

# Biotech follows dot.com boom and bust



Tom Jacobs, of the Internet site Motley Fool (<http://www.fool.com/>), provides his angle on biotechnology investments.

Read on and become "Foolishly" informed\*. He can be contacted about biotechnology and investing at TomJ@Fool.com. Jacobs cannot give individual investment advice but welcomes any.

**Table: Predicted survival (years) of leading companies using two measures of cash burn rates (based on most recent quarterly/annual data)**

	Net cash/Free cash flow per year	Net cash/Cash used per year
Affymetrix	90.6	19.0
Discovery Partners	82.3	49.4
Protein Design Labs	38.9	86.3
Celgene	29.7	63.9
ArQule	27.7	24.6
Pharmacopeia	18.4	7.1
Celera Genomics	10.1	7.2
Incyte Genomics	8.0	7.5
Alexion Pharmaceuticals	8.0	8.4
Gene Logic	7.6	8.4

The latest biotechnology boom is over, and now it is time for the fall. And here is the evidence: fifty-six percent of the 471 companies within the broad biotechnology/drug industry sector finished their most recent financial quarter with less cash in hand than they had this time last year. Now, biotechnology (as well as its investors) is accustomed to weathering years of heavy spending, but it is not used to the majority of its siblings feeling the pinch. Many of that majority—265 firms—could become bankrupt or be sold for much less than investors paid. Biotechnology may suffer a slower and less visible collapse than that of the recent dot.com and telecom busts, but it will happen.

It all comes down to simple economics: venture capital and investor enthusiasm for Internet commerce led to a flowering of dot.coms. In turn, those e-business startups paid telecom companies richly for networking equipment. But the façade all came tumbling down when dot.coms found that they were chasing the same customers, and only the largest and best managed—eBay, Amazon, Yahoo—could survive. And as more headstones filled the dot.com graveyard, telecom suppliers began to collapse too. WorldCom is the largest and most recent fatality.

Ditto for biotechnology. The explosion of interest in anything genomic led to renewed investor interest in biotechnology. Taking advantage of this opportunity, many companies went public and raised billions of dollars, whereas established companies sold new shares and debt on favorable terms. Many unprofitable companies gained access to

unprecedented capital to sustain them through lean years of cash-hungry research before they could get products to market. But this led to a mismatch of supply and demand in two ways. First, too many biotech companies were competing for the same pharma funding. Second, new biotech companies provided a one-time burst of business to their suppliers, falsely implying future growth at the same explosive rate.

## Two bio-economic nooses

Fresh capital might improve newer companies' near-term financing, but biotechs still require deals with big pharma. And that resource is static, even declining: when companies combine—whether to form GlaxoSmithKline (London), AstraZeneca (London), or even "Pfizer-Pharmacia" (New York)—research budgets are streamlined, and become smaller than the sum of their parts. There is less to spread around, and, with more biotech companies in the pool, further to spread it (*Nat. Biotechnol.* 20, 857–858, 2002).

Furthermore, just as the birth of so many dot.coms fueled the companies providing technological infrastructure, so new biotechs fueled the demand for equipment from suppliers such as Applied Biosystems (Norwalk, CT), Beckman Coulter (Fullerton, CA), PerkinElmer (Wellesley, MA), Nycomed Amersham (Little Chalfont, UK), and Invitrogen (Carlsbad, CA). At first, these providers enjoyed a huge demand during biotech's spending spree, but their customers have now gone home. Equipment makers have learned the hard way that markets can swing too high on good news, and too low on the bad, and so can their stock prices.

## Cash burn and survival years

So, how do you know if your investment will survive? Divide a company's current cash and short-term investments *net of debt* ("net

cash") by its annual rate of cash use ("cash burn rate"). The result will give you a rough idea of how many years a company can survive before having to sell additional shares or issue more debt (both tough in a bear market); sell itself for bargain basement prices because it lacks negotiating power; or go belly up. Subtracting debt is essential to account for the financial pressures from a company's dues.

Although you can determine cash, short-term investments, and debt by looking at a balance sheet, estimating cash burn rate is more of an art. Here we use two measures of cash used: we look at *free cash flow* (cash from operations minus capital expenditures) and *actual cash used* (net cash a year ago minus net cash in most recent quarter). The first concentrates on the business only, and the second takes into account any money the company raised during the year. Each can be distorted by one-off events, so it is important to look at both to get a balanced impression. Then we divide the most recent net cash figure by each of these measures of cash burn rate to determine how many years a company can survive before needing to go hat-in-hand to the neighborhood loan shark or worse (in a bear market) or sell new stocks to happy investors (in a bull market). The ten currently cash-burning biotech companies that could last the longest at their current burn rates are shown in the Table.

Note that these are only numbers: they do not tell you whether a company's product will get to market, whether its management will extract new efficiencies or better allocate research and development spending, or whether capital markets will again become more friendly to unprofitable biotech companies. All of these factors could lengthen or shorten a company's survival. But these numbers are a start, revealing that some young companies do have enough cash to reach adolescence, and possibly even maturity—as long as things do not get any worse for biotech. ■

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