

General Market Overview

PUBLIC MARKETS

The US biotech sector failed to prolong its upward rebound initiated in late Q2, instead falling back heavily to end the year in the red. The Nasdaq Biotechnology Index (NBI) fell 22%, posting its worst year since 2002. As a reference, during the financial crisis in 2008, the index fell 13%.

Index	Q4 2016	2016
FTSE 100	↗ 4%	↕ 14%
Dow Jones 30	↗ 8%	↕ 13%
S&P 500	↗ 3%	↗ 10%
NASDAQ	↗ 1%	↗ 8%
BC London	↘ -6%	↘ -2%
NYSE Arca Biotech	↘ -9%	↘ -19%
BC 100	↘ -11%	↘ -23%

The year turned out to be a bad one for biotech public markets, clearly beaten by broader indices. Gains in cyclical sectors attracted generalist investors' interest, inducing a capital outflow from the biotech sector.

Index performance. Source: BioCentury Financial Center

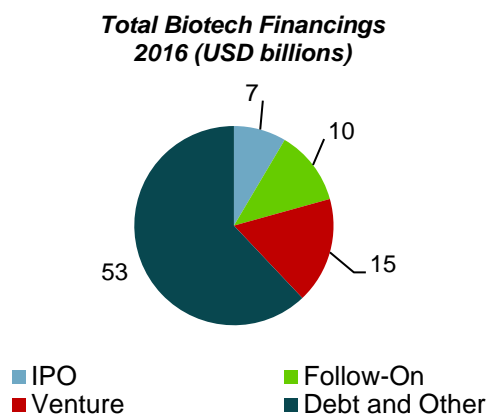
Each market cap tier tracked in the BC 100 index fell, with small and microcap tiers taking the hardest beating, each falling 25%. On a positive note, the best performing stock in the small cap segment was HealthCap VI company **Nordic Nanovector ASA**, posting a 95% gain in the last quarter and 586% for the full-year, to finish the year with a market cap of USD 544 million.

Biotech companies in Europe, in general, performed much better than their US-listed counterparts. The BC London index was down only 2% for the year, and BC Europe was up 11%, all of which was added in Q4 to a significant part contributed by the 33% increase in former HealthCap portfolio company **Actelion Ltd's** valuation on takeout rumors. Eventually, **Johnson & Johnson** announced its USD 30 billion acquisition of Actelion in January, 2017.

While biotech investors were happy to see the year of 2016 end, the outlook for the year ahead is mixed as there is still uncertainty about US government politics for healthcare, but valuations are also attractive following last year's poor stock performance.

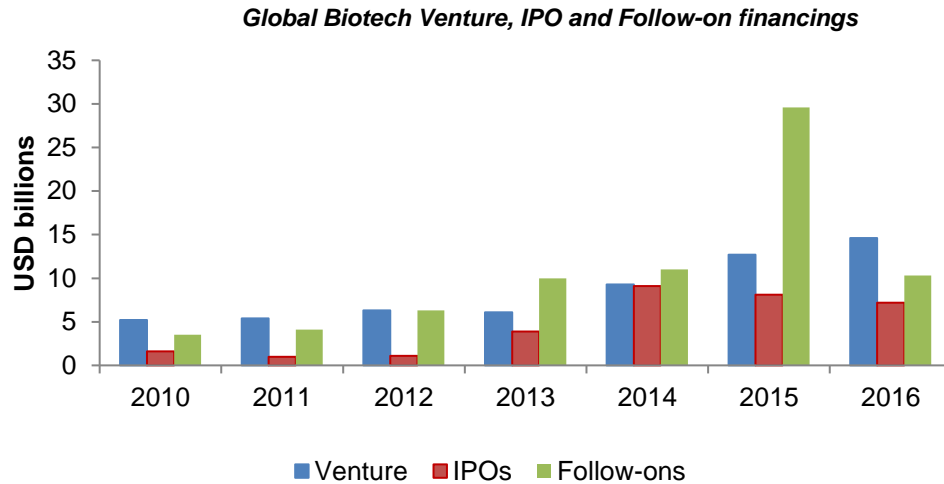
FINANCINGS

Debt financings continue to contribute with the lion's share of total financings, reaching a total of USD 49 billion, led by the debt facilities taken by **Teva Pharmaceuticals** and **Shire plc** of USD 15 billion and USD 12 billion, respectively. The amount is on par with the USD 51 billion of debt financings closed in 2015.



Biotech financings 2016. Source: BioCentury Financial Center

The venture financing asset class has been strong over the past few years for most sectors, and the biotech sector is no exception. The last three years have been the three strongest since BioCentury started its data collection in the mid-90's, and the total for 2016 reached almost USD 15 billion.



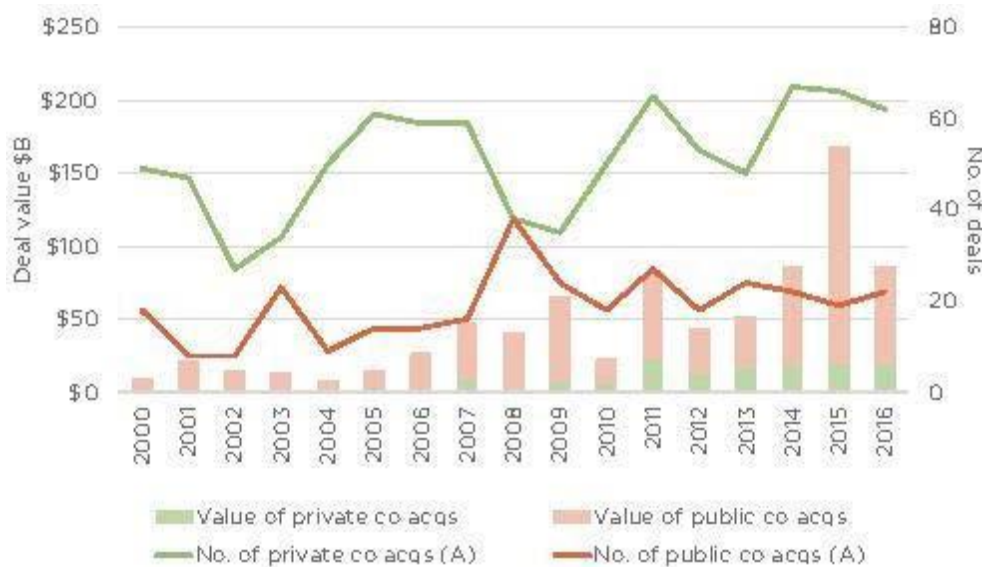
Biotech financings last seven years, excluding debt and other. Source: BioCentury Financial Center

Public financings, both IPOs and and follow-ons, have shown their more cyclical nature in recent years, follow-ons in particular, reaching a peak in 2015, but still posting a strong USD 10 billion total for the year 2016. A total of USD 7.2 billion were raised in 65 IPOs, a slight downturn from the year before. Still, the annual amounts raised in both IPOs and follow-ons were top-4 since 1994.

BioCentury concludes that many bankers expect a busy start in the public financings of 2017 as companies postponed their financing rounds due to concerns of volatility around the US elections.

M&A

Looking at BioCentury data, also illustrated in the graph below, the number of acquisitions were about the same in 2016 as in 2015, with 84 deals. Almost 3 out of 4 deals were public takeouts, a proportion similar to the years before. However, total disclosed deal value was much lower in 2016 when it reached USD 86 billion, compared to USD 168 billion in 2015. Looking at only private company takeout value, it has remained flat at around USD 20 billion for several consecutive years.



M&A Activity. Source: BioCentury

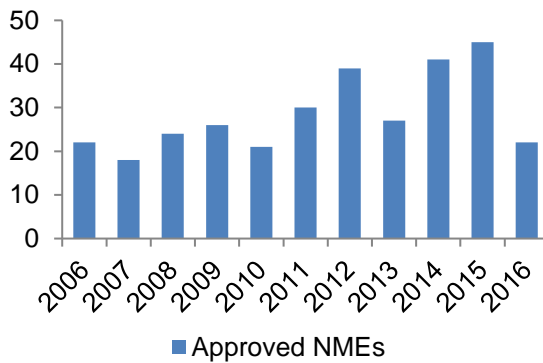
The data include takeouts of therapeutic companies counted in the year the deal closed. Data exclude deals in the agbio, diagnostics, generics, supply/service and veterinary segments, as well as reverse mergers, acquisitions of big pharma and acquisitions of divisions/subsidiaries. Deal values include milestones. (A) Includes deals with undisclosed values

Last year, two major acquisitions took place as **Shire plc** bought **Baxalta Inc** for USD 32 billion, and **Pfizer Inc** acquired **Medivation Inc** for USD 14 billion.

DRUG APPROVALS

It has caught the interest of many that the number of approved novel drugs by the FDA dropped significantly in 2016 compared to the two preceding years. The 22 FDA approved NMEs in 2016 represents a drop from 45 the year before, the number of approvals in 2015 was the highest in two decades. Looking deeper into data, it turned out that five new drugs approved in 2015 had 2016 PDUFA dates and were approved faster than anticipated, and also in 2016 FDA issued at least 14 complete response letters vs only two in 2015. We can assume a few of those will eventually be approved.

Number of approved novel drugs by FDA



The 22 NMEs approved in 2016 is a number lower than the average of 29 approvals per year for the last 10-year period, but a relatively high share (9 approvals) were considered first-in-class, among them the first treatment for patients with spinal muscular atrophy and the first drug approved to treat Duchenne muscular dystrophy.

FDA approved NMEs. Source: FDA

The number of received NME applications has remained relatively stable and as many PDUFA dates have been disclosed for 2017 already, data suggest that approval numbers might increase again.

HBM analysis suggest that average worldwide peak sales per new drug approved in 2016 is estimated at USD 1.4 billion, a number similar to previous years. Also, and as in the years before, over 60% of new drugs approved in 2016 originated at smaller biopharma companies.