RESEARCH REVIEW JOURNALS
Volume-04
Issue-04
April -2019

ISSN: 2455-3085 (Online)
RESEARCH REVIEW International Journal of Multidisciplinary
www.rrjournals.com [UGC Listed Journal]

Study of FDI Inflows in Context to Indian Pharmaceutical Sector

[1]Dr. Harpreet Singh & [2]Gursimran Kaur

[1]Principal, Ggnimt, Ludhiana (PB) (India)
[2]Research Scholar Deptt of Business Administration, Punjab Technical University, Jalandhar (PB) (India)

ARTICLE DETAILS

Article History
Published Online: 15 April 2019

Keywords
Foreign Direct Investment, spillovers, Indian Pharmaceutical sector.

ABSTRACT

Foreign Direct Investment (FDI) is considered as an important agent in the process of accelerated economic growth in the developing countries. In recent times our country has come up as one of the leading performers in the world's pharmaceutical industry. It shall now accomplish the badge of the producer of paramount quality of medicine. The Indian pharmaceuticals market is witnessing dynamic changing trends such as large acquisitions by multinational companies in India, increasing investment by domestic and international players in India, deeper penetration into the rural markets, growth and availability of healthcare and incentives for setting up special economic zones (SEZ"s). This study is an attempt to study the concept, and trends of FDI inflows and its effects in Indian Pharmaceutical sector. The other objective is comparison between the total FDI in India and the FDI inflows in the Indian Pharmaceutical Sector (1991-2018). This study ranks the top 10 leading Indian Pharmaceutical Company based on different parameters and identifies the different parameters that significantly influence the net profit of Pharmaceutical Company. Statistical methods like tabulations, percentages, graphical presentations, correlation, regression, trends etc. are applied to evaluate the data and to turn up the noteworthy inferences. The paper concluded that the total FDI in India and the FDI inflows in the Indian Pharmaceutical Sector are closely related.

1. Introduction

India opened its doors for the FDI inflow in the year 1991 with the Government's liberalization and economic reforms programme which aimed at rapid and substantial economic growth and integration with the global economy in a harmonized manner. The industrial policy reforms reduced the industrial licensing requirements, removed restrictions on investment and expansion, and facilitated easy access to foreign technology and foreign direct investment. FDI inflows are associated with multiple benefits such as technology transfer, market access and organizational skills. FDI is more attractive in comparison to other forms of external finance since it is non-debt creating, non-volatile and the returns depend on the performances of the projects financed by the investors (Planning Commission, 2003).

2. FDI And Indian Pharmaceutical Sector

India is placed among the fastest rising pharmaceutical market in the world and has found a place for itself in broad strata of specialities which involves manufacturing and development of complex drugs. The Pharmaceutical industry fundamentally necessitates four major types of businesses which are a) branded medicines production b) branded generic medicines production c) unbranded generic medicines production d) active pharmaceutical ingredients (APIs) production. API is defined as an active ingredient which is used in the production of medicines. India became the third largest global generic API merchant market in 2016, with a 7.2 per cent market share. The Indian pharmaceutical industry accounts for the 2nd largest number of Abbreviated New Drug Applications (ANDAs) and is the world's leader in Drug Master Files (DMFs) applications with the US (IBEF, 2018). Contract Research and Manufacturing Services (CRAMS) is an outsourcing process that implies outsourcing of research and product manufacturing services at a lower cost. In the formulations business as well, India is largest exporter in terms of volume, with 14 per cent market share and 12th in terms of export value, domestic market size currently valued at USD11.2 billion. A double-digit growth is expected over the next five years. Biosimilars is almost an identical copy of an original product that is manufactured by a different company, after its patent expires. Biosimilar's sector in India is expected to increase from $186 million in 2016 to $1.1 billion in 2020, according to industry estimates. Indian life science firms are investing in biosimilar development to tap this growing opportunity. They are also establishing manufacturing facilities in other countries to serve the local and export markets. The government plans to allocate USD70 million for local players to develop biosimilars.

Through the years India has evolved into a one of the major destination for outsourcing various contracts and manufacturing services relating to pharmaceutical sector. The nation also boasts of good amount of pretty efficient as well as intelligent scientists and engineers who are capable to escort and pilot the industry to newer heights. Not only this, the pharmaceutical industry in India is also coping up with powerful FDI and the amalgamations and collaborations arising out of it. They bring with them the licensing, joint ventures and co-development. Manufacturers in India are on a hunt for contingencies to penetrate into the international generic markets which exhibit large margins along with a healthy export growth, involving a large magnitude of ANDAs approvals. Indian pharma industry is priced towards a pattern of shifting of focus towards discovery and development of newer drugs rather than manufacturing the generic ones. Indian companies are now moving from manufacturing raw

materials and APIs for supply to other companies who make finished medicines, to becoming full-fledged producers of finished products. The industry is expected to undergo major reforms as well as favourable tax and policy structures under the new government. The major laws enumerated concerned to this industry are as follows:

- The Drugs and Cosmetics Act, 1940 and Rules, 1945
- The Drugs & Magic Remedies (Objectionable Advertisements) Act, 1954 and Rules, 1955
- The Indian Patents Act, 1970
- The Drugs Price Control Order, 2013 (DPCO)

Routes of FDI in Indian Pharmaceutical Industry

According to guidelines issued by Reserve Bank of India, FDI in pharmaceutical industry in India is permitted by the following two routes:

1. **Automatic route**: This does not require any prior approval either by the government or the RBI. Under the existing policy, FDI is permitted up to 100% for Greenfield investments.
2. **Prior Government Approval route**: In this route, the FDI proposals are considered in a time-bound and transparent manner by the Foreign Investment Promotion Board (FIPB) under the Department of Economic Affairs, Ministry of Finance. Here also 100% FDI is permitted for investment in existing companies, i.e. brown field projects.

The Indian government has acknowledged the 'Pharma Vision 2020' which aims at accomplishing India as a global leader in an end-to-end drug manufacturing. A document 'Pharma Vision 2020' has been prepared by the department of pharmaceuticals in India which places a special emphasis on the journey to be followed in establishing India as one of the major places for drug innovation and discoveries. This department also accommodates for the various requisites in the form of world class infrastructure, internationally acclaimed manpower for pharma R &D and enterprise funds for research purpose in both the public and private sectors etc. Indian pharmaceutical sector is estimated to account for 3.1 – 3.6 per cent of the global pharmaceutical industry in value terms and 10 per cent in volume terms. It is expected to grow to US$100 billion by 2025. India accounts for 20 per cent of global exports in generics. India's pharmaceutical exports stood at US$ 16.84 billion in 2016-17 and are expected to reach US$ 20 billion by 2020 (IBEF, 2018). The IPI is dominated by the generic drugs segment which makes up for almost 70 per cent of the total revenues followed by Over the Counter (OTC) medicines (21 per cent) and patented drugs (9 per cent) (IBEF, Business Monitor International, FCCI Indian Pharma Summit 2014-15, TechSci Research)

3. Trends Of Indian Pharmaceutical Sector

TABLE1 REVENUE OF INDIAN PHARMACEUTICAL SECTOR (US$ billion)

YEAR	REVENUE
2011	20.95
2012	22.46
2013	24.52
2014	28.53
2015	29.77
2016	27.57
2017	29.61
2020 f	55

F:FORECAST

Source: Department of Pharmaceuticals, PwC, McKinsey, Arance Research, AIOCD AWACS

The Indian pharmaceuticals market witnessed growth at a CAGR of 5.64 per cent, during FY11-16, with the market increasing from US$ 20.95 billion in FY11 to US$ 29.77 billion till FY 15 and there is a fall in FY 16 is recorded as US$ 27.57 and increased to 29.61 in the the next year i.e 2017.(Table1) By 2020, India is likely to be among the top three pharmaceutical markets by incremental growth and 6th largest market globally in absolute size. In the FY 17 ,With 70 per cent of market share (in terms of revenues), generic drugs form the largest segment of the Indian pharmaceutical sector followed by 21% OTC medicines and last 9% patented drugs.(IBEF)

TABLE 2 IMPORTS AND EXPORTS OF INDIAN PHARMACEUTICAL SECTOR

(IN US$ BILLION)

YEAR	EXPORTS	IMPORTS
2008	2	0.4
2009	3	0.6
2010	4	0.7
2011	5	0.9
2012	10.1	3.6
2013	12.6	4.4
2014	14.5	4.6
2015	14.9	3.7
2016	16.9	3.7
2017	16.8	
2018	17.3	

Source: *Department of Commerce India, Department of Pharmaceuticals, India Business News, BMI*.

Indian pharma companies are capitalising on export opportunities in regulated and semi-regulated markets. Indian Pharmaceutical export market is thriving due to the strong presence in the generic market, which supplies about 20 percent of the global market in terms of volume. Furthermore, exports to US, which is already the largest export destination for India, will witness a boost. This will be backed by about USD 55 billion expected sales gain to generics drugs on account of branded drugs going off patent during 2017-19. India's pharmaceutical exports are following the increasing trend from 2012 i.e US$ 10.1 billion to US$ 16.6 billion in 2017. India's pharmaceutical exports are expected to reach US$ 20 billion by 2020. India's pharmaceutical imports are fluctuating every year. There is an increase in imports in the year 2012 i.e. US$ 3.6 billion to US$ 4.6 billion in the year 2014 and followed the fall in 2015 and 2016 i.e US$ 3.7 billion.

TABLE 3 R&D SPENDING BY TOP SIX PHARMA COMPANIES FY17 (US$ million)

COMPANIES	R&D EXPENDITURE
Sun Pharma	361
Lupin	350
Dr Reddy	305
Cipla	174
Aurobindo	104
Cadila	85
Wockhardt	62

Source: Company websites

In FY17, highest expenditure on research and development has been done by Sun Pharma i.e. US$361 million, followed by Lupin US$ 350 million, then Dr Reddy US$ 305 million, Cipla US$174 million, Aurobindo by US$104 million, Cadila US$ 85 million and lastly Wockhardt US$ 62 million. Sun Pharma's R&D spending is 7.6 per cent of the total sales in the FY17, which grew at a CAGR of 38.3 per cent from FY11 to FY17. Sun Pharma's R&D plan includes developing more products through expanded R&D team for global markets, focussing on more complex products across multiple dosage forms and investments in speciality pipeline. Lupin's R&D spending was 13.5 per cent of sales in FY17, with major thrust on oral solids (45 per cent of R&D spend)

TABLE 4 PER CAPITA SALES OF PHARMACEUTICALS (US$)

YEAR	PER CAPITA SALES
2008	9
2009	9
2010	11
2011	13
2012	14
2013	16
2014	19
2015	23.43
2016	33

Source: *BMI*

Growing per capita sales of pharmaceuticals in India offers ample opportunities for players in these market Per capita sales of pharmaceuticals expanded at a CAGR of 17.6 per cent to US$ 33 in 2016 Economic prosperity would improve affordability for generic drugs in the market and improve per capita sales of pharmaceuticals in India

4. Effects Of FDI In Indian Pharmaceutical Industry

Foreign direct investment generates spillovers which are regarded as the most significant channel of dissemination of modern technology. The rapid expansion in FDI by multinational enterprises since the mid-eighties may be attributed to significant changes in technologies, greater liberalisation of trade and investment regimes, and deregulation and privatisation of markets in many countries including developing countries like India. The inflow of FDIs into India has increased since the liberalization started. This influenced the pharmaceutical sector in several ways. The public units that had a production monopoly in certain drugs were opened up for competition and privatization (Aggarwal, 2004). Besides, the requirement for a certain ratio in bulk drug production was removed. Equity share and approvals of FDI in the pharmaceutical industry were relaxed and number of drugs under price control was reduced. FDI is a package of capital, technology and managerial skills, and is viewed as an important source of both direct capital inputs and indirect knowledge spillovers (Balasubramanyam, Salisu, & Sapsford, 1996). Foreign direct investment generates spillovers which are regarded as the most significant channel of dissemination of modern technology. The spillover effect has been identified as an important channel through which domestic firms benefits from FDI. Multinational (MNC) spillover effect is divided as productivity spillover and technological spillover, which can be realized by breaking monopoly, demonstration and local imitation (Caves, 1974). Thereafter, Kokko (1998) systematically introduced FDI technology spillover theory and categorized its occurrence into four circumstances including quality and marketing pressure to indigenous counterparts, inward and backward linkages to suppliers, and highly skilled human capital turnover. Domestic firms learn the superior technology (organisational and managerial innovation) from foreign subsidiaries. They learn about the design of the new products and technology (Felkar et al.1997). Many of the MNCs provide a great deal of in-house training and offer programs for everyone from top employees to floor staff in the firms. For instance; AstraZeneca has focus on creating a strong performance driven culture and improving the capability of its employees‖ (AstraZeneca India Ltd. Directors report, 2004). According to GSK, the foreign pharmaceutical firms have contributed a great deal to the domestic industry in terms of management, organizational and marketing practices. The MNCs have brought the latest manufacturing techniques and marketing practices into the pharmaceutical industry in India‖. For instance GSK itself was the first firm that introduced medical promotion activities such as the MSR system in India (Sanglikar, 2005). By introducing new marketing ideas and management techniques that were unknown in India, spillover effects to local firms were created (Bergman, 2006: 27-28). The spillover effects in the industrial management area seem to be immense in India's pharmaceutical industry. The pharmaceutical industry is highly dependent on marketing and distribution network. The industry's sales promotion is essentially intended for the physicians, who prescribe the products to the patients and not for the consumer directly. Medical Sales Representatives (MSRs) consequently have a large influence on physicians, who often rely on the MSRs regarding new drugs in the market. This calls for a detailed system of medical knowledge and the marketing representatives need to be well trained, technically qualified and specialized in the products and their effects on the patients (Narayana, 1984). Marketing and promotional performance strongly affects the outcome of the pharmaceutical firms. The MNCs in India have very well developed marketing techniques and have been able to capture large shares of the market due to their aggressive marketing performances. R&D centers in the IPI have begun to emerge, which increases employment opportunities and also reverses the brain drain from India (AstraZeneca in Bangalore, Nicholas Piramal in Mumbai, Wockhardt in Aurangabad, Ranbaxy's center in Gurgaon, Lupin in Pune, and Sun Pharma in Baroda) (OPPI, 2005). The R&D centres attract Indian scientists who earlier migrated to developed countries to find suitable work opportunities. With the new patent regime and enhanced work pool of skilled labour, it is very likely that MNCs will begin innovative research in India in the future.

5. Theoretical Background

This section reviews the empirical studies on the FDI in India and sectoral analysis which could study the positive impact of FDI on growth of the countries and the flows of FDI in sectors in regards to GDP. Laura Alfaro (2003) in the paper 'foreign direct investment & growth' stated that although it may seem natural to argue that foreign direct investment (FDI) can

convey great advantages to host countries, the benefits of FDI vary greatly across sectors. Vohra and Sehgal did an analysis in 2011 about trends and patterns of foreign investment in India and to know about the global scenario and to examine the relationship of liberalised regime pursued by the countries with the level of FDI stock. Regression analysis was carried out between FDI Restrictiveness Index (FDI Index) and level of FDI stock to provisionally test this relationship. The results exhibited a compelling relationship between this index and the level of FDI stock, clearly implying that if economy is more open with less of restrictions the inflow of FDI will be more and vice-versa. Similar analysis was done by Hooda Sapna in 2011 regarding the impact of FDI on the economic growth of Indian economy for the period 1991-92 to 2008-09. She observed that the FDI plays the important role in the growth of the economy by using the OLS method. It was also found that trade GDP, research and development GDP, financial position, exchange rate, Foreign exchange reserves and GDP were the important macroeconomic determinants of FDI Inflows in India. Prachi Arora's 'Relation Between Inflow Of FDI and The Development Of India's Economy' aimed to find out the relationship between inflows of FDI with the development of India's economy (measured in terms of GDP) and the impact of economic reforms on FDI in India. She also examined the hurdles in way of exhilarating the level of FDI in India. The questionnaire was used and the respondents were Investment Managers, Portfolio Managers, Investment Advisors and Investment Bankers in INDUSIND Bank in Barakhamba Branch and HDFC Bank in Ashok Vihar Branch. The hypothesis testing was applied to show whether Inflow of FDI and Development of India's economy (measured in terms of GDP) are related or not and Karl Pearson's Coefficient of Correlation were used. The results depicted that there is an impact of economic reforms on FDI. Also there exists a positive relationship between the inflow of FDI and the development of India's economy (measured in terms of GDP). Samal Sanghamitra , Raju D.Venkatrama (2016) studies the flow of FDI into manufacturing sector in India & its impact for manufacturing Growth in Indian Industries for enhancing the economic growth per capital as well as the domestic sector. The above study tried to assessing the determinants and impact of FDI in Indian economic factors. Thus, the study was an endeavour to discuss the trends and patterns of FDI, and its impact of FDI on Indian economy. This paper analyzed FDI inflows from 2000 to 2014 into manufacturing sectors which includes Metals and Mining, Automobile, Heavy engineering and construction Equipment, Chemical Sectors, Electronics components and Cement. Here, the researcher had taken the hypothesis (Ho), maximization of FDI in manufacturing Sector in Industry it develops the economic condition of the factory as well as the Country with maximizing GDP (He). This paper had taken two variables of study for extracts what impact it had on the manufacturing sector of the country and how it affects the economic growth of GDP. By investing more FDI it facilitates the economic development & as well as increase the growth of the domestic Product (GDP) of the country and found its positive impact in every sector of industrial life and Human life in order to maintain a sustainable & moderate life style. Hooda Shailender k(2016) examines the status of and trends in foreign investment inflow into the Indian hospital sector and highlights the emerging issues from 2000 to 2014, the era of liberalised foreign investment. During this period a significant number of multinational players focussed on the Indian hospital sector—expanding their presence through partnerships and investments in joint venture projects. Though foreign investment inflow to hospitals increased hundredfold during the period, an examination of selected major corporate hospitals of India, however, reflects that international investments constitute a small share within total financing; rather, it is the long-term domestic borrowing that dominates. Overall, foreign investments has largely been used in super-speciality and tertiary cares services, particularly in metropolitan cities, while investment for primary and secondary cares, clinical research, drug development, diagnostic services for rural area remained negligible. The study argues that private investment can play a complementary role in providing tertiary and speciality care services, particularly in the untapped hospital market, and it should not be considered as a substitute for public provisioning of healthcare services. The government will have to increase its healthcare spending manifold in order to provide cost-effective care to the general population across the country, including in the remotest areas.

6. Objectives

- To study the concept, trends of FDI inflows and its effects in Indian Pharmaceutical sector.
- To compare between the total FDI in India and the FDI inflows in the Indian Pharmaceutical Sector (1991-2018).
- Ranking the top 10 leading Indian Pharmaceutical Company based on different parameters and identifies the different parameters that significantly influence the net profit of Pharmaceutical Company.

7. Methodology of the study

The study is based on secondary data and the facts and figures collected from various sources such as Indian Fact Sheets on FDI based on reports of UNCTAD, Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry, Government of India (GOI),RBI Bulletin ,Department of pharmaceuticals annual reports, India Pharma 2020: Propelling access and acceptance, realizing true potential, McKinsey and Company India Pharma Inc: Capitalising on growth potential, PWC and CII, SIA newsletter , websites like money control and database like capitaline etc for all the objectives. For the first objective the period of the study is from 1991onwards. This study helps to all stakeholders who are connected to Pharma Company can know the status of respective company Statistical methods like tabulations, percentages, trends, correlations, regression, descriptive analysis etc. are applied to evaluate the data and to turn up the noteworthy inferences. SPSS and advance excel were used for regression analysis

8. Analysis and findings

Table 3 FDI Inflows in Indian Pharmaceutical Sector (1991-2018).

(US$ million)

Years	Amount of total FDI in India	Growth Rate (%)	FDI Inflow in PI	Growth Rate (%)	Percentage of pharma FDI in total FDI
1991-92	129.00		4.63		3.6%
1992-93	315.00	1.441860465	3.46	-0.2527	1.1%
1993-94	586.00	0.86031746	50.47	13.58671	8.6%
1994-95	1314.00	1.242320819	10.1	-0.79988	0.8%
1995-96	2144.00	0.631659056	52.1	4.158416	2.4%
1996-97	2821.00	0.315764925	49.03	-0.05893	1.7%
1997-98	3557.00	0.26090039	32.72	-0.33265	0.9%
1998-99	2462.00	-0.307843689	25.83	-0.21057	1.0%
1999-2000	2155.00	-0.12469537	51.47	0.992644	2.4%
2000-01	4029.00	0.869605568	35.94	-0.30173	0.9%
2001-02	6130.00	0.521469347	77.94	1.168614	1.3%
2002-03	5035.00	-0.17862969	40.07	-0.48589	0.8%
2003-04	4322.00	-0.141608739	108.91	1.717994	2.5%
2004-05	6051.00	0.400046275	293.36	1.6936	4.8%
2005-06	8961.00	0.480912246	172.44	-0.41219	1.9%
2006-07	22826.00	1.54726035	224.2	0.300162	1.0%
2007-08	34835.00	0.526110576	340.35	0.518064	1.0%
2008-09	41874.00	0.202066887	4,246.76	11.47763	10.1%
2009-10	37745.00	-0.09860534	213.08	-0.94983	0.6%
2010-11	34847.00	-0.076778381	209.38	-0.01736	0.6%
-2011-12	46556.00	0.336011708	3,232.28	14.43739	6.9%
2012-13	34,298	-0.263295816	1,123.46	-0.65242	3.3%
2013-14	36,046	0.050965071	1,279	0.138447	3.5%
2014-15	45,148	0.252510681	1,498	0.171228	3.3%
2015-16	55,559	0.230597147	754	-0.49666	1.4%
2016-17	60082	0.081408953	857	0.136605	1.4%
2017-18	48201	-0.197746413	1,010	0.17853	2.1%

Source: Various issues of SIA Newsletter (FDI Data Cell) DIPP, Ministry of Commerce & Industry, Government of India, New Delhi.
Economic Survey (Various issues), Ministry of Finance, Government of India, New Delhi.
Handbook of Statistics on Indian Economy, RBI.
Department of Pharmaceutical, Annual Report , Ministry of chemical & Fertilizes, Government of India, New Delhi

Figure 1 FDI Inflows in Indian Pharmaceutical Sector (1991-2018).

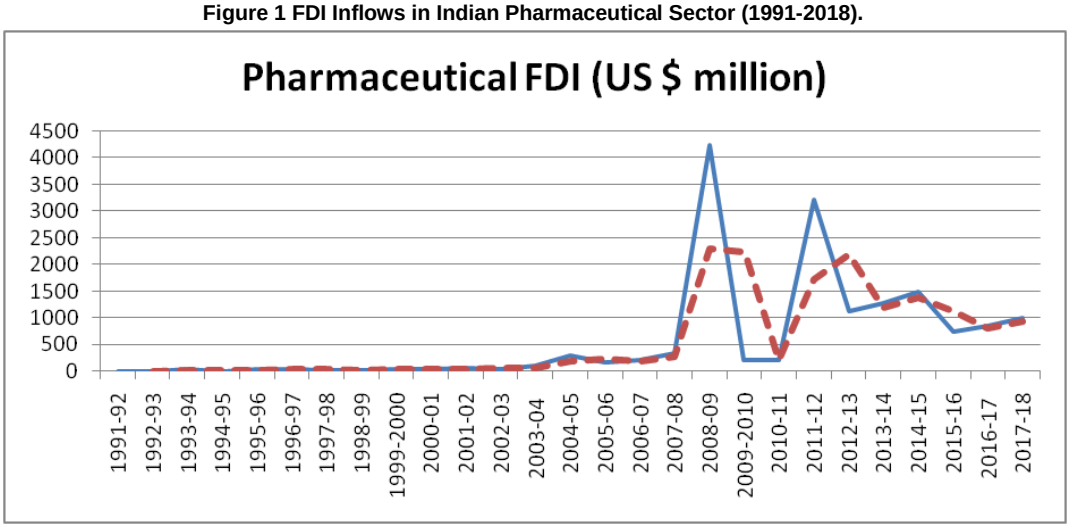
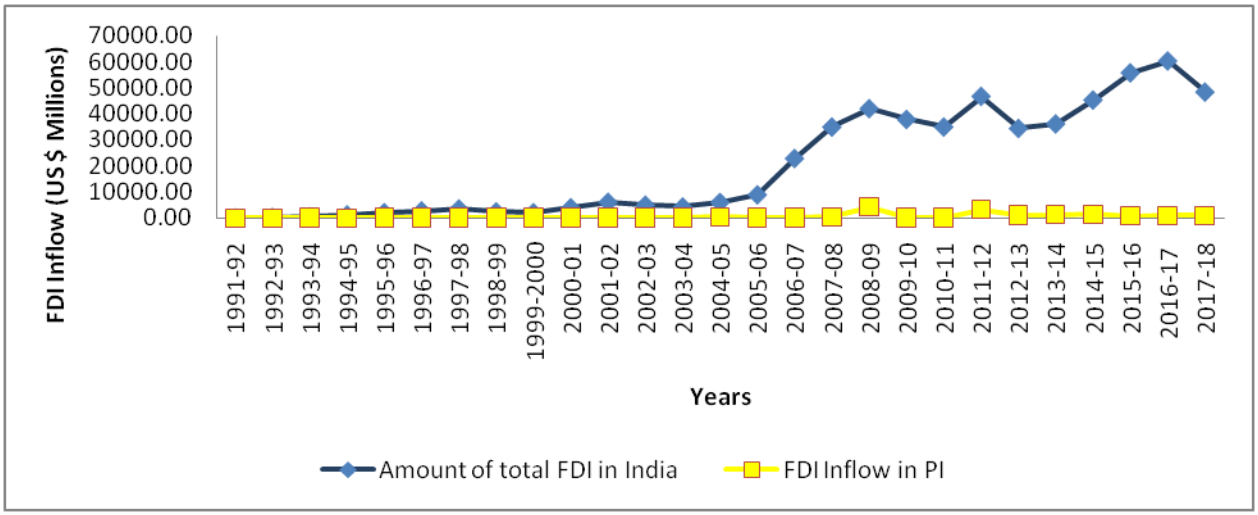


Figure: 2 FDI Inflows in Indian Pharmaceutical Sector (1991-2018).



In the post liberalization period inflow of FDI into India has increased significantly. Annual FDI inflows in India's pharmaceutical sector have grown steadily from US$ 4.63 million in 1991-92 to US$ 293.36 million in 2004-05, declining to US$172.44 million in 2005-06 and rebounding to US$ 224.2 million and US$ 340.35 million in 2006-07 and 2007-08 respectively. Thereafter it again increased in year 2008 and then again decreasing in the year 2009-10 and 2010-11. (Table-3).There were again fluctuating trend in FDI inflows in pharma sector as there was rise in inflows in year 2014-15 i.e. US$ 1,498 million. Thereafter it again decreased in the 2015-16 i.e. US$754 million and then increased in 2017-18 i.e. US$ 1,010 million. (Table3) .The Figure 1 and 2 presents the graphical picture of fluctuating trends of FDI inflows in India and FDI inflows in Indian Pharmaceutical industry. It is indicated that the pharmaceutical FDI increased sharply in 2004, decreased in 2005 and then rebounded in 2006. The decline in 2005 may be attributable to substantial uncertainty as to how India will implement and interpret its new patent regime. The increase in FDI inflows in IPI has lead to expansion, growth and development of the industry. This in turn has led to the improvement in the quality of its pharma products.

It is noticeable that in the year 1991 the actual amount of FDI inflow in India was only US$ 129.00 million in the year 1991 and over the period it observed an increasing trend to take a figure of US$ 48201million in 2018 (Table1). In the post liberalization period i.e. from 1991 onwards major changes occurred in which India embarked upon economic liberalization and reforms program with the aim to raise its growth potential and involve with the world economy. Various restrictions and Government impositions were removed and dual route for FDI inflows were opened i.e. automatic route and Government's approval (SIA/FIPB) route. Due to this liberalization the amount of FDI inflows increased in the country with some fluctuations during the advancement of the years from both the routes and other sources. During the post liberalization period the investments were done through FIIs also. The growth rate also indicates considerable fluctuation both in positive and negative rate. It demonstrates that the inflow is dictated by the external sources rather than an internal factor. The Indian pharmaceuticals market witnessed growth at a CAGR of 0.2918 and for FDI inflows in India 0.4907, during FY11-16,. The industry's revenues are estimated to have grown by 7.4 per cent in FY17. By 2020, India is likely to be among the top three pharmaceutical markets by incremental growth and 6th largest market globally in absolute size. (Department of Pharmaceuticals, PwC, McKinsey)

Table-4: Statistical description and correlation of total FDI and FDI in Pharmaceutical industry (1991-2018).

						Correlation	
	Range	**Minimum**	**Maximum**	**Mean**	**Std.Deviation**	**Pearson correlation**	**Sig(2 Tailed)**
FDI inflow(US milliom$)	5995.3	129	60082	20297.33	20529.281	1	
Pharmaceutical FDI (US $ million)	4243.30	3.46	4246.76	592.4437	1016.69001	.618	.001
N						27	27

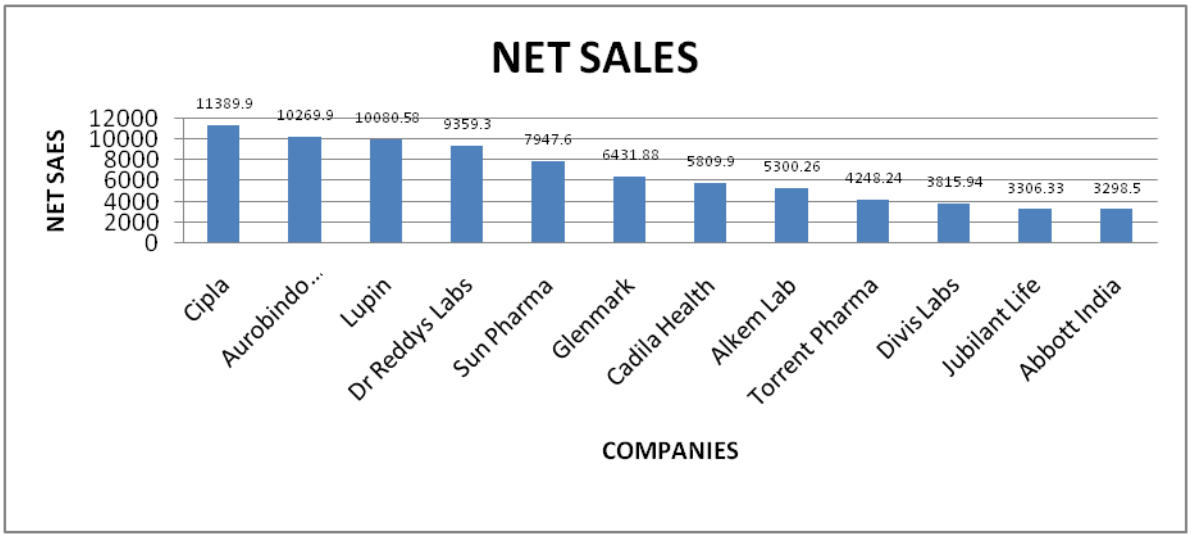
The statistical description of total FDI and FDI in pharmaceutical sector in terms of mean, SD, variance, range, minimum and maximum is shown in table 4. The mean for FDI inflows in India is 20297.33 and for FDI in Indian pharmaceutical sector is 592.4437. The SD for FDI inflows in India is 20529.281 and for FDI in Indian pharmaceutical sector is 1016.69001.The table 4 also depicts the correlation between the FDI inflows in India and FDI inflows in Indian Pharmaceutical sector. The Correlations is significant at 0.01 levels. The results depict that the FDI inflows in India and FDI inflows in Indian Pharmaceutical sector are positively correlated.

9. Leading Pharmaceutical Companies On The Basis Of Different Financial Parameters

The top 12 Indian Pharmaceutical Companies are ranked among the all Market players in Indian Pharmaceutical Industry based on different parameters i.e. Total market capital, Net sales, Net profit, and Total Assets in the FY 2018.

- **Based on Net Sales**

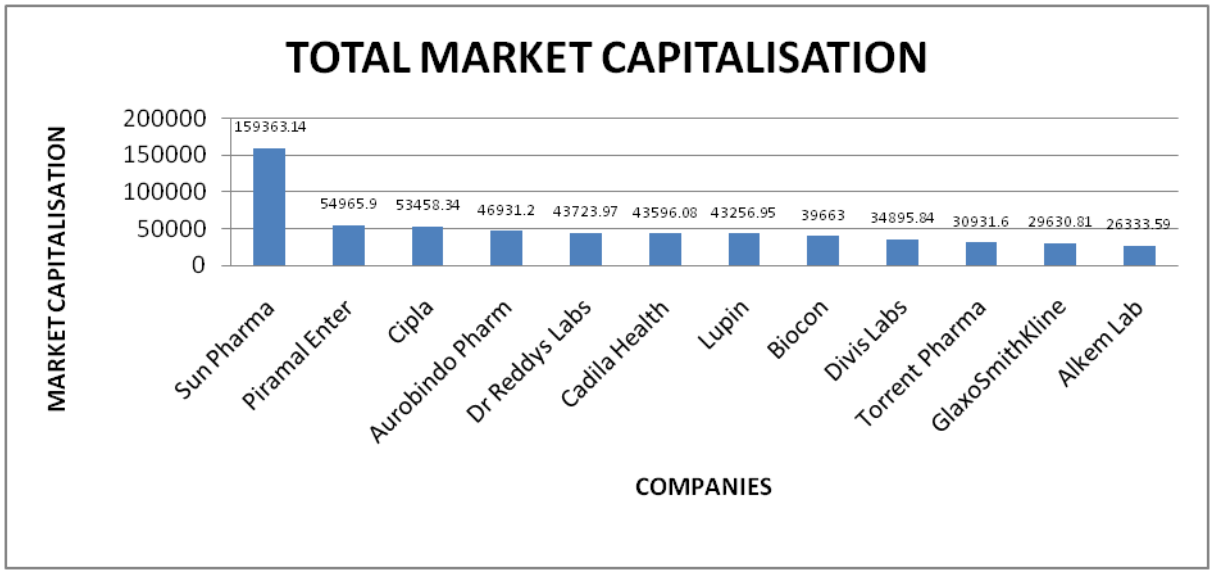
Figure 3: Leading Indian Pharmaceutical Companies based on total Net sales.



Cipla is rated as the leading company in the industry has thrown double sales than the other players in the market followed by Aurobindo pharma which shows that cipl has wide variety of products range in respiratory segment contributes to the increased sales. Lupin acquires the third position based on the net sales ranking followed by Dr Reddy's Lab. Torrent Pharmaceuticals acquires the ninth position and Abott India takes the last, showing the strong variability in ranking based on net sales v/s ranking based on market capital.(Figure 3)

- **Based on Total Market Capital**

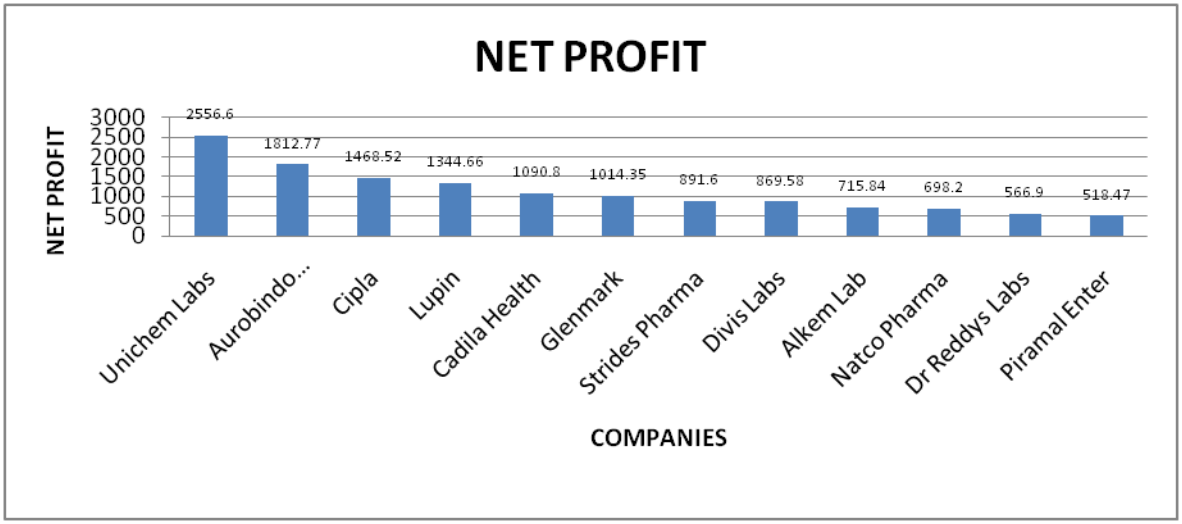
Figure 4 Leading Indian Pharmaceutical Companies based on total Market Capitalisation



The Indian Pharmaceutical Industry possesses dynamic characteristics and various companies contribute to the characteristics among which the above-mentioned companies are studied and its amount of contribution to the industry is determined. Sun Pharmaceuticals acquires the first rank as compare to others while Alkem Labs acquires the bottom position in the ranking of top 12 Pharmaceutical companies in India.(Figure 4)

- **Based on total Net Profit**

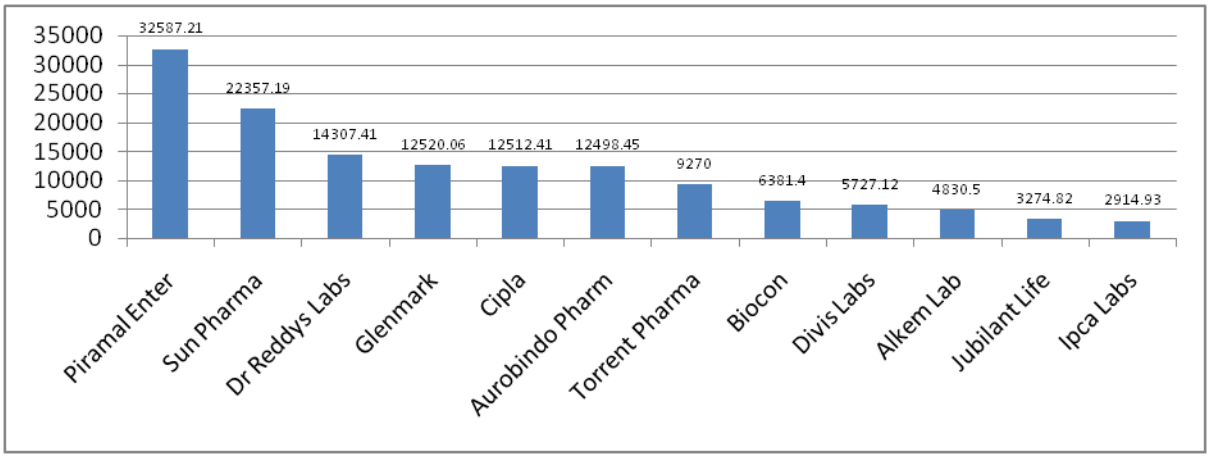
Figure 5 Leading Indian Pharmaceutical Companies based on total Net Profit.



The ranking of the companies based on Net profit indicates huge variance and indicates the dynamicity of the strategies adopted by the companies. Unichem labs acquire the first position followed by Aurobindo Pharma. Cipla stands at the third position which indicates that the company has significant profit margin. Dr Reddy's Labs stands at eleventh position and Primal Enter acquires the bottom position in the ranking of top 12 Pharmaceutical companies in India.(Figure 5)

- **Based on total Assets**

Figure 6 Leading Indian Pharmaceutical Companies based on total Assets



The above ranking, based on the total assets a company has which shows that Primal Enter has good financial position in the market. Ipca Labs taking the last rank in the domestic market shows that it has an unstable financial position.

10. Parameters which significantly dependent or influence the total net profit of respective pharmaceutical companies

Multiple Regression analysis is useful when more than one independent variables are likely to be associated with a dependent variable and ascertaining the contribution of all such independent variables in accounting for variation in dependent variable is necessary (Parasuraman et. al, 2008, 485). To check the dependency and independency with the net profit of pharmaceutical companies multiple regression analysis has been deployed at 95% of level of confidence By using net profit as dependent variable there are number of factors found which were significantly dependent with the net profit. This technique has been applied in this research to test the null hypothesis. Table 5 and 6 shows the model summary and ANOVA results respectively under regression analysis. Table 7 shows the Unstandardised Coefficients, Beta Coefficients and t-value of the individual factor along with their relative significance level. This table also shows the values of R, R^2, Adjusted R^2 and F.

The following variables can influence the net profit:

- Net sales,
- Total Assets,
- Total market capitalisation

The results depict that the model is good fit.

Y =124+0.124 (net sales) -0.004 (total asset) -0.004 (market capitalisation)

Table 5 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.845[a]	.714	.607	386.82580

a Predictors (constant),Total assets, net sales, total market capitalisation

Table 6 ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	2994326.550	3	998108.850	6.670	.014[b]
	Residual	1197073.591	8	149634.199		
1	**Total**	4191400.141	11			

a. Dependent Variable: Net profit

b. Predictors: (Constant), Total Assets, Net sales Total market capitalisation

Table 7 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	199.516	293.128		.681	.515
	Net sales	.176	.063	.839	2.786	.024
	Total market capitalisation	-.011	.006	-.673	-.1.855	.101
1	**Total assets**	-.012	.051	-.109	-.229	.824

a. Dependent Variable: Net profit

The results of this analysis have been summarized as under:

1. After having idea on which independent variables may be predictors of the dependent variable, predetermined model in regression can be used and test it for significance through an F-test (Nargundkar, 2012). The value of F comes to be 6.670 which is significant at 1% level of significance. Value of F confirms the model's ability to predict the dependent variable.
2. R is . 845 which is the value of correlation between predictors and outcome
3. The measure of strength of association in the regression analysis is given by the coefficient of determination expressed by R^2. R^2 value of the model tells the percentage of the variation in the dependent variable by all independent variables in the model (Nargundkar, 2012). Here, the value of R^2 is .714
4. Table 6 shows that adjusted R^2 is .607which is smaller than R^2 0.714. The use of an adjusted R^2 is an attempt to take account of the phenomenon of statistical shrinkage. (Everitt, 2002).
5. The table 7 exemplifies that factor named 'net sales' is having highest standardized beta coefficient (.839) and t value (2.786) which is statistically significant at 5% level of significance. It explains the maximum variation by this factor. 'Total market capitalisation' has been found to be another influencing factor with Beta Coefficient -.673 and t value -.1.855 which is statistically significant at 5% level of significance. The third factor influencing net profit has been arrived as 'total assets' with Beta Coefficient .051 and t value -.229. It is statistically significant at 5% level of significance.

11. Conclusion

Foreign Direct Investment (FDI) is acting as a strategic component of investment by India for its sustained economic growth and development through creation of jobs, expansion of existing manufacturing industries, short and long term project in the field of healthcare, education, research and development (R & D) etc.. FDI can help to raise the output, productivity and export at the sectoral level of the Indian economy. In present the Indian pharmaceutical industry is acknowledged as one of the most captivating destination in the whole wide world. The main reason behind this which has lead to the investors more fascinated in the industry is accelerating returns, lowered risks and multifold growth. Foreign investors are being allured Indian pharmaceutical sector as they see a large growth in the Indian healthcare system and the opportunities that follow. The Foreign investors are leaving no stone unturned in hunting and penetrating the Indian healthcare system via different channels i.e. capital, technology in the form of tie ups and other forms of collaborations with the Indian counterparts which may be in the area of diagnosis, technology or healthcare education and training facilities. There exists a variable ranking of the top 10 companies in the Indian Pharmaceutical Industry. Each input variable contributes to a different ranking position of these companies. The ranking of the top 12 companies' changes drastically when they are rank based on different parameters. i.e. total market capitalisation, net profit, total assets and net sales. These parameters are positively related to each other. Thus it can be concluded the Pharma industry is on the robust growth path in India

References

1. Abrol, Dinesh, Pramod Prajapati and Nidhi Singh (2011). ―Globalization of the Indian Pharmaceutical Industry: Implications for the direction, distribution and diversity in drug innovation‖, National Institute of Science, Technology and Development Studies (NISTADS), New Delhi.
2. Arora Prachi (2013) Relation Between Inflow Of FDI and The Development Of India's Economy IJTEMT; www.ijtemt.org; ISSN: 2321-5518; Vol. II, Issue III,
3. Astra Zeneca Pharma India Ltd. Director Report & Prowess Data base Centre for Monitoring Indian Economy, Mumbai
4. Blomstrom and kokko (2003). The Economic Foreign Direct Investment incentive .Working paper 9489 NBER
5. Blomstrom, M and A. Kokko (1998). Multinational Corporations and Spillovers. Journal of Economic Surveys:12: 247-277.
6. Blomstrom, M and F. Sjoholm (1999). FDI, Technology Transfer and Spillovers: Does Local Competition with Multinational Matter .European Economic Review: 43: 915-923.
7. Blomstrom, M. and H. Persson (1983). Foreign Investment and Spillover Efficiency in an Underdeveloped Economy: Evidence from the Mexican Manufacturing Industry.World Development: 11: 493-501.
8. Blyde, J., M. Kugler and E. Stein (2005). Exporting vs. Local Sourcing by Multinational Subsidiaries: Which Determines Foreign Direct Investment Spillovers?, mimeo, University of Southampton.
9. Castellani, D and A. Zanfei (2003). Technology Gaps, Absorptive Capacity and the Impact of Inward Investments on Productivity of European Firms. Economics of Innovation and New Technology: 12(3).555-576.
10. Caves, R. E. (1974). Multinational Firms, Competition, Productivity in Host-Country Markets. Economica: 41: 176-193.
11. Caves.R.E.(1996).Multinational Enterprises and Economic Analysis, Cambridge:Cambridge University Press, Second Edition.
12. Central Statistical Organisation (2005): Input-Output Transactions Table 1998-99. New
13. Chaturvedi, Illa (2011). Role of FDI in Economic Development of India: Sectoral Analysis. Paper presented at International Conference on Technology & Business.
14. Costa, I. and S. R. de Queiroz. (2002). Foreign Direct Investment and Technological Capabilities in Brazilian Industries. Research Policy: 31: 1431-1443.
15. Delhi: Ministry of Statistics and Programme Implementation.
16. Dunning, J. (1993). Multinational Enterprises and the Global Economy, Wokingham : Addison-Wesley.
17. Girma, S. (2005). Absorptive Capacity and Productivity Spillovers from FDI: A Threshold Regression Analysis. Oxford Bulletin of Economics & Statistics**:** 67(3): pp. 281-2005.
18. Globerman, S. (1979): Foreign Direct Investment and Spillover Efficiency Benefits in Canadian Manufacturing Industries. Canadian Journal of Economics: 12: 42-56.
19. Griliches, Z. and J. Mairesse (1998).Production Function; Search for Identification. in S. Strom (ed.) Econometrics and Economic Theory in the 20th Century, Cambridge: Cambridge University Press.
20. Haddad, M. and A. E. Harrison (1993). Are There Positive Spillovers from Direct Foreign Investment? Evidence from Panel Data for Morocco. Journal of Development Economics:.42 :51-74.
21. Hooda Ms.Sapna (2011),"A Study of FDI and Indian Economy" Ph.D Thesis Submitted at National Institute of Technology, Kurukshetra.
22. Hooda Shailendra kumar (2017) Foreign Investment in Hospital Sector in India Status and Implications Sage journals
23. Hymer, S. (1976): The International Operations of National Firms: A Study of Foreign Direct Investment: Cambridge, Massachusetts: MIT Press.
24. IBEF Pharmaceuticals report 2017 and 2018
25. Industrial Development. European Economic Review :43(2): 335-336.
26. Javorick, B. S. (2004 b). Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers through Backward Linkages. American Economic Review: 94(3): 605-627.
27. Javorick, B. S. and M. Spatareanu (2003a). To Share or not to Share: Does Local Participation Matter for Spillovers from Foreign Direct Investment. World Bank Policy Research Paper No.3118, Washington.
28. Javorick, B. S. and M. Spatareanu (2005 c). Disentangling FDI Spillover Effects: What do Firm Perception Tell Us?. in T. H. Moran, E. Graham and M. Blomstrom (eds) Does Foreign Direct Investment Promote Development?, Washington: Institutefor International Economics.
29. Kathuria, V. (2001 a). Foreign Firms, Technology Transfer and Knowledge Spillovers to Indian Manufacturing Firms - A Stochastic Frontier Analysis. Applied Economics: 33 (5) :625-42.
30. Kathuria, V. (2002 b). Liberalisation, FDI, and Productivity Spillovers-an Analysis of Indian Manufacturing Firms. Oxford Economic Papers: 54:.688-718.
31. Khan.A.Q & Siddiqui Ahmad, Taufeeque (2011). Impact of FDI on Indian Economy: A Comparison with China & USA. International Journal of Business & Information technology: 1 (1) .
32. Kokko, A. (1994). Technology, Market Characteristics and Spillovers", Journal of Development Economics. 43: 279-93.
33. Konings, J. (2001). The effects of Direct Foreign Investment on Domestic Firms: Evidence from Firm Level Panel Data in Emerging Economies. Economics of Transition:9 (3): 619 - 633.
34. Kugler, M. (2001). The Diffusion of Externalities from Foreign Direct Investment: The Sectoral Pattern of Technological Spillovers. mimeo, University of Southampton.
35. Kumar, N. (1994). Multinational Enterprises and Industrial Organisation; The Case of India.: Sage Publications India Pvt Ltd, New Delhi
36. Lall, S. (1978) .Transnational, Domestic Enterprises and Industrial Structure in Host LDCs: A Survey. Oxford Economic Papers:30(2) :217-248.
37. Lall, S. (1997).Investment, Technology and International Competitiveness. in John H. Dunning and Khalel A. Hamdani (eds) The New Globalism and Developing Countries, Tokyo: UNU Press.
38. Laura Alfaro (2003).Foreign Direct Investment and Growth patterns. Harvard Business School-
39. Maathaik, Mathiyazhagan (2005), ISAS Working paper.
40. Marin, A. and M. Bell (2004). Technology Spillovers from Foreign Direct Investment (FDI): an Exploration of the Active Role of MNC Subsidiaries in the Case of Argentina in the 1990s. SPRU Electronic Working Paper Series: October.
41. Markusen, J. and A. J. Venables (1999). Foreign Direct Investment as a Catalyst for
42. Merlevede, B and K. Schoors (2005). Conditional Spillovers from FDI Within and Between Sectors: Evidence from Romania. Department of Economics and CERISE, University of Ghent, October.

43. Nagori V.R. and S.A Ghumare (2007). FDI and Globalization in India. Southern Economist :45 (23, 24) :20-24.
44. Narula, R. and A. Marin (2005). Exploring the Relationship between Direct and Indirect Spillovers from FDI in Argentina. MERIT Research Memoranda 2005-024, Maastricht Economic Research Institute on Innovation and Technology.
45. SAMAL SANGHAMITRA, D.VENKATRAMA RAJU (2016) A STUDY OF FOREIGN DIRECT INVESTMENT (FDI) ON MANUFACTURING INDUSTRY IN INDIA: AN EMERGING ECONOMIC OPPORTUNITY OF GDP GROWTH AND CHALLENGES ARABIAN JOURNAL OF BUSINESS AND MANAGEMENT REVIEW E-ISSN: 2223-5833
46. Singh Kulwindar, 2005.Foreign Direct Investment in India: A Critical Analysis of FDI from 1991-2005. New Delhi, Centre for Civil Society.
47. Sjöholm, F. (1999). Technology Gap, Competition and Spillovers from Direct Foreign Investment: Evidence from Establishment Data, Journal of Development Studies: 36:.53-73.
48. Thangavelu, S. M. and Pattnayak, S. S. (2005). Linkages Spillovers and Foreign Ownership: Evidence from the Indian Pharmaceutical Firms. Paper Presented at the 32nd European Association of Research in Industrial Economics (EARIE) Conference, Portugal.
49. Tsai, Pan-long (1994). Determinants of Foreign Direct Investment and Its impact on Economic Growth. Journal of Economic Development 019 (1): 137-163
50. Vohra & Sehgal (2011),"An inclusive study of Foreign Investment in Indian economy", APJRBM, issue 2,volume 6 ,(june,2011).
51. World Investment report (1999). —FDI and the Challenges of Developmentll, UNCTAD, New York.
52. Yogeshwari Pathak (2007). Factors Affecting FDI in Developing Countries: An Indian Prospects; Enhancing Enterprise Competitiveness. Institute of Management, Nirma University, Ahmadabad.

