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Empirical Study on Stock Surge in First Twenty Years of 21st Century-Investigating the Interplay between FDI, FII and Indian Market Dynamics

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ABSTRACT: This research paper investigates the dynamic relationship between Foreign Direct Investment (FDI), Foreign Institutional Investment (FII), and the Indian stock market. With India's burgeoning economy and growing significance in the global market, understanding the influences of FDI and FII on its stock market is crucial for investors, policymakers, and stakeholders alike. Employing empirical analysis, this study delves into the intricate interplay between these foreign investments and the Indian stock market's performance during the first twenty years of 21st century. By utilizing time-series data spanning a first twenty years of present century, the research examines various factors such as economic indicators, regulatory changes, and market sentiments to comprehensively analyse the impact of FDI and FII. The findings of this study provide valuable insights into the behaviour of the Indian stock market in response to foreign investments, offering implications for investment strategies, policy formulation, and future research directions.

KEYWORDS: Foreign Direct Investment, Foreign Institutional Investment, Stock Market, BSE SENSEX, NSE Nifty, Regression.

I. INTRODUCTION

The Indian stock market's evolution mirrors global trends, with increased globalization since the 20th century. India's adoption of liberalization policies in 1990–91 marked a shift from self-sufficiency to global integration, spurred by a balance of payments crisis during the Gulf War. This crisis necessitated economic liberalization, driving India towards foreign capital infusion, primarily in ownership forms. Foreign Direct Investments (FDIs) and Foreign Institutional Investors (FIIs) emerged as pivotal players in shaping India's stock market.

FDI and FII play critical roles in fostering global economic integration, particularly in fast-growing economies like Singapore, China, and Korea. FDI provides access to capital, technology, and innovation, boosting economic activity and employment. India's post-1991 policy reforms have attracted increased international capital inflows. Foreign investment, notably FDI, promotes domestic growth in developing economies. Since 1991, FDI has taken various forms, with India opening doors to foreign capital through direct investment, attracting substantial inflows.

FDI targets specific enterprises, enhancing productivity, while FII investments augment capital availability in secondary markets. Despite not being "hot money," FDI inflows require domestic reinvestment to boost production.

Understanding the impact of FDI and FII on the Indian stock market is vital in today's global financial landscape. As India rises in global economic importance, the convergence of domestic financial development and international capital flows holds significant implications for policymakers, investors, and market participants.

“Empirical Study on Stock Surge -Investigating the Interplay between FDI, FII and Indian Market Dynamics” employs empirical research to unravel their intricate relationship. It emphasizes data-driven analysis over a substantial timeframe to capture evolving patterns, market dynamics, and broader economic implications. This study explores policy changes, regulatory frameworks, economic indicators, and the interplay between FDI, FII, and the Indian stock market. It aims to provide valuable insights for investors, policymakers, and stakeholders navigating the complexities of the Indian stock market concerning foreign investments.

II. LITERATURE REVIEW

Morgan Stanley's analysis in **2002** emphasized the significant role of FIIs in bolstering India's FOREX reserves and impacting short-term market movements, particularly during bear markets. However, their influence diminishes during bull markets due to increased engagement from other market participants.

Banerjee (2013) conducted an analysis on the Indian stock market between January 2008 and June 2009, revealing that while FDI significantly impacted the market positively, FII had a negative influence during downturns.

Chauhan (2013) investigated the influence of FDI, FIIs, and FPIs on BSE and NSE from 2001 to 2012, finding that the progression of FDI and FPI significantly affected market developments, with FIIs having a minor impact on Sensex but a higher impact on NSE.

Dhiman and Sharma (2013) studied the impact of FDI on the Indian stock exchange from 2001 to 2012, finding that FDI significantly shaped market trends.

Sharma and Khurana (2013) focused on sector-wise distribution of FDI inflow in India from 1991 to 2011, particularly emphasizing the agricultural sector's importance in the economy.

Sameera P. (2014) analyzed the flow patterns of FII and FDI in India over 15 years, revealing a strong positive association between FDI and the Sensex.

Tamilarasu (2015) studied the impact of FDI on various indices of BSE and NSE from April 2009 to March 2014, finding a significant association between FDI and BSE 100.

Kapoor and Sachan (2015) examined the relationship and impact of FDI and FII on the Indian stock exchange from 2002 to 2011, showing a significant influence of both on the market.

Gupta (2017) analysed the impact of FDI inflows on BSE and NSE, concluding a direct linear relationship between FDI and both stock exchanges, indicating a significant impact on the Indian stock market.

III. OBJECTIVES OF THE STUDY

- To research the trends and patterns of foreign capital inflows into India through FDI and FII.
- To study the effect of Foreign Direct Investment (FDI) on Indian stock market (Sensex and Nifty).
- To study the effect of Foreign Institutional Investment (FII) on the Indian stock market (Sensex and Nifty).

IV. STATEMENT OF HYPOTHESIS

H_{01} : There is no significant impact of FII inflows on the movement of the Indian stock market index.

H_{a1} : There is significant impact of FII inflows on the movement of the Indian stock market index.

H_{02} : There is no significant impact of FDI inflows on the movement of the Indian stock market index.

H_{a2} : There is significant impact of FDI inflows on the movement of the Indian stock market index.

V. RESEARCH METHODOLOGY

a) Research Design:

The current investigation is grounded in empirical methodologies, emphasizing a descriptive research approach as its fundamental framework. This study delves into empirical analysis, leveraging tangible observations and factual data to comprehend and elucidate the subject matter at hand. In adhering to a descriptive research approach, this study endeavors to meticulously detail and outline the characteristics, behaviors, and patterns within the chosen research domain. This method facilitates a comprehensive exploration and documentation of the subject, relying on observable phenomena and factual information to draw substantiated conclusions.



b) Period of the Study:

The Current research encompasses a comprehensive span of twenty-three years, commencing from April 1st, 2000, and concluding on March 31st, 2021. This extensive timeframe allows for a thorough examination and analysis of trends, patterns, and developments occurring within this significant decade-long period.

c) Type of Data and Data Sources:

The core foundation of this study predominantly relies on secondary data sources. The essential information concerning Foreign Direct Investment (FDI) and Foreign Institutional Investor (FII) will be meticulously collated from a diverse array of reputable sources. This includes but is not limited to, sourcing data from the bulletins released by esteemed institutions such as the Reserve Bank of India, the Ministry of Commerce and Industry, the Securities and Exchange Board of India, and various departments within the Government of India. Moreover, to gather comprehensive insights into market trends, data pertaining to the Sensex and Nifty indices will be acquired from the official websites of BSE-India and NSE-India, ensuring a thorough and extensive data collection process encompassing multiple credible sources.

d) Statistical Tools and Techniques Applied:

Simple linear regression, Karl Pearson's coefficient of relationship, analysis of variance, scatter plot, histogram, etc. are the devices that will be used for the examination of the study.

e) Scope of the Study:

The current study takes 21 years of data into consideration. To study the impact of FDI and FII on the Indian stock market, Sensex and Nifty are the natural choices to be considered in the study, as they are the most popular stock market indices and widely used by market participants for benchmarking.

VI. DATA ANALYSIS AND INTERPRETATION

The following table 1 presents the amount of flow of FDI and FII in India in terms of US\$ million and also showcases the trends in BSE Sensex and NSE Nifty across the financial years from 2000-01 to 2020-21. Notable observations include the fluctuating nature of FDI, marked by substantial increases in select years like 2006-07, 2007-08, 2014-15, and 2020-21. In contrast, FII exhibits a more erratic pattern, with instances of both positive and negative flows, particularly evident in years such as 2008-09 and 2015-16. Regarding stock market indices, both BSE Sensex and NSE Nifty demonstrate overall upward trends, punctuated by occasional downturns, yet consistently reflecting growth from the early 2000s to the present. Noteworthy spikes are noticeable in 2007-08, 2014-15, and 2020-21. These trends collectively underscore the intricate dynamics between investment flows and stock market performance, influenced by diverse economic factors across the considered period.

TABLE 1: FLOW OF FDI, FII, SENSEX & NIFTY

Financial Year	FDI Million USD	FII Million USD	BSE Sensex	NSE Nifty
2000-01	4,029	1,847	3,604.38	1,148.20
2001-02	6,130	1,505	3,469.35	1,129.55
2002-03	5,035	377	3,048.72	978.20
2003-04	4,322	10,918	5,590.60	1,771.90
2004-05	6,051	8,686	6,492.84	1,902.50
2005-06	8,961	9,926	11,279.96	3,402.55
2006-07	22,826	3,225	13,072.10	3,821.55
2007-08	34,843	20,328	15,644.44	4,734.50
2008-09	41,873	-15,017	9,708.50	3,020.95



2009-10	37,745	29,048	17,527.77	5,249.10
2010-11	34,847	29,422	19,445.22	5,833.75
2011-12	46,556	16,812	17,404.20	5,295.55
2012-13	34,298	27,582	18,835.77	5,682.55
2013-14	36,046	5,009	22,386.27	6,704.20
2014-15	45,148	40,923	27,957.49	8,491.00
2015-16	55,559	-4,016	25,341.86	7,738.40
2016-17	60,220	7,735	29,620.50	9,173.75
2017-18	60,974	22,165	32,968.68	10,113.70
2018-19	62,001	-2,225	38,672.91	11,623.90
2019-20	74,391	552	29,468.49	8,597.75
2020-21	81,973	38,725	49,509.15	14,690.70

Source: Compiled from the factsheet on FDI and FII from various reports of DIPP. BSE & NSE data is taken from their respective official Sites. Index values are taken as per the closing dates of the financial year.

Correlation between FDI & FII and Sensex & Nifty: Correlation is applied to study the statistical relationship of the variables FDI, FII, BSE Sensex and NSE Nifty. The following table 2 presents the output, when correlation is run to the 21 years data considered.

	FDI (US\$ Million)	FII (US\$ Million)	BSE Sensex	NSE Nifty
FDI (US\$ Million)	1	0.234393	0.921065	0.921037
FII (US\$ Million)	0.234393	1	0.395428	0.393995

Interpretation: The results indicate that there is a very strong positive correlation between FDI and both BSE Sensex and NSE Nifty. This suggests that there is a significant positive relationship between FDI inflows and the performance of both BSE Sensex and NSE Nifty. When it comes to FII it was found that there is a moderate positive correlation observed with both BSE Sensex and NSE Nifty. This suggests that changes in FDI and FII inflows have a significant impact on the movements of the Indian stock market indices, indicating their importance in influencing market trends and investor sentiment.

The following table 3 illustrates the flow of FDI across various sectors (In US\$ million) alongside the trends in India's stock market indices, BSE Sensex and NSE Nifty, from financial year 2002-03 to 2020-21. Notable observations include the service sector consistently attracted increasing FDI, indicating its importance in India's economy. The computer software and hardware sector experienced significant growth, especially in recent years, reflecting the expanding tech industry. However, FDI in telecommunications and chemicals sectors showed volatility, with fluctuating investment patterns. Both, BSE Sensex and NSE Nifty, demonstrated overall upward trends and punctuated by fluctuations to corresponding economic conditions.



TABLE 3: The FDI across relevant sectors (in US\$ million) and trends in India's stock market indices (BSE Sensex and NSE Nifty) from FY 2002-03 to 2020-21.

Financial Year	Service Sector*	Computer Software & Hardware	Telecommunications	Chemicals	BSE Sensex	NSE Nifty
2000-01	71.38	228.39	177.69	111.14	3,604.38	1,148.20
2001-02	187.95	419.39	873.23	87.23	3,469.35	1,129.55
2002-03	326.00	644.00	223.00	129.00	3048.72	978.20
2003-04	269.00	532.00	116.00	20.00	5590.60	1771.90
2004-05	469.00	721.00	129.00	198.00	6492.84	1902.50
2005-06	543.00	1375.00	624.00	447.00	11279.96	3402.55
2006-07	4664.00	2614.00	478.00	205.00	13072.10	3821.55
2007-08	6615.00	1410.00	1261.00	229.00	15644.44	4734.50
2008-09	6138.00	1677.00	2558.00	749.00	9708.50	3020.95
2009-10	4353.00	919.00	2554.00	362.00	17527.77	5249.10
2010-11	3296.00	780.00	1665.00	398.00	19445.22	5833.75
2011-12	5216.00	796.00	1997.00	4041.00	17404.20	5295.55
2012-13	4833.00	486.00	304.00	292.00	18835.77	5682.55
2013-14	2225.00	1126.00	1307.00	878.00	22386.27	6704.20
2014-15	4443.00	2296.00	2895.00	763.00	27957.49	8491.00
2015-16	6889.00	5904.00	1324.00	1470.00	25341.86	7738.40
2016-17	8684.00	3652.00	5564.00	1393.00	29620.50	9173.75
2017-18	6704.00	6153.00	6212.00	1308.00	32968.68	10113.70
2018-19	9158.00	6415.00	2668.00	1981.00	38672.91	11623.90
2019-20	7854.00	7673.00	4445.00	1058.00	29468.49	8597.75
2020-21	5060.00	26145.00	392.00	847.00	49509.15	14690.70

*Services sector includes Financial, Banking, Insurance, Non-Financial / Business, R&D, Outsourcing, Courier, Tech. Testing and Analysis, Other

Source: Compiled from the factsheet on FDI from various reports of DIPP.

BSE & NSE data is taken from their respective official Sites.

Index values are taken as per the closing dates of the financial year.

BSE Sensex	0.659417917	1
NSE Nifty	0.66641939	0.9994213
Table 4: Correlation Coefficients		
SECTOR	BSE Sensex	NSE Nifty
SERVICES	0.659417917	0.6664194
COMPUTER SOFTWARE & HARDWARE	0.777965304	0.767791

Correlation relationship between FDI in different sectors and Sensex & Nifty:

	BSE Sensex	NSE Nifty
SERVICES SECTOR	0.722303148	0.7276455
COMPUTER SOFTWARE & HARDWARE	0.771607795	0.7628152
TELECOMMUNICATIONS	0.508882121	0.522016
CHEMICALS	0.432170472	0.4393122

Interpretation: The correlation coefficients table indicates the strength and direction of the relationship between FDI in different sectors and the movements of India's stock market indices, BSE Sensex and NSE Nifty.

~ **Services Sector:** The FDI in the services sector shows a moderately strong positive correlation with both BSE Sensex (0.722) and NSE Nifty (0.728). This suggests that as FDI in the services sector increases, there tends to be a corresponding increase in both stock market indices.

~ **Computer Software & Hardware:** FDI in the computer software & hardware sector exhibits a slightly stronger positive correlation with both BSE Sensex (0.772) and NSE Nifty (0.763) compared to the services sector. This indicates that changes in FDI in this sector are somewhat more closely aligned with movements in the stock market indices.

~ **Telecommunications:** The correlation coefficients for FDI in the telecommunications sector are moderate, indicating a positive relationship with both BSE Sensex (0.509) and NSE Nifty (0.522). While the correlation is not as strong as in the services and computer software & hardware sectors, it still suggests a tendency for FDI in telecommunications to move in tandem with the stock market indices.

~ **Chemicals:** FDI in the chemicals sector shows relatively weaker positive correlations with both BSE Sensex (0.432) and NSE Nifty (0.439). This suggests that changes in FDI in this sector have a less pronounced impact on the movements of the stock market indices compared to the other sectors analysed.

VII. FINDINGS OF THE STUDY

- Both FDI and FII have a positive correlation with the movements of the Indian stock market indices (BSE Sensex and NSE Nifty), indicating that increases in FDI and FII tend to be associated with increases in stock market performance.
- FDI shows a stronger correlation with BSE Sensex and NSE Nifty compared to FII, suggesting that FDI might have a relatively stronger impact on the Indian stock market compared to FII.
- There is a weak positive correlation between FDI and FII, indicating some level of association between these two types of foreign investment inflows.
- Different sectors' FDI has varying degrees of influence on India's stock market indices (BSE Sensex and NSE Nifty).

VIII. CONCLUSIONS

The flow of FDI & FII accelerated the Indian economy and also gave opportunities to Indian industry for technological up-gradation, gaining access to global managerial skills and practices, optimising the utilisation of human and natural resources, and gaining a global competitive advantage with greater efficiency. Most importantly, FDI is central to India's integration into global production chains, which involve production by MNCs spread across locations all over the world. According to the data analysis and findings, it can be concluded that FDI does have a significant impact on the Indian Stock Market and has a varied effect on the different sectors of the economy. No doubt, FDI plays a crucial role in enhancing the economic growth and development of the country, but there are other factors like government policies, budgets, the bullion market, inflation, economic and political conditions, etc. that also have an impact on the Indian stock market. From the current study, it is evident that there is a strong positive correlation between FDI & Sensex and FDI & nifty and moderate positive correlation between FII & Sensex and FII.

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