of each year. Companies often take the opposite position, delaying the annual meeting to buy more time, says Grushcow.

Another tactic called a 'poison put' is designed to protect bond holders by allowing creditors to call in a loan if there is a change in control of the company. The 'puts' are no longer just protecting creditors though; they're also helping management keep hold of the company, says Grushcow. "In an ordinary credit environment, companies could just refinance their debt, but now the put has become a threat rather than just an obstacle," he says.

Private companies are having a much easier time dealing with their investors. Although deal terms may be tougher for startups, there's still capital available from venture funds—at least for later-stage companies and "as long as companies have been successful at hitting milestones," explains Mark Lupa, partner at High Country Venture/Tango in Boulder, Colorado.

The initial public offering market is closed for now, but investors are still able to exit through acquisitions. The process may take longer, so established private companies are hunkering down and conserving cash, explains Chris Christoffersen, partner at Boulder-based Morgenthaler Ventures. He says that investors are also "putting more reserve funds into the deals to make sure companies get to the next round."

When companies don't hit their milestones, it's often easier to shut down or sell private companies because investors already have a seat on the board. "Things are always simpler for private companies. Information is much more available and it's easier to do things—whether it's building or taking apart," says Lupa.

Bruce Booth, partner at Atlas Venture in Massachusetts, agrees. "In private companies, it's generally a shared view that the prospects for a company's programs have sufficiently deteriorated to make raising new capital unattractive, if not impossible. Most of the time, significant efforts are made by both board and management to explore a full range of strategic alternatives—sale, merger or recapitalization, for example—before a shutdown."

It remains to be seen where the money that investors receive after companies are closed down will be reinvested. "It's going to go where the easiest money will be made. If the model works, investors will continue to invest in biotech," says Davis. But he cautions, "The jury is still out on whether it's working or not."

Brian Orelli *San Diego*

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Still strapped for cash

The beginning of April marked the end for Irving, Texas–based DelSite. Although the company had FDA clearance for a phase 1 trial of its GelVac nasal powder H5N1 influenza vaccine, it had spent several months fruitlessly seeking funding to pay for the work. It found none, so on April 2, it announced its filing for bankruptcy protection, setting itself up for liquidation. Equity holders are expected to get nothing.

DelSite is the third biotech firm to go bankrupt this year, according to figures from biobusiness magazine *BioCentury*. If that pace continues, 2009 will surpass the eight companies that went belly up last year (*Nat. Biotechnol*. **27**, 3–5, 2009).

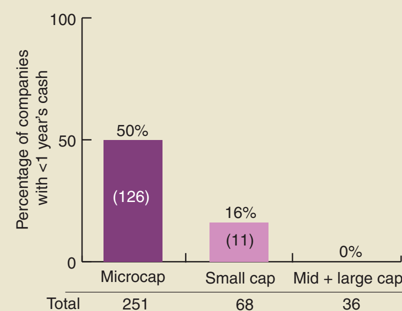

Figure 1 Percentage of biotech firms operating with less than one year's cash, segmented by market cap. Microcap, <$250 million; small cap, $250 million to <$1 billion; midcap, $1 billion to <$5 billion; large cap, ≥$5 billion.

In fact, a host of indicators suggest this year is shaping up to be worse than 2008. Ernst & Young has tracked the 'cash runway' of biotechs for years and usually finds between 20% and 25% of public companies have less than a year's cash. But *Nature Biotechnology* examined the most recent earnings reports (fourth quarter 2008 and first quarter 2009) of 355 global public firms that most closely met our definition of a biotech company and found that ~39% of them have less than one year's worth of cash. The increased percentage is driven for the most part by the plight of microcap firms (**Fig. 1**).

The shrinking market caps and depressed stocks have kept the exchanges busy with delistings, particularly NASDAQ. Eleven biotech companies have been delisted for regulatory issues or noncompliance through the first four months of this year, meaning 2009 could see >30 companies removed from the exchange (22 were removed for these reasons in 2008.)

The lack of investment has firms dumping programs to save on R&D and cutting staff, too. Over the six-month period leading to the end of March, *BioCentury* data show some 30 firms closed R&D programs in non-core areas. Restructurings so far in 2009 far outstrip those of previous years (**Table 1**).

These numbers paint an unpleasant picture, but it is still hard to draw long-term conclusions about the health of small biotechs. On one hand, it's quite likely that investors' value perception of biotech has changed permanently. Yet, it's also true that the need for biotech's strongest offerings (innovation and healthcare products) has not diminished. Regardless, the vaults will not open tomorrow, or next week, or even the third quarter, so biotechs should prepare for a trip through the desert.

Table 1 Public companies restructuring

Year	Number of public companies announcing restructurings
2006	35
2007	57
2008	114
2009	52 (first quarter alone)

Source: *BioCentury*.

That isn't to suggest massive death. "We don't think all those firms with less than a year of cash will disappear; we actually think the industry is quite resilient," says Glen Giovannetti, the global biotech leader at Ernst & Young, noting the restructuring and pipeline reduction happening across the sector. Still, there will be firms who "run out of options and end up shutting doors," he says. In fact, he expects more liquidations and bankruptcies "this time around" than in previous low times.

Exactly how many isn't clear, but if nearly 40% of public biotechs are in a cash crunch, Giovannetti estimates 20–25% of these could go under in the next 12–18 months. If that's the case, the international biotech sector could lose 25–35 more firms. The longer the economy languishes where it is, the higher that number could rise.

Many argue that the downturn is in effect culling the weak—Darwinian principles applied to biotech—and Giovannetti agrees, saying a "stronger cohort of companies" will come out the other side. The question is, are we looking at simple Darwinian selection or a mass extinction of microcaps similar to a cataclysmic event?

Brady Huggett, Senior Editor