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2013 BDO BIOTECH BRIEFING

BIOTECH CONTINUES TO INCREASE R&D SPENDING

The ***BDO Biotech Briefing*** examined the most recent 10-K SEC filings of companies listed on the NASDAQ Biotechnology Index. Companies reporting more than $300 million in revenue were excluded to ensure findings are representative of the vast majority of companies included in the NASDAQ Index. Remaining companies were divided into two groups—those with more than $50 million in revenue and those with less than $50 million in revenue—to identify trends and key metrics relevant to each group. The average market cap of companies in the study as of the end of their most recent fiscal year is $653 million.

The report has been cited by a number of media outlets, including: *Bloomberg Healthcare Finance Brief, The Deal, Fierce Biotech, New Jersey Business Journal, Pharmalot, SeparationsNOW, The Pharma Letter* and *Xconomy*.

Amid a surge of new drug approvals, an impressive roster of IPOs and increasing investor demand, the biotechnology industry is staying committed to its investment in research and development (R&D). While many big pharmaceutical companies are being asked to reduce or maintain existing levels of R&D budgets, R&D expenditure in the biotech industry continues to increase. According to a new study from BDO, R&D spending is on the rise, increasing eight percent in 2012, compared to a four percent jump in 2011. This contrasts with big pharma's R&D efforts, which remained stagnant in 2012 at $48.5 billion compared to $48.6 billion in 2011, according to industry group Pharmaceutical Research and Manufacturers of America (PhRMA).

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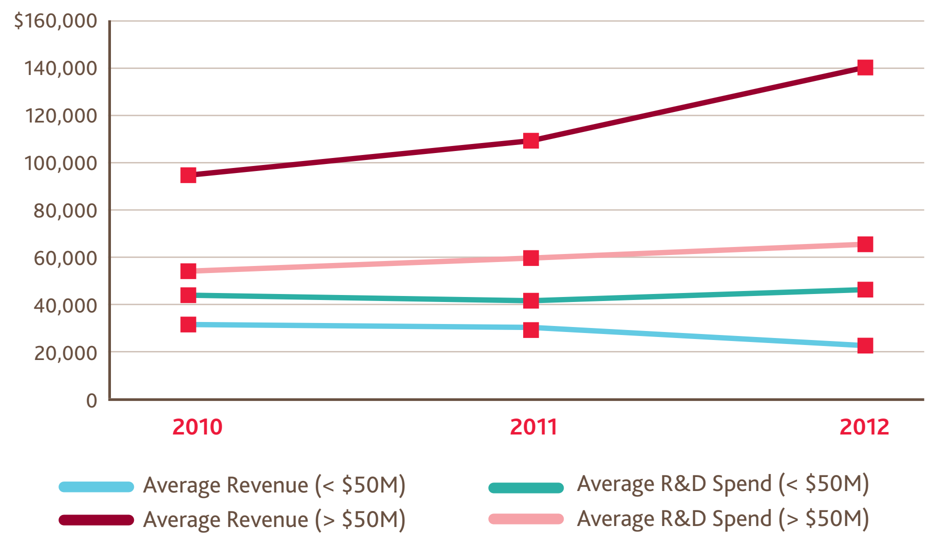
Ryan Starkes, partner and leader of the Life Sciences Practice at BDO, "Unlike big pharma companies, who are developing new products while maintaining a consistent level of R&D spending, biotechs continue to demonstrate a desire to increase their R&D investment. The good news for the sector is that they are attracting significant capital and are clearly putting those dollars towards their intended use."

The ***2013 BDO Biotech Briefing*** found that the companies surveyed, on average, spent $54 million in R&D, up from $50 million in 2011 and $48 million in 2010.

While R&D expenditure increased across the biotech industry, the level of investment did not necessarily correlate to company's operational and financial performance. Although biotech companies overall saw an average 13 percent revenue jump in 2012, larger biotechs, which the study defined as having revenues over $50 million, are the primary contributors to this increase. Larger biotechs saw a 28 percent increase in revenue, whereas smaller biotechs reported a 27 percent decrease in average revenue last year.

Not surprisingly, biotechs reported greater losses in 2012 than in prior years. On average, companies reported a $50 million loss, up from $36 million in 2011. Nearly all small companies (98 percent) reported losses compared to three-fourths (72 percent) of larger companies.

Biotech R&D Spend and Revenue Trends



▶SMALL FIRMS CONTINUE TO INVEST IN R&D, DESPITE CHALLENGING ENVIRONMENT

Despite seeing a decline in revenue and greater losses in 2012, small biotech companies (companies with under $50 million in revenue) remain committed to their R&D efforts. Smaller companies reported a nine percent increase in average R&D spending overall, and average R&D spending as a percentage of revenue increased to 215 percent in 2012, up from 143 percent in 2011. Smaller companies also spent more on R&D per employee. In 2012, they spent $342,000 per employee, 42 percent more than the overall average in the study, and 90 percent more than larger companies spent per employee in 2012. While larger biotechs remained committed to their R&D efforts, spending slowed in 2012. Larger biotechs reported a seven percent increase in average R&D spending overall compared to a 10 percent increase in 2011. Average R&D spending as a percentage of revenue also decreased to 46 percent in 2012 compared to 55 percent in 2011 among larger companies.

"Small biotech companies are, by nature, focused on innovation and early stage research and development. It appears that larger pharmaceutical companies are leveraging this pool of innovation, effectively developing partnerships with small biotechs to streamline development and keep early stage R&D expenses off their balance sheets," said **Julien Mamet, founder and chief scientific officer of Adynxx**.

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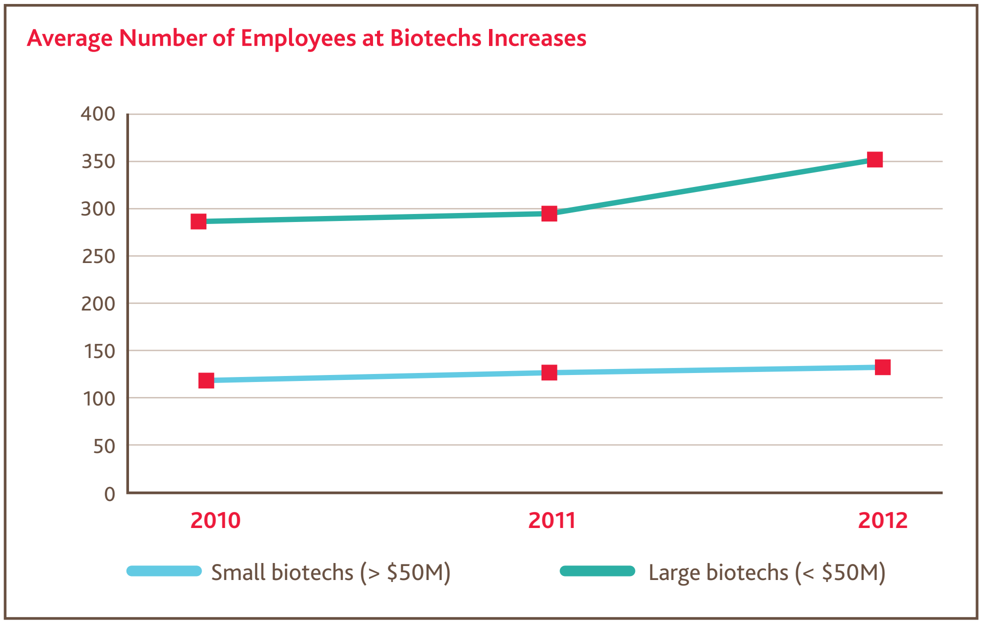
▶EMPLOYMENT CONTINUES TO INCREASE

The number of employees at biotechs increased 13 percent from 2011 to 2012. A recent report from analyst EP Vantage confirmed findings that biotech companies are driving job growth in the life sciences industry, with some companies reporting staff increases of over 60 percent between 2007 and 2012. In fact, average headcount moved from 198 to 223 as companies matched staffing needs to growth rates. However, despite the jump in R&D expenditures, the average number of employees dedicated to R&D continues to remain flat. While in-house R&D employment may be flat overall, biotechs are increasingly working with outside clinical research organizations and other contractors that are not captured in payroll data. Nonetheless, large biotech companies were the big job creators in 2012, with overall headcount up a notable 23 percent and a seven percent growth in R&D professionals.



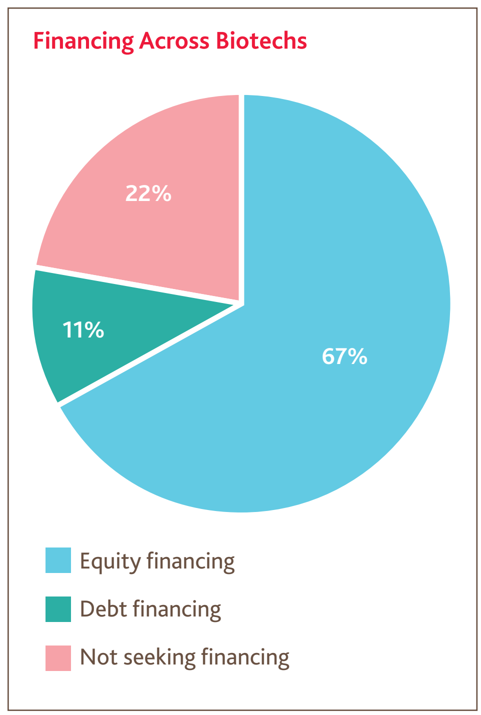
▶BIOTECHS CONTINUE TO TAP CAPITAL MARKETS

Given their commitment to fuel R&D efforts, the vast majority of biotechs in the study (78 percent) looked to the capital markets in 2012, rather than cash generated from operations. Equity financing continues to be the most popular source for capital, with 67 percent of biotechs looking to the equity markets. Companies raised an average of $56 million through equity financing, which was in line with the levels of the past two years. Biotechs seeking debt financing also found success, confirming the early signs of ease in the debt markets seen last year. The average amount raised soared from $34 million in 2011 to $61 million in 2012 for companies in the study.

Although the JOBs Act is only a little more than a year old, its impact is already being felt in the biotech industry. Smaller private biotech firms continue to use the JOBs Act to access investment capital on the public market, and as a result, we can expect further job creation, funding for research, and technological advances in the coming years.

▶LIQUIDITY SHOWS PRUDENT CASH MANAGEMENT

Liquidity remains a priority in the biotech sector, as firms focus on cash management. Companies reported on average $134 million in liquid assets in 2012, up seven percent from 2011 and 17 percent from 2010. Biotechs held, on average, an equivalent of 2.5 years' of R&D spending in 2012, which has remained consistent over the last three years despite the



"In prior BDO Biotech Briefing reports, it was identified that the virtual biotech business model was increasing in momentum," said **Aftab Jamil, partner and leader of the Technology & Life Sciences Practice at BDO.** "Entrepreneurs are taking advantage of technology and access to well-qualified specialist researchers to pursue R&D projects, without adding headcounts. The current year's findings confirm this trend."

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Dan Shea, managing director of BDO Capital Advisors told The Deal, "The capital available for transactions remains high relative to the number of business owners looking for a liquidity event, making it a seller's market."

growth in overall R&D expenditure. Smaller biotechs were even more strategic in cash management, holding 2.63 years' equivalent of R&D spending, compared to 2.33 years worth among large companies. As companies continue to focus and invest in product development, cash is a strategic asset for them and critical to support their programs

▶BIOTECHS DELIVER STRONG RETURNS, HELP SPUR IPO BOOM

In 2012, biotech companies reported very strong total shareholder return (TSR). Average TSR for all companies in the study was 39 percent with smaller biotechs generating even larger increases in TSR from -12 percent in 2011 to 47 percent in 2012. Positive returns have continued in 2013, contributing to significant interest among investors and a notable rise in initial public offerings. According to Renaissance Capital, 23 biotech IPOs have been completed so far in 2013, with an average return of 48 percent.

Since the JOBs Act was enacted on April 5, 2012, biotechs are initiating the IPO process more often and earlier in their growth than prior to the Act. According to US News & World Report, between the financial crisis and the JOBs Act being enacted, only one Phase 1 or preclinical biotech launched an IPO. Since the JOBs Act's enactment, five preclinical biotechs have initiated IPOs.

As the NASDAQ Biotechnology Index hit historic heights in September 2013 according to Yahoo! Finance, investor appetite for the biotech sector remains very strong. According to Starkes, "cash is continuing to come in and the companies are putting cash to use and investing in their science and product development, which is exactly what you hope to see as an investor in these companies."

"We've seen a tremendous resurgence in biotech IPOs this year, which is good news for early investors, entrepreneurs and R&D pipelines," said **Jamil**. "Many small biotechs have taken advantage of the JOBs Act's streamlined reporting requirements and found success and capital in the public markets. While we expect to see more offerings this year, newly-listed public companies have a challenging road ahead as they work to navigate clinical trials, FDA approvals, and increased demand following healthcare reform – all under the watchful eye of investors."

ABOUT THE TECHNOLOGY & LIFE SCIENCES PRACTICE AT BDO USA, LLP

BDO has been a valued business advisor to technology and life sciences companies for over 100 years. The firm works with a wide variety of technology clients, ranging from multinational Fortune 500 corporations to more entrepreneurial businesses, on myriad accounting, tax and other financial issues.

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