

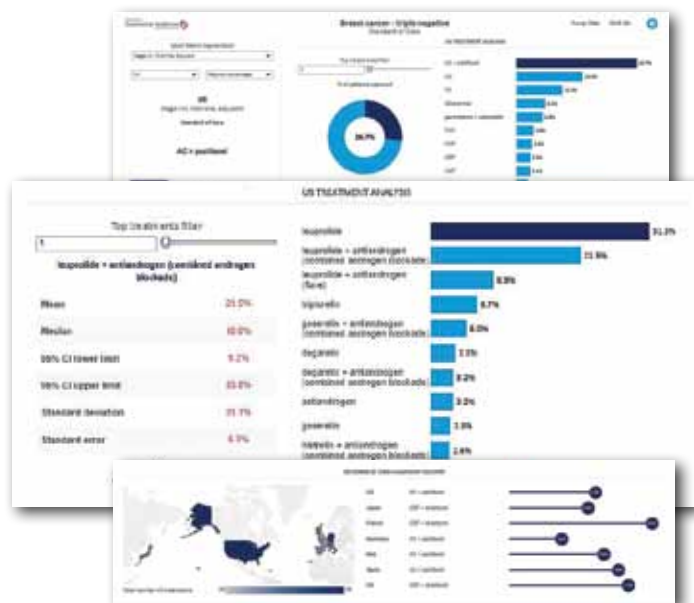
Scrip Asia 100



2017

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Asia Pacific Is Entering A New Phase Of Global Healthcare QuintilesIMS Is Helping Its Clients Drive Healthcare Forward

Anand Tharmaratnam, president of Asia Pacific for QuintilesIMS, tells Scrip Asia 100 how the company is poised for the next phase of Asia's healthcare growth.

What's next for the Asia Pacific healthcare landscape? We believe it is global leadership and innovation across the clinical-commercial continuum.

Over the past 30 years, Asia Pacific has experienced three phases of growth. The first began in the 1980s, when companies willing to accept risk came to the region, often spurred by patient recruitment struggles in the West. Next came multinationals seeking lower costs and accelerated recruitment. We are now in the third phase, in which Asia Pacific is an integral part of global biopharma development and the industry's commercial growth plans.

I believe Asia Pacific is now poised to enter phase four: global leadership and innovation in both products and processes. We call this new phase the "Asia advantage." It's the result of a convergence of factors: world-class science and technology; a burgeoning local biopharma and device industry; government support for biopharma as a strategic priority; large markets unfettered by legacy systems; and 4.5 billion people with significant unmet health needs.

Central to the Asia advantage is the region's willingness to collaborate and its relative lack of legacy systems. This is different than the mindset of many vertically integrated Western MNCs that dominated biopharma in the 20th century. They are transforming themselves to become leaner and more agile. However they face the hurdle of transforming from old to new ways of working – a challenge most local Asia Pacific companies don't have. Asia's emerging biopharma companies are building themselves from the get-go to leverage modern data analytics, IT, outsourcing and partnering.

Many of these companies have strong pipelines and want to expand globally; they also face challenges in taking their success to the next level and sustaining it. To stay nimble and lean, plus make their models scalable, local companies with global ambitions must carefully choose what is core (what they want to keep in-house) and non-core (acquired through outsourcing and partnerships).

Increasingly, many companies are turning to strong global partners to access expertise, technology that would be too expensive



Anand Tharmaratnam

or time-consuming to build or buy. That is where QuintilesIMS offers solutions to help customers drive their performance forward.

Asia Pacific's emerging fourth phase also supports the global trend to moving away from focusing on costs to focusing on value creation. For more than 50 years, the industry model was to conduct each step of clinical research as cheaply as possible with the goal of registration.

The new way focuses on value creation to achieve optimal market access. New models of development have emerged to minimize time to market and maximize asset value. Value creation compa-

nies use sophisticated data analytics to gain insights and make fast go/no-go decisions, and leverage outsourcing to remain lean and nimble with the end goal being a competitively favorable label and market access.

The need for evidence about the value of products – an essential component for market access – is a driving factor behind one of QuintilesIMS's fastest growing business segments in Asia Pacific, our Real World Insights group.

This group enables clients to build evidence about how drugs perform in the real world, outside the highly controlled clinical set development setting. Its efforts provide healthcare stakeholders with evidence to support regulatory, reimbursement and pricing decisions. How safe is a new drug in real world use? What practices are really happening around a drug? How does one drug compare vs. another?

Two examples illustrate how QuintilesIMS is advancing value-based healthcare in Asia Pacific using decision modeling to inform clinical and public policy decision making:

Our CORE Diabetes Model (CDM), a microsimulation model that predicts the long-term health outcomes and costs associated with the management of Type I and Type II diabetes. The burden of diabetes in Asia is huge and growing – it currently afflicts an estimated



Many companies are turning to strong global partners to access expertise, technology that would be too expensive or time-consuming to build or buy.

75 million people in Southeast Asia with the number expected to reach 123 million in 2035 (*IDF Diabetes Atlas*, Sixth edition, 2014). China alone accounts for almost 25% of diabetes cases globally (*Worldwide Trends In Diabetes Since 1980. The Lancet*, 2016).

The CDM has provided insights into the relative cost-effectiveness of interventions, compared them with alternative management programs, and has reduced the need for many costly, long-term clinical studies to evaluate outcomes in terms of quality and cost-efficiency.

Some of the findings of the CDM include demonstrating that better value for money was achieved by using one specific treatment over another with measurement over a patient's lifetime, that the increased costs of complications would be greater than the cost of treating the underlying diabetes and that some interventions were partially offset by a reduction in complication-costs that might have occurred.

Our first-of-its-kind registry in Asia to address hepatocellular carcinoma. HCC poses a huge burden across Asia. QuintilesIMS allied with the Singapore Clinical Research Institute (SCRI) and National Cancer Centre Singapore (NCCS) to improve data collection of outcomes for patients suffering from hepatocellular carcinoma (a primary malignancy of the liver). To reduce this burden, QuintilesIMS worked with SCRI and NCCS to develop a first-of-its-kind registry in Asia through the Asian HCC Physician Network.

This HCC patient registry will help healthcare stakeholders with decision-making across the disease stages, thus improving overall diagnosis and, ultimately, treatment and survival of patients suffering from this disease. QuintilesIMS will then develop a HCC Disease Model that will allow simulation of long-term health and economic

outcomes, validated by non-identified data from this registry.

The HCC Disease Model provides way to simulate highly complex and dynamic processes (such as deriving HCC standard of care, comparing patient outcomes of various interventions) and support heuristic strategic planning before committing real health resources.

This alliance will also serve a useful example to guide future collaborations between public and private healthcare actors including hospitals, government institutions, academics, practitioners and manufacturers.

QuintilesIMS also is developing new solutions in Asia to accelerate clinical trial recruitment, the number one cause of delays in trials. In Thailand, for example, QuintilesIMS directed potential study subjects to visit a study website by analyzing search-engine data related to disease symptoms. In addition, banner advertisements were posted to locally popular Facebook groups and discussion forums to direct visitors to the recruitment website.

In one month, the study-related Facebook post garnered more than 6,000 likes and more than 1,500 shares which resulted in more than 2,000 clicks on a link to the recruitment website. Collectively, the digital strategy led more than 9,000 unique visitors to the recruitment website and about 300 visitors clicked on the 'register' button to indicate their interest to participate in the study.

I believe the biopharma industry is at an inflection point. More and more companies are realizing that value creation is key to success in 21st century healthcare. The best companies will be science-based, data-driven, IT-enabled and built on a partnering model.

Faster, value-focused, better. That's the Asia advantage we are seeing.



John Hodgson
Data Editor, Pharma

ASIA 100: Operating Profit Returns To Asian Pharma Sector

Scrip Asia 100 companies showed a return to greater operating profitability for financial year 2015 despite reduced overall dollar-denominated pharmaceutical sales.

**105
companies
surveyed;**

**Dollar-denominated
performance hit by
weakening of Japanese
yen, South Korean won
and Indian rupee;**

**Across all companies
surveyed:**

**drug sales down
2.3% from 2014**

**R&D spending down
8.2%**

**operating profit up
26%**

**Top 20 companies
account for
70%
of drug sales and
82% of R&D
spending.**

Amongst the top 20:

**drug sales down
1.5%
from 2014**

**R&D spending down
8.2%**

**operating profit up
38%**

The Scrip Asia 100 is an annual survey of the financial performance of pharmaceutical companies domiciled in the Asia-Pacific region. For 2015, it encompassed 105 companies, up from 93 for 2014.

With currencies that, in general, continued to weaken against the dollar during 2015, it is unsurprising that overall pharmaceutical sales were down in dollar terms: drug sales from the companies surveyed totaled \$117bn in 2015, 2% down on 2014.

While the Chinese yuan, and Hong Kong dollars remained close to their 2014 rates, the Indian rupee fell 5% against the US dollar, the South Korean won dropped 7%, and the yen fell nearly 13%, based on average annual exchange rates.

Against such a currency headwinds, none of the major Japanese pharmaceutical companies except Mitsubishi Tanabe Pharma Corp increased its dollar-denominated pharma sales, although Takeda Pharmaceutical Co. Ltd (+12%), Astellas Pharma Inc (+10%), Daiichi Sankyo Co. Ltd (+7%), and Otsuka Pharmaceutical Co. Ltd (+10%) significantly increased yen-denominated sales.

Most Japanese companies did increase the operating profit from their pharmaceuticals operations, however, with Astellas up 8%, Daiichi Sankyo up 50%, Mitsubishi Tanabe Pharma up 23%, Ono Pharmaceutical Co. Ltd up 350%, Eisai Co. Ltd up nearly 60% and Takeda turning a \$1.7bn operating loss in 2014 to a \$1.1bn operating profit in 2015.

Only Otsuka Pharmaceutical of the Japanese majors saw operating profit eroded, down 35% on 2014: 2015 saw the loss of major market exclusivity on *Abilify* (aripiprazole), the antipsychotic product that accounted for over 52% of the company's drug sales in 2014 and it is likely that Otsuka's operating profit will be further eroded in 2016 as the impact of generic competitors bites further.

Other major Asia-Pacific companies increased operating profits, too: CSL Behring figure was up 10%, India's biggest company, Sun Pharmaceutical Industries Ltd increased operating profit 3% in 2015, and Lupin Pharmaceuticals Inc increased operating profit nearly 21%.

Aggregated across all the Scrip 100 Asia companies, the operating profit of the pharmaceutical divisions of the companies surveyed rose 22% from \$16.5bn in 2014 to \$20.2bn in 2015.

The table on page seven shows year-on-year change data for the top 20 companies based in Asia, companies that collectively account for 70% of the sales and 82% of the R&D spending among the Scrip Asia 100.

A key take-home message is that although dollar-denominated drug sales fell between 2014 to 2015 for 12 of the 20 companies (60%), operating profits rose for 16 of the 20 (80%).

Two of the companies in which operating profits fell were Shanghai Pharmaceuticals Holding Co. Ltd and the pharma division of Meiji Holdings Co. Ltd, companies where drug sales increased between 2014 and 2015, by 130% in Shanghai's case.

The pharmaceutical operating margins (operating profit as a percentage of pharmaceutical sales) increased significantly in 2015. Across the 87 companies where both sales and pharmaceutical operating profit data were available for both years, the combined operating margin increased from 14.9% in 2014 to 20.1% in 2015.

Forty-eight of the 87 companies increased operating margin year-on-year.

There are signs that some of that increased profitability is being channeled back into research and development expenditure.

Dollar-denominated R&D spending across the Scrip 100 Asia companies was down 8% from \$17.9bn in FY 2014 to \$16.5bn in 2015, including a massive 21% reduction at Japan's largest pharmaceutical concern, Takeda, and a 19% reduction at Eisai.

However, in many other Japanese firms, the apparent reduction in R&D spending was far lower than the 13% currency shift of the Yen against the US dollar. It was less than 5% at Astellas, Daiichi Sankyo, Ono and Santen Pharmaceutical Co. Ltd. It increased at Daiinippon Sumitomo Pharma (0.3%) and Otsuka (1.4%).

The biggest increases were seen at India's Sun Pharma-

ceutical (9.8%) and Cipla Ltd (33%) and at Korea's Hanmi Pharmaceutical Co. Ltd. (13.7%).

Perhaps more significantly, given the continuing dips in currency exchange rates, the ratio of R&D spending to pharmaceutical sales is increasing among a majority of the companies covered.

Across the 74 companies where both R&D spending and pharma sales data are available for 2014 and 2015, the combined R&D spend fell from 15.9% of combined drug sales in 2014 to 15.1% in 2015. However, this was largely due to cutbacks at a few large companies: Takeda and Eisai, for instance, accounted for a year-on-year reduction in R&D spend of over \$1bn.

In contrast, R&D spending as a percentage of sales rose at 41 out of the 74 firms, with Alembic Pharmaceuticals Ltd, Hutchison China MediTech Ltd, Biocon Ltd. and Glenmark Pharmaceuticals Ltd showing the biggest increases due to increased R&D spending. (Indian firm Wockhardt Ltd actually topped the list, but the fact that it spent 22% of sales on R&D in 2015 compared to 10.9% in 2014 was because its sales revenue halved.)

In summary, pharmaceutical companies domiciled in the Asia-Pacific region continue to increase drug revenues in local currency terms and for 2015 are showing increased operational profitability. There is also a trend of increased R&D spending as a percentage of drug sales.



YEAR-ON-YEAR CHANGES (2014-2015) IN DRUG SALES, R&D SPENDING AND OPERATING PROFIT FOR ASIA'S TOP 20 PHARMA COMPANIES

COMPANY	SALES	OPERATING PROFIT	R&D SPENDING
Takeda	-2.4%	163.0%	-21.0
Astellas	-4.0%	7.7%	-4.7%
Daiichi Sankyo	-6.4%	52.8%	-4.5%
Otsuka Pharmaceutical	-4.1%	-35.4%	1.4%
CSL	5.5%	10.6%	-0.8%
Eisai	-12.9%	59.8%	-19.1%
Sun Pharmaceutical	-6.6%	2.7%	9.8%
Mitsubishi Tanabe Pharma	2.5%	23.3%	-5.7%
Dainippon Sumitomo Pharma	-4.8%	38.0%	0.3%
Kyowa Hakko Kirin	-3.7%	8.9%	-5.7%
Cipla	9.9%	2.3%	33.1%
Shanghai Pharmaceutical	129.4%	-63.5%	19.2%
Dr Reddy's	-4.9%	2.9%	-4.9%
Lupin	-4.1%	20.9%	-3.2%
Santen Pharmaceutical	25.1%	97.7%	-0.3%
Shionogi	-12.5%	58.3%	-11.2%
Ono Pharmaceutical	11.3%	361.9%	-1.2%
Meiji Holdings	1.5%	-12.4%	-9.3%
Cadila	7.7%	57.6%	27.0%
Teijin Pharma	-7.3%	-27.6%	-8.3%

Source: Asia 100

SCRIP ASIA 100: 2015 PHARMACEUTICAL SALES

RANK	COMPANY	2015 PHARMA SALES (\$M)	CHANGE FROM 2014 (\$ BASIS)	RANK	COMPANY	2015 PHARMA SALES (\$M)	CHANGE FROM 2014 (\$ BASIS)
1 (1)	Takeda	14931.0	-2%	25 (26)	Aurobindo¹¹	1113.3	9%
2 (2)	Astellas	11340.3	-4%	26 (27)	Sawai Pharmaceutical	1020.2	2%
3 (3)	Daiichi Sankyo	8148.9	-6%	27 (31)	China Pharmaceutical Group¹²	1005.4	16%
4 (4)	Otsuka Pharmaceutical	8028.0	-4%	28 (29)	Yuhan Pharmaceutical¹³	990.3	2%
5 (5)	CSL	5628.0	5%	29 (39)	Hanmi Pharm¹⁴	983.5	36%
6 (6)	Eisai	4526.5	-13%	30 (25)	Hisamitsu¹⁵	968.2	-10%
7 (7)	Sun Pharmaceutical¹	4015.0	-7%	31 (36)	Torrent Pharmaceuticals¹⁶	947.8	24%
8 (8)	Mitsubishi Tanabe Pharma	3532.5	3%	32 (24)	Kyorin	939.6	-12%
9 (9)	Dainippon Sumitomo Pharma	2982.1	-5%	33 (30)	Green Cross	925.7	0%
10 (10)	Kyowa Hakko Kirin²	2307.3	-4%	34 (28)	Taisho Pharmaceutical¹⁷	885.6	-9%
11 (14)	Cipla³	1960.5	10%	35 (32)	Intas Pharmaceuticals¹⁸	844.0	0%
12 (33)	Shanghai Pharmaceutical	1898.4	129%	36 (37)	Kaken Pharmaceutical	750.5	1%
13 (11)	Dr Reddy's⁴	1880.3	-5%	37 (34)	Mochida Pharmaceutical	727.6	-12%
14 (12)	Lupin⁵	1793.5	-4%	38 (40)	Towa Pharmaceutical¹⁹	678.4	0%
15 (19)	Santen Pharmaceutical⁶	1613.4	25%	39 (35)	Asahi Kasei Pharma²⁰	630.3	-17%
16 (13)	Shionogi⁷	1584.5	-12%	40 (45)	Japan Tobacco	624.6	13%
17 (20)	Ono Pharmaceutical	1431.1	11%	41 (43)	Nippon Shinyaku	619.1	4%
18 (15)	Zhejinag Hisun Pharma	1408.2	-13%	42 (42)	Kissei²¹	601.7	-4%
19 (16)	Meiji Holdings	1359.3	2%	43 (41)	Maruho²²	601.0	-7%
20 (22)	Cadila⁸	1245.3	8%	44 (44)	Daewoong Pharmaceutical²³	560.1	0%
21 (17)	Teijin Pharma	1218.5	-7%	46 (51)	CellTrion	533.1	19%
22 (18)	Kowa Pharmaceutical⁹	1200.0	-7%	47 (49)	JEIL Pharmaceutical	525.4	8%
23 (21)	Nichi-Iko¹⁰	1185.6	-1%	48 (48)	Chong Kun Dang	523.5	1%
24 (23)	Glenmark Pharmaceuticals	1183.9	9%	49 (61)	Zeria Pharmaceuticals²⁴	516.1	49%

¹Excludes API²Excludes Biochemicals segment³Excludes API segment (6% of revenue)⁴Global Generics⁵Excludes API business (9% of revenue)⁶Sold Rheumatics business to Ayumi Pharma⁷28% of Shionogi revenue from royalties⁸Formulations⁹Estimates, data from JPMA¹⁰No FY 2015 data until June¹¹Excludes API segment (20% of revenue)¹²Finished drug Business¹³Includes API and intermediates¹⁴Excludes Beijing Hanmi¹⁵Pharma sales includes Rx segment and Noven¹⁶Excludes Others/CRAMs¹⁷Ethical drugs segment¹⁸FY 2014 data; FY 2015-16 data not available¹⁹Ethical and API²⁰Asahi Kasei Pharma²¹Excludes nutrition products²²Prescription drugs, 99% of sales

SCRIP ASIA 100: 2015 PHARMACEUTICAL SALES (CONTINUED)

RANK	COMPANY	2015 PHARMA SALES (\$M)	CHANGE FROM 2014 (\$ BASIS)	RANK	COMPANY	2015 PHARMA SALES (\$M)	CHANGE FROM 2014 (\$ BASIS)
50 (53)	Torii Pharmaceuticals	515.0	25%	74 (72)	Seikagaku ³⁶	200.2	-9%
51 (47)	Dong-A ST	513.3	-5%	75 (75)	Dong Wha	197.2	-3%
52 (52)	Jubilant Life Sciences ²⁵	476.5	8%	76 (77)	Samjin Pharmaceutical	191.3	0%
53 (46)	Toray Industries ²⁶	461.3	-15%	77 (74)	Shin Poong	173.1	-17%
54 (50)	Nippon Kayaku	414.7	-11%	78 (78)	Ahn-Gook Pharmaceutical	172.5	19%
55 (63)	Alembic	410.0	22%	79 (79)	Beximco Pharmaceuticals	166.5	16%
56 (55)	Il Dong ²⁷	388.0	-2%	80 (86)	Hutchison China MediTech ³⁷	126.2	37%
57 (59)	CK Life Sciences	362.5	4%	81 (80)	Bukwang	125.1	-7%
58 (57)	Biocon ²⁸	361.9	-1%	82 (82)	Kolon Life Science ³⁸	107.1	-13%
59 (54)	Aska Pharmaceutical	357.0	-12%	83 (83)	Panacea Biotec	101.9	-5%
60 (62)	Boryung	354.6	4%	84 (85)	Kwang-Dong Pharmaceutical ³⁹	101.0	10%
61 (58)	Fuso Pharmaceutical ²⁹	350.0	-2%	85 (90)	Hyundai Pharm	97.0	44%
62 (38)	Wockhardt	347.0	-53%	86 (84)	Kureha ⁴⁰	75.0	-20%
63 (60)	Maruishi Pharmaceutical	328.8	-6%	87 (88)	Orchid Pharmaceuticals	72.2	-10%
64 (64)	Handok	316.7	-4%	88 (87)	Nissan Chemical ⁴¹	71.6	-14%
65 (56)	Ajinomoto ³⁰	300.0	-20%	89 (91)	Sinovac Biotech	67.4	7%
66 (67)	Yakult Honsha	287.6	-7%	90 (95)	Medytox	67.0	80%
67 (68)	Senju Pharmaceutical ³¹	282.8	-6%	91 (92)	Il Sung Pharmaceuticals ⁴²	55.5	-7%
68 (71)	Ajanta Pharma Limited	271.8	12%	92 (93)	Lee's Pharmaceutical ⁴³	54.0	8%
69 (69)	Nippon Chemiphar ³²	263.8	-10%	93	Yuyu	52.8	
70 (65)	Simcere Pharmaceutical ³³	260.0	-19%	94 (94)	Seoul Pharma	39.5	2%
71 (70)	JW Pharmaceutical Corporation ³⁴	241.7	-2%	95 (89)	GemVax	38.6	-46%
72 (73)	Dongkook Pharm	226.6	7%	96	Viomed	6.8	
73 (76)	Il-Yang ³⁵	219.4	9%				

²³Analyst estimates²⁴Includes OTC²⁵Pharmaceutical Segment²⁶Life Science²⁷Includes OTC, API²⁸Biopharma, Branded Formulations²⁹Estimated from 2014 data³⁰Estimated; 40% of EA pharma, Ajinomoto's JV with Eisai³¹Medicine and Overseas segments³²90% of pharma sales are generics³³Estimate from Q12016 data³⁴Excludes nutrient infusion (37%)³⁵9 months data - change of fiscal year to YE December³⁶Pharma includes Domestic and Overseas Pharmaceuticals³⁷Hutchinson's Commercial Platform sells \$518.9m of prescription drugs in China³⁸Excludes intermediates³⁹Estimated ethical pharma revenue⁴⁰Estimated (down from 2014)⁴¹Company anticipates further fall in 2016⁴²100Bn won divestment made in 2015⁴³Proprietary products

JAPAN TOP 20 PHARMACEUTICAL COMPANIES BY SALES

COMPANY	2015 PHARMA SALES (\$M)	CHANGE FROM 2014 (\$)	
		\$	Currency
Takeda	14,931	-2%	12%
Astellas	11,340	-4%	10%
Daiichi Sankyo	8,149	-6%	7%
Otsuka Pharmaceutical	8,028	-4%	10%
Eisai	4,527	-13%	0%
Mitsubishi Tanabe Pharma	3,533	3%	18%
Dainippon Sumitomo Pharma	2,982	-5%	9%
Kyowa Hakko Kirin¹	2,307	-4%	10%
Santen Pharmaceutical²	1,613	25%	43%
Shionogi³	1,585	-12%	0%
Ono Pharmaceutical	1,431	11%	28%
Meiji Holdings	1,359	2%	16%
Teijin Pharma	1,219	-7%	6%
Kowa Pharmaceutical⁴	1,200	-7%	6%
Nichi-Iko⁵	1,186	-1%	13%
Sawai Pharmaceutical	1,020	2%	17%
Hisamitsu⁶	968	-35%	-25%
Kyorin	940	-12%	1%
Taisho Pharmaceutical⁷	886	-18%	-6%
Mochida Pharmaceutical	728	-12%	1%

INDIA TOP 10 PHARMACEUTICAL COMPANIES BY SALES

COMPANY	2015 PHARMA SALES (\$M)	CHANGE FROM 2014 (\$)	
		\$	Currency
Sun Pharmaceutical⁸	4,015	-7%	-2%
Dr Reddy's⁹	1,880	-5%	0%
Lupin¹⁰	1,794	-4%	1%
Cipla¹¹	1,499	-16%	-12%
Cadila¹²	1,245	8%	13%
Glenmark Pharmaceuticals	1,184	9%	15%
Aurobindo¹³	1,113	-28%	-24%
Torrent Pharmaceuticals¹⁴	948	24%	31%
Intas Pharmaceuticals¹⁵	844	0%	5%
Jubilant Life Sciences¹⁶	476	8%	14%

SOUTH KOREA TOP 10 PHARMACEUTICAL COMPANIES BY SALES

COMPANY	2015 PHARMA SALES (\$M)	CHANGE FROM 2014 (\$)	
		\$	Currency
Yuhan Pharmaceutical¹⁷	990	2%	10%
Hanmi Pharm¹⁸	984	36%	46%
Green Cross	926	0%	7%
Daewoong Pharmaceutical¹⁹	560	-20%	-14%
CellTrion	533	19%	28%
JEIL Pharmaceutical	525	8%	16%
Chong Kun Dang	523	1%	9%
Dong-A ST	513	-5%	2%
Il Dong²⁰	388	-2%	5%
Boryung	355	4%	12%

FASTEST GROWING PHARMA SALES 2014-2014 (PHARMA SALES >\$100M)

COMPANY	2015 PHARMA SALES (\$M)	% CHANGE	% CHANGE
	\$		Currency
Shanghai Pharmaceutical	1,898	129%	132%
Zeria Pharmaceuticals	516	49%	71%
Hutchison China MediTech	126	37%	37%
Hanmi Pharm	984	36%	46%
Santen Pharmaceutical	1,613	25%	43%
Torii Pharmaceuticals	515	25%	43%
Torrent Pharmaceuticals	948	24%	31%
Alembic	410	22%	28%
CellTrion	533	19%	28%
Ahn-Gook Pharmaceutical	173	19%	19%

¹Excludes Biochemicals segment

²Sold Rheumatics business to Ayumi Pharma

³Royalty income makes up 28% of Shionogi revenue

⁴Estimates, data from JPMA

⁵No FY 2015 data until June

⁶Includes Rx segment and Noven

⁷Ethical drugs segment

⁸Excludes API

⁹Global Generics

¹⁰Excludes API business (9% of revenue)

¹¹Excludes API segment (6% of revenue)

¹²Formulations

¹³Excludes API segment (20% of revenue)

¹⁴Excludes Others/CRAMS

¹⁵FY 2014 data; FY 2015-16 data not available

¹⁶Pharmaceutical Segment

¹⁷Includes API and intermediates

¹⁸Excludes Beijing Hanmi

¹⁹Analyst estimates

²⁰Includes OTC, API

²¹Regulatory issues

²²Declining pharma: put most of portfolio into JV with Eisai

²³Flat sales; currency effect

FASTEST SHRINKING PHARMA SALES 2014-2014 (PHARMA SALES >\$100M)

COMPANY	2015 PHARMA SALES (\$M)	% CHANGE	% CHANGE
	\$		Currency
Wockhardt ²¹	346.99	-53%	-50%
Ajinomoto ²²	300	-20%	-9%
Simcere Pharmaceutical	260	-19%	-18%
Asahi Kasei Pharma	630.3	-17%	-5%
Shin Poong	173.12	-17%	-11%
Toray Industries	461.32	-15%	-2%
Zhejiang Hisun Pharma	1408.18	-13%	-12%
Kolon Life Science	107.06	-13%	-6%
Eisai	4526.54	-13%	0%
Shionogi ²³	1584.5	-12%	0%



ANALYZE

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Asian Pharma Company League Tables

2015

Based on full year 2015 pharma sales data, Scrip has crunched the numbers for pharmaceutical companies based in the Asia-Pacific region to bring you the story of 2015 at a glimpse.

Drug Sales



Takeda Pharmaceutical Co. Ltd takes No.1 spot in pharma sales with

\$14,931m



Sun Pharmaceutical Industries Ltd, the highest ranked Indian firm, ranks overall

#7



Yuhan Corp., the highest ranked Korean company, reports drug sales of

\$990m

R&D



South Korean biosimilar firm **Celltrion Inc.** cut R&D spending by

46%

Through acquisition **Sosei Inc.** increased its spend by

603%



Kaken Pharmaceutical Co. Ltd reduced its spending by

21%

but plans to double R&D investment in 2016



Asian Snakes and Ladders



China's **Shanghai Pharmaceuticals Holding Co. Ltd** increased its sales in local currency by



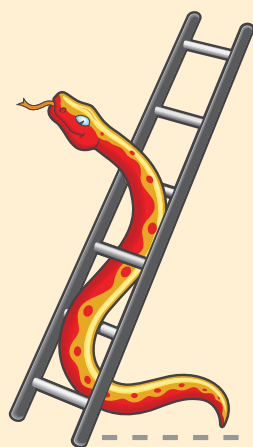
The proportion of pharmaceutical sales that fell for Mumbai-based **Wockhardt Ltd**



The proportion of sales that rose for **Hutchison China MediTech Ltd**

\$518.9m

in commercial platform Rx drugs



Source for all data: Scrip Asian League Tables

SCRIP ASIA 100: 2015 R&D SPENDING (\$M)

RANK 2015 (2014)	COMPANY	2015 R&D SPENDING (\$M)	CHANGE FROM 2014	RANK 2015 (2014)	COMPANY	2015 R&D SPENDING (\$M)	CHANGE FROM 2014
1 (1)	Takeda	2857.8	-21%	41 (34)	Kaken Pharmaceutical	48.6	-33%
2 (2)	Astellas	1864.6	-5%	42 (57)	Alembic	47.9	140%
3 (3)	Daiichi Sankyo	1724.1	-5%	43 (50)	Hutchison China MediTech	47.4	58%
4 (4)	Otsuka Pharmaceutical	1660.5	1%	44 (42)	Kureha	45.5	-4%
5 (5)	Eisai	1010.4	-19%	45 (44)	Japan Tobacco	45.0	-3%
6 (6)	Dainippon Sumitomo Pharma	677.7	0%	46 (45)	Torii Pharmaceuticals	43.3	-6%
7 (7)	Mitsubishi Tanabe Pharma	622.0	-6%	47 (51)	Biocon	42.9	55%
8 (8)	CSL	462.7	-1%	48 (48)	China Pharmaceutical Group	41.8	6%
9 (10)	Kyowa Hakko Kirin	426.3	-6%	49 (78)	Torrent Pharmaceuticals	41.4	
10 (9)	Shionogi	411.4	-11%	50 (43)	Nichi-Iko	40.3	-15%
11 (11)	Ono Pharmaceutical	387.2	-1%	51 (47)	Aska Pharmaceutical	37.8	-9%
12 (12)	Sun Pharmaceutical	352.0	10%	52 (36)	CellTrion	32.7	-50%
13 (14)	Dr Reddy's	272.2	-5%	53 (72)	Sosei	32.4	513%
14 (15)	Taisho Pharmaceutical	179.8	-12%	54 (52)	Jubilant Life Sciences	27.0	3%
15 (16)	Asahi Kasei Pharma	176.0	-13%	55 (54)	Boryung	26.3	7%
16 (17)	Lupin	174.5	-3%	56 (78)	Yuhan Pharmaceutical	26.0	
17 (19)	Hanmi Pharm	165.3	14%	57 (58)	Daewoong Pharmaceutical	25.4	43%
18 (18)	Santen Pharmaceutical	165.1	0%	58 (56)	Il Dong	24.1	15%
19 (27)	Cipla	131.7	33%	59 (53)	CK Life Sciences	23.6	-4%
20 (21)	Meiji Holdings	120.6	-9%	61 (78)	Zhejiang Hisun Pharma	20.0	
21 (20)	Kissei	116.5	-15%	62 (61)	JEIL Pharmaceutical	17.9	12%
22 (23)	Mochida Pharmaceutical	111.2	-13%	63 (63)	Handok	16.6	12%
23 (26)	Teijin Pharma	110.0	-8%	64 (64)	Ajanta Pharma Limited	16.5	35%
24 (24)	Nippon Kayaku	108.2	-11%	65 (59)	Nippon Chemiphar	16.5	-1%
25 (25)	Kyorin	107.6	-12%	66 (60)	JW Pharmaceutical Corporation	15.6	-6%
26 (29)	Cadila	106.2	27%	67 (62)	Intas Pharmaceuticals	15.0	0%
27 (78)	Yakult Honsha	104.4		68 (78)	Ahn-Gook Pharmaceutical	13.6	
28 (30)	Shanghai Pharmaceutical	99.2	19%	69 (68)	Bukwang	12.9	30%
29 (22)	Hisamitsu	96.0	-27%	70 (65)	Dong Wha	11.8	5%
30 (33)	Green Cross	86.8	19%	71 (66)	Sinovac Biotech	9.5	-14%
31 (31)	Wockhardt	76.3	-5%	72	Prana Biotechnology	9.2	
32 (28)	Nippon Shinyaku	74.7	-12%	73 (70)	Dongkook Pharm	8.9	-2%
33 (39)	Aurobindo	74.4	31%	74 (71)	Shin Poong	8.1	48%
34 (38)	Towa Pharmaceutical	73.7	27%	75 (69)	Kolon Life Science	7.8	-15%
35 (32)	Seikagaku	71.5	-7%	76	Alchemia	6.8	
36 (55)	Glenmark Pharmaceuticals	71.0	228%	77 (78)	Il-Yang	6.3	
37 (35)	Zeria Pharmaceuticals	70.9	7%	78 (73)	Lee's Pharmaceutical	6.1	24%
38 (41)	Sawai Pharmaceutical	66.3	35%	79 (78)	Kwang-Dong Pharmaceutical	5.0	
39 (37)	Dong-A ST	52.0	-13%	80 (75)	Beximco Pharmaceuticals	2.3	22%
40 (78)	Chong Kun Dang	51.0		81	Clinuvel Pharmaceuticals	2.0	
				82	Yuyu	1.1	
				83 (76)	GemVax	0.5	100%
				84 (77)	Il Sung Pharmaceuticals	0.3	25%

¹10% cut in R&D spending in Yen²Whole company R&D³Estimated as 40% of Total R&D spend⁴For all divisions⁵Company plans to double R&D spending in 2016⁶Additional spend through acquisitions⁷Includes agricultural division⁸Estimated from R&D employees⁹FY end June 2015

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 data analysis.

KOREA: TOP 10 R&D SPENDING (\$M) 2015

RANK 2015	COMPANY	2015 R&D SPENDING (\$M)	CHANGE FROM 2014	CHANGE FROM 2015
			\$ basis	Currency basis
1	Hanmi Pharm	165.3	14%	22%
2	Green Cross	86.77	19%	28%
3	Dong-A ST	52.03	-13%	-6%
4	Chong Kun Dang	51.03		
5	CellTrion	32.7	-50%	-46%
6	Boryung	26.26	7%	15%
7	Yuhan Pharmaceutical	26		
8	Daewoong Pharmaceutical	25.41	43%	53%
9	Il Dong	24.1	15%	24%
10	JEIL Pharmaceutical	17.9	12%	21%

JAPAN: TOP 10 R&D SPENDING (\$M) 2015

RANK 2015	COMPANY	2015 R&D SPENDING (\$M)	CHANGE FROM 2014	CHANGE FROM 2015
			\$ basis	Currency basis
1	Takeda ¹	2857.8	-21%	-9%
2	Astellas	1864.57	-5%	9%
3	Daiichi Sankyo	1724.13	-5%	9%
4	Otsuka Pharmaceutical	1660.52	1%	16%
5	Eisai	1010.4	-19%	-7%
6	Dainippon Sumitomo Pharma	677.7	0%	15%
7	Mitsubishi Tanabe Pharma	622.02	-6%	8%
8	Kyowa Hakko Kirin	426.3	-6%	8%
9	Shionogi	411.4	-11%	2%
10	Ono Pharmaceutical	387.22	-1%	13%

¹10% cut in R&D spending in yen²Additional spend through acquisitions³Company plans to double R&D spending in 2016⁴10% cut in yen⁵R&D whole company

INDIA: TOP 10 R&D SPENDING (\$M) 2015

RANK 2015	COMPANY	2015 R&D SPENDING (\$M)	CHANGE FROM 2014	CHANGE FROM 2015
			\$ basis	Currency basis
1	Sun Pharmaceutical	352	10%	15%
2	Dr Reddy's	272.15	-5%	0%
3	Lupin	174.47	-3%	2%
4	Cipla	131.66	33%	40%
5	Cadila	106.21	27%	34%
6	Wockhardt	76.27	-5%	0%
7	Aurobindo	74.4	31%	38%
8	Glenmark Pharmaceuticals	71.04	228%	245%
9	Alembic	47.9	140%	153%
10	Biocon	42.9	55%	63%



TOP 10 INCREASES IN R&D SPENDING (%) 2015

RANK 2015	COMPANY	2015 R&D SPENDING (\$M)	CHANGE FROM 2014	CHANGE FROM 2015
			\$ basis	Currency basis
1	Sosei ²	32.35	513%	603%
2	Glenmark Pharmaceuticals	71.04	228%	245%
3	Alembic	47.9	140%	153%
4	GemVax	0.46	100%	115%
5	Hutchison China MediTech	47.37	58%	58%
6	Biocon	42.9	55%	63%
7	Shin Poong	8.07	48%	59%
8	Daewoong Pharmaceutical	25.41	43%	53%
9	Ajanta Pharma Limited	16.53	35%	42%
10	Sawai Pharmaceutical	66.25	35%	55%

TOP 10 DECREASES IN R&D SPENDING (%) 2015

RANK 2015	COMPANY	2015 R&D SPENDING (\$M)	CHANGE FROM 2014	CHANGE FROM 2015
			\$ basis	Currency basis
1	CellTrion	32.7	-50%	-46%
2	Kaken Pharmaceutical ³	48.6	-33%	-23%
3	Hisamitsu	95.95	-27%	-17%
4	Takeda ⁴	2857.8	-21%	-9%
5	Eisai	1010.4	-19%	-7%
6	Kolon Life Science	7.82	-15%	-9%
7	Kissei	116.5	-15%	-3%
8	Nichi-Iko	40.27	-15%	-2%
9	Sinovac Biotech	9.5	-14%	-14%
10	Asahi Kasei Pharma ⁵	176	-13%	0%

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Jules Quartly
Asia Contributor,
Scrip

ANALYSIS:

China Sets The Stage For Its Innovation Entrance

China is coming up fast on the innovation curve as a result of both political will and a healthy ecosystem that supports R&D. It will take time to challenge the major players from the US and Europe, but there are few that doubt China can, eventually, do so.

If biotechnology was a race, China is catching up fast to its European and US competitors. It has accelerated pharmaceutical development by moving on from low-risk, low-margin contract work in generics, to producing innovative and novel therapy research, especially in the burgeoning field of biologics.

The fundamentals look sound. China is already the world's second-largest pharma market, after the US, and is expected to be worth about \$200bn by 2020. It is backed by ambitious central government policies, and there is plenty of money washing around. Now the internet bubble is deflating, biotechnology is viewed as an increasingly attractive proposition.

There's a steady swelling of in- and out-licensing transactions, partnering, mergers and acquisitions, while venture capital pours in.

BEHIND THE SCENES

In 2015, there was a big uptick in deals involving China-based R&D companies, such as Shanghai's Innovent Biologics Inc., which raised \$100m to move forward its biosimilars business. Meanwhile, Jiangsu Hengrui Medicine Co. Ltd. penned a licensing agreement with US-based Tesaro Inc., then kept the ball rolling with its announcement in April that it had reached a research agreement with Albert Einstein College of Medicine to improve cancer treatments.

This trend continues in 2016, with Furen Pharmaceutical Group Co Ltd buying Kaifeng Pharmaceutical (Group) Co Ltd for \$1.2bn; while New Horizon Capital funneled money to Chinese biopharmaceutical company ZAI Lab Ltd. in January.

The month after, Beijing-based cancer drug developer BeiGene (Beijing) Co. Ltd. pulled in \$158.4m for its initial public offering on NASDAQ. It held off on celebrating and ringing the bell at the New York Stock Exchange until April, when it released clinical results for its anticancer asset, BGI-183.

Meanwhile, Hutchison China MedTech Ltd. is rushing toward its richly anticipated New York stock listing. Ac-

cording to the *Financial Times*, Jiangsu Hansoh and Simcere Pharmaceutical Group will register Hong Kong IPOs later this year.

China's emergence as a senior partner in the world of pharma and a cradle for innovation is no surprise to Frank Yu, the founder and CEO of Ally Bridge Group (ABG), a global healthcare-focused investment platform based in Hong Kong, with offices in China and the US.

ABG works closely with WuXi PharmaTech Inc., China's largest medical contract researcher. ABG helped the company delist from the New York Stock Exchange last year in a \$3.3bn management buyout. Then, in January, WuXi broke ground on a \$120m biologics center for 800 scientists, in Shanghai. Analysts say a Hong Kong listing of the group worth about \$1.5bn is in the works for later this year.

"We know for sure that WuXi's capabilities have a very high entry barrier, with great quality control and yield. It's really able to deliver biologics manufacturing to global clients and has come up fast on the innovation curve," Yu told *PharmAsia News's* sister publication *Scrip Intelligence*.

"The fact that China is upgrading into an innovation-based economy, especially in the pharmaceuticals industry, really is no surprise. It's a must-do. There's no choice for China, with its 1.2 billion population, they need to do it."

Yu references the country's slowing economy (annual growth dropped to 6.7% in the first quarter of 2016) mounting price pressures, the lingering effects of a compliance crackdown and quality issues, as among the reasons why China is forced to move up the value chain. There is also a pressing need to improve healthcare because, as the country becomes richer, people are able to spend more on healthcare; while economic growth, urbanization and an aging population increase the incidence of diseases.

"The ingredients to make this happen are in place. The ecosystem is there and, most importantly, there is a huge talent pool in China. There's so many biologists, chemists and engineers, many of them trained in the US and Europe. The country has also created a lot of wealth and for innovation you need a lot of money.



"Investments are increasing, M&As are on the rise and Chinese companies are increasingly active with both out-licensing and in-licensing."

— PwC's Xu Jia

"The government and private industry is putting a lot of money into R&D. At the same time the market is expanding. The new wave of innovation is coming up to global, truly world class standards," Yu says, adding there are plenty more deals with international companies in the works.

GOVERNMENT'S STARRING ROLE

The big reveal was at the Great Hall of the People in Beijing, at the Fourth Session of the 12th National People's Congress. It was here in early March that Chinese Premier Li Keqiang rolled out the government's plans for a "new normal in economic development" (referring to slower growth but greater innovation), including prioritizing "strategic emerging industries" like biomedicine, supported by national development funds.

Sydney-based pan-Asian CRO Novotech said at the time that it believes this could be as much as \$18bn for the coming 13th Five-Year Plan (2016-2020) - a figure that dwarfs the \$2bn biotech cash injection in the previous Five Year Plan.

Encouraging biotech is a policy the world's largest scientific organization, the Chinese Academy of Sciences (CAS), has been advocating for some time. Five years ago, CAS said the sector had the potential to become a "pillar" of the pharmaceuticals industry, with a market size of around RMB600bn (\$92bn) to RMB800bn (\$123bn). That figure now looks like it could be an underestimation.

Biologics, because they are giant molecules created inside animal cells or micro-organisms like bacteria, are complex, 21st century in scope, and less threatened by patent cliffs because it's more difficult to create so-called "biosimilars" than small-molecule generics. Pursuing the

future of pharma in biologics would suit China, as it transitions from a labor intensive to knowledge intensive economy for long-term sustainability.

Such an endeavor makes sound business sense too. The domestic pharma market has slowed down. Just as companies were getting used to routine stellar growth, the annual rate dragged from about 11% to 5% last year. Patents are fast running down and generics are taking over. It is a good time for biologics to enter the stage.

According to IMS Institute for Healthcare Informatics, the total drugs market sales share of novel biologics has increased dramatically. In 2007 the share was 15% or \$106bn, but biologics are set to comprise 19-20% of the market by 2017 and bring in \$221bn worldwide - with the remainder made up of small molecules, biosimilars and non-original biologics.

For Xu Jia, a partner at PricewaterhouseCoopers (PwC) China's Consulting Practice in Beijing, the government will continue to play a pivotal role in upgrading the economy. "China is on course to become an innovation-oriented economy, with the domestic pharmaceuticals industry recognized as an important factor in this development, though this is a process which will inevitably take time to fully mature," she says.

Xu Jia notes that, "Investments are increasing, M&As are on the rise and Chinese companies are increasingly active with both out-licensing and in-licensing. For instance, you could view Hengrui out-licensing PD1 SHR-1210 to Incyte Corp. as something of a milestone for the domestic industry. Looking ahead, it will become increasingly common for drugs that originate in China to be developed and commercialized in other key markets, such as the US."

"I don't see any reason over time why China can't produce novel medicines...there's every possibility they will succeed."

– AstraZeneca's
Mark Mallon

REGULATORY EVOLUTION

It's all very well pouring in money and possessing the talent to develop a world beating biotech industry, but without a firm domestic base and a flexible, supportive regulatory environment, the best laid plans could come to naught.

Xu Jia said China's Food and Drug Administration (CFDA) plays a crucial role in this respect and believes the Reform Scheme announced in March, which redefines "new drugs" and "generics" in more stringent terms, will clear the air. This initiative arrived on the back of the Technical Guideline for the Research, Development and Evaluation of Biosimilars, the previous year, which intended to improve the accessibility and affordability of innovative products.

It's fair to say that China's regulatory framework looks increasingly like the FDA, even if the involvement of many agencies holds up approval times and could be further streamlined.

Another positive factor, Xu Jia continues, is the Market Authorization Holder system (MAH) pilot program. Introduced in late 2015, it enables drug makers to use contractors rather than open up their own production facilities to conduct clinical trials of their new drugs.

"MAH enables domestic R&D organizations and Chinese personnel involved in the development of a drug to apply to be MAH holders, effectively allowing them to benefit from developing a drug," Xu Jia explains.

So, how do China's advances translate in the international market? ABG's Frank Yu neatly framed it thus: "Biologics are not just a China phenomenon; in fact most of the breakthroughs are being made in the West, where there has been a huge rise in biologics. It's a biologics revolution and China is catching up."

Since the cost of developing novel bio-therapies is about \$1bn in Europe and the US, there are concerns about mounting costs. Partly as a result, biotech shares fell by a double-digit amount last year. But US losses are realizing gains for China's top CROs like WuXi – as well as multinationals researching and producing novel drugs in the country.

POTENTIAL TRIPS AND FALLS

But the China outlook is not all rose tinted. The value of its pharmaceutical market is about \$150bn, according to a China Briefing report, with up to \$50bn in biotech and drug discovery. In comparison, the US and Europe's markets are worth about \$350bn each, with approximately half devoted to biotech and drug discovery.

A few years back, China's share of the global therapeu-

tic biologics market was just 2%. It's not that much more now. This represents both a challenge and an opportunity for investors, as there is plenty of room for growth.

In Xu Jia's opinion there is no such thing as surefire success because it's tough to convert biologics R&D into profit, with quality more tricky to control compared with chemical drugs.

"In addition, China's biologics sector must grapple with wider constraints, including the extent to which international drug innovation standards are adopted, sustaining advances in clinical research capabilities, navigating the convulsions of intellectual property issues in the sector, and adjusting to the implications that follow the gradual inclusion of innovative drugs into China's national drug reimbursement list," she explains.

One major player in the biologics arena who knows this only too well is the executive vice president of international at AstraZeneca PLC, Mark Mallon. He says the company has been working in China for decades and has a full development team in the country.

Speaking to *Scrip*, Mallon said: "Half of our assets globally are in biologics. We are looking at China because of the market and to develop expertise. So while our primary focus is biologics and new medicines, of course we have the capabilities to produce biosimilars too."

Talking about WuXi, he said AstraZeneca's collaboration with the company began in 2012 with a biologics plant; while its 2015 partnership deal was intended to bring in innovative products from its pipeline of targeted and biological medicines (particularly in the areas of respiratory, inflammation and autoimmunity, cardiovascular and metabolic diseases, and oncology).

"We are open to any sort of commercial partnership structure with Chinese companies, whether this is support for established and startup companies, or partnerships with academic institutions, and distributors," he explains.

As for the future of China's biotech industry and whether it can be truly innovative, Mallon is adamant: "I don't see any reason over time why China can't produce novel medicines. The improvements have been continuous; it's heading in the right direction and has been for some time. I can't speculate on a timeline for it, but there's every possibility they will succeed."

"Most MNCs are accelerating innovation in China, and there are more and more China companies, more options, more partners to work with," Mallon continues. "It's not a zero sum game, as this all brings about more opportunities and is good news for the end user. Some Chinese companies will become our competitors of course, but then we have competitors all over the world."



Xu Jia



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