

# IMPACT OF FOREIGN DIRECT INVESTMENT ON INDIA'S AUTOMOBILE COMPANIES WITH REFERENCE TO M & M AND ASHOK LEYLAND

<sup>1</sup>V. LAVANYA, <sup>2</sup>D.PRADEEP KUMAR, <sup>3</sup>T.NARAYANA REDDY

<sup>1</sup>Full Time Research Scholar, Department of Management, MITS, Madanapalle – 517325

<sup>2</sup>Department of Management, MITS, Madanapalle- 517325

<sup>3</sup>Head, Department of Management, JNT University, Ananthapur-515002

E-mail: <sup>1</sup>lavanya.vennapusa@gmail.com

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**Abstract-** FDI Inflows to Automobile Industry have been at a growing rate as India has witnessed a major economic liberalization over the years in terms of various industries. The automobile sector in India is increasing by 18 percent per year. The basic compensation provided by India in the automobile sector include, advanced technology, cost-effectiveness, and efficient manpower. Besides, India has a well-developed and competent Auto Ancillary Industry along with automobile testing and R&D centres. The automobile sector in India ranks third in manufacturing three wheelers and second in manufacturing of two wheelers. Automobile sector has much to deliver in the years to come Automobile Industry respect between the two variables Correlation Direct Investment Inflows in India-Opportunities and reimbursement, significant aspects of FDI in Automobile Industry, Recent FDI Trends in India.

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**Key words-** Automobile Industry, FDI, Company wise FDI, Passenger Vehicles, Commercial vehicles and Production, Sales, Export.

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## I. INTRODUCTION

International capital flows have important probable benefits for economies around the world. Country with sound macroeconomic policies and well performance institutions are in the best position to reap the benefits of capital flows and minimize the risks. Much of these capital flows is due to trade in equity and debt markets FDI inflows mainly on the foundation of issue/transfer of equity/ preference shares of Indian company to foreign direct investor. In recent years, India has emerged as a desirable location for FDI by investors from the United States and many other countries. It's rapidly growing economy, low wages and educated work force FDI in the services and manufacturing sectors to serve both of the Indian market and third country markets. Foreign investors' enthusiasm for India has been tempered by widespread poverty, rigidity in the labour market, rising salaries and high employee turnover in some industries, an antiquated infrastructure, weaken in the overall educational system and excessive bureaucracy and corruption. FDI is the process whereby people of one country (the home country) acquire ownership of assets for the purpose of controlling the production, allocation and other performance of a firm in another country (the host country).

Foreign direct investment (FDI) is a measure of foreign ownership of practical assets, such as factories, mines and land. Greater than ever foreign investment can be used as one measure of growing economic globalization. According to International Monetary Fund (IMF), FDI has three components, viz., equity capital, reinvested earnings and other direct capital. A large number of countries, including

several developing country report FDI inflows in accordance with the IMF definition, which include reinvested earnings and other direct capital flows, besides equity capital. India has become the Centre of attraction for global car makers given the huge opportunity with mid-income masses aspiring to own a car as well as abundance of raw materials and low-cost labour. Favourable Foreign Direct Investment (FDI) policy makes the entry of international players easy into India.<sup>3</sup> Various manufacturers are envisage India as the hub for small car production which CARE Research believes will drive the car exports from our country. (Research & Markets: The 'Indian Passenger Vehicle Industry' India Report 2010). The Automobile industry in India is one of the largest in the world with an annual production of 23.37 million vehicles in Financial Year 2014-15, following a growth of 8.68 percent over the last year. The automobile industry financial records for 7.1% of the country's gross domestic product (GDP). The Two Wheelers segment, with 81% market share, is the leader of the Indian Automobile market, owing to a growing middle class and a young population. Moreover, the growing interest of companies in exploring the rural markets further aided the growth of the sector. The overall Passenger Vehicle (PV) segment has 13% market share. India is also a prominent auto exporter and has strong export growth expectations for the near future. In Financial Year 2014-15, automobile exports grew by 15% over the last year. In addition, several initiative by the Government of India and the major automobile players in the Indian market are expected to make India a leader in the Two Wheeler (2W) and Four Wheeler (4W) market in the world by 2020. The Industry produced total 14.25 million vehicles

including PVs, Commercial vehicles (CVs), Three wheelers (3W) and 2W in April–October 2015, as against 13.83 in April–October 2014, register a marginal growth of 3.07%, year-to-year. The sales of PVs grew by 8.51 percent in April–October 2015 over the same period in the previous year. The overall CVs segment register a growth of 8.02% in April–October 2015 as compared to the same period last year. Medium & Heavy Commercial Vehicles (M&HCVs) registered very strong growth of 32.3% while sales of Light Commercial Vehicles (LCVs) declined by 5.24 per cent during April–October 2015, year-to-year. In April–October 2015, overall automobile exports grow by 5.78%. PVs, CVs, 3Ws and 2Ws registered growth of 6.34%, 17.95%, 18.59% and 3.22%, correspondingly, in April–October 2015 over April–October 2014.<sup>1</sup> As per in sequence launched by Society of Indian Automobile Manufacturers (SIAM), the passenger car transactions in domestic market have surge to 145,905 units in January 2010 against the 2009 sales of 110,300 units. This ultimately refers to the 32.28% growth in the domestic car sales. In January 2010, the total sales of automobiles grow to 1,114,156 units as compared to the previous fiscal year's 768,698 Units sale.<sup>2</sup>

## II. INDUSTRY COMPOSITION

Passenger cars and utility vehicles are the main segments of the Indian passenger vehicle industry with the former accounting for 80% the total volume. Within the passenger car segment, the mini and solid segment together accounts for around 80% of total volumes. Over the last 5- years the compact car segment in particular has been the focus for most OEMs, leading to a large number of product introductions and the segment has outperformed the rest of the industry in term of growth. Being the largest segment by volume, the compact car segment is also intensely competitive with the presence of seven players with as many 16 contributions. The segment has also witnessed the highest number of launches over the past 12 -months with main ones being Ritz, A Zen Estilo (from MSIL), i10, i20 (from HMIL) and Indica Vista (from Tata Motors Limited - TML). This segment has also been the currency and butter for India's small car exports, especially from MSIL and HMIL. Overall, the top three market players in the passenger car segment – MSIL, HMIL and TML - currently dominate the segment. Over a period of time though, this segment (mini + compact) is likely witness some fragmentation as it attracts new players and more destructive model launches from hitherto smaller/ marginal players. In H1, 2010, this segment is likely to observe the entry of General Motors, Volkswagen, Ford India and Nissan. Going forward, all serious players in the Indian market are expected to introduce products in the compact

segment, leading to some disintegration of the overall segment.

## III. FDI INFLOWS

Foreign Direct Inflows (FDI) is, however expected to carry on growing at a healthy pace. This is because the India economy is probable to grow at a faster pace than most international economies. Domestic lending rates have risen considerably over the past 3 to 5 months. FDI in portfolio investments dipped from an estimated \$12.3 billion in the December 2010. A comforting feature of the changing automobile scene in India over the past five years is the newfound success and confidence of domestic manufacturers. They are no longer troubled of competition from the international auto majors. To conclude, the automobile sales are expected to experience a boom in the coming years and we might get to see a couple more automotive giants invading the Indian Territory and lock horns with the Indian titans. The two factors that are having their impact felt in this segment are the increasing buying power of the middle class and the low-interest EMI schemes. With the changing times, more technologically advanced and fuel efficient vehicles would crowd the city streets and rule the roost everywhere. What does the rise of diesel car mean for the petrol car manufacturers? The Japanese and the Koreans have reason to worry because they have already made investments on petrol engines in India. Both Honda and Toyota petrol players whom have lost their market share. Diesel cars have an overwhelming 75.2:25 majority among all vehicles that are sold with both petrol and diesel variants. To get better grades, plans to export 250,000 vehicles manufactured in its India plant by 2011. Similar plans are for General Motors. The FDI inflows in August 2009 were USD 3.26 billion. Contrary to smart recovery in the domestic economy and a bounce back in exports, overseas investment shows a slackening trend in the current fiscal year. For the April-August period of 2010-11, FDI inflows declined by 35 percent to USD 8.92 billion compared to USD 13.8 billion in the same period last year. Global economic recovery is one of the reasons for declining FDI in India. "The main reason for the decline in FDI is slump in the major western economies like the US and Europe. This is not good news for Indian economy. This reflects that global economic recovery is still fragile and some impact of that would be reflected in FDI.

The Indian automobile sector, which is recovering from a slowdown, saw 89% growth in foreign direct investment (FDI) to \$2.42 billion during the 11 month period of the last fiscal. It had received \$1.28 billion FDI in the April-February period of 2013-14, as per the Department of Industrial Policy and Promotion (DIPP) data. According to industry experts, more FDI is coming into the sector because a lot of car makers are utilising their Indian operations

to fulfil global ambitions. "It has become costly to manufacture cars in Japan and South Korea. Now automakers are looking for locations with not expensive manufacturing and India has now become a hub for small car exports. Various companies like Hyundai, Nissan, Volkswagen and Ford are manufacturing vehicles here for their export markets," as per the Society of Indian Automobile Manufacturers (SIAM) data, car sales rose by 4.99 percent in 2014-15 after falling for two consecutive fiscals, as lower fuel prices and softening of interest rates led to reduction in the overall cost of ownership. In April, the first month of the current fiscal 2015-16, car sales rose by 18.14 percent, the fastest rate of growth in 30 months, as the automobile industry continued its journey on the road to improvement riding on enhanced consumer sentiments, new models and favourable fuel prices. Domestic passenger car sales in April stood at 1,59,548 units compared with 1,35,054 in the same month of 2014. Passenger car exports from India declined 1.66 percent to 5,42,082 units in 2014-15.

The challenges nire extra overseas markets like Europe, Sri Lanka and Algeria. Healthy FDI growth in the automobile sector has helped to push the overall growth in the foreign investment in the country. During the April-February 2014-15, FDI in India has increased by 39 percent to \$28.81 billion. The other sectors where foreign direct inflows have recorded growth include telecommunication, computer software and hardware and pharmaceuticals during the period. To attract foreign investments, the government is taking several steps, including improving ease of doing business in the country and relaxing FDI policy. In 2015, green field FDI continued to show signs of recovery, with capital investment increasing by nearly 9% to \$713bn, together with an increase in job creation by 1% to 1.89 million. However, the number of FDI projects declined 7% to 11,930. India was the highest ranked country by capital investment in 2015, with \$63bn worth of FDI projects announced. Major companies such as Foxconn and Sun Edison have agreed to invest in projects valued at \$5bn and \$4bn respectively, in India. The US was the highest ranked destination by FDI projects, recording 1517 FDI projects in 2015. Asia-Pacific remained the leading purpose for FDI in 2015, with 3883 announced FDI projects bring in an approximate capital investment of \$320.5bn. The region attracted 45% of all capital investment globally in 2015. Western Europe was the leading source region for FDI in 2015. Although a decline of 9% in project numbers to 5047, the region announced capital investments of \$234.4bn. In total, 42% of FDI projects were sourced from Western Europe.

#### IV. FDI POLICY IMPLICATIONS

The structure of India's automobile industry is exclusive when compared to other developed

economies. Besides a strong four-wheeler market, India also has sizeable two-wheeler, three-wheeler and commercial truck markets. The country rolled out a total of 8.5 million vehicles in 2004, of which 1.2 million were passenger cars and multi-utility vehicles. By 2010, India will be a two million passenger-car market and will become a three million market by 2015, according to Roland Berger Strategy Consultants. If only India had previously developed an adequate road infrastructure, these volumes could have already been reached. Purchasing power for such volumes exists today, but road development is moving at a far slower pace.

Although the foundation for a strong passenger-car industry was laid in the early 1990s, real momentum has been building only since 2000, when the government significantly changed its policies, taking steps to make manufacturing more internationally competitive by creating export promotion zones and expanding infrastructure. India also freed industry from excessive regulations five years ago.

Its stance toward foreign direct investment also became less restrictive. In China a joint venture is required for domestic production. India's auto FDI policy, on the other hand, allows global DEMs to have 100% ownership, which has created a healthy industry from the start. The Indian market therefore is full of real players and not "aspirers."

#### V. LITERATURE REVIEW

1. K.Rajalakshmi <sup>1</sup> (2011) said that FDI inflows to Automobile Industry have been at an increasing rate as India has witnessed a major economic liberalization over the years in terms of various industries. The automobile sector in India is growing by 18 percent per year. The basic advantages provided by India in the automobile sector include, advanced technology, cost-effectiveness, and efficient manpower. Besides, India has a well-developed and competent Auto Ancillary Industry along with automobile testing and R&D centres. The automobile sector in India ranks third in manufacturing three wheelers and second in manufacturing of two wheelers. This data based upon Primary Data, tools are used the result will be based on regression analysis (ARIMA, Co-efficient, linear & Compound Model). The period of study is from 1991 to 2011 collection of FDI flows in India. To collect data for the study is on FDI flows, selection of industry is based on more FDI flows on Automobile Industry before and after recession.

2. T.Rejesh <sup>2</sup> (2013), in a Study conducted in a company observed that Indian Automobile Industry has opened up new avenues for the development of this important sector of Indian industries. The liberalization of government policies regarding FDI in the automobile industry of India has increased the scope of this industry. The first FDI player in the

Indian automobile industry was Suzuki. In 1980s this company entered into a joint venture with Maruti Udyog, a state run enterprise. The then Indian government permitted this company to enter the Indian automobile market in 1983. This data based upon secondary data.

3. Velury Vijay Bhasker <sup>3</sup> (2013), studied that it is essentially through an investment in equity or starting a subsidiary company, technology transfer with managerial skills and applying improved management methods leading to cost reduction and may lead to increase in productivity. In mid 80's world over few countries allowed inward FDI for economic development and in 1991 India needed foreign investments to accelerate economic growth. This can also trigger in other areas in the developing economy like India. Automobile Industry is one of the key roles played in GDP factor of Indian economy. This paper will give details on the FDI and in-relation to the development of production and export of Automobiles in India for the last decade – 2001 - 02 to 2011 - 12. Automotive Mission Plan 2006-16 and vision 2020.

4. Vaishnavi <sup>4</sup> (2014), said that the movement of capital flows between different countries, especially developed and developing countries, and its consequent impact is a recurrent theme of debate in literature. In the past few decades, India has emerged as one of the preferred destinations of foreign investors. Manufacturing sector of India receives substantial portions of overall foreign inflows to the nation. This paper takes up a firm level study to evaluate the impact of these capital inflows on the manufacturing sector of India. It is found that capital inflows indeed augment the investment opportunities of the firms, however there is no significant impact on any of the other performance indicators. Also, the large firms in the sample seem to be benefiting from the inflows of foreign capital, the effect on small firms is negligible. This data based upon secondary data. Tools are widely used estimation method, Hypothesis testing, Empirical model.

## VI. OBJECTIVES

1. To analyse the FDI Inflows into Indian automobile sector in select companies viz., Maruti Suzuki and TATA Motors.
2. To analyse and compare the Impact of FDI on performance of Indian automobile sector with reference to select companies viz., Maruti Suzuki and TATA Motors.

## VII. HYPOTHESIS TESTING

1. Ho: There is no significant relationship between FDI inflows and Production of passenger vehicles.

2. Ha: There is significant relationship between FDI inflows and Production of passenger vehicles.
3. Ho: There is no significant relationship between FDI inflows and Production of Commercial vehicles.
4. Ha: There is significant relationship between FDI inflows and Production of Commercial vehicles.
5. Ho: There is no significant relationship between FDI inflows and Sales of passenger vehicles.
6. Ha: There is significant relationship between FDI inflows and Sales of passenger vehicles.
7. Ho: There is no significant relationship between FDI inflows and Export of Commercial vehicles.
8. Ha: There is significant relationship between FDI inflows and Export of Commercial vehicles.

## Important Aspects of FDI in Automobile Industry

FDI up to 100 percent has been permitted under automatic route to this sector, which has led to a turnover of USD 12 billion in the Indian auto industry and USD 3 billion in the auto parts industry, the manufacturing of automobiles and components are permitted 100 percent FDI under automatic route. The automobile industry in India does not belong to the licensed agreement. Import of components is allowed without any restrictions and also encouraged. Hence, the study is focused on the data particularly in automobiles sector-sub sector of Heavy and Light vehicles passenger car segment.

## VIII. METHODOLOGY

In pursuance of the above mentioned objective the following methodology was adopted. The present research work is based on secondary data. The secondary data required for the study is collected through the discussion with the officials, official publication of government of India, various publications of RBI and SEBI, SIMA, ACMA & FICCI.

**Table:A Automobile Industry**

Automobile Industry							
FDI		Production		Sales		Exports	
Year	Rupees in Crores	Passenger Vehicles	Commercial vehicles	Passenger Vehicles	Commercial vehicles	Passenger Vehicles	Commercial vehicles
2010-2011	6,830.35	29,82,772	7,60,735	25,01,542	6,84,905	4,44,326	74,043
2011-2012	7,505.54	31,46,069	9,29,136	26,29,839	8,09,499	5,08,783	92,258
2012-2013	12,963.30	32,31,058	8,32,649	26,65,015	7,93,211	5,59,414	80,027
2013-2014	3,550.50	30,87,973	6,99,035	25,03,509	6,32,851	5,96,142	77,050
2014-2015	6,887.03	32,20,172	6,97,083	26,01,111	6,14,961	6,21,341	85,782

Sources : - SIAM, ACMA & FICCI

**Correlation**

	Row 1	Row 2	Row 3	Row 4	Row 5
Row 1	1				
Row 2	0.99923124	1			
Row 3	0.99963085	0.999220605	1		
Row 4	0.99800884	0.996191077	0.998616378	1	
Row 5	0.99726363	0.994931309	0.99776773	0.999880841	1

From the above table we observe that there is a strong correlation between the FDI, Production, Sales and exports of automobile industry from year to year. For all the years, there appears to be a strong correlation, which suggests that the growth of these aspects in the industry is dependent on the previous year figures.

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Column 1	1						
Column 2	0.54584393	1					
Column 3	0.50125976	0.158990208	1				
Column 4	0.79639326	0.854295357	0.609436604	1			
Column 5	0.68258969	0.22853381	0.95640812	0.668013659	1		
Column 6	-0.1068906	0.702859891	-0.472805742	0.237776615	0.433657657	1	
Column 7	0.12019619	0.567388105	0.583781497	0.65946939	0.411522671	0.212437898	1

From the above table we observe that there is negatively weak correlation between the two variables FDI, Exports of passenger vehicles -0.1068906 and Production of commercial vehicles -0.472805742 of Automobile Industry. There is Positively weak correlation between two variables FDI, Exports of commercial vehicles 0.12019619 and Production of passenger vehicles, Production of commercial vehicles 0.158990208 and Production of passenger vehicles, Sales of commercial vehicles 0.22853381 and Sales of passenger vehicles, Exports of passenger vehicles 0.237776615 and Exports of passenger vehicles, Sales of commercial vehicles 0.433657657 and Sales of commercial vehicles, Exports of commercial vehicles 0.411522671 and Exports of passenger vehicles, Exports of commercial vehicles 0.212437898 of Automobile Industry. There is a strong correlation between the FDI, Production, Sales and exports of automobile industry from year to year. For all the years, there appears to be a strong correlation, which suggests that the growth of these aspects in the industry is dependent on the previous year figures.

Calculation of % of Growth rate														
FDI			Production				Sales				Exports			
Year	Rupees in Crores	% of Growth rate	Passenger Vehicles	% of Growth rate	Commercial vehicles	% of Growth rate	Passenger Vehicles	% of Growth rate	Commercial vehicles	% of Growth rate	Passenger Vehicles	% of Growth rate	Commercial vehicles	% of Growth rate
2010-2011	6,830.35		29,82,772		7,60,735		25,01,542		6,84,905		4,44,326		74,043	
2011-2012	7,505.54	0.099	31,46,069	0.055	9,29,136	0.221	26,29,839	0.051	8,09,499	0.182	5,08,783	0.145	92,258	0.246
2012-2013	12,963.30	0.727	32,31,058	0.027	8,32,649	-0.104	26,65,015	0.013	7,93,211	-0.020	5,59,414	0.100	80,027	-0.133
2013-2014	3,550.50	-0.726	30,87,973	-0.044	6,99,035	-0.160	25,03,509	-0.061	6,32,851	-0.202	5,96,142	0.066	77,050	-0.037
2014-2015	6,887.03	0.940	32,20,172	0.043	6,97,083	-0.003	26,01,111	0.039	6,14,961	-0.028	6,21,341	0.042	85,782	0.113

**Table: B Company wise FDI in M/s M &M**

Year	Market Capitalization	Production		Sales		Exports	
		Production Passenger Vehicles	Production Commercial vehicles	Sales Passenger Vehicles	Sales Commercial vehicles	Exports Passenger Vehicles	Exports Commercial Vehicles
2011-12	1,12,420	18,14,843	4,14,252	1,46,496	1,21,245	17,669	10,526
2012-13	1,33,810	20,04,184	18,14,843	82,47,461	3,38,932	43,142	34,348
2013-14	1,57,245	21,63,008	20,74,987	15,55,856	1,29,409	21,252	22,205
2014-15	2,04,810	20,27,248	21,63,008	4,60,057	4,29,428	22,247	21,259

Sources:- Company wise annual report

**Correlation**

	Row 1	Row 2	Row 3	Row 4
Row 1	1			
Row 2	0.078139973	1		
Row 3	0.69923924	0.555919897	1	
Row 4	0.750768558	0.142563554	0.89386526	1

From the above table we observe that there is positively weak correlation between the two variables 2012-13, 2014-15 0.142563554 company FDI in M&M. From the above table we observe that there is a strong correlation between the FDI, Production, Sales and exports of automobile industry from year to year. For all the years, there appears to be a strong correlation, which suggests that the growth of these aspects in the industry is dependent on the previous year figures.

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Column 1	1						
Column 2	0.560213792	1					
Column 3	0.776169918	0.893388716	1				
Column 4	-0.273806619	0.152205555	0.259793026	1			
Column 5	0.672813256	0.142006508	0.571456174	0.318072977	1		
Column 6	-0.149459242	0.148572344	0.325418212	0.986557345	0.467791578	1	
Column 7	0.165265649	0.52265461	0.668778587	0.891083003	0.536920001	0.91596295	1

From the above table we observe that there is negatively weak correlation between the two variables Market Capitalization, Sales of passenger vehicles -0.273806619 and Market Capitalization, Export of passenger vehicles -0.149459242 of company wise FDI in M&M. There is positively weak correlation between the two variables Market Capitalization, Export of commercial vehicles 0.165265649 and Production of passenger vehicles, Sales of passenger vehicles 0.152205555 and Production of passenger vehicles, Sales of commercial vehicles 0.142006508 and Production of passenger vehicles, Exports of passenger vehicles 0.148572344 and Production of commercial vehicles, Sales of passenger vehicles 0.259793026 and Production of commercial vehicles, Exports of passenger vehicles 0.325418212 and Sales of passenger vehicles, Sales of commercial vehicles 0.318072977 and Sales of commercial vehicles, Exports of passenger vehicles 0.467791578 of company wise FDI in M&M. From the above table we observe that there is a strong correlation between the FDI, Production, Sales and exports of company wise FDI in MM&M from year to year. For all the years, there appears to be a strong correlation, which suggests that the growth of these aspects in the industry is dependent on the previous year figures.

**Calculation of % of Growth rate**

Year	Market Capitalization	% of Growth rate	Production			Sales			Export					
			Production Passenger Vehicles	% of Growth rate	Production Commercial vehicles	% of Growth rate	Sales Passenger Vehicles	% of Growth rate	Sales Commercial vehicles	% of Growth rate	Exports Passenger Vehicles	% of Growth rate	Exports Commercial Vehicles	% of Growth rate
2011-12	1,12,420		18,14,843		4,14,252		1,46,496		1,21,245		17,669		10,526	
2012-13	1,33,810	0.190	20,04,184	0.104	18,14,843	3.381	82,47,461	55.298	3,38,932	1.80	43,142	1.442	34,348	2.263
2013-14	1,57,245	0.175	21,63,008	0.079	20,74,987	0.143	15,55,856	-	1,29,409	-0.62	21,252	-	22,205	0.354
2014-15	2,04,810	0.302	20,27,248	-0.063	21,63,008	0.042	4,60,057	-	4,29,428	2.32	22,247	0.047	21,259	0.043

**Table :C Company wise FDI in Ahok Leyland**

<b>Company wise FDI in Ahok Leyland</b>				
Year	Market Capitalization	Production	Sales	Exports
		Production Commercial vehicles	Sales Commercial vehicles	Exports Commercial vehicles
2010-11	67,82,18,782	12,73,361	3,61,282	22,886
2011-12	1,35,64,37,564	1,03,319	1,01,990	92,663
2012-13	1,35,64,37,564	6,38,552	1,14,611	92,258
2013-14	2,86,76,94,078	6,32,738	8,93,375	77,056
2014-15	2,86,76,94,078	6,14,961	1,17,03,643	85,782

Sources:- Company wise annual report

**Correlation**

	Column 1	Column 2	Column 3	Column 4
Column 1	1			
Column 2	-0.308680869	1		
Column 3	0.626478755	-0.034558196	1	
Column 4	0.488323461	-0.877588483	0.208789807	1

From the above table we observe that there is positively weak correlation between the two variables Market capitaliation,Exports of commercial vihcles 0.488323461 and Sales of Commercial vihcles, Exports of commercial vihcles 0.208789807 Copnay wise FDI in Ashok Leyland. There is negativeley weak correlation between the two variables Market capitaliation,Production of commercial vihcles -0.308680869 and Productin of commercial vihcles, Sales of commercial vihcles -0.034558196 of Copnay wise FDI in Ashok Leyland. There is positiveley strong correlation between the two variables Production of commercial vihcles, Exports of commercial vihcles -0.877588483 of Copnay wise FDI in Ashok Leyland. From the above table we observe that there is a strong correlation between the FDI, Production, Sales and exports of company wise FDI in MM&M from year to year. For all the years, there appears to be a strong correlation, which suggests that the growth of these aspects in the industry is dependent on the previous year figures.

	Row 1	Row 2	Row 3	Row 4	Row 5
Row 1	1				
Row 2	0.999999	1			
Row 3	0.999999	1	1		
Row 4	0.999999	1	1	1	
Row 5	0.999991	0.999993	0.999992	0.999994	1

From the above table we observe that there is a strong correlation between the FDI, Production, Sales and exports of automobile industry from year to year. For all the years, there appears to be a strong correlation, which suggests that the growth of these aspects in the industry is dependent on the previous year figures.

**Calculation of % of Growth rate**

Year	Market Capitalization	% of Growth rate	Production		Sales		Exports	
			Production Commercial vehicles	% of Growth rate	Sales Commercial vehicles	% of Growth rate	Exports Commercial vehicles	% of Growth rate
2010-11	67,82,18,782		12,73,361		3,61,282		22,886	
2011-12	1,35,64,37,564	1.000	1,03,319	-0.92	1,01,990	-0.72	92,663	3.0489
2012-13	1,35,64,37,564	0.000	6,38,552	5.18	1,14,611	0.12	92,258	-0.0044
2013-14	2,86,76,94,078	1.114	6,32,738	-0.01	8,93,375	6.79	77,056	-0.1648
2014-15	2,86,76,94,078	0.000	6,14,961	-0.03	1,17,03,643	12.10	85,782	0.1132

## IX. FINDINGS

- Changes in FDI inflows and Production of passenger vehicles strongly correlated with each other.
- Changes in FDI inflows and Production of Commercial vehicles strongly correlated with each other.
- Changes in FDI inflows and Sales of passenger vehicles strongly correlated with each other.
- Changes in FDI inflows and Sales of Commercial vehicles strongly correlated with each other.
- Changes in FDI inflows and Export of passenger vehicles strongly correlated with each other.
- Changes in FDI inflows and Export of Commercial vehicles strongly correlated with each other.

## CONCLUSION

The present study concludes that FDI inflows have shown significant growth in the post liberalization period. The compound annual growth rate of Actual FDI inflows during this period comes out to be as high as 29.56 %. The examination of structure of FDI in India reveals that after liberalization there absolutely has been a shift in favour of service sector and a steep fall in the share of manufacturing sector.

However, this trend matches the trend of change in the structure of FDI inflows to the developing countries and even the world.

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