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Historical Sensex closing prices

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ABSTRACT

In this paper we studied the closing Sensex prices and find the trends it followed along with any correlation with time, as well as a moving 3 yearly average using a daily data set converted to yearly average. We also studied the trends Sensex has followed since 1st July 1997 till 3rd March 2020. Furthermore, a regression analysis of the provided data was undertaken.

Keywords— Financial market, Stock market

1. INTRODUCTION

Sensex, coined by stock market analyst Deepak Mohoni is a portmanteau of the words *Sensitive* and *Index*. Sensex is the benchmark index of the Bombay Stock Exchange (BSE) in India. Sensex comprises 30 of the largest and most actively-traded stocks on the BSE, providing an accurate gauge of India's economy. The BSE Sensex has been on a growth curve since India opened up its economy in 1991. Most of its growth has occurred in the 21st century.

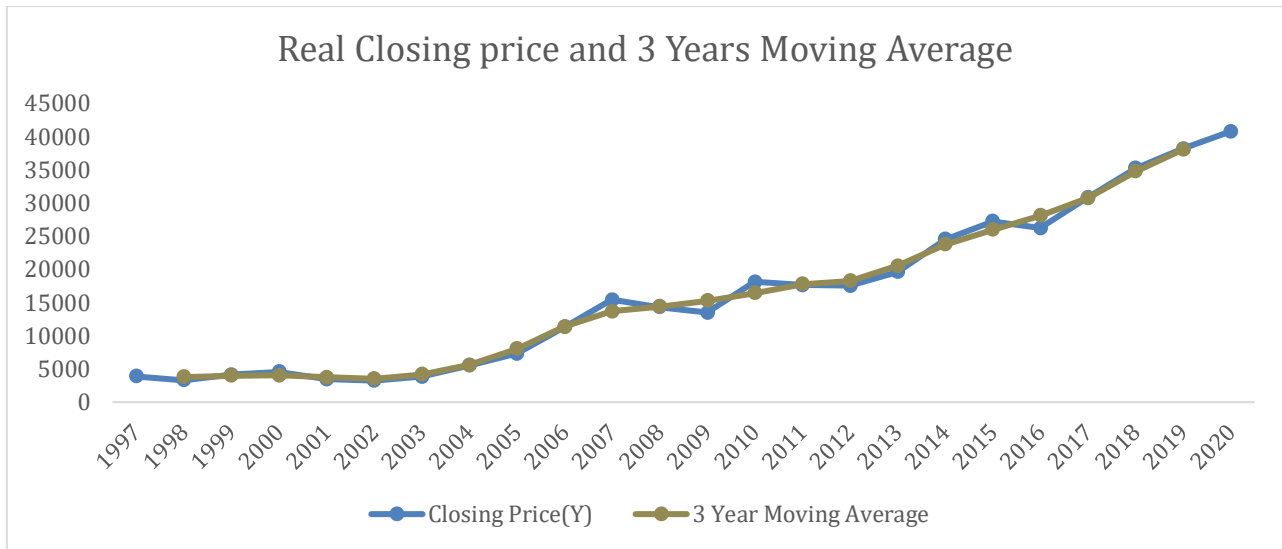
2. DATA

Years	Closing Price(Y)	3 Year Moving Average	X(Year-12.5)	Y^(Trendline)
1997	3894.000402		-11.5	-3624.774105
1998	3300.200246	3775.375836	-10.5	-1925.852001
1999	4131.926861	3995.847717	-9.5	-226.9298972
2000	4555.416045	4045.417867	-8.5	1471.992207
2001	3448.910694	3748.264686	-7.5	3170.914311
2002	3240.467319	3509.089775	-6.5	4869.836414
2003	3837.891312	4195.63827	-5.5	6568.758518
2004	5508.556178	5558.406108	-4.5	8267.680622
2005	7328.770835	8053.508737	-3.5	9966.602726
2006	11323.1992	11350.88858	-2.5	11665.52483
2007	15400.69571	13667.08406	-1.5	13364.44693
2008	14277.35727	14379.22229	-0.5	15063.36904
2009	13459.61388	15273.01471	0.5	16762.29114
2010	18082.07299	16396.00058	1.5	18461.21325
2011	17646.31488	17746.75092	2.5	20160.13535
2012	17511.86488	18251.09705	3.5	21859.05745
2013	19595.11138	20532.78581	4.5	23557.97956
2014	24491.38117	23759.90615	5.5	25256.90166
2015	27193.22591	25969.14567	6.5	26955.82377
2016	26222.82992	28077.4756	7.5	28654.74587
2017	30816.37097	30756.11272	8.5	30353.66797
2018	35229.13727	34737.73993	9.5	32052.59008
2019	38167.71155	38053.5062	10.5	33751.51218
2020	40763.66979		11.5	35450.43428
2021			12.5	37149.35639
2022		Forecasted	13.5	38848.27849
2023			14.5	40547.2006

source: <https://in.finance.yahoo.com/quote/%5EBSESN>

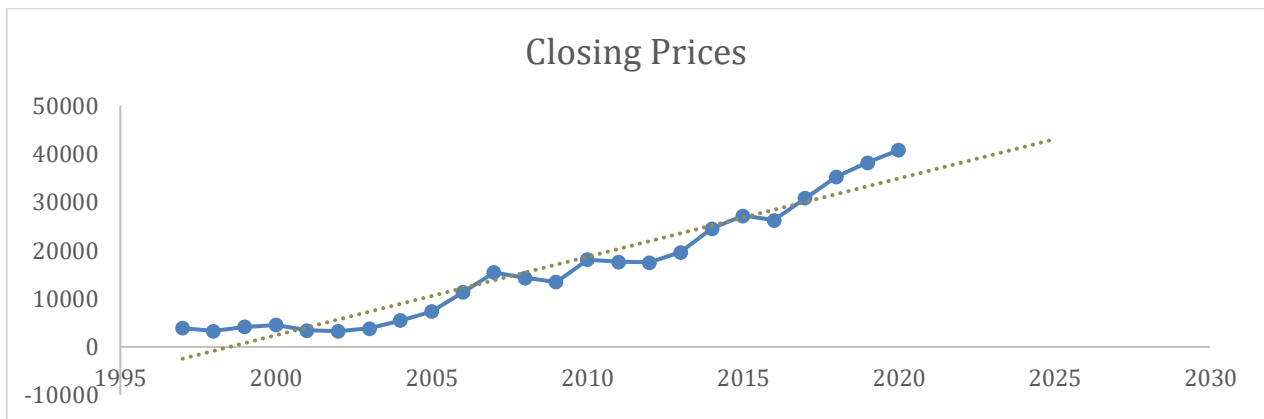
3. ANALYSIS

3.1 Moving Averages



The graph shows data from 1st July 1997 to 3rd March 2020. A secular trend is seen in the closing prices of Sensex pointing to an upward trajectory. This is an indication of the financial stability of the economy. Real closing prices dipped in 2008 which is indicative of the housing crisis of 2008 which caused a global recession.

3.2 Trend Line



“A trendline is a line drawn over pivot highs or under pivot lows to show the prevailing direction of price.”- investopedia.com
 The trendline forecasts using extrapolation for the next 5 years of the closing Sensex prices. The general trend seems to be secular and rising.

Finding the trendline using least square method:

Regression Statistics	
Multiple R	0.967114
R Square	0.93531
Adjusted R Square	0.932229
Standard Error	3101.676
Observations	23

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	2.92E+09	2.92E+09	303.6229	5.79E-14
Residual	21	2.02E+08	9620396		
Total	22	3.12E+09			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	15912.83	648.5789	24.53492	6.08E-17	14564.04	17261.62	14564.04	17261.62
-11.5	1698.922	97.50036	17.42478	5.79E-14	1496.159	1901.685	1496.159	1901.685

4. CONCLUSION

To conclude, the paper analysed how Sensex prices have fluctuated over the years but maintained a general predictable trend. The simple mathematical tool of moving averages and trendline have been used to predict the future value. Predictive extrapolation is used and other factors are ignored.