

Does the global pharmaceutical industry need a new business model?

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Does the global pharmaceutical industry need a new business model?



1. Multiple drivers are pushing demand

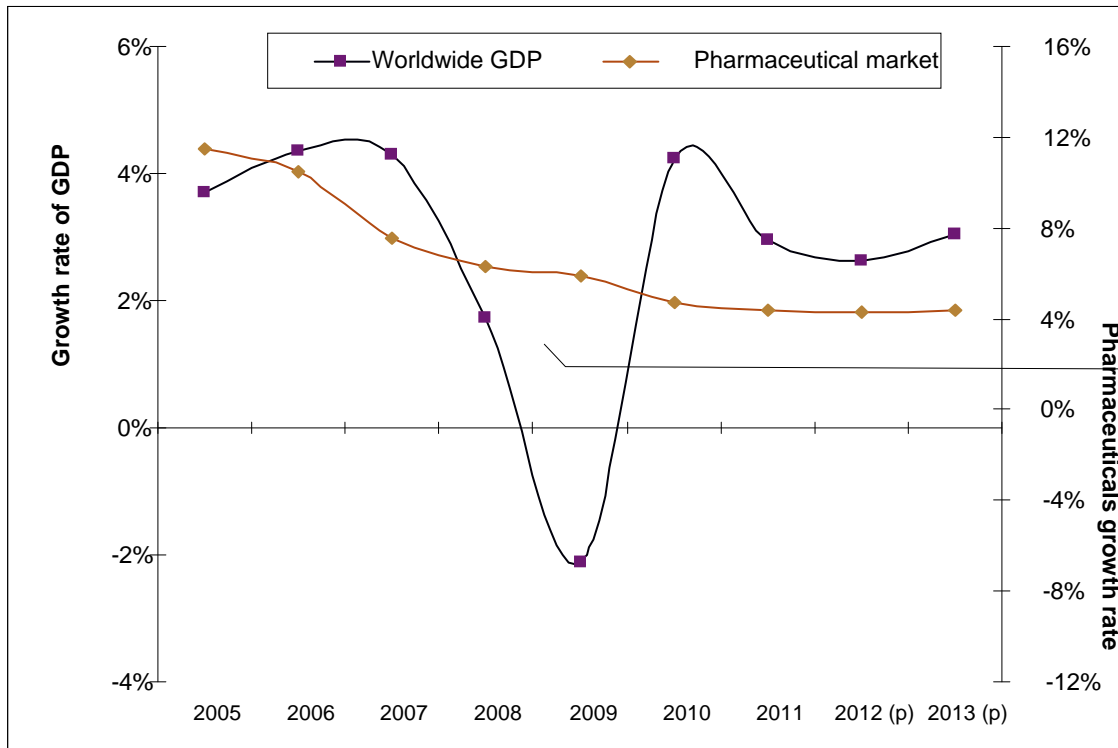
2. The pharmaceutical industry is seeking a new business model

3. 2012-2013 - frenetic years for pharmaceutical companies

The pharmaceutical industry is immune to the fits and starts of worldwide growth

Beyond global GDP growth, the pharmaceutical industry has experienced a wealth effect

Comparative changes in GDP and pharmaceutical sales worldwide



The pharmaceutical industry remained untouched by the 2008-2009 economic crisis

Sources: BMI, Euler Hermes forecasts

The pharmaceutical industry resists

Increasing life expectancy is fuelling the effect of the growing number of population



Pharmaceutical demand is also stimulated by population growth

Population aged 65 and over by geographic area

Area	2010		2025 (f)		2050 (f)	
	In millions	In %	In millions	In %	In millions	In %
North America	45	13%	72	18%	97	22%
Europe	119	16%	153	21%	194	27%
Africa	36	4%	60	4%	144	7%
Asia	279	7%	479	10%	923	18%
Total	524	8%	840	11%	1 511	16%



* 3 out of every 4 people aged 65 and over suffer from a chronic ailment that is likely to be treatable with medication

* Sources: Frost & Sullivan, Mylan

Effect of the increase in the size of the ageing Chinese population

Sources: World Health Organization, UN forecasts

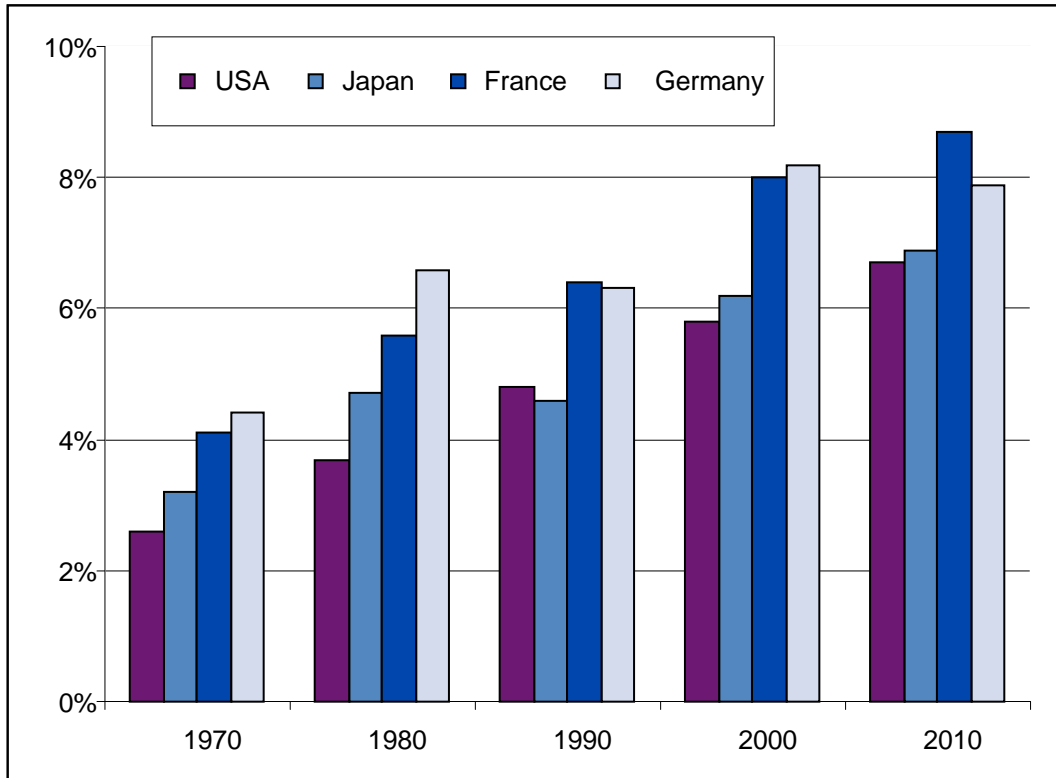
▶ The worldwide population aged 65 and over will triple over forty years

Country healthcare expenditures grow at a faster rate than revenues over long periods



Pharmaceutical demand benefits from a public healthcare financing effect

Public healthcare expenditures as a % of GDP



Sources: IMF data, Euler Hermes

➤ Public health expenditures in mature countries were, on average, 7% of GDP in 2010 and are expected to reach 8.5% in 2020

➤ Expenditures in emerging countries were, on average, 2.7% in 2010 and are expected to reach 3.2% in 2020

➤ As a % of GDP they have more than doubled over the last 40 years

Mature countries are facing deficits in their national health care insurance schemes

Countries are struggling to stamp out the deficits of public health insurance schemes

National health insurance scheme financial balance by country

Amounts in Bn\$	2003	2009	2010	2012 (e)
United States (1)	-32	-286	-356	-384
France	-13	-15	-15	-7
Germany	-4	-2	-2	0,1
United Kingdom	-3	2	-1	0,7



The Obama reform (2010) still has not resolved anything



No reforms since 2004



Merkel Reform (2010)



Partial NHS Reform

(1) Social security and Medicare only

Sources: PFLSS, CBO, NHS, GKV, Euler Hermes estimates

▶ There will be health insurance reforms in France and the United States

These three drivers are pushing pharmaceutical demand towards the emerging markets

The rise in pharmaceutical demand in mature countries appears to be receding compared with emerging areas over the 2010-2015 period

Global view of the pharmaceutical market by major geographic area

Amounts in Bn\$	2010	2011 (e)	2015 (f)	Average annual growth 2010-2015
North America	350	352	373	1.3%
Japan	85	86	87	0.5%
Western Europe	230	234	235	0.4%
Latin America	44	50	70	10%
Eastern Europe	20	23	33	11%
Africa and Asia	114	135	250	17%
WORLDWIDE	843	880	1 048	4%

Sources: BMI, Euler Hermes forecasts

The emerging markets will fuel the expected 4% growth in the pharmaceutical market

Demand for generics has been rising faster than total pharmaceutical demand for the same period

Mature countries (also) show high generic demand

Average annual growth of the market for the period in each area

Growth rates (rounded)	2009-2015	
	Global pharmaceutical market	Generic market
North America	1%	11%
Europe (Western+Eastern)	2%	9%
Japan	1%	6%
Rest of the World (ROW)	15%	19%
WORLDWIDE	4%	12%

Sources: Frost & Sullivan, Euler Hermes forecasts

Generic growth is three times the growth for the pharmaceutical market as a whole

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Big Pharma is feeling pressure from the new generic manufacturers



Generic prices are 15% to 70% lower than their patented counterparts

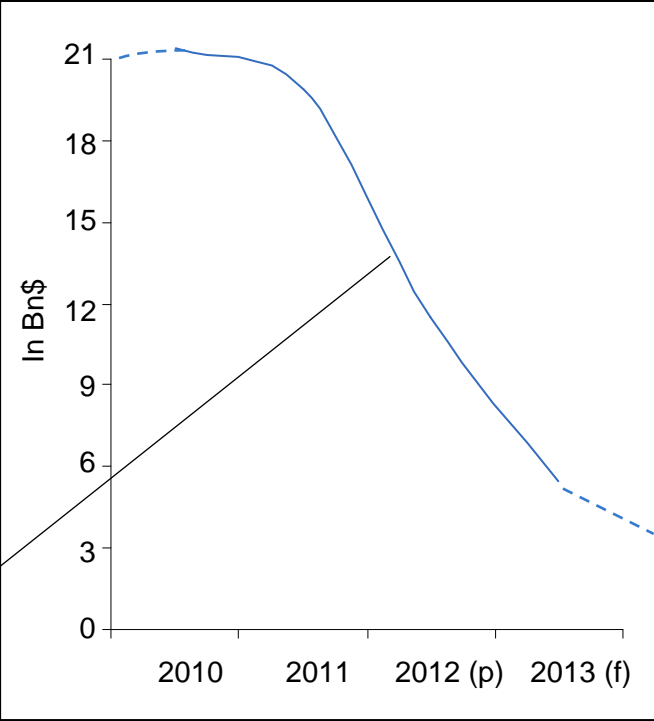
Avg. price difference of a patented drug vs. its generic

Year 2010	Generic vs. patented drug
France	-30%
Germany	-40%
Italy	-16%
Spain	-13%
United Kingdom	-15%
United States	-73%

Sources: IHS, NACDS, DIA

The manufacturers of these 5 blockbusters will watch as 15 Bn\$ in TO fall into the hands of generic competitors over a period of 4 years

Cumulative TO of the 5 US blockbusters* nearing patent expiry



- * Blockbusters:
- Zyprexa: Q3'2011
 - Lipitor: Q4'2011
 - Seroquel: Q1'2012
 - Plavix: Q2 2012
 - Singulair: Q3'2012

Sources: the Economist, Euler Hermes forecasts

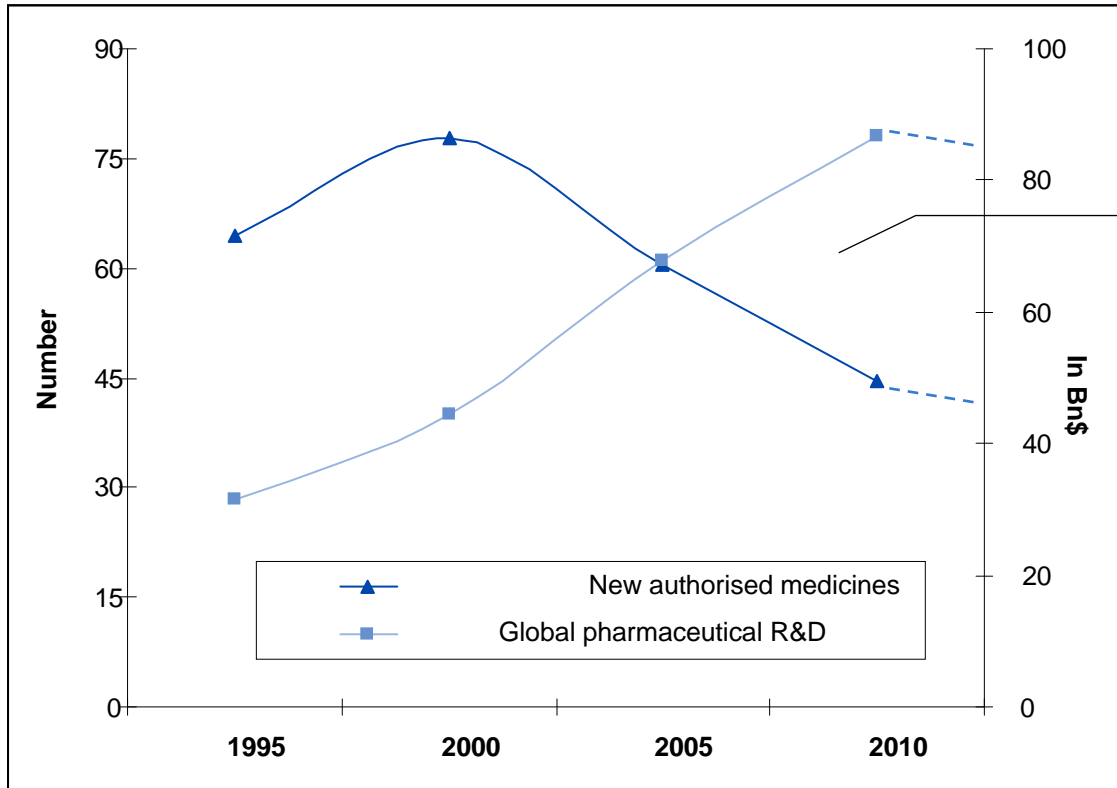
▶ The "patent cliff" for US pharmaceuticals spans 2010 to 2015

Pharmaceutical R&D productivity is on the decline



Big Pharma has fallen short of expectations for new medicines

Pharmaceutical R&D and the number of new drugs over 1995-2010 period



The scissors effect of the growth in pharmaceutical R&D budgets and the rhythm of new medication launches was more pronounced in 2010-2011

Sources: EFPIA, Euler Hermes calculations

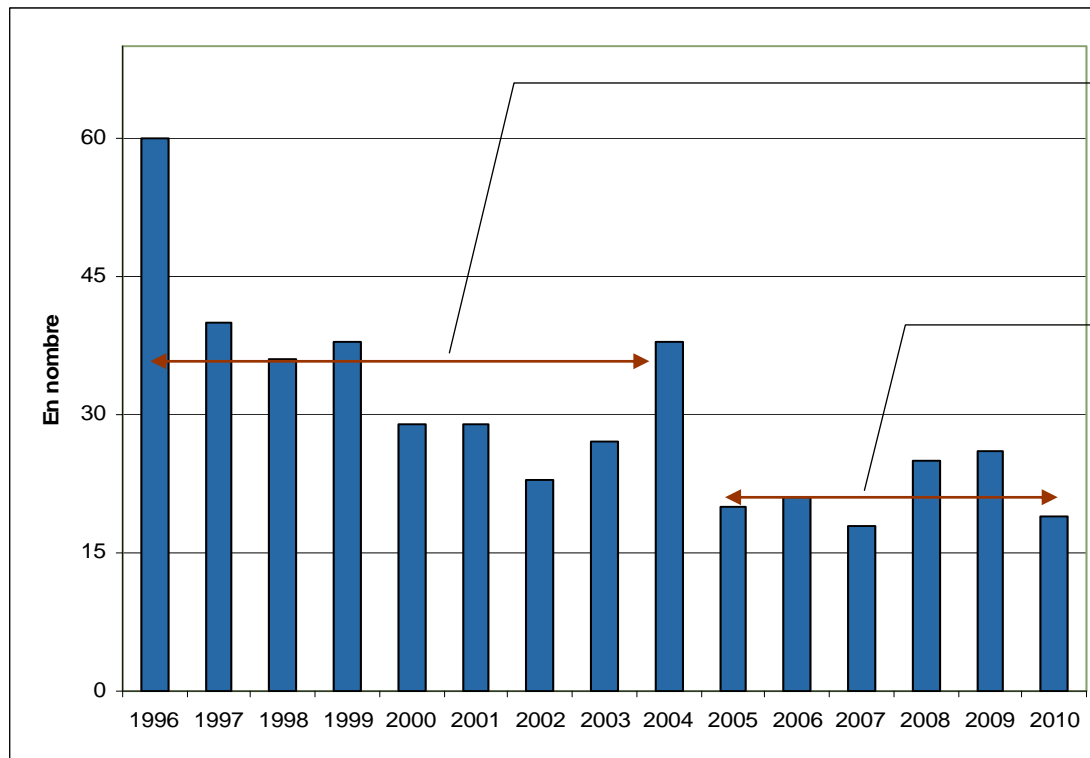
▶ The R&D costs of a new drug quadrupled in a 15-year period

Hardening drug authorisation criteria is causing the product ranges of Big Pharma to plummet



This became clear after the worldwide withdrawal of Vioxx in 9/2004

New medications authorised by the FDA in the United States



The FDA authorised an average of 36 new medicines during the period

The FDA authorised 22 new drugs during the period

Sources: Food & Drug Administration, Oliver Wyman

▶ The number of US authorisations fell by an average of 40% in 15 years

A shift in growth to emerging areas: an eldorado, but not right away



The emerging pharmaceutical markets remain smaller than that of North America despite their much higher growth rates until 2015

Pharmaceutical market in emerging areas

In Bn\$	2010	2015 (p)	Average annual growth
Latin America	44	70	10%
Eastern Europe	20	33	11%
Africa, Asia	114	250	17%
Total Emerging Areas	178	353	15%
North America	350	373	1.3%

Standard of living and pharma purchasing power

2010	Per capita consumption	GDP per capita
Brazil	\$ 107	\$ 10 816
Russia	\$ 125	\$ 10 437
India	\$ 11	\$ 1 265
China	\$ 39	\$ 4 382
United States	\$ 1 054	\$ 47 284
France	\$ 640	\$ 41 019

Sources: OECD, BMI, Euler Hermes forecasts

▶ In 2010, Americans spent 100 x more medicines per capita than Indians

Vaccines: preventive drugs that are immune to generics



From 2005-2015, vaccine sales will have grown twice as quickly as the global pharmaceutical market

Comparative development of global pharmaceutical and vaccine markets

In Bn\$	2005	2011	2015 (f)	Average annual growth 2005-2015
Vaccines	12	26	48	15%
Pharmaceutical market	605	880	1 047	6%
Share of vaccines in the global pharmaceutical market	2%	3%	5%	-

Four Big Pharma companies (Europeans Sanofi, GSK and Novartis, and American Merck) control 80% of the global vaccine market

Sources: Pharmactu, Euler Hermes forecasts

Vaccines accounted for 3% of the global pharmaceutical market in 2011

Self-medication (OTC) and nutritional supplements are possible areas for diversification



Their share of the global pharmaceutical market will have remained stable from 2007-2012

OTCs and food supplements in the global pharmaceutical market

Rounded figures	2007	2012 (f)	Average annual growth/year for the period
OTC Market share (Bn\$)	80	110	7%
Self-medication market share	11%	12%	-
Functional food market share (Bn\$)	64	80	4%
Functional food market share	9%	9%	-
Global pharmaceutical market (Bn\$)	715	918	5%

Main players: Novartis, Sanofi, GSK, J&J, Bayer

Main players: Abbott, Nestlé, Danone, Fresenius

Sources: Datamonitor forecasts, Euler Hermes calculations

The self-medication market is experiencing 7% annual growth on average

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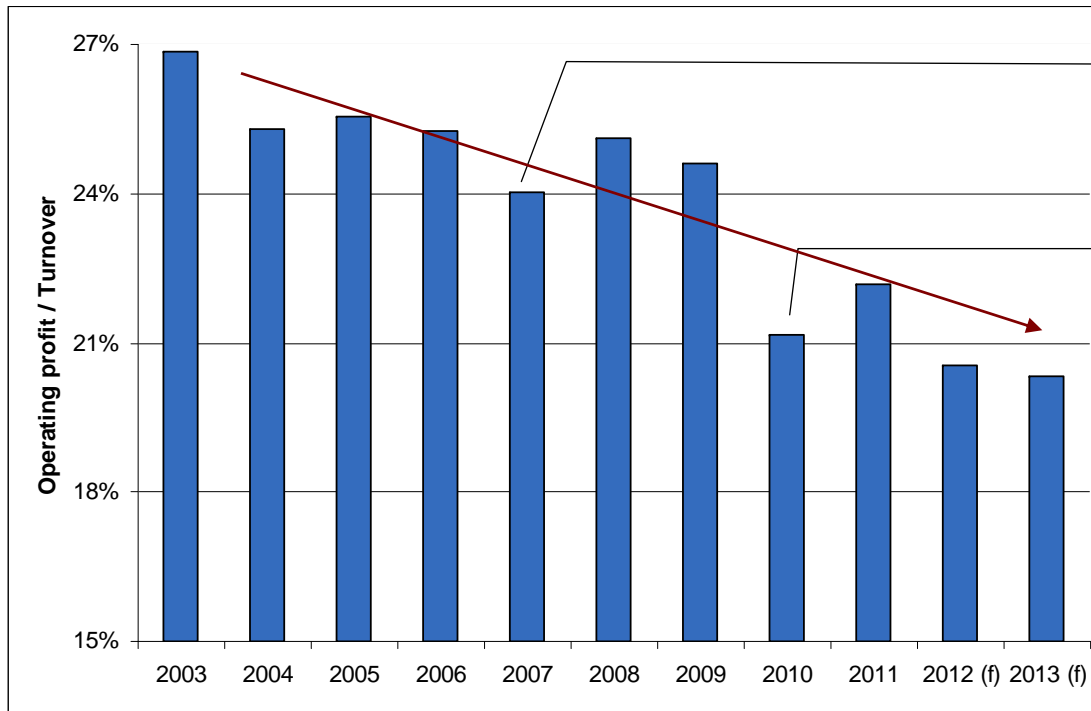
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The golden age of sky-high profitability for Big Pharma has come to an end



Big Pharma operating profit rate has fallen off since 2003

Big Pharma* operating profit rate



Merck paid a 5 Bn\$ fine in 2007 to settle on Vioxx

GSK's withdrawal cost of Avandia was approximately 6 Bn\$

* Our Big Pharma sample includes the top 11 global pharma companies. They account for 56% of the global pharmaceutical market

Sources: Laboratories, Euler Hermes forecasts

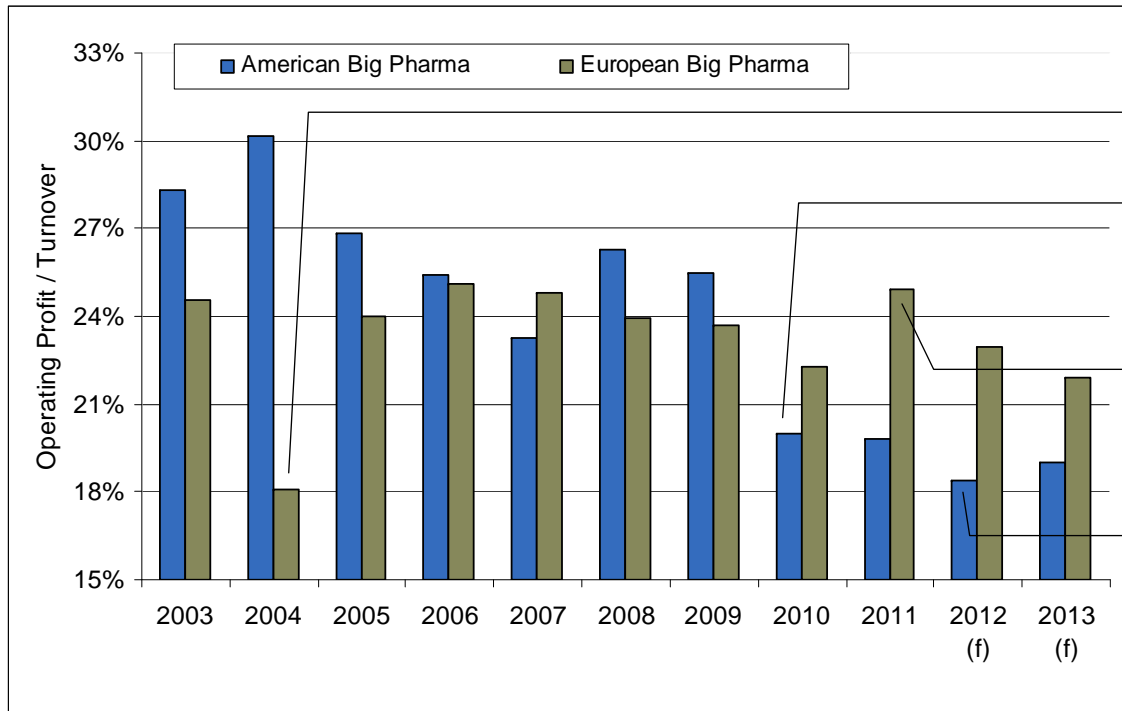
The 20.5% operating profit rate in 2012 represents a 4-point drop since 2006

European Big Pharma resists



However, in the United States, generic competition and restructuring costs hit profitability

Comparison between American and European Big Pharma operating profit rate



Merger of Sanofi and Aventis

Restructuring of Pfizer and Merck following their respective mergers with Wyeth and SCP in late 2009

Recovery of GSK's profitability in 2011 following the company's 6 Bn\$ Avandia withdrawal cost in 2010

Q4'2011 - expiry of Pfizer's patent on Lipitor, which was solely responsible for generating 6 Bn\$ in TO in the US in 2010

Sources: Companies, Euler Hermes forecasts

Around 5-point difference between operating profit of American and European Big Pharma in 2012

The American prescription: a high dose of concentration in the market (mergers, takeovers)

Costly takeovers and mergers in the United States are being restructured at a high-price

Examples of major acquisitions/mergers in the United States

In Bn\$	2009		2010	2011	
Buyer	Pfizer	Merck	Novartis	Sanofi	Teva
Target company	Wyeth	SCP	Alcon	Genzyme	Cephalon
Nationality of the target	American	American	American	American	American
Total cost of the purchase	68 Bn\$	41 Bn\$	40 Bn\$	23 Bn\$	7 Bn\$

In early **2012**, Roche launched a 6 Bn\$ hostile takeover of the American Illumina, which generated TO of 1.1 Bn\$ in 2011

Sources: Companies, Euler Hermes

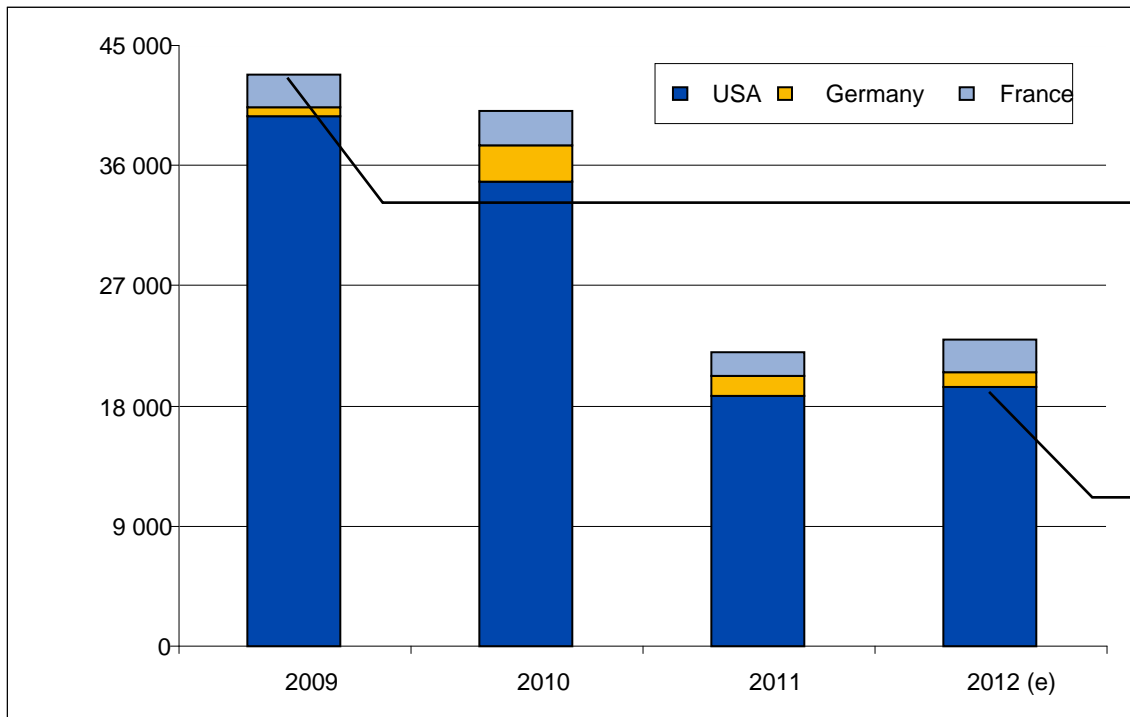
American acquisitions are valued at over 20 Bn\$ apiece

A painful side effect: massive redundancy schemes in US pharmaceutical market



The sector eliminated a total of 105 000 positions from 2009 to 2011

No. of positions eliminated via announced redundancy schemes



In these 3 countries, the costs of eliminating 43 000 pharmaceutical sector positions - an elimination that was announced in 2009 - were booked into their accounts in 2010

In the United States alone, we estimate the number of positions to be eliminated in the pharmaceutical sector in 2012 to be 20 000

Sources: Challenger Gray & Christmas, Vfa, Bpi, Euler Hermes estimates

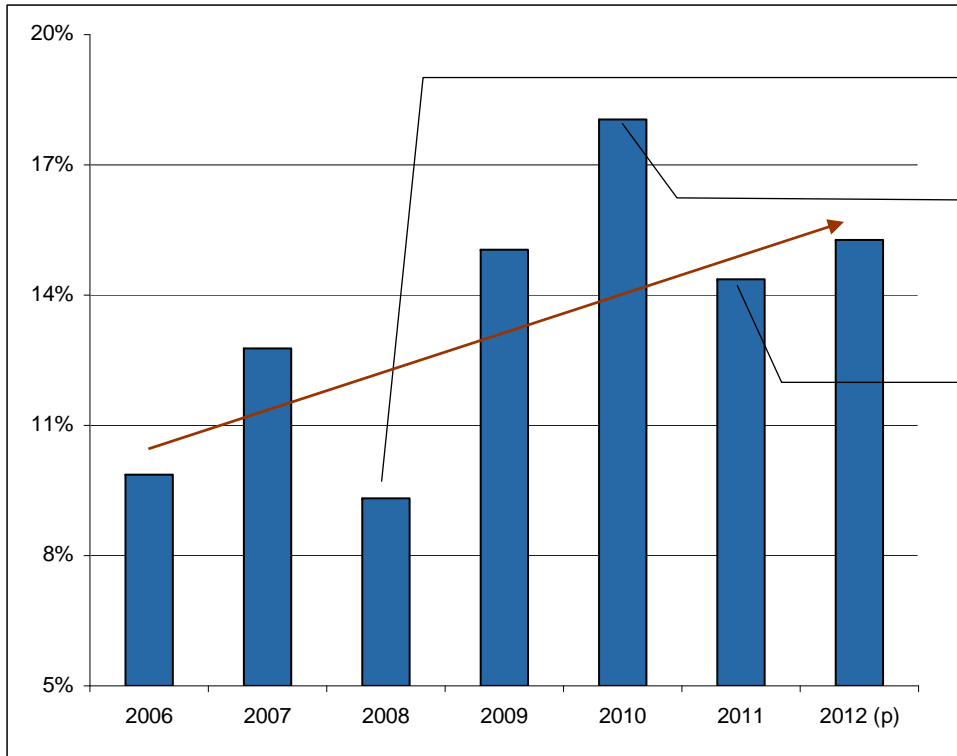
3 of every 4 eliminated pharmaceutical positions have been in the US

Generic companies are becoming increasingly powerful



Generic manufacturers are enjoying buoyant financial health

Operating profit rate for the top 6 global generic companies



Ranbaxy suffered heavy losses after being taken over by Japanese Daiichi

Teva's past performance is due mainly to the breakthrough of Copaxone in the United States

Drop in Stada's performance following significant outstanding payments in Eastern Europe (Serbia)

Our sample of the top 6 global generic companies (Teva, Mylan, Sandoz, Watson, Ranbaxy and Stada) represented 30% of the global generic market in 2010

Sources: Companies, Euler Hermes forecasts

A profit margin of 15% in 2012, growth of 6% per annum since 2005

American biotechnology companies outperform their European counterparts

The US biotech sector has been profitable for the past three years

Aggregate financial accounts for American and European biotech firms

In Bn\$	2008		2009		2010	
	USA	Europe	USA	Europe	USA	Europe
TO	65,1	16,3	56,2	16,6	61,6	17,2
Net profit/loss	0,4	-1,3	3,7 *	-0,7	4,9	-0,6
R&D as a % of TO	35%	31%	30%	27%	29%	26%
Number of companies	1 771	1 819	1 703	1 842	1 726	1 834

➤ Turnover of American biotech firms (including Amgen) is triple that of European firms

➤ R&D costs and the number of biotech start-ups are more or less the same

* Change in accounting method in US starting in 2009

Source: Ernst & Young

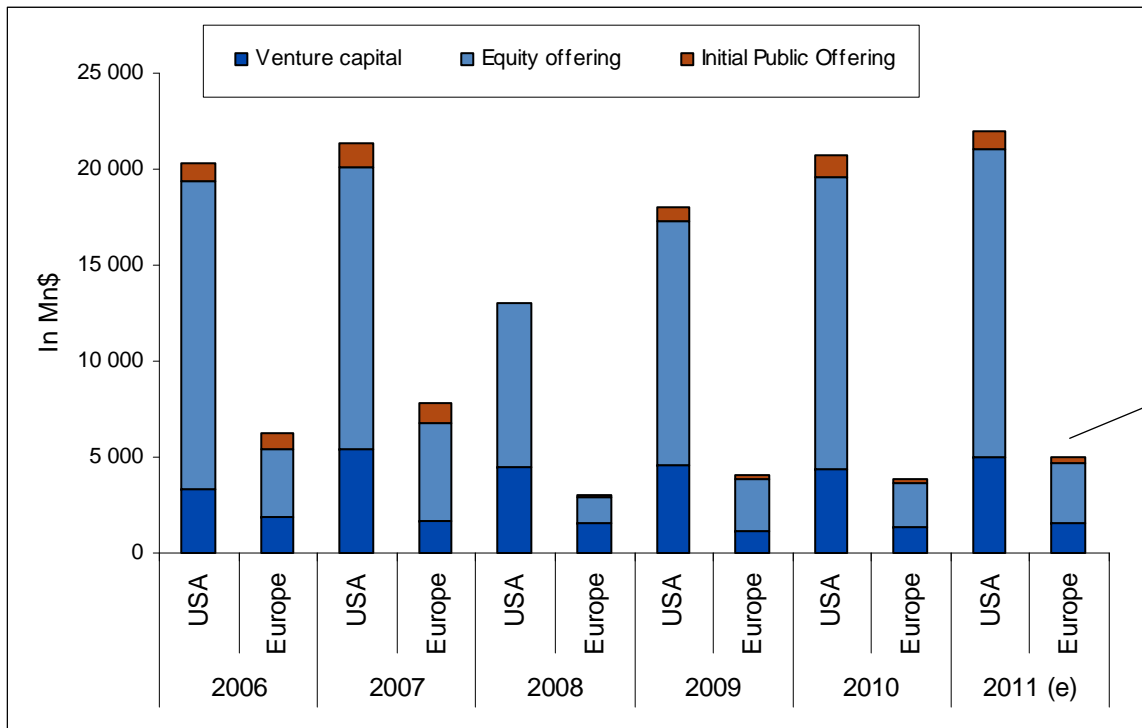
The European biotech sector has suffered from chronic losses

American biotech, outsourced R&D for pharmaceuticals



American biotechs are better funded

Sources of financing for European and American biotechs



European biotechnology has not yet returned to the level of its financing it experienced in 2007

Sources: Ernst & Young, Euler Hermes estimates

European biotech financing has stalled at a low level

Conclusion

- **The global pharmaceutical market is cashing on a structural growth in demand**

- **The future: a new Big Pharma located in South of the Equator?**
 - The Big Pharma companies of today are experiencing the repercussions of the chronic deficit of national health care schemes in the developed countries where they historically prospered. They are now positioning themselves to reap the benefits of the growth in the emerging markets.

 - Fuelled by the ongoing expiry of patents on blockbusters, the market is turning its focus to less costly generic medications.

- **Disoriented by the lack of a more effective business model, Big Pharma is massively restructuring their costs to attempt to limit the drop in profitability foreseen for the 2012-2013 period.**



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