



DIVERGENCE: THE CHANGING DRUG BUSINESS

The health care shift

The Drug Business in 1991

- ❑ Spend on R&D first
- ❑ Mostly domestic
- ❑ Almost complete pricing power
- ❑ Use Blockbuster drugs to generate super profits.
- ❑ Use legal strategies to extend patent protection.

The Drug Business today

- ❑ Spend on R&D and acquisitions
- ❑ Increasingly international
- ❑ Limited pricing power
- ❑ Use marketing strategies to work on “brand name” life extensions.

The Underlying Big Story: A Decline in Pricing Power

1. Consolidation within the health insurance business, potentially increasing their bargaining power with the pharmaceutical companies on drug prices.
2. The government has used the buying clout of Medicaid to bargain for better prices on drugs, and while Medicare still works through insurance companies, it can put pressure on them to negotiate for lower costs.
3. Pharmacies that represent the distribution networks for many drugs have also been corporatized and consolidated, and are gaining a voice in the pricing process.

The net effect of all of these changes is that R&D has much more uncertain payoffs and has to be evaluated like any other large capital investment : that it is good only when it creates value for a business.

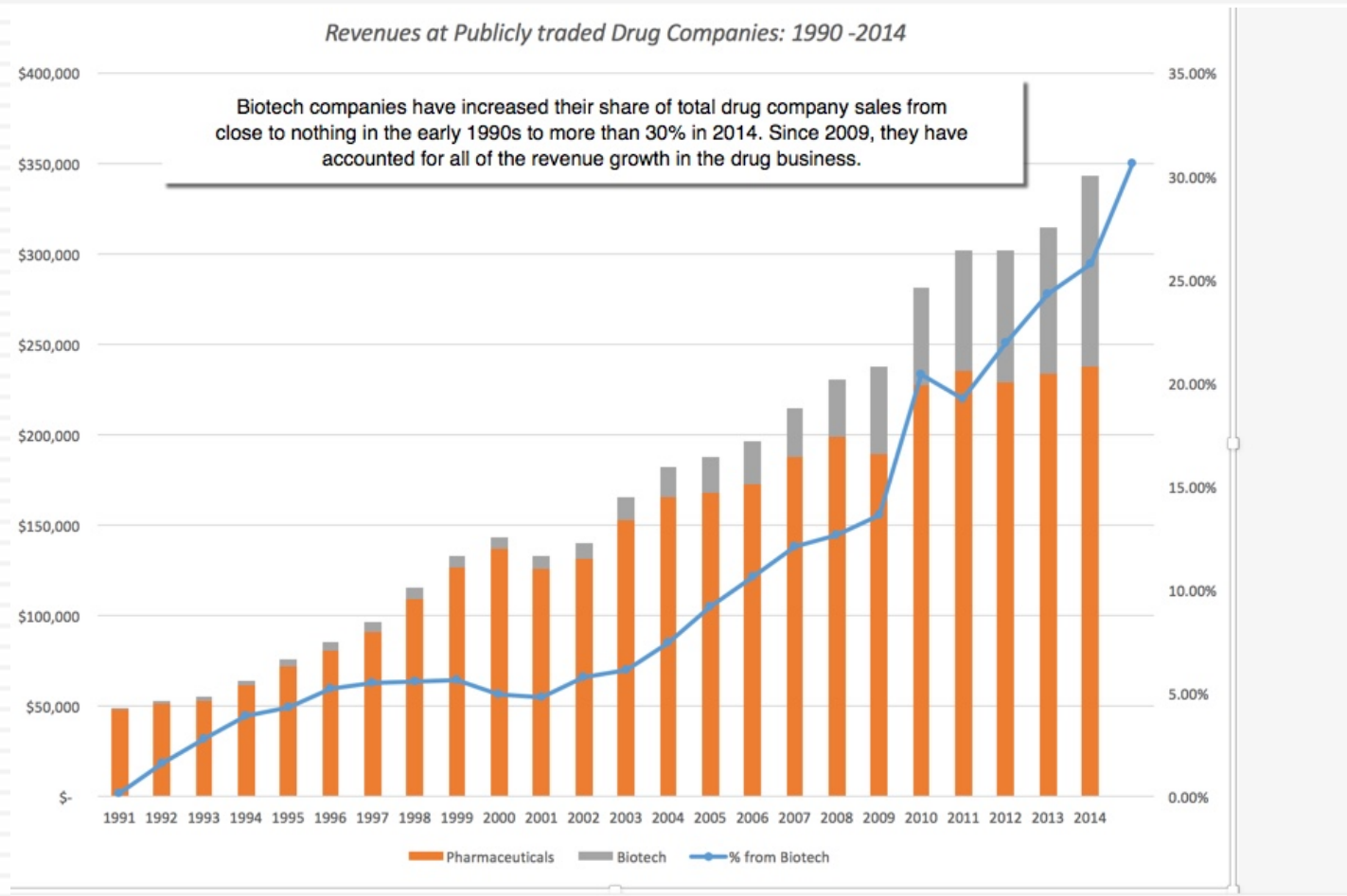
Pharma versus Biotech

- Research basis: This is the method by which they produce drugs, with pharmaceutical firms working with chemicals and biotechnology companies using live organisms (bacteria, cells or yeast) to generate their drugs.
- Other differences: The rest of the differences that people point to between the two, i.e., that biotech companies spend more time on research, tend to lose money and are riskier have less to do with business differences than life cycle differences.

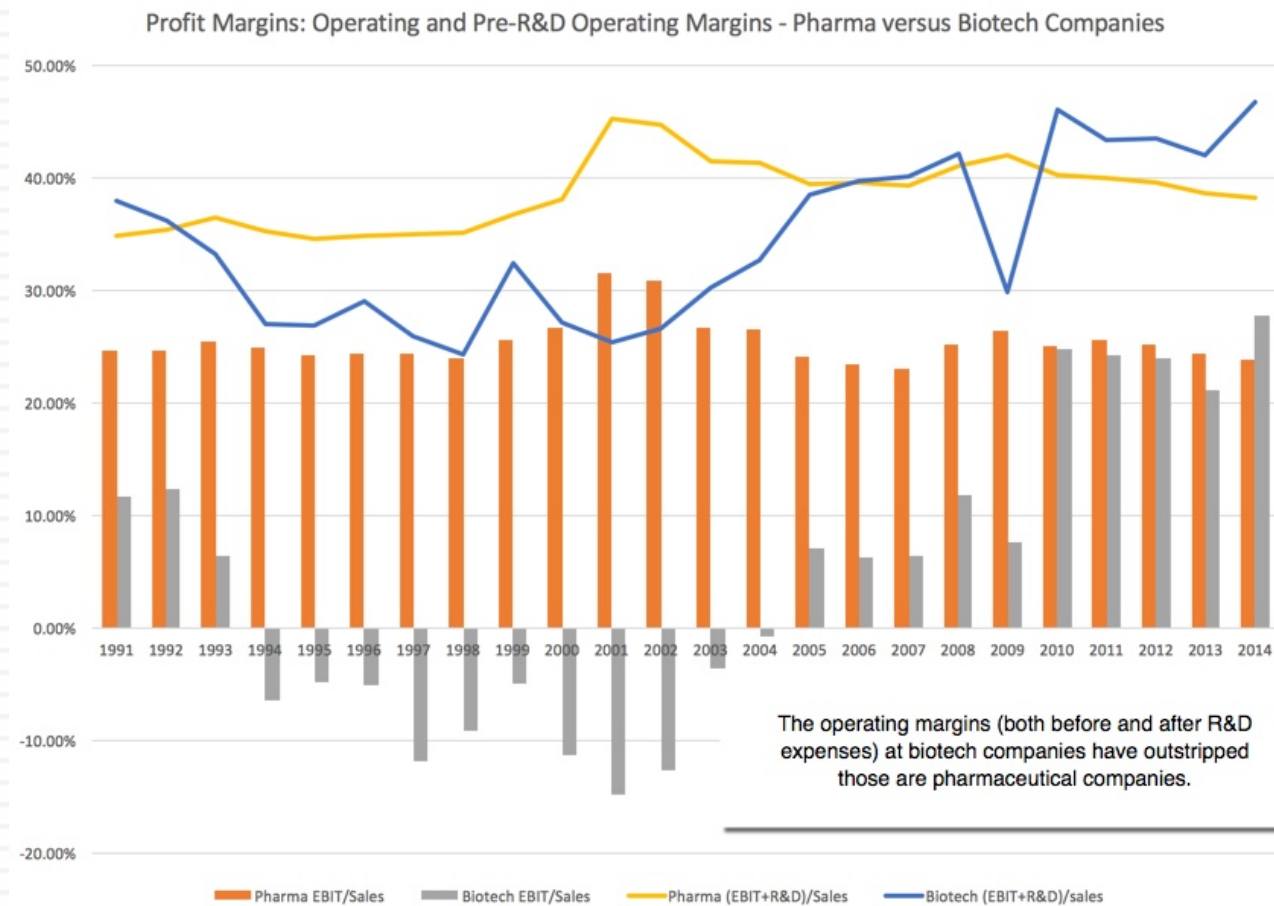
The biggest drug companies

Company Name	Industry Classifications	Revenues in 2014
Johnson & Johnson (NYSE:JNJ)	Pharmaceuticals (Primary)	\$74,331.00
Pfizer Inc. (NYSE:PFE)	Pharmaceuticals (Primary)	\$49,605.00
Merck & Co. Inc. (NYSE:MRK)	Pharmaceuticals (Primary)	\$42,237.00
Gilead Sciences Inc. (NasdaqGS:GILD)	Biotechnology (Primary)	\$24,890.00
Amgen Inc. (NasdaqGS:AMGN)	Biotechnology (Primary)	\$20,063.00
AbbVie Inc. (NYSE:ABBV)	Biotechnology (Primary)	\$19,960.00
Eli Lilly and Company (NYSE:LLY)	Pharmaceuticals (Primary)	\$19,615.60
Bristol-Myers Squibb Company (NYSE:BMJ)	Pharmaceuticals (Primary)	\$15,879.00
Allergan plc (NYSE:AGN)	Pharmaceuticals (Primary)	\$13,062.30
Biogen Inc. (NasdaqGS:BIIB)	Biotechnology (Primary)	\$9,700.30

The Growth of Biotech



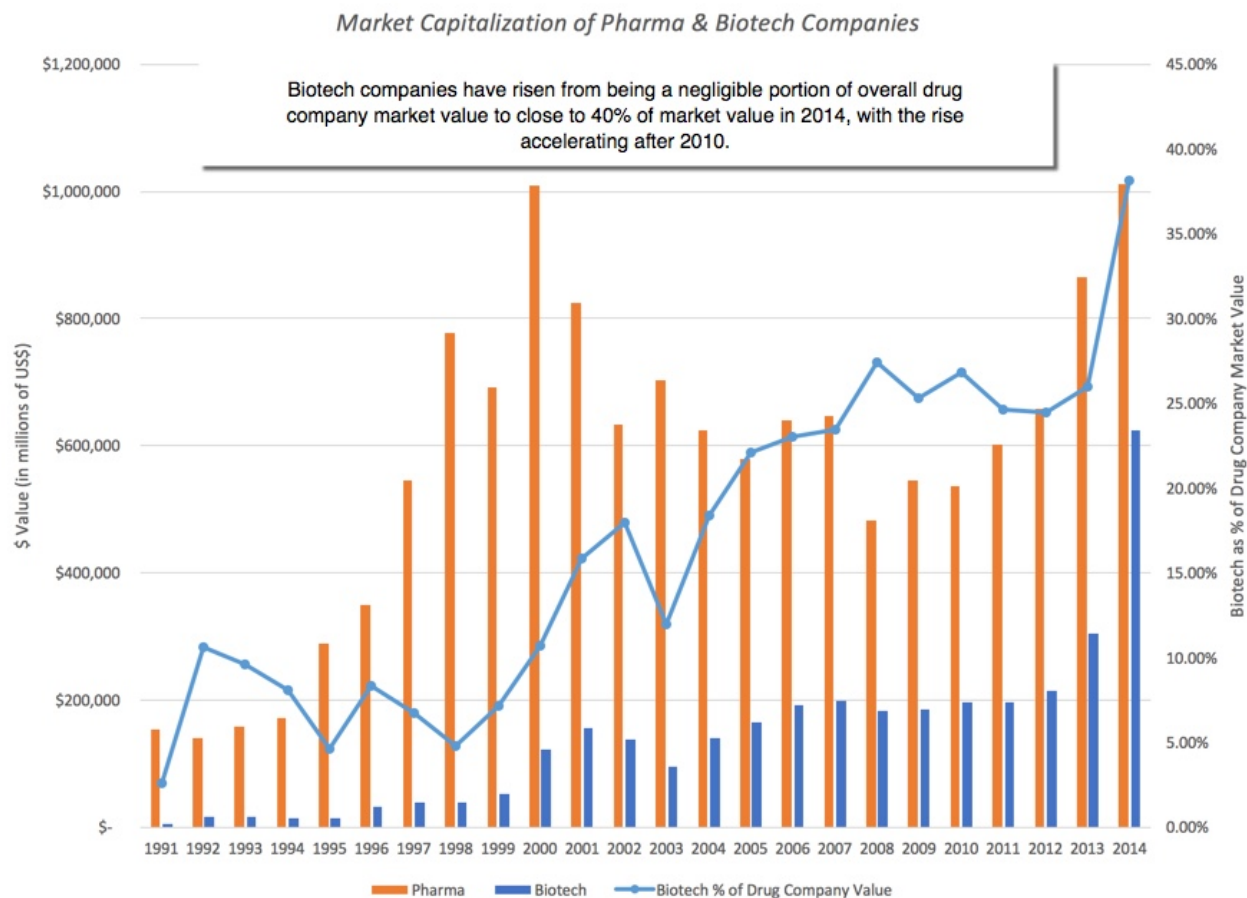
The Money Machine Slows?



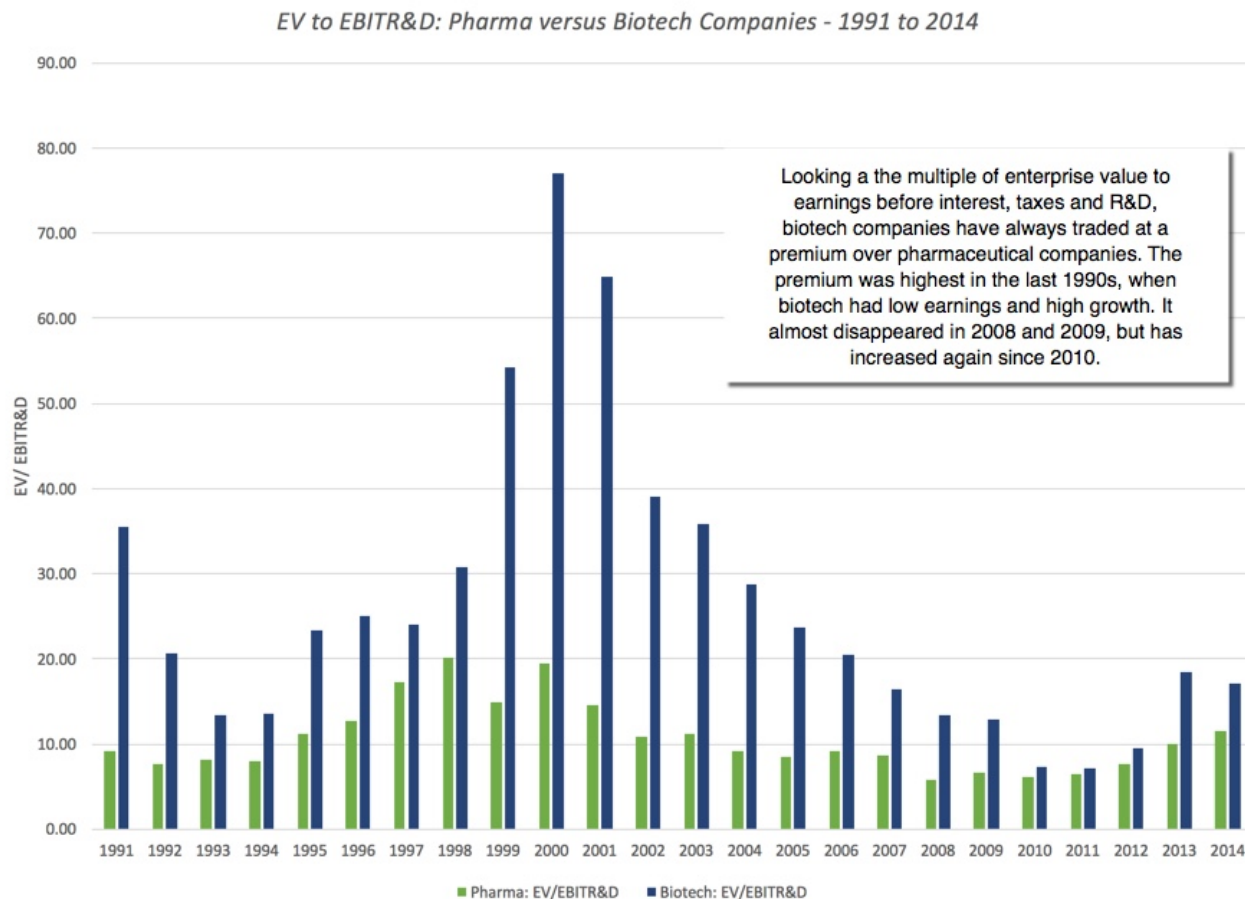
The Payoff to R&D

Year	Pharmaceutical Firms			Biotech Firms		
	R&D/Sales	Revenue Growth Rate	Growth to R&D Ratio	R&D/Sales	Revenue Growth Rate	Growth to R&D Ratio
1991	10.17%	49.30%	4.85	26.22%	1444.23%	55.08
1992	10.64%	6.40%	0.60	23.80%	82.91%	3.48
1993	10.97%	3.58%	0.33	26.87%	48.36%	1.80
1994	10.30%	15.85%	1.54	33.50%	27.66%	0.83
1995	10.37%	17.32%	1.67	31.72%	42.99%	1.36
1996	10.44%	11.38%	1.09	34.18%	18.61%	0.54
1997	10.61%	13.20%	1.24	37.80%	14.23%	0.38
1998	11.15%	19.92%	1.79	33.44%	21.49%	0.64
1999	11.08%	15.66%	1.41	37.39%	0.32%	0.01
2000	11.41%	8.15%	0.71	38.46%	4.79%	0.12
2001	13.74%	-8.17%	-0.59	40.23%	11.96%	0.30
2002	13.95%	4.80%	0.34	39.19%	11.34%	0.29
2003	14.72%	16.26%	1.10	33.86%	44.21%	1.31
2004	14.79%	8.17%	0.55	33.43%	35.49%	1.06
2005	15.40%	1.49%	0.10	31.43%	19.26%	0.61
2006	16.08%	2.86%	0.18	33.49%	19.43%	0.58
2007	16.21%	8.57%	0.53	33.76%	14.29%	0.42
2008	15.94%	6.21%	0.39	30.35%	15.20%	0.50
2009	15.58%	-4.87%	-0.31	22.18%	54.79%	2.47
2010	15.17%	19.82%	1.31	21.25%	11.42%	0.54
2011	14.30%	3.77%	0.26	19.19%	22.76%	1.19
2012	14.48%	-2.99%	-0.21	19.53%	10.52%	0.54
2013	14.28%	2.34%	0.16	20.80%	10.50%	0.51
2014	14.36%	1.67%	0.12	19.04%	29.59%	1.55
1991-1995	10.49%	18.49%	1.80	28.42%	329.23%	12.51
1996-2000	10.94%	13.66%	1.25	36.26%	11.89%	0.34
2001-2005	14.52%	4.51%	0.30	35.63%	24.45%	0.71
2006-2010	15.80%	6.52%	0.42	28.21%	23.02%	0.90
2011-2014	14.36%	1.20%	0.08	19.64%	18.34%	0.95

The Market Cap is shifting



And the pricing is adjusting



It's in the life cycle

