

S&P BSE SENSEX

VALUATION REPORT

As on May 5, 2024



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## 1. INTRODUCTION

### 1.1 Background

- Sensex is the index of top 30 companies in India in terms of Market Capitalization (free float).
- The index was launched by Bombay Stock Exchange (BSE) in the year 1986.
- Sensex is one of the most tracked index in Indian stock market along with Nifty 50 Index.
- The index comprises of 18 sectors of the economy.

### 1.2 Key Stats

- As of April 2024, the market capitalization of S&P BSE Sensex is INR 400 lakh crores.
- CAGR Returns of Sensex for past 20 years is 12.07%.
- Average EPS CAGR of Sensex for past 10 years is 10.84%
- Total Market Capitalization of Sensex is INR 400 Crores.

## 1. INTRODUCTION

### 1.3 Composition of Sensex

- Few notable companies that are part of Sensex are TCS, RIL, HDFC Bank, Infosys, SBI, HUL, ONGC, NTPC, Asian Paints, L&T.
- Wide range of sectors are covered under this index ranging from Financial services, Banks, IT, Oil & gas, Telecommunication.

### 1.4 Sector Wise Composition

- Banks – 31.9%
- IT & Software – 14.6%
- Integrated Oil & Gas – 11.8%
- Personal Products – 7.3%
- Cigarettes, Tobacco – 5.4%
- Construction & Engineering – 4.1%
- Cars & Utility Vehicles – 3.4%
- Housing Finance – 3.2%
- Pharma – 2.4%
- Electric Utilities – 2.3%

## 2. CONTEXT OF VALUATION

### 2.1 Context

- FY 2023-24 entailed lot of uncertain events posing economic risks to almost all the parts of the globe ranging from tightening interest rate risks to rising geopolitical tensions.
- Sensex rose by 25% in FY 2023-24.
- It reached its all-time high of 75637 in April 2024.
- Tata Motors, NTPC, L&T, M&M, Power Grid Corporation were the top gainers whereas HUL and HDFC Bank were the laggards.
- The valuation report aims to determine the valuation of the index in the below 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 a proxy for risk free rate. We are not considering default spread in this case due to the unavailability of the data.
- The report is prepared using assumptions. Thus, the interpretation of results shall be subjective and based on the user's requirements.
- The report provides a broader idea on whether the Sensex is Overvalued, Undervalued or Fairly valued which is primarily derived from Cash Flows (Dividends and Buybacks).
- The valuation date is 5<sup>th</sup> May 2024, and the data used for the purpose of valuation is till 30<sup>th</sup> April.

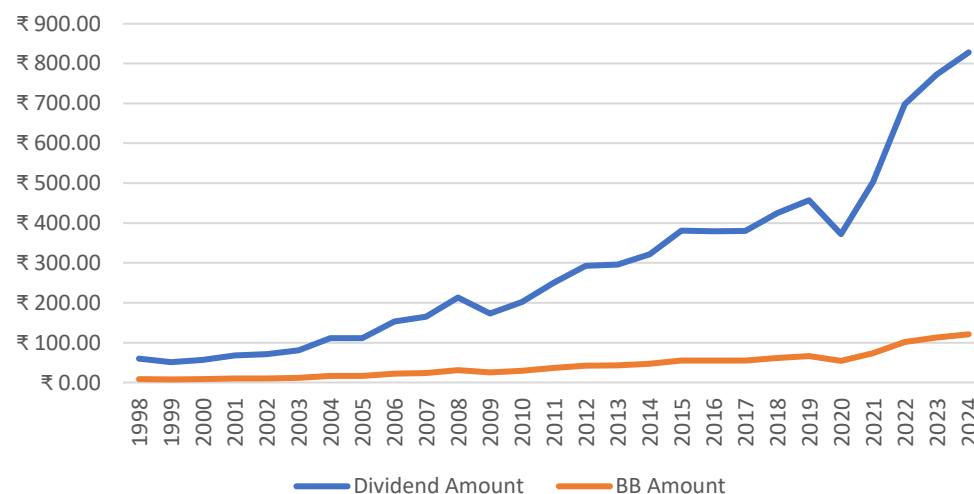
## 3. APPROACHES & METHODOLOGY

### 3.1 Free Cash Flow to Equity Holders

- Cash flow forms the key ingredient of DCF valuation. In this case cash flows implies Free cash flows to equity i.e. FCFE.
- However, it becomes a tedious task to derive FCFE of all the companies in the index, hence a convenient and effective approach has been followed where Dividends Payout and Buybacks are substituted for FCFE.
- The dividend yield has been sourced from BSE website and since the buybacks in the emerging economies are miniscule, they are not readily available. The buyback data has been exported from Prof. Damodaran's website.
- As buybacks don't contribute to a big chunk of cash flows, using sectoral buyback won't cause much fluctuations.

Sensex Earnings Yield	Period	Yield (%)
Average Sensex Earnings Yield	20 years	1.46%
Average Sensex Earnings Yield	15 years	1.44%
Average Sensex Earnings Yield	10 years	1.36%
Average Sensex Earnings Yield	5 years	1.27%
Average Sensex Earnings Yield	3 years	1.35%

Historical Dividends & Buybacks

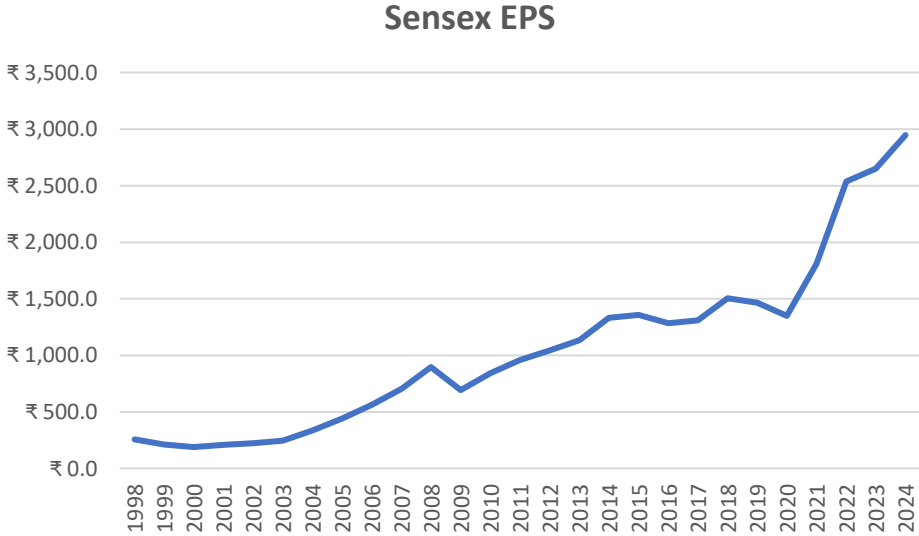


3. APPROACHES & METHODOLOGY

3.2 Expected Growth in Sensex Earnings

- 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 per share and its growth can be obtained.
- Over the span of 3 to 10 years the average EPS CAGR of Sensex ranges from 10.84% to 11.54%

Sensex EPS CAGR	Period	Returns (%)
Average EPS CAGR	3 years	11.54%
Average EPS CAGR	5 years	11.31%
Average EPS CAGR	7 years	11.30%
Average EPS CAGR	10 years	10.84%

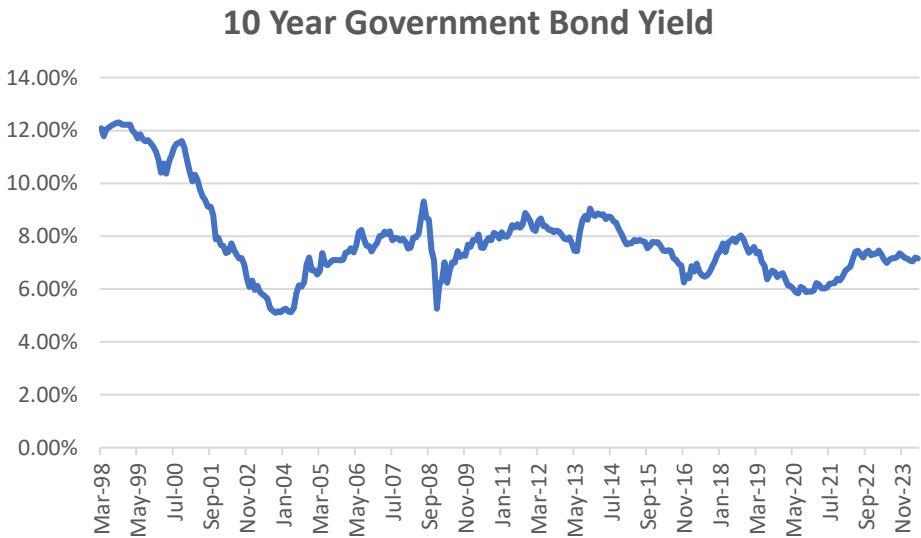


3. APPROACHES & METHODOLOGY

3.3 Risk Free Rate: 10-year government bond

- Risk free bond is the basic driver for the DCF valuation and is the metric of the opportunity cost. It is the convention to use 10 years of government bond yield as the risk-free rate. It is further adjusted by country risk and default spread risk. However, due to lack of data for the emerging economies, it is tedious task to account for the same.
- The risk-free rate of 10-year government bond is collected from investing.com website and a compounded returns for different periods is presented.

10-year government bond	Period	Returns (%)
Average Rate	20 Years	7.44%
Average Rate	15 Years	7.42%
Average Rate	10 Years	7.01%
Average Rate	5 Years	6.76%
Average Rate	Latest	7.13%



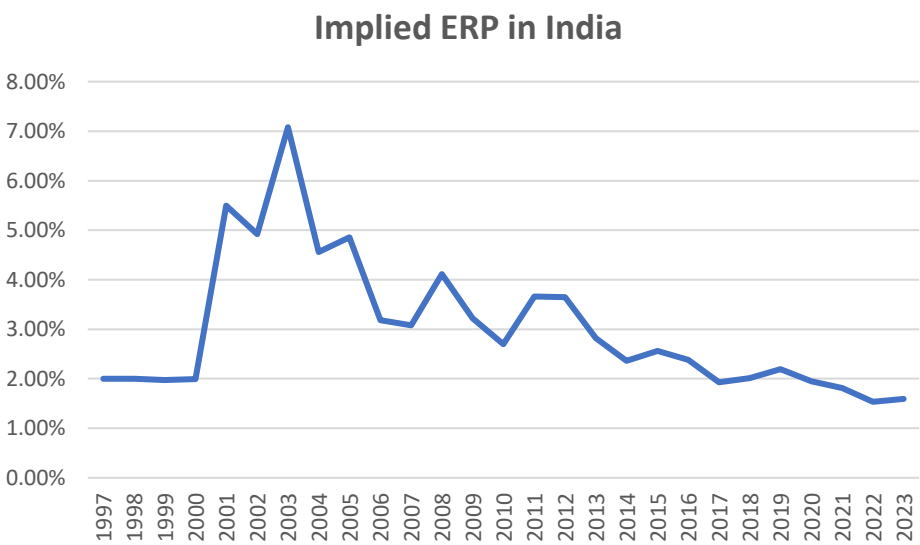


### 3. APPROACHES & METHODOLOGY

#### 3.4 Equity Risk Premium

- The market risk premium is the additional measure that expects the returns of an index or portfolio above the given risk-free rate. The market risk premium is equal to the slope of Security Market Line (SML).
- It is incentive for assuming the risk beyond government bonds over the equity markets in general.
- A higher MRP indicates a cautious market where the investors are defensive while investing and represent their willingness to pay a lower price for the same cash flows and earnings.
- The implied MRP is derived by using the current index value and the expected FCFEs.

Average Implied ERP	Period	Returns (%)
Average Implied ERP	20 Years	2.81%
Average Implied ERP	15 Years	2.42%
Average Implied ERP	10 Years	2.03%
Average Implied ERP	5 Years	1.81%
Average Implied ERP	Latest	1.59%



## 4. VALUATION

VALUING THE S&P BSE SENSEX			1,10,663.38
KEY INPUTS		ASSUMPTIONS	Undervalued
Date	19-06-2024	19-06-2024	The market implied fair value of Sensex is 110664. The sensex is currently trading at 73879. A 49.79% appreciation.
Current SENSEX Level	73878.15	73878.15	
Total Yield	10 years	1.36%	
Expected Growth	5 years	11.31%	
Risk-free Rate	10 Years	7.01%	
Equity Risk Premium	5 Years	1.81%	
Cost of Equity		8.82%	
YEAR	Expected Dividends and Buybacks	Cumulative PV Factor (RFR + Equity Risk Premium)	Present Value of Expected Dividends and Buybacks
2024	1118.32	0.9189	1,217.00
2025	1244.78	0.8444	1,474.14
2026	1385.53	0.7759	1,785.61
2027	1542.20	0.7130	2,162.90
2028	1716.59	0.6552	2,619.90
2029	1910.70	0.6021	3,173.46
2030	2126.76	0.5533	3,843.99
2031	2367.24	0.5084	4,656.19
2032	2634.92	0.4672	5,640.01
2033	2932.87	0.4293	6,831.69
2033 - ∞	179962.19	0.4293	77,258.50

## 5. SOURCES

### References and 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>