Valuing S&P BSE SENSEX

Approach and Methodology Paper

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1 Introduction

1.1 History & Background

➢ The **S&P BSE SENSEX**, launched in **1986**, is **India's oldest stock market index** with a **base year of 1978-79** and a **base value of ₹100**. It has historical data available since **1979**.

➢ It tracks **30 leading, financially strong companies** across key sectors, serving as a reliable benchmark for the Indian equity market.

➢ Since **September 1, 2003**, it follows the **free-float market capitalization method**, in line with global indices. **All BSE indices use this method**, except the **BSE-PSU index**.

1 Introduction

1.2 Sector Wise Structure Of Sensex

Sr.NO	Sector	Weightage
1	Bank	24.58 %
2	IT	16.97 %
3	Crude Oil	11.53 %
4	FMCG	8.45 %
5	Telecom	6.80 %
6	Automobile & Ancillaries	6.36 %
7	Finance	5.54 %
8	Power	3.90 %

Sr.NO	Sector	Weightage
9	Infrastructure	2.99 %
10	Healthcare	2.76 %
11	Construction Materials	2.57 %
12	Diamond & Jewellery	1.82 %
13	Logistics	1.65 %
14	Chemicals	1.46 %
15	Retailing	1.33 %
16	Iron & Steel	1.29 %

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2. Context of the Valuation

2.1 Context

➤ High inflation and tight policy — Central banks including the RBI are maintaining high interest rates, reducing liquidity and market momentum

➤ Geopolitical tensions — Ongoing conflicts like Russia-Ukraine and Middle East unrest are increasing volatility and investor caution

➤ Crude oil and rupee weakness — High oil prices and a weaker rupee are driving inflation and hurting corporate margins

➤ Rising gold prices — Gold is gaining as a safe-haven asset, reflecting risk aversion and diverting investment from equities

➤ FII outflows and weak demand — Foreign investors are cautious, and domestic demand in key sectors like auto and real estate remains sluggish

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3. Approach and Methodology

3.1 Methodology Used

- The Valuation report aims to determine the valuation of the Index in the above context.

- The Index has been valued considering the dividends paid, buyback yield, Future Earnings Growth, Equity Risk Premium and India's 10 Year Government Bond Yield which serves as an appropriate proxy for Risk Free Rate. The valuation of the index is based on the methodology used by Prof. Aswath Damodaran (Dean of Valuation- NYU Stern) and his pronouncements on the Discounted Cash Flow approach. However, certain aspects of the methodology have been modified to suit the Indian capital markets and general macroeconomic scenario.

- The Report is prepared using assumptions. Thus, the interpretation of results shall be subjective and based on the users' requirements. The report provides a broader idea on whether the Nifty index is Overvalued, Undervalued or Fairly valued which are derived primarily from the cash flows (Dividends and Buy Backs) in the hands of investors/shareholders.

- The index's valuation date shall be "1st May, 2025" and all the data used for the purpose of valuation are till 1st May, 2025.

3.2 Pillars of the Valuation

- The Valuation approach used to value the Sensex Index is the Discounted Cash Flow approach.

- The key pillars being: a.) Free Cash Flow to Equity (FCFE) b.) Earnings Growth c.) Risk Free Rate d.) Equity Risk Premium.

3.3 Free Cash Flow to Equity Holders

➤ Cash flows represent the equity holders' claim on the business and are captured as FCFE.

➤ Calculating FCFE for all index companies is complex, so Dividend Payouts and Buybacks are used as practical substitutes.

➤ This works because firms ultimately distribute generated cash to shareholders via dividends or buybacks as they mature or liquidate.

➤ Dividend yields come from the BSE website, while buyback data, minimal in emerging markets, is sourced from Prof. Damodaran's sectoral consolidation.

➤ Since buybacks are a small part of cash flows, using sectoral buyback yields does not significantly affect valuation outcomes.
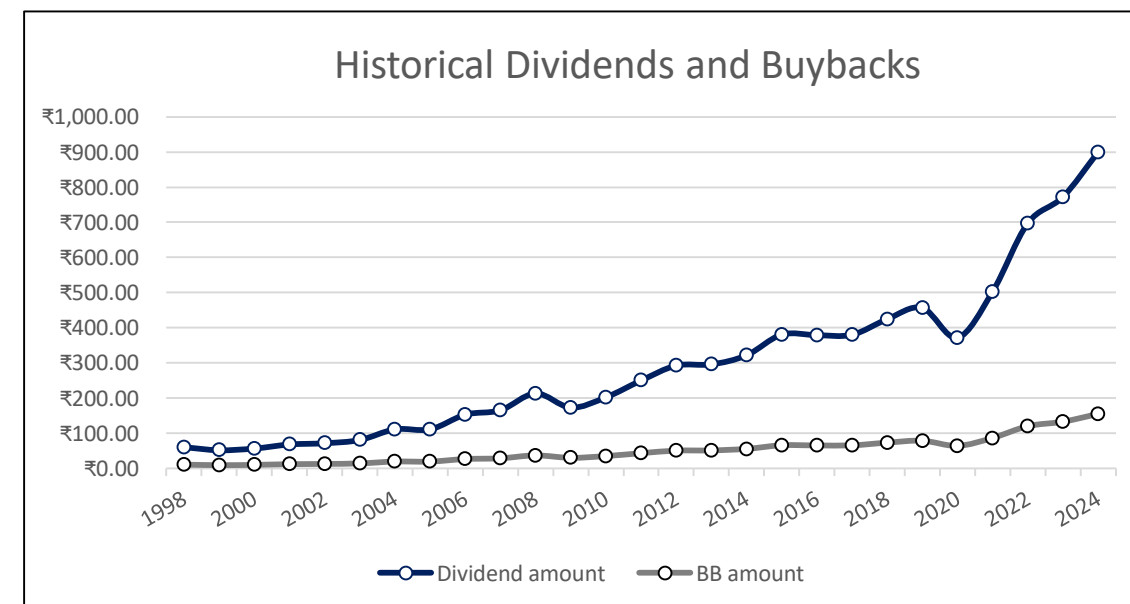
3. Approach and Methodology

3.4 Expected Dividend and Buyback

The DCF valuation is derived by discounted free cash flow to equity (FCFE) at an appropriate discount rate. However, it is tedious to calculate the FCFE of each company in SENSEX to calculate its value. However, the estimation of expected dividend and buyback based on historical data as it is synonymous with the FCFE.

While historical data of dividends are readily available on the BSE website, it is very rare for a Sensex company to buy back stock. Therefore, buyback data consolidated by Prof. Damodaran was analyzed to calculate buyback yield on total earning and dividend yield. However, since buyback yield is emerging market like India is very minuscule, it would not affect the value much.

| Compounded Years	Dividend Yield	Buyback Yield	Total Yield
20 Years	1.49%	0.14%	1.49%
15 Years	1.47%	0.13%	1.47%
10 Years	1.39%	0.12%	1.39%
5 Years	1.29%	0.11%	1.29%
3 Years	1.39%	0.12%	1.39%

Historical Dividends and Buybacks

3. Approach and Methodology

3.5 Expected Growth in SENSEX Earning

- Earnings of Sensex can be derived by dividing the PE Ratio of an index with its absolute level.

- PE Ratio and index levels are obtained from the BSE website and with minimal analysis, earnings and its growth can be obtained.

- There could be an argument on which growth rate should be considered for the purpose of valuation. Since there is not much difference between 3 years and 20 years average compound growth % (+/- 1%). Considering valuation to remain forward-looking and based on the current financial scenario earning growth component for 3 years is used for purpose of valuation in this paper.

Compounded Years	Earnings Growth (%)
20 Years	11.26%
10 Years	10.92%
7 Years	11.40%
5 Years	11.43%
3 Years	11.74%

Average Sensex EPS
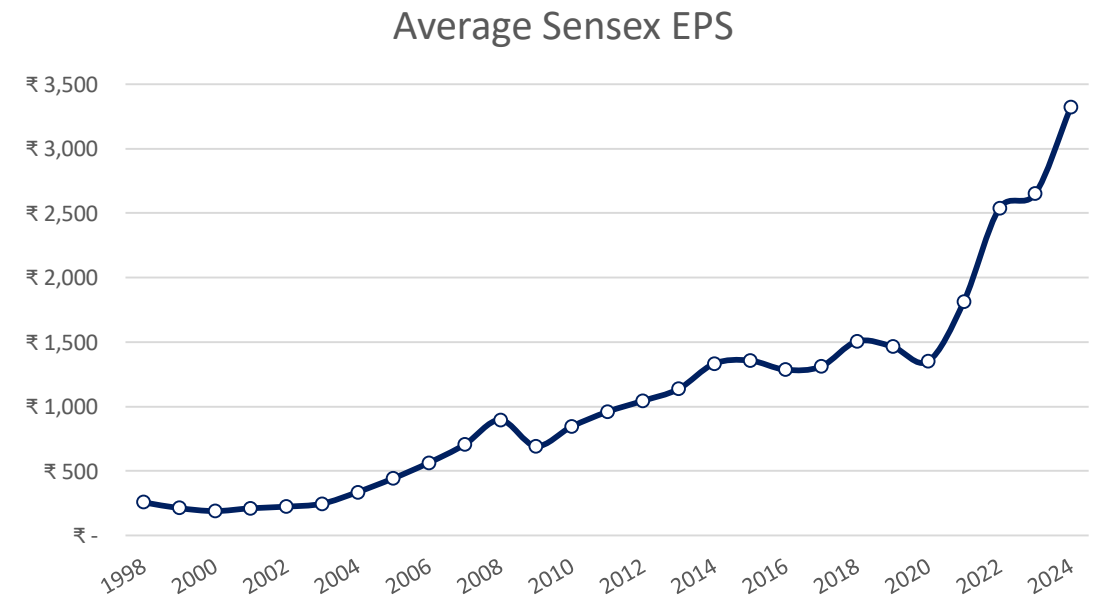
3.6 Risk Free Rate – 10 Years Indian Govt Bond Yield

- The risk-free rate is the basic driver for DCF valuation and is matrix of opportunity costs. It is convention to use 10 years of government bond yield as a risk-free rate. However, it can be further adjusted for country risk and default risk, but since there is a lack of data for emerging markets. It is a tedious task to account for the same.

- There could be an argument on which rate should be considered for the purpose of valuation. Since emerging markets had witnessed government bond yield as high as 12% in the late 90s and to ensure that valuation should be forward-looking, the most recent rate (May 2025) is used for the purpose of valuation in this paper.

Compounded Years	10 Year Indian Govt Bond Yield
20 Years	7.37%
15 Years	7.19%
10 Years	6.88%
5 Years	6.86%
Latest	6.32%

10Y GOI Bond Rate
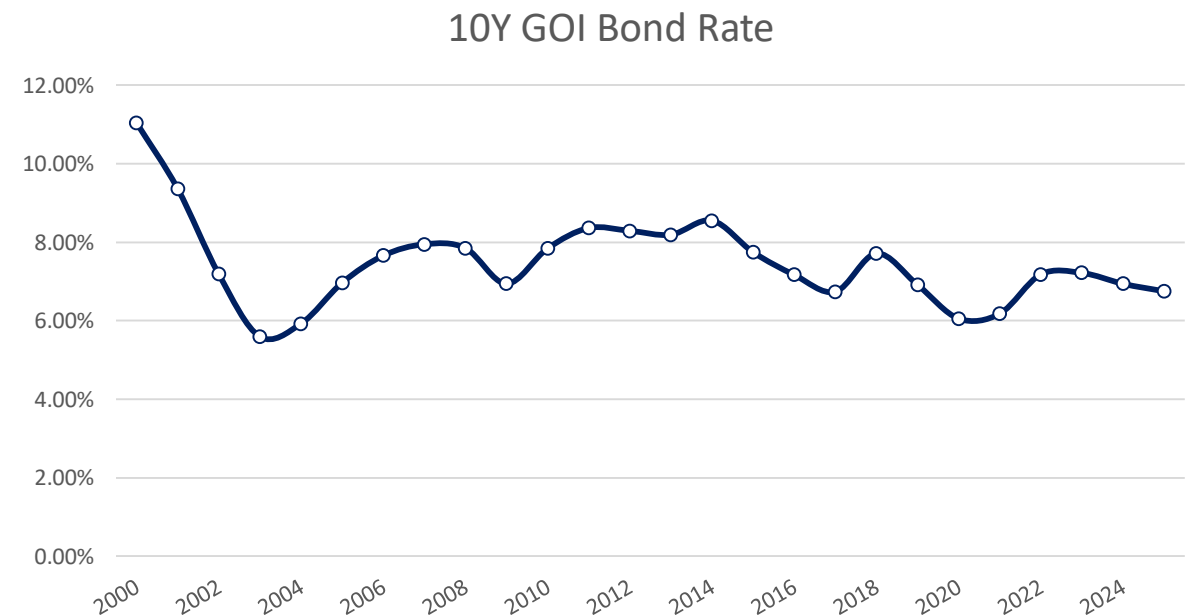
3.7 Implied Market Risk Premium

- The market risk premium(MRP) is the additional measure that expects returns on an index or portfolio of investments above the given risk-free rate. The market risk premium is equal to the slope of the security market line(SMI).

- It is an incentives for assuming risks beyond government bonds over the equity market in general.

- A higher MRP indicates a cautious market where the investors are defensive while investing in equities and representing their willingness to pay a lower price for the same cash flow and earnings.

- Implied MRP is reverse-calculated by considering current index value and expected FCFFs.

Average Years	Implied Market Risk Premium
20 Years	2.60%
15 Years	2.27%
10 Years	1.80%
5 Years	1.67%
Latest	1.46%

IMPLIED ERP in India
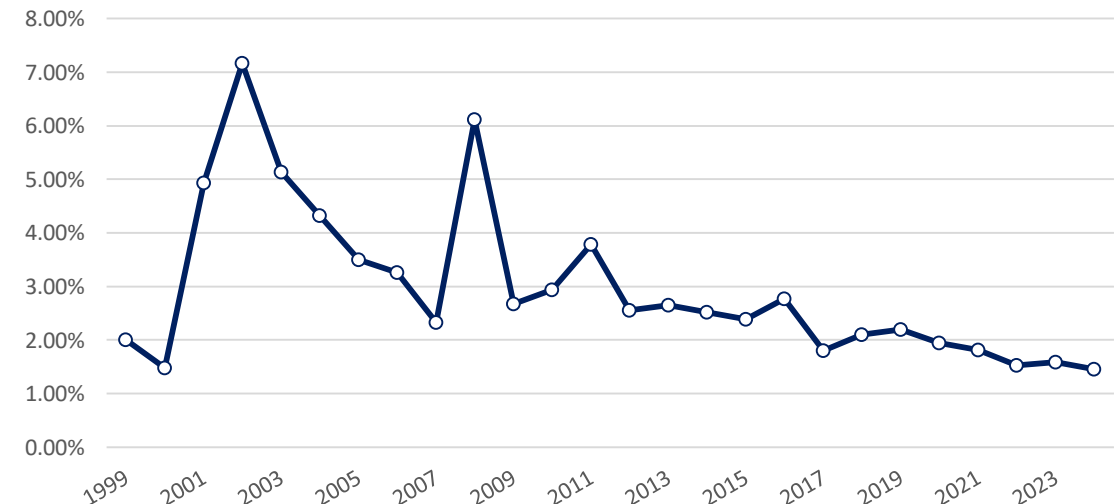
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4. Valuation

4.1 Original Case Valuation Results

Valuing the S&P BSE Sensex

Key Inputs		Assumption	140228.94
			Undervalued
Date	24-05-2025	24-05-2025	
Current SENSEX Level	73828.00	82500.00	The market implied fair value of
Total Yield	3 Years	1.39%	Sensex is 140229. The Sensex is
Expected Growth	3 Years	11.74%	curently trading at 82500. A
Risk Free Rate	Latest	6.32%	69.97% appreciation
Equity Risk Premium	Latest	1.46%	
Cost of Equity		7.78%	

Year	Expected Divideds and Buybacks	CumulativePV Factor (Risk-Free Rate + Equity Risk Premium)	Present Value of Expected Dividends and Buybacks
2025	₹ 1,283.85	0.9279	₹ 1,191.23
2026	₹ 1,434.52	0.8609	₹ 1,234.99
2027	₹ 1,602.87	0.7988	₹ 1,280.36
2028	₹ 1,790.98	0.7412	₹ 1,327.40
2029	₹ 2,001.16	0.6877	₹ 1,376.17
2030	₹ 2,236.01	0.6381	₹ 1,426.73
2031	₹ 2,498.42	0.5920	₹ 1,479.14
2032	₹ 2,791.62	0.5493	₹ 1,533.49
2033	₹ 3,119.23	0.5097	₹ 1,589.83
2034	₹ 3,485.29	0.4729	₹ 1,648.23
2035 - ∞	₹ 2,66,733.87	0.4729	₹ 1,26,141.38

4. Valuation

4.2 Maximum time frame Case Valuation Results

Valuing the S&P BSE Sensex

Key Inputs		Assumption
Date	24-05-2025	24-05-2025
Current SENSEX Level	73828.00	82500.00
Total Yield	20 Years	1.49%
Expected Growth	20 Years	11.26%
Risk Free Rate	20 Years	7.42%
Equity Risk Premium	20 Years	2.60%
Cost of Equity		10.01%

72018.64

Overvalued

The market implied fair value of Sensex is 72019. The Sensex is curently trading at 82500. A 12.70% correction is expected from this level

Year	Expected Divideds and Buybacks	CumulativePV Factor (Risk-Free Rate + Equity Risk Premium)	Present Value of Expected Dividends and Buybacks
2025	₹ 1,366.54	0.9090	₹ 1,242.15
2026	₹ 1,520.48	0.8262	₹ 1,256.28
2027	₹ 1,691.75	0.7510	₹ 1,270.56
2028	₹ 1,882.32	0.6827	₹ 1,285.01
2029	₹ 2,094.36	0.6205	₹ 1,299.62
2030	₹ 2,330.28	0.5641	₹ 1,314.40
2031	₹ 2,592.78	0.5127	₹ 1,329.35
2032	₹ 2,884.85	0.4660	₹ 1,344.47
2033	₹ 3,209.82	0.4236	₹ 1,359.75
2034	₹ 3,571.40	0.3851	₹ 1,375.22
2035 - ∞	₹ 1,53,070.42	0.3851	₹ 58,941.82

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5. Sources and Disclaimer

5.1 Reference & Sources

- https://www.bseindia.com/
- https://pages.stern.nyu.edu/~adamodar/
- https://www.investing.com/
- https://www.market-risk-premia.com/market-risk-premia.html
- CAMP
- Risk free Rate
- Beta

5.2 Disclaimer

- This material is intended for educational purposes only and represents the personal views and opinions of the author. It is not investment advice, nor should it be considered a recommendation to buy or sell any financial instruments. All examples and analysis are for illustration only.

- Trading and investing in financial markets involve substantial risk. You should carefully assess your financial situation and consult a qualified financial advisor before making any investment decisions. Past performance does not guarantee future results. The author assumes no responsibility for any losses or outcomes resulting from the use of this information.

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