR Return: ~13.88%
- 10 years CAGR Return: ~13.10%
- 5 years CAGR Return: ~14.53%

1. Introduction

1.3 Composition of S&P 500

- The S&P 500 Index includes **500 of the largest and most liquid companies listed on the U.S. stock exchanges**. These companies represent a substantial portion of the exchange's total market capitalization. The index serves as a benchmark for the U.S. equity market and includes industry leaders across various sectors. Some of the major constituents of the S&P 500 include Nvidia, Microsoft, Apple, Amazon.com, and Alphabet.
- The S&P 500 Index is designed to provide a well-diversified representation of the U.S. economy, covering multiple industries such as Information Technology, Financial Services, Energy, Consumer discretionary, and Healthcare.

1.4 Sector-wise Contribution to S&P 500

Sectors	Weight (%)
Information Technology	33.8%
Financial Services	13.7%
Consumer Discretionary	10.2%
Communication Services	9.84%
Healthcare	8.97%
Industrials	8.64%

Sectors	Weight (%)
Consumer Staples	5.35%
Energy	2.99%
Utilities	2.49%
Real Estate	2.02%
Materials	1.84%

2. Context of Valuation

S&P 500

2.1 Context

- As of August 29, 2025, the S&P 500 index closed at **24,712.05**, down 1.02% from the previous session. This marks a significant decline from its peak in September 2024, with the index now approximately 15% lower. This downturn is driven by **global economic uncertainties**, and **escalating trade tensions**. Additionally, **Foreign investors pull out ₹2 lakh crore** in 2025, have intensified selling pressure. Rising U.S. Treasury yields and a strengthening dollar have further contributed to foreign capital outflows, making emerging markets like India less attractive in the short term. The depreciation of the Indian rupee against the dollar has also pressured corporate earnings, particularly for sectors reliant on imported raw materials or foreign debt financing.
- Currently, The index is closed at 24,712.05, falling approximately **15%** from its peak in September 2024.

Valuation objective: This valuation paper aims to assess the fair valuation of the **S&P 500 index** in light of the prevailing economic environment, factoring in inflationary trends, policy changes, and market sentiment. The index has been valued based on **dividends paid**, **buyback yield**, **future earnings growth**, **equity risk premium**, and the **US$ 10-Year treasury bond yield** as a proxy for the **risk-free rate**.

The valuation methodology follows the principles of **Prof. Aswath Damodaran (Dean of Valuation, NYU Stern)**, using the **Discounted Cash Flow (DCF) approach** with necessary adjustments for the Indian market context.

The report is based on assumptions, and is subject to market risks. It provides insights into whether the S&P 500 is currently **undervalued**, **overvalued**, **or fairly valued**, primarily considering cash flows from **dividends and buybacks.**

The index's valuation date is **29 August 2025**, and all data used in this report reflect market conditions as of this date to provide an accurate valuation snapshot.

3. Approach and Methodology

3.1 Pillars of Valuation

The Valuation approach used value the S&P 500 INDEX is the Discounted Cash Flow approach. The key pillars being,
Free Cash Flow to Equity (FCFE), **Earnings Growth**, **Risk-Free Rate** .

3.2 Free Cash Flow to Equity Holders

In valuing the S&P 500 Index using the Discounted Cash Flow (DCF) approach, cash flows represent a crucial component, emphasizing the rights of equity holders to future cash flows. Ideally, Free Cash Flow to Equity (FCFE) would be the theoretical basis for valuation. However, calculating FCFE for every company in the S&P 500 is both complex and resource-intensive. As a practical alternative, **Dividend Payouts and Buybacks are used as proxies for FCFE.**

The rationale behind this approach is that, over time, the cash generated by companies ultimately benefits shareholders, either through dividends or share buybacks. This is particularly relevant as firms mature or in cases of liquidation.

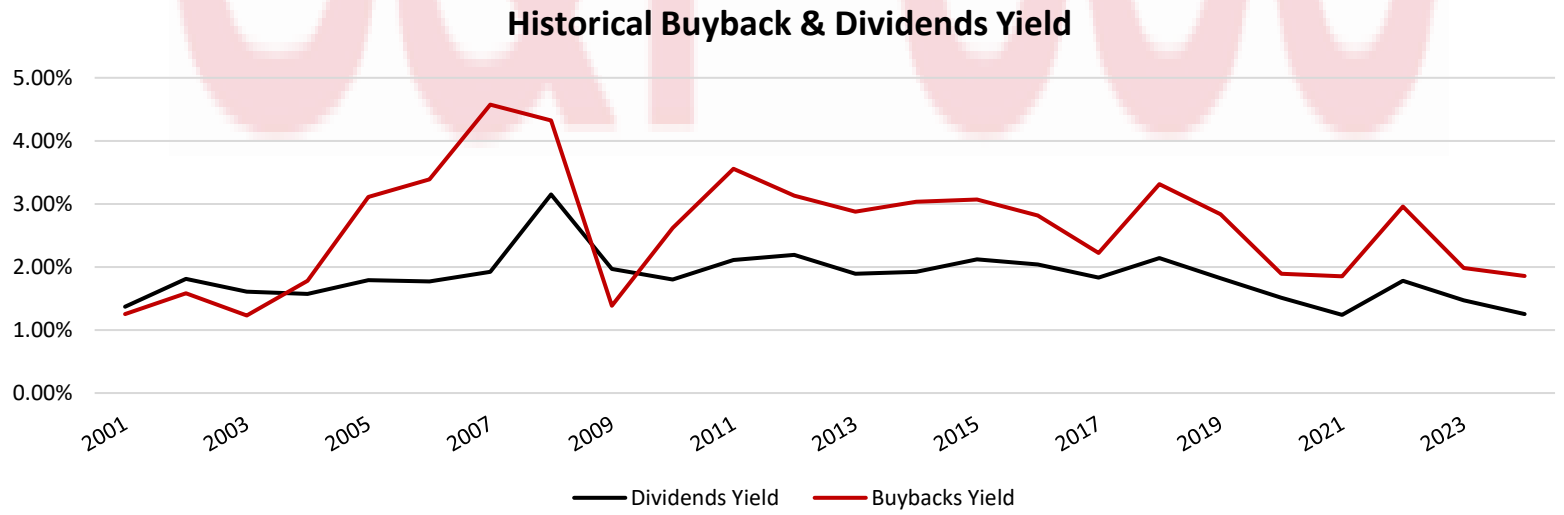
- **Dividend Yield data** is sourced from Prof. Aswath Damodaran's website "Damodaran Online".
- **Buyback Yield data** is also sourced from "Damodaran Online".

3. Approach and Methodology

3.2 Free Cash Flow to Equity Holders

The below representation provides the insights on % of dividends yield and buyback yield in total yield used as the S&P 500 indices composite yield over 20-, 10-, 7-, 5-Years time frame.

Time Frame (Years)	Dividend Yield	Buyback Yield	Total Yield
20	1.89%	2.84%	4.73%
10	1.71%	2.48%	4.20%
7	1.69%	2.38%	3.99%
5	1.45%	2.11%	3.56%



3. Approach and Methodology

3.3 Earnings Growth

- Earnings of the S&P 500 Index is obtained from the Damodaran Online. Historical data for the S&P 500 Index is also taken from Investing.com and is used in the calculation of earnings growth with minimal adjustments.
- For valuation purposes, an **Earnings Growth rate of three years** is considered, as it provides a forward-looking perspective while maintaining a range close to the **10-year earnings growth rate** for accuracy.

The dataset spans **from 2001 to 2024** to effectively analyze long-term trends.

To improve accuracy, yearly averages of earning growth is used. Additionally, EPS growth rates (CAGR) are calculated for 3, 5, 7, and 10 years, and their average is taken to obtain a stable and representative growth figure for valuation.

Years	EPS CAGR %
10 Years	6.68%
7 Years	6.77%
5 Years	6.95%
3 Years	7.39%

3. Approach and Methodology

3.4 Risk-Free Rate

- The risk-free rate is **fundamental to DCF valuation** as it establishes the baseline return that investors require, representing the opportunity cost of capital. This rate reflects the **minimum return investors expect** in exchange for the **time value of money** and the assurance of **pr**incipal repayment.
- we have used 10-year US$ treasury bond yield as on 27 August 2025 as the **risk-free rate** for this research.
- This ensures the valuation remains forward-looking incorporating the most recent market conditions.

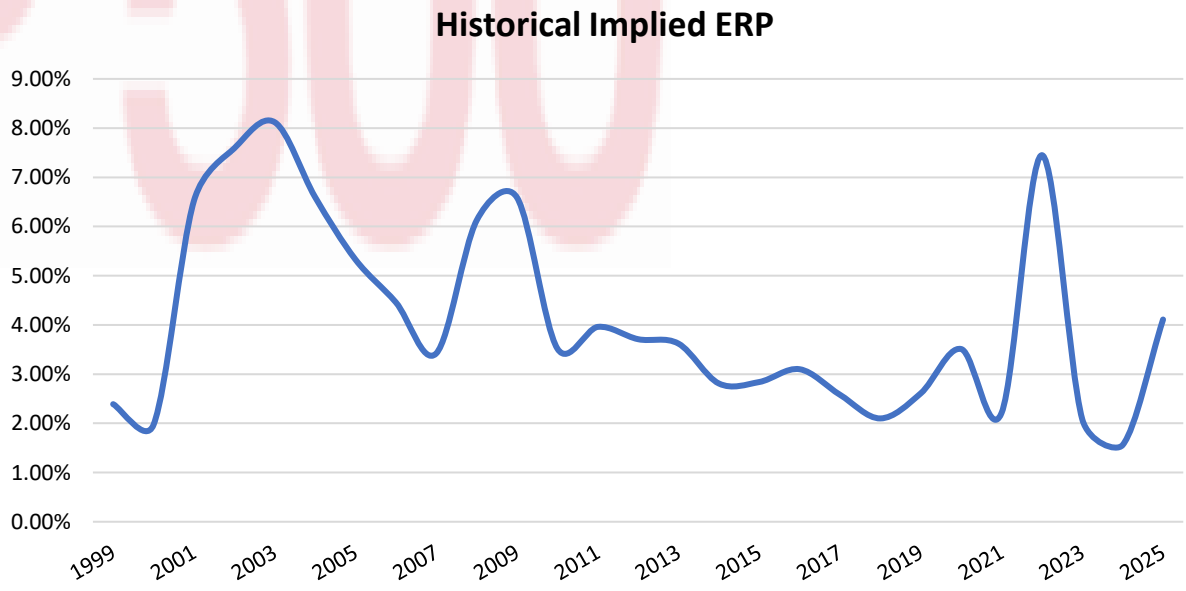
Treasury Bonds	Average & Current Yields %
10-years average	6.89%
5-years average	6.85%
Latest Yield	4.27%

3. Approach and Methodology

3.5 Market Risk Premium

- The **Market Risk Premium** represents the **additional return** that investors expect over and above the **Risk-Free Rate** for investing in a particular market, which inherently carries risk.
- It is a **market-specific and country-specific risk factor**. A higher Market Risk Premium signals a cautious market sentiment, where investors adopt a defensive stance, demanding higher returns to compensate for increased uncertainty.
- A rising Market Risk Premium also implies that investors are willing to pay lower prices for assets despite stable cash flows, reflecting heightened risk aversion. For this valuation, the Market Risk Premium data has been **sourced from the Market Risk Premia** website.
- To ensure the analysis remains relevant and forward-looking, we have incorporated the **latest Market Risk Premium**, accounting for **recent trends and developments in the Indian equity market.**

Implied Risk Premium	Average %
20 Years	3.62%
10 Years	3.13%
5 Years	3.42%
Latest	3.84%



3.6 Time Frame for the Valuation Report

- The valuation date for this report is **August 29, 2025**.
- Averages for key financial metrics such as the **Risk-Free Rate, Market Risk Premium, Nifty 50 historical returns, EPS growth, Buyback Yield and Dividend Yield** have been calculated from **1999 to 2025**.
- The valuation assessment compares the derived Nifty 50 value based on our calculations with the **closing price of Nifty 50 as of August 26, 2025**.

3.7 Beta

- Since we are valuing an index that broadly represents the market, the **beta is assumed to be 1**.

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4. Valuation

S&P 500

Valuing The S&P 500 INDEX

Index	Previous Close	Ticker Symbol	Intrinsic Value
S&P 500 INDEX	**$ 6,465.94**	**SPX**	**$ 6,110.97**

Key Inputs		Assumptions	
Date	27-Aug-25	27-Aug-25	**OVERVALUED**
Current SPX Level	₹ 6,465.94	₹ 6,465.94	***The Market Implied Fair Value of S&P 500 INDEX is 6,111. S&P 500 INDEX is Currently Trading at 6,466. A 5.49% Correction Expected from this Level.***
Total Yield	Latest	3.11%	
Expected Growth	3YRS	7.39%	
Risk-Free Rate	Latest RFR	4.27%	
Equity Risk Premium	Implied ERP	4.17%	
Cost of Equity		8.44%	

Year	Expected Dividends &Buybacks	Cumulative PV Factor (Risk-Free Rate + Equity Risk Preimum	Present Value of Expected Dividends & Buybacks
2025	$ 215.80	0.9222	$ 199.01
2026	$ 231.75	0.8504	$ 197.07
2027	$ 248.86	0.7842	$ 195.16
2028	$ 267.25	0.7232	$ 193.26
2029	$ 286.99	0.6669	$ 191.39
2030	$ 308.19	0.6150	$ 189.53
2031	$ 330.95	0.5671	$ 187.68
2032	$ 355.40	0.5230	$ 185.86
2033	$ 381.65	0.4823	$ 184.05
2034	$ 409.84	0.4447	$ 182.27
2035 - ∞	$ 10,254.94	0.4101	$ 4,205.69

5. Sources and Disclaimer

5.1 Sources

- Investing.com- https://in.investing.com/
- NSE India official website- https://www.nseindia.com/
- Market Premia website- http://market-risk-premia.com/
- Prof. Aswath Damodaran website- https://pages.stern.nyu.edu/~adamodar/

5.2 Disclaimer

This information is for educational purposes only and is not intended as investment advice or a professional recommendation. It serves as a platform for discussions on trading concepts. All examples and analyses presented are for illustration only and reflect the personal opinions of the author.

Trading involves substantial risk, and users must carefully assess all relevant risk factors, including their financial situation, before making investment decisions. There is a high degree of risk associated with trading securities, and past performance does not guarantee future results.

The author assumes no responsibility for any financial outcomes resulting from the use of this material. Additionally, there is no assurance that the methods, techniques, or indicators discussed will be profitable or free from potential losses. Users are advised to conduct their own due diligence and seek professional financial advice before making trading or investment decisions.

5. Sources and Disclaimer

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