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PHARMACEUTICALS

EXECUTIVE SUMMARY

Leading pharma producer

- Indian pharmaceutical sector accounts for about 1.4 per cent of the global pharmaceutical industry in value terms and 10 per cent in volume terms

One of the highest exports

- India accounts for 20 per cent of global exports in generics

Among fastest growing industries

- The country’s pharmaceutical industry is expected to expand at a CAGR of 14.5 per cent over 2009–20 to reach USD55 billion

Rapidly growing healthcare sector

- Indian healthcare sector, one of the fastest growing sectors, is expected to advance at a CAGR of 17 per cent to reach USD280 billion over 2011–20

Growing generics market

- The generics market is expected to grow to USD26.1 billion by 2016 from USD11.3 billion in 2011; India’s generics market has immense potential for growth

Ranked 5th in terms of attracting FDI

- Attracted 5 per cent of the total FDIs into India from April 2000 to February 14
- Cumulative FDI inflows worth USD11.6 billion from April 2000 to February 14


Notes: API - Active Pharmaceutical Ingredient, USFDA - United States Food and Drug Administration, CAGR - Compound Annual Growth Rate
Growing demand
Source: PwC, McKinsey, Pharmaceuticals Exports Promotion Council of India, Aranca Research
Notes: 2020 revenue forecasts are estimates of McKinsey, API - Active Pharmaceutical Ingredients, F – Forecast, OTC - Over-The-Counter

Cost efficiency
- Low cost of production and R&D boosts efficiency of Indian pharma companies
- India’s cost of production is approximately 60 per cent lower than that of the US and almost half of that of Europe
- Due to lower cost of treatment, India is emerging as a leading destination for medical tourism

Economic drivers
- Economic prosperity to improve drug affordability
- Increasing penetration of health insurance
- With increasing penetration of chemists, especially in rural India, OTC drugs will be readily available

Diversified portfolio
- Accounts for over 10 per cent of the global pharmaceutical production
- Over 60,000 generic brands across 60 therapeutic categories
- Manufactures more than 500 different APIs
- 49 per cent of all drug master filings from India is registered in the USA

Policy support
- Government unveiled ‘Pharma Vision 2020’ aimed at making India a global leader in end-to-end drug manufacture
- Reduced approval time for new facilities to boost investments
- In this sector, 100 per cent FDI is allowed under automatic route

2013
Market size: USD12.3 billion

2020F
Market size: USD55 billion

Advantage India

Source: PwC, McKinsey, Pharmaceuticals Exports Promotion Council of India, Aranca Research
Notes: 2020 revenue forecasts are estimates of McKinsey, API - Active Pharmaceutical Ingredients, F – Forecast, OTC - Over-The-Counter

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PHARMACEUTICALS

STRUCTURE OF PHARMA SECTOR IN INDIA

Active Pharmaceutical Ingredients/ Bulk drugs

- Branded
- Generics

Pharmaceuticals

Formulations

- Chronic
  - Cardiovascular
  - Anti-diabetes
  - Gastro-intestinal
  - Neurological

- Acute
  - Anti-infectives
  - Respiratory
  - Pain
  - Gynecology

Source: Dun & Bradstreet, Aranca Research

MARCH 2015
Market dominated by foreign companies, with little domestic participation

- Indian Patent Act passed in 1970
- Several domestic companies start operations
- Development of production infrastructure
- Export initiatives taken

1970–90

- Liberalised market
- Indian companies increasingly launch operations in foreign countries
- India a major destination for generic drug manufacture
- Approval of Patents (Amendment) Act 2005, which led to adoption of product patents in India

1990–2010

- Increased patent filings by pharma players
- Likely adoption of newer sales models such as channel management, KAM and CSO
- Leading pharma companies have increased their R&D spending on new cost-effective generic products to strengthen their presence across global markets
- The National Pharmaceutical Pricing Policy, 2012 (NPPP-2012)

2010 and beyond

Notes: KAM - Key Account Management, CSO - Contract Sales Organisation

Source: Aranca Research

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Pharmaceutical industry

**Active Pharmaceutical Ingredients (APIs)**
- India is expected to be the third largest global generic API merchant market by 2016, with a 7.2 per cent market share
- The Indian pharmaceutical industry accounts for the second largest number of Abbreviated New Drug Applications (ANDAs), is the world’s leader in Drug Master Files (DMFs) applications with the US

**Contract Research and Manufacturing Services (CRAMS)**
- Fragmented market with more than 1,000 players
- CRAMS industry is estimated to have reached USD8.0 billion in 2015, up from USD4.0–4.5 billion in 2012

**Formulations**
- Largest exporter of formulations 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
- Double-digit growth expected over the next five years

**Biosimilars**
- Biosimilar’s sector is expected to touch USD1.4 billion by 2016 from USD482 million in 2011
- The government plans to allocate USD70 million for local players to develop biosimilars


Note: OTC - Over The Counter
The Indian pharmaceuticals market increased at a CAGR of 9.4 per cent in 2013 from USD6 billion in 2005, and is expected to expand at a CAGR of 23.9 per cent to USD55 billion by 2020.

By 2020, India is likely to be among the top three pharmaceutical markets by incremental growth and sixth largest market globally in absolute size.

India’s cost of production is significantly lower than that of the US and almost half of that of Europe. It gives a competitive edge to India over others.

Revenue of Indian pharmaceutical sector (USD billion)

Source: PwC, McKinsey, Aranca Research
Notes: F - Forecast, CAGR - Compound Annual Growth Rate
With 72 per cent of market share (in terms of revenues), generic drugs form the largest segment of the Indian pharmaceutical sector.

India’s generic drugs account for 20 per cent of global exports in terms of volume, making the country the largest provider of generic medicines globally and expected to expand even further in coming years.

Over the Counter (OTC) medicines and patented drugs constitute 19 per cent and 9 per cent, respectively, of total market revenues.
Anti-infective drugs command the largest share (16 per cent) in the Indian pharma market.

The cardiovascular segment represents 13 per cent of the market share; its contribution is likely to rise due to the growing number of cardiac cases in India.

Gastro-intestinal contributes around 11 per cent of the total value of pharma industry in India. With increasing number of research in gastroenterology, segment is going to grow at significant pace in coming years.

Top five segments contribute nearly 57 per cent to the total drugs consumption.

Source: All Indian Origin Chemists & Distributors, Department of Pharmaceuticals, Planning Commission Report, Aranca Research
Indian pharma companies are capitalising on export opportunities in regulated and semi-regulated markets.

The Ministry of Commerce targets to export USD25 billion worth of pharmaceuticals in 2016. Indian drugs are exported to more than 200 countries in the world, with the US as the key market.

India is the world's largest provider of generic medicines; the country's generic drugs account for 20 per cent of global generic drug exports (in terms of volumes).

In terms of value, exports of pharmaceutical products increased at a CAGR of 26.1** per cent to USD10.1 billion during FY06–13.

The Americas accounted for around 34 per cent of Indian pharma exports in FY13, followed by Europe (26 per cent) and Asia (20 per cent).

Exports to Africa increased at a CAGR of 21 per cent from FY09 to FY13, contributed mainly by export of anti-malarial and anti-retroviral drugs.

During the same period, imports of pharmaceutical products rose at a CAGR of 25.4** per cent to USD1.8 billion.

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**CAGR** - Compound Annual Growth Rate,

* - CAGR is mentioned in INR terms,

** - From April 2013 to Dec 2013

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Trade data of Indian pharma sector (USD billion)
Cipla has the largest share (5.0 per cent) in the Indian pharma market, with MAT sales of USD1675.6 million during March 2014.

Sun Pharma posted the highest growth in revenue (20 per cent) among major players during the same period.

GlaxoSmithKline, with a revenue base of USD422.4 million for March 2014 MAT sales, ranks third in the market.

Ranbaxy ranks fourth in the market, with a revenue base of USD734.1 million for March 2014 MAT sales.

While these top four companies garnered 20 per cent market share, top 10 companies comprise nearly 39 per cent of the market share.

Note: The bubbles denote MAT March 2014 sales in USD million.

Source: All Indian Origin Chemists & Distributors, Equity Master, BMI, Aranca Research
Notes: Market share is in terms of revenue, MAT - Moving Annual Total
In FY14, most of the leading pharma players spent anywhere between USD80-200 billion on R&D, which represented an increase both in absolute term as well as in proportion to net revenues (8-11 per cent of sales).

By 2020, the Indian healthcare sector is expected to reach USD280 billion from USD70 billion currently.

R&D spending by top six pharma giant (USD million)

<table>
<thead>
<tr>
<th>Company</th>
<th>FY10</th>
<th>FY13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lupin</td>
<td>87</td>
<td>142</td>
</tr>
<tr>
<td>Dr. Reddy's Labs</td>
<td>82</td>
<td>141</td>
</tr>
<tr>
<td>Ranbaxy</td>
<td>63</td>
<td>102</td>
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<tr>
<td>Cipla</td>
<td>78</td>
<td>83</td>
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<tr>
<td>Wockhardt</td>
<td>29</td>
<td>69</td>
</tr>
<tr>
<td>Piramal Healthcare</td>
<td>9</td>
<td>47</td>
</tr>
</tbody>
</table>

Source: ICRA, Deloitte, PWC, Aranca Research
Note: R&D - Research and Development
Research and development

- Indian pharma companies spend 8-11 per cent of their total turnover on R&D
- Expenditure on R&D is likely to increase due to the introduction of product patents; companies need to develop new drugs to boost sales

Export revenue

- India’s pharmaceutical export market is thriving due to strong presence in the generics space
- Pharmaceuticals Exports Promotion Council expects pharma exports to reach USD25 billion in 2016

Joint Ventures

- Multinational companies are collaborating with Indian pharma firms to develop new drugs
- Pfizer partnered with Aurobindo Pharma to develop generic medicines
- Six leading pharmaceutical companies have formed an alliance ‘LAZOR’ to share their best practices, so as to improve efficiency and reduce operating costs

Expansion by Indian players abroad

- Cipla, the largest supplier of anti-malarial drugs to Africa, set up a USD32 billion plant in Africa for the production of anti-retroviral and anti-malarial drugs
- Ranbaxy, the fifth-largest pharmaceutical company in South Africa, installed a USD30 million manufacturing facility in Johannesburg in 2010

Source: Aranca Research
Note: R&D - Research and Development
PPP in R&D

- Indian Government plans to involve the private sector in R&D mainly for sectors such as vaccines, drugs and pharmaceuticals, super computing, solar energy and electronic hardware
- The government has invested USD1.1 billion in the Public-Private Partnership fund to support R&D in India

Patents Act

- Amendments to the Patents Act, 1970, to make it TRIPS compliant
- Increased incentives to domestic firms to conduct R&D
- Increased likelihood of technology transfer from developed nations

Product Patents

- The introduction of product patents in India in 2005 gave a boost to the discovery of new drugs
- India reiterated its commitment to IP protection following the introduction of product patents

Less time for approval

- In order to compete with global player in pharmaceutical industries, approval process of drugs has been simplified by the authorities and approval time for new facilities has been drastically reduced

Source: Aranca Research
Note: R&D - Research and Development
• Dholka in Gujarat houses a major manufacturing facility of Cadila, which spans over 100 acres

• Lupin has an USFDA-approved plant at Tarapur, Maharashtra. The facility forms the core of Lupin’s fermentation capabilities

• Wockhardt’s facility covers an area of 40,468 sq meters in Baddi, Himachal Pradesh
  • Baddi is also home to Cipla’s formulations manufacturing facility

• Mandideep in Madhya Pradesh is the manufacturing hub for Lupin’s cephalosporin and ACE-Inhibitors
  • Cipla has a formulations manufacturing plant at Indore

• Piramal’s USFDA-approved manufacturing plant in Hyderabad
  • GlaxoSmithKline has a major facility at Rajahmundry, Andhra Pradesh

• Ranbaxy’s API manufacturing facility at Toansa, Punjab

Source: Company websites
PHARMACEUTICALS

PORTERS FIVE FORCES ANALYSIS

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Growth opportunities for pharma companies are expected to grow in the next few years, with many drugs going off-patent in the US and other countries, thus increasing competition. Indian pharma companies will face competition from big pharma companies, backed by huge financial muscle.

Threat of New Entrants
- Strict government regulations thwart entry of new players
- Difficult to survive because of high gestation period

Substitute Products
- Threat to substitute products is low; however, homeopathy and Ayurvedic medicines can act as substitute

Bargaining Power of Suppliers
- Difficult-to-manufacture APIs such as steroids, sex hormones and peptides give bargaining power to suppliers. However, generic APIs do not have much of that power

Bargaining Power of Customers
- Generic drugs offer a cost-effective alternative to drugs innovators and significant savings to customers
- Biosimilars offer significant cost saving for insurance companies in India

Source: Aranca Research
Players in the sector are trying to achieve cost leadership in various ways. For example, Sun Pharma is trying to achieve the same by

- Vertical Integration: Complex API, which require special skills and technology, are developed and scaled up for both API and dosage forms

Players in the sector are trying to differentiate themselves by investing heavily on R&D efforts. For example,

- Sun Pharma is trying to develop technically complex APIs, such as steroids, sex hormones, peptides, carbohydrates and taxanes, which require special skills and technology
- Dr Reddy’s is investing in technology platforms. It acquired OctoPlus N.V, a Netherlands-based company, to get access to the Poly Lactic-Co-Glycolic Acid (PLGA) technology for the formulation of complex injectables

Certain players in the sector are focussing on entering new markets with new opportunities. For example, Lupin is making inroads into new markets such as Latin America, Russia and other East European countries

Source: Company websites, Aranca Research
Note: R&D – Research and Development
Strategies for success in uncertain and volatile environment

- Review product portfolio
- Build customer centricity
- Achieve organisational agility
- Create value by JV/M&A
- Strengthen operational capability

Source: Aranca Research

Notes: R&D – Research and Development, JV – Joint Venture, M&A – Mergers and Acquisitions
PHARMACEUTICALS

GROWTH DRIVERS

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PHARMACEUTICALS

SECTOR DRIVEN BY CONFLUENCE OF DEMAND, CAPABILITIES AND POLICY

Growth drivers

Demand-side drivers

Supply-side drivers

Policy support

- Accessibility of drugs to greatly improve
- Increasing penetration of health insurance
- Growing number of stress-related diseases due to change in lifestyle
- Better diagnostic facilities

- Reduction in approval time for new facilities
- Focus on specialised pharma education
- Improved accessibility for BPL people
- Exemptions to drugs manufactured through indigenous R&D from price control under NPPP-2012

- Cost advantage
- India a major manufacturing hub for generics
- 546 sites registered at USFDA
- Increasing penetration of chemists

Source: Pharmaceutical Export Promotion Council
Notes: BPL - Below Poverty Line, USFDA - United States Food and Drug Administration, NPPP-2012--The National Pharmaceutical Pricing Policy, 2012

MARCH 2015

For updated information, please visit www.ibef.org
# SUPPLY-SIDE DRIVERS OF INDIAN PHARMA SECTOR

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
</table>
| Launch of patented drugs      | • Following the introduction of product patents, several multinational companies are expected to launch patented drugs in India.  
                                 • Growth in the number of lifestyle diseases in India could boost the sale of drugs in this segment. |
| Medical infrastructure        | • Pharma companies have increased spending to tap rural markets and develop better medical infrastructure.  
                                 • Hospitals’ market share is expected to increase from 13.1 per cent in 2009 to 26 per cent in 2020. |
| Scope in generics market      | • India’s generic drugs account for 20 per cent of global exports in terms of volume, making the country the largest provider of generic medicines globally.  
                                 • India’s generics market is expected to reach USD26.1 billion by 2016 from USD11.3 billion in 2011; the country’s generics market has immense potential for growth. |
| Over-The-Counter (OTC) drugs  | • In 2011, India’s OTC drugs market stood at USD3.0 billion; it is expected to rise at a CAGR of 16.3 per cent to USD6.6 billion over 2008–16.  
                                 • Increased penetration of chemists, especially in rural regions, would increase the availability of OTC drugs in the country. |
| Patent expiry                 | • Between 2010 and 2015, patent drugs worth USD171 billion are estimated to go off-patent, leading to a huge surge in generic product.  
                                 • The newly available market will be filled by generics, which would provide great opportunity to Indian companies. |

Source: BMI, India Biz, Aranca Research  
Note: CAGR - Compound Annual Growth Rate

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COST EFFICIENCY AND COMPETENCY CONTINUE TO BE INDIA’S FORTE

Cost efficiency

* India’s cost of production is nearly 60 per cent lower than that of the US and almost half of that of Europe

* Labour costs are 50–55 per cent cheaper than in Western countries

* The cost of setting up a production plant in India is 40 per cent lower than in Western countries

* Cost-efficiency continues to create opportunities for Indian companies in emerging markets and Africa

Competency

* India has a skilled workforce as well as high managerial and technical competence in comparison to its peers in Asia

* India has the second largest number of USFDA-approved manufacturing plants outside the US

* India has 2,633 FDA-approved drug products

* India has over 546 USFDA-approved company sites, the highest number outside the US

Relative cost of production with US cost as base as on March 2014

Note: USFDA - United States Food and Drug Administration
DEMAND DRIVERS OF INDIAN PHARMA SECTOR

**Accessibility**
- Over USD200 billion to be spent on medical infrastructure in the next decade
- New business models expected to penetrate tier-2 and tier-3 cities
- Over 160,000 hospital beds expected to be added each year in the next decade
- India’s generic drugs account for 20 per cent of global exports in terms of volume, making the country the largest provider of generic medicines globally

**Acceptability**
- Rising levels of education to increase acceptability of pharmaceuticals
- Patients to show greater propensity to self-medicate, boosting the OTC market
- Acceptance of biologics and preventive medicines to rise
- A skilled workforce as well as high managerial and technical competence
- Surge in medical tourism due to increased patient inflow from other countries

**Affordability**
- Rising income could drive 73 million households to the middle class over the next 10 years
- Over 650 million people expected to be covered by health insurance by 2020
- Government-sponsored programmes set to provide health benefits to over 380 million BPL people by 2017
- By 2017, the government plans to provide free generic medicines to half the population at an estimated cost of USD5.4 billion

**Epidemiological factors**
- Patient pool expected to increase over 20 per cent in the next 10 years, mainly due to rise in population
- New diseases and lifestyle changes to boost demand
- Increasing prevalence of lifestyle diseases

Note: RSBY - Rashtriya Swasthya Bima Yojna
Over 2012–20, total healthcare spending is expected to rise at a CAGR of 20 per cent to USD280 billion from USD65 billion.

Industry revenues are expected to expand at a CAGR of 12.1 per cent during 2012-20 and reach USD45 billion.

Pharmaceutical sales, as a percentage of total healthcare spending, are expected to increase to 27 per cent by 2016 from 18.9 per cent in 2008.

Source: Deloitte, BMI, PWC, Aranca Research
Notes: F - Forecast, CAGR - Compound Annual Growth Rate
Growing per capita sales of pharmaceuticals in India offers ample opportunities for players in this market.

Per capita sales of pharmaceuticals is expected to expand at a CAGR of 16.3 per cent to USD27 by 2016F.

Economic prosperity would improve affordability for generic drugs in the market and improve per capita sales of pharmaceuticals in India.

Source: BMI, Aranca Research
Notes: F - Forecast, CAGR - Compound Annual Growth Rate
Reduction in approval time for new facilities

- Steps taken to reduce approval time for new facilities
- NOC for export licence issued in two weeks compared to 12 weeks earlier

Collaborations

- MoUs with USFDA, WHO, Health Canada, etc. to boost growth in the Indian Pharma sector by benefiting from their expertise

Support for technology upgrades and FDIs

- Zero duty for technology upgrades in the pharmaceutical sector through the Export Promotion Capital Goods (EPCG) Scheme
- Permission for 100 per cent Foreign Direct Investment (FDI)
- Government is planning to relax FDI norms in the pharmaceutical sector

Industry infrastructure

- Government of India plans to set up a USD640 million venture capital fund to boost drug discovery and strengthen pharma infrastructure

Pharma Vision 2020

- Pharma Vision 2020 by the government’s Department of Pharmaceuticals aims to make India a major hub for end-to-end drug discovery

Exceptions

- Full exemption from excise duty is being provided for HIV/AIDS drugs and diagnostic kits supplied under National AIDS Control Programme funded by the Global Fund to fight AIDS, TB and Malaria (GFATM)
- The customs duties on the said drugs are also being exempted

Source: Aranca Research
GOVERNMENT EXPENDITURE IN THE PHARMA SECTOR ON AN UPTREND

- Government expenditure on health increased from USD14 billion in 2008 to USD23 billion in 2011.

- The expenditure is expected to expand at a CAGR of 18 per cent over 2008–16 to USD53 billion, thereby increasing the share of government expenditure to total healthcare spending from 27.6 per cent to 39.9 per cent during same period.

- Allocation of USD82.6 million to set up four more institutions of the stature of AIIMS in Andhra Pradesh, West Bengal, Maharashtra and Uttar Pradesh.

Source: Business Monitor International, Aranca Research
Notes: CAGR - Compound Annual Growth Rate, F - Forecast

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The share of private sector spending increased from USD36 billion in 2008 to USD49 billion in 2011.

Supported by favourable government policies, the private sector’s share is expected to reach USD80 billion by 2016.

Source: Business Monitor International, Aranca Research
Note: F - Forecast
HEALTH INSURANCE PENETRATION EXPECTED TO SURGE

- Penetration of health insurance is expected to more than double by 2020
- Increasing penetration of health insurance is likely to be driven by government-sponsored initiatives such as RSBY and ESIC
- Government-sponsored programmes expected to provide coverage to nearly 380 million people by 2020
- Private insurance coverage would increase nearly 15 per cent annually till 2020
- By 2015, spending through health insurance would reach 8.4 per cent of the total health spending, up from 6.4 per cent in 2009–10
- The share of population having medical insurance is likely to rise to 50 per cent by 2015
- Increase in private sector insurance would play an important role in affordability for high cost

Population covered by health insurance (in million)

<table>
<thead>
<tr>
<th>2010</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>110</td>
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<td>80</td>
<td>240</td>
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<td>55</td>
<td>120</td>
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<td>20</td>
<td>25</td>
</tr>
<tr>
<td>35</td>
<td>130</td>
</tr>
</tbody>
</table>

Source: IRDA, Mckinsey estimates, Aranca Research, World Bank
Notes: RSBY - Rashtriya Swasthya Bima Yojna, ESIC - Employees State Insurance Corporation
National Pharma Pricing Policy 2012

Essentiality of drugs

• Essentiality of drugs is determined by including the drug in National List of Essential Medicines (NLEM) (348 drugs at present)
• Promote rational use of medicines based on cost, safety and efficacy

National Pharma Pricing Policy 2012

Market-based pricing

• Cost-based pricing is complicated and time-consuming than market-based pricing
• Market-based pricing is expected to create greater transparency in pricing information and would be available in public domain
• Prices of NLEM drugs linked to WPI

Price control of formulations only

• The regulation of prices of drugs on the basis of regulating the prices of formulations only
• Only finished medicines are to be considered essential which would prevent price control of APIs, which are not necessarily used for essential drugs

Source: National Pharmaceuticals Pricing Policy 2012
**PHARMACEUTICALS**

**INVESTMENTS, JVs INFUSING SUPERIOR CAPABILITIES IN INDIAN FIRMS ... (1/2)**

- In 2013, the M&A deal value in healthcare and pharmaceuticals was USD4 billion, up over 44 per cent from that in 2012
- Total number of deals in 2013 was 44 compared with 42 deals in 2012
- Pharma, healthcare and biotech witnessed M&A deals worth USD4 billion in 2013

<table>
<thead>
<tr>
<th>Date announced</th>
<th>Indian company</th>
<th>Foreign company</th>
<th>Value (USD million)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>November, 2014</td>
<td>Curatio Healthcare</td>
<td>Sequoia Capital</td>
<td>15.8</td>
<td>Acquisition</td>
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<tr>
<td>December, 2013</td>
<td>Torrent Pharmaceutical</td>
<td>Elder Pharmaceuticals Ltd</td>
<td>322</td>
<td>Acquisition</td>
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<td>July, 2013</td>
<td>Cipla</td>
<td>Cipla Medpro</td>
<td>512</td>
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<td>January, 2013</td>
<td>GlaxoSmithKline Consumer</td>
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<td>September, 2011</td>
<td>Natco Pharma</td>
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<td>May, 2010</td>
<td>Glenmark</td>
<td>Sanofi</td>
<td>615</td>
<td>JV</td>
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<tr>
<td>June, 2011</td>
<td>Dr Reddy’s</td>
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<tr>
<td>April, 2011</td>
<td>Sun Pharma</td>
<td>Merck</td>
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<tr>
<td>September, 2010</td>
<td>Piramal</td>
<td>Abbot</td>
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<td>Business buyout</td>
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<tr>
<td>December, 2009</td>
<td>Orchid Chemicals</td>
<td>Hospira</td>
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<td>March, 2009</td>
<td>Aurobindo Pharma</td>
<td>Pfizer</td>
<td>Not disclosed</td>
<td>Generic development and supply</td>
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<td>December, 2012</td>
<td>Shantha Biotech</td>
<td>Sanofi Aventis</td>
<td>783</td>
<td>Acquisition</td>
</tr>
</tbody>
</table>

*Source: BMI, Aranca Research*

Note: JV - Joint Venture

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### INVESTMENTS, JVs INFUSING SUPERIOR CAPABILITIES IN INDIAN FIRMS ... (2/2)

<table>
<thead>
<tr>
<th>Date announced</th>
<th>Indian company</th>
<th>Foreign company</th>
<th>Value (USD million)</th>
<th>Type</th>
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<tbody>
<tr>
<td>December, 2014</td>
<td>Panacea Biotec Ltd</td>
<td>Apotex Inc</td>
<td>NA</td>
<td>JV</td>
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<tr>
<td>August, 2012</td>
<td>Strides Arcolab Ltd</td>
<td>Gilead Sciences Inc</td>
<td>NA</td>
<td>Licensing agreement</td>
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<tr>
<td>July, 2011</td>
<td>Ranbaxy</td>
<td>Gilead Sciences Inc</td>
<td>NA</td>
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<td>August, 2013</td>
<td>Jubilant Biosys</td>
<td>Endo Pharmaceuticals</td>
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<td>October, 2012</td>
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<td>Fujifilm Diosynth Biotechnologies</td>
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<td>March, 2009</td>
<td>Biocon</td>
<td>Bristol-Myers Squibb</td>
<td>NA</td>
<td>Exclusive marketing</td>
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<tr>
<td>March, 2013</td>
<td>Unichem Laboratories</td>
<td>Mylan</td>
<td>30</td>
<td>Acquisition</td>
</tr>
<tr>
<td>October, 2012</td>
<td>SMS Pharmaceuticals</td>
<td>Mylan</td>
<td>33</td>
<td>Acquisition of manufacturing unit</td>
</tr>
<tr>
<td>March, 2012</td>
<td>Biocon</td>
<td>Abbott Laboratories</td>
<td>NA</td>
<td>Contract research</td>
</tr>
<tr>
<td>September, 2012</td>
<td>Agila Specialties</td>
<td>Mylan, A Canonsburg</td>
<td>1,850</td>
<td>Acquisition</td>
</tr>
<tr>
<td>February, 2012</td>
<td>Jubilant Biosys</td>
<td>Mnemosyne Pharmaceuticals Inc</td>
<td>NA</td>
<td>Drug development</td>
</tr>
<tr>
<td>January, 2011</td>
<td>Zydus Cadila Healthcare</td>
<td>Bayer</td>
<td>NA</td>
<td>Marketing arrangement</td>
</tr>
<tr>
<td>December, 2012</td>
<td>Claris Lifesciences</td>
<td>Otsuka Pharmaceutical</td>
<td>250</td>
<td>JV</td>
</tr>
<tr>
<td>November, 2012</td>
<td>Zydus Cadila Healthcare</td>
<td>Abbot Laboratories</td>
<td>NA</td>
<td>Licensing agreement</td>
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<tr>
<td>July, 2011</td>
<td>Lupin</td>
<td>Eli Lilly</td>
<td>NA</td>
<td>Marketing arrangement</td>
</tr>
</tbody>
</table>

**Source:** ICRA Research on Indian Pharmaceutical Sector, India Ratings Research Outlook on Indian Pharmaceutical, BMI, Aranca Research

**Notes:** JV - Joint Venture, ADC - Antibody Drug Conjugates
PHARMACEUTICALS

OPPORTUNITIES

MARCH 2015
As per various studies, India is among the leaders in the clinical trial market. Due to a genetically diverse population and availability of skilled doctors, India has the potential to attract huge investments to its clinical trial market.

Due to increasing population and income levels, demand for high-end drugs is expected to rise. Demand for high-end drugs could reach USD8 billion by 2015. Growing demand could open up the market for production of high-end drugs in India.

With 70 per cent of India’s population residing in rural areas, pharma companies have immense opportunities to tap this market. Demand for generic medicines in rural markets has seen a sharp growth. Various companies are investing in the distribution network in rural areas.

The Contract Research and Manufacturing Services industry (CRAMS) – estimated at USD8 billion in 2015, up from USD3.8 billion in 2012 has a huge potential for investments. The market has more than 1,000 players.

Source: BMI, Aranca Research
The share of generic drugs is expected to continue increasing; it could represent about 90 per cent of the prescription drug market by 2016.

Due to their competence in generic drugs, growth in this market offers a great opportunity for Indian firms.

Generic drug market is expected to grow in the next few years, with many drugs going off-patent in the US and other countries.

India’s OTC drugs market stood at USD3 billion in 2011 and is expected to expand at a CAGR of 16.3 per cent to USD6.6 billion over 2008–16.

Inclusion of various other drugs and cosmetics under the OTC market may further boost the sector.

There is a huge market for OTC drugs as the penetration of chemists in the rural market increases.

Share of patented and generic drugs in prescribed drug market (USD billion)

OTC drug market (USD billion)
Sun Pharma was set up in 1983, with a compact manufacturing facility for tablets and capsules

It set up its first API plant at Panoli in 1995

It has 26 manufacturing facilities across four continents and employs more than 14,000 people

Nearly 72 per cent of its sales come from international markets

Its revenues increased from USD932 million in FY09 to USD2.6 billion in FY14, at a CAGR of 23.3 per cent

Sun Pharma acquired Ranbaxy Laboratories Ltd to become the fifth largest global specialty pharma company, No 1 pharma company in India, and ensure a strong positioning in emerging markets

Sun Pharma net sales (USD million)

Source: Sun Pharma website, Aranca Research
Note: CAGR - Compound Annual Growth Rate
Among top five Indian pharma companies
Strong presence in generics market
Over half the sales from North America
Revenue base of USD2.1* billion
Market capitalisation of USD15.6* billion

Focus on R&D
All-India operations begin
Organic growth phase
23 manufacturing sites worldwide
256 approved products and 391 filed for approval

First international acquisition: Niche Brand in the US
Acquired controlling stake in Taro and full control on Caraco
Acquisitions across the globe

Commenced operations in Calcutta
Nationwide marketing operations rolled out
Built the first API plant


Source: Sun Pharma website
Note: *As of FY2012–13
Dr Reddy’s began as an API manufacturer in 1984, producing high-quality APIs for the Indian domestic market.

It has presence in almost all therapeutic segments.

It has an integrated business model in three segments: Pharmaceutical Services & Active Ingredients (PSAI), Global generics and Proprietary products.

Dr Reddy’s has access to numerous emerging markets through partnerships with GlaxoSmithKline (GSK).

Its product offering spans the entire value chain, from process development of APIs to submission of the finished dosage dossier to regulatory agencies.

Its revenues increased from USD1.5 million in FY09 to USD2.2 million in FY14, at a CAGR of 14.2% per cent.

Global generics comprised over 71 per cent of its revenue mix in FY13.

Dr Reddy’s is investing heavily on R&D to differentiate itself in the market. Its R&D spend for FY14–15 is expected to be 9–10 per cent.

Source: Dr Reddy’s website,
Notes: CAGR - Compound Annual Growth Rate,
*CAGR is mentioned in INR terms,
R&D – Research and Development

Dr Reddy’s net sales (USD million)

CAGR: 14.2%*
DR REDDY’S: PROVIDING AFFORDABLE AND INNOVATIVE HEALTHCARE … (2/2)

Revenue base of about USD2.1* billion
Market capitalisation of USD5.5* billion
Among the leaders in supply of generic APIs globally
Integrated business spanning three segments- PSAI, GG and PP
Among top three Indian pharma companies

First company in Asia-Pacific outside of Japan to list on NYSE

Four technology development centres
18 manufacturing sites worldwide
16,500+ associates worldwide

Over 25 billion units in generics capacities
16,500+ associates worldwide

Fastest Indian company to cross USD2 billion revenues

Dr Reddy’s Laboratories incorporated in Hyderabad
 Listed on BSE; commenced production of its first API
 Dr Reddy’s Research Foundation established, Drug Discovery begins
 Acquires Roche’s API business in Mexico
 Exclusive JV with FUJIFILM to develop and manufacture generic drugs in Japan


Source: Dr Reddy’s website, Annual Report
Notes: PSAI - Pharmaceutical Services and Active Ingredients, GG - Global Generics, PP - Proprietary Products, JV - Joint Venture, *As of FY2012–13

MARCH 2015

For updated information, please visit www.ibef.org
Lupin is a renowned pharma player producing a wide range of quality, affordable generic and branded formulations and APIs.

Lupin has emerged as the fifth largest and among the fastest-growing Top Five companies in the US.

It is one of the world’s largest manufacturers of TB drugs and has significant market share in the cardiovascular, diabetology, asthma, pediatrics, CNS, Anti-infectives and NSAIDs therapy segments.

Its revenues increased from USD 822.5 million in FY09 to USD 1.8 million in FY14, at a CAGR of 24* per cent.

Advanced market formulations comprised nearly 52 per cent of its revenues in FY12.

Specialty generic player across the globe, including emerging markets.

Source: Lupin website
Notes: CAGR - Compound Annual Growth Rate,
* - Growth in INR terms,
API - Active Pharmaceutical Ingredient, CNS - Central Nervous System,
NSAIDS - Non-Steroidal Anti-inflammatory Drugs, TB - Tuberculosis.
Revenue base of about USD1.7* billion
Market capitalisation of USD5.2* billion
Global leadership in anti-TB segments
14th largest global generic pharma company
Third largest Indian pharma company

**LUPIN: ON A HIGH GROWTH PATH … (2/2)**

- **1968**: Commenced business
- **1980**: Commissioned a formulations plant and R&D centre at Aurangabad
- **1989**: JV in Thailand – Lupin Chemicals (Thailand) established
- **2001**: Commenced supply of Cephalosporin to alliance partners in US
- **2011**: Acquires l’rom Pharma; enters into joint development agreement with Medicis Enter

- **153 ANDAs and 111 DMFs**
- **Diversifying into different business segments**
- **Expanding India operations**
- **Focus on R&D**
- **Acquisitions across the globe**
- **Talent pool of 1000+ scientists**

Notes: ANDAS - Abbreviated New Drug Application, DMFs - Drug Master Files, * - As of FY2012–13

Source: Lupin website, Annual Report

For updated information, please visit [www.ibef.org](http://www.ibef.org)
Cipla has plans for a USD36-million investment to upgrade its plant in Durban, and a USD512-million takeover of South Africa's Cipla Medpro

It is the first company to develop drug for the treatment of H1N1 flu

Source: Cipla website, Cipla brochure, Cipla corporate profile
Notes: CAGR - Compound Annual Growth Rate, API - Active Pharmaceutical Ingredient, OTC - Over The Counter
CIPLA: MAKING HEALTHCARE ACCESSIBLE … (2/2)

- Market capitalisation of USD5.6* billion
- Global presence in over 170 countries
- One of the world’s largest generic drug companies
- Third largest Indian pharma company
- Revenue base of about USD1.5* billion
- Over 2,000 products in 65 therapeutic categories
- Over 10,000 product registrations globally
- Manufactured first Indian API in 1960
- 34 internationally approved facilities

Cipla established to make India self-sufficient in healthcare
Pioneered inhalation therapy to manufacture MDI
Launched Deferiprone, world’s first oral iron chelator
Pioneered access to HIV. ARVs made available at less than a dollar
Made cancer treatment affordable with breakthrough in reducing cost of cancer drugs

Source: Cipla website, Annual Report
Notes: MDI - Metered Dose Inhaler, ARV - Anti-retroviral, * - As of FY2012–13
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Fax: 91 40 23704804
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www.bdmai.org
CRAMS: Contract Research and Manufacturing Services
API: Active Pharmaceutical Ingredients
FDI: Foreign Direct Investment
GOI: Government of India
INR: Indian Rupee
USD: US Dollar
BPL: Below Poverty Line
RSBY: Rashtriya Swastha Bima Yojna
ESIC: Employees State Insurance Corporation

Wherever applicable, numbers have been rounded off to the nearest whole number
### Exchange rates (Fiscal Year)

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<tr>
<th>Year</th>
<th>INR equivalent of one USD</th>
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<td>2010–11</td>
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<td>2012–13</td>
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<td>2013–14</td>
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### Exchange rates (Calendar Year)

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<th>Year</th>
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<td>2005</td>
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Average for the year
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