

20 Sep 2017 | Analysis

Amazon Versus Biotech: How The IPO Class Of '97 Worked Out

by John Hodgson

Life sciences investors pumped around \$15 billion into 175 biotech, medtech and diagnostics firms that went public during the 2014–16 IPO window. To understand what may be in store for those firms and their backers, *In Vivo* reexamines the fate of a previous generation of companies, the IPO Class of 1997.

- Amazon.com was a small, online bookseller when it debuted on the public markets in 1997. It has since done astoundingly better than the 49 biopharmas that floated the same year; the 14 biopharma companies still in business have a combined market cap just one one-hundredth of Amazon's.
- While the business plan specifics may have changed, the patterns of successes, failures or mere persistence shown by the IPO Class of 1997 may throw light on the expectations for companies that went public during the big 2014–16 IPO window.
- So what? Perhaps the first lesson for managers, employees and investors in the biopharmaceutical community is that the IPO is only another step toward value creation: it is neither an end in itself nor an approach that secures any certainty about the future of a company.

Completing an initial public offering ought to be a big step in company development. It is a departure from a cosseted, insulated environment of unique technical approaches and regulatory progress and an entrance into the glare of quarterly scrutiny and comparative financial performance.

To pump \$15 billion into life sciences in the 2014–16 window, investors presumably convinced themselves they could pick winners. Two decades of hindsight say otherwise. Indeed, two decades of hindsight from the biotech Class of '97 indicate that:

1. The IPO is insignificant as a funding mechanism; it can be a door to follow-on finance but only if a company can last until a subsequent financing window;
2. Companies often fail to achieve IPO goals having failed to anticipate technology commoditization, left-field competition or the cost of commercial development;
3. Immediate post-IPO equity valuations are often wishful; IPO investors' best chance of profit is through early acquisition before IPO hopefulness evaporates;
4. If the past is any guide, around 20% of the 2014–16 crop will fail to create any value at all, 50% will be acquired (20% within five years of IPO) and 30% will survive (in some form) for a decade or more.

Hindsight has obvious benefits but why go back 20 years? Trivially, it is a round number of years. Perhaps more pertinently, it is longer than the more pessimistic estimates of the drug development cycle: in other words, companies that were going to develop drug treatments ought to have had time to do so. And thirdly, [Amazon.com Inc.], now the fourth largest corporation in the world by market capitalization, went public 20 years ago. That gives us a benchmark that has nothing to do with biotech, reinforcing the notion that investors have a range of opportunities in which to choose to put their money.

As a reminder, Amazon in 1997 was a small, 250-person, loss-making online retailer that needed cash to fuel ambitions to become “the worldwide authoritative source for books.” Twenty years later, it still sells books, but a good deal more besides. It also has 340,000 employees (one thousand times the number it had at IPO) and 2016 revenues (\$136 billion) that exceed the collective drugs sales of the top 16 pharmaceutical companies. Its current market capitalization is a thousand times higher than in 1997.

In two decades upstart Amazon has become the establishment, a target for middle-class literati who bemoan the loss of elitist, specialist bookshops and a force for social cohesion (as neighbors share in the convenience of next-day delivery).

Its IPO peers from the life sciences have not quite matched Amazon's impact on either public consciousness, investor prosperity or employment.

Of the 54 biotech, pharma and medtech companies that tried to float stock on Nasdaq or the New York Stock Exchange in 1997, 14 are still in business in 2017 as independent entities even though many of those survive only at the margins. (*See Exhibit 1.*) Investors put \$48 million into Amazon.com at IPO and the company is now worth around \$475 billion (September 12, 2017); in contrast, the 14 surviving life sciences companies taken together raised \$336 million and now have a combined market capitalization of just \$4.4 billion.

Exhibit 1

Fate	# Companies	Value(\$m)*	IPO Total (\$m) in 1997
Offers withdrawn	11	-	269
Out of business	7	0	92
Acquired	22	16,742	737
Continues in business (September 12, 2017)	14	4,395	336
Total	54	21,228	1,436
Total (IPOs completed)	43	22,420	1,166
Amazon	1	475,000	48

*Value = deal cost (for acquired companies) or market capitalization (continuing companies).

Source: In Vivo research

Do The Financing Windows Compare?

The funding environment 20 years ago was not as generous as the recent IPO window. In 1997, some 43 different life sciences companies got their offers away raising \$1.17 billion between them, an average of just over \$27 million each. Allowing for inflation, the total is quite similar to the \$1.5 billion raised in US IPOs in 2016, although in 2016 the money went to around half as many companies (30) and the average raised was commensurately higher (\$53 million).

The totals and averages raised at the peak of the more recent window were much higher: \$4.5 billion in total raised in 2015 at an average of \$77 million for 61 companies, and \$5.6 billion at \$67 million each for 83 companies in 2014.

IPOs Are Windows To More Finance

Perhaps the first lesson for managers, employees and investors in the biopharmaceutical community is that the IPO is only another step toward value creation: it is neither an end in itself nor an approach that secures any certainty about the future of a company. Completing an initial public offering undoubtedly seems like a big step for any company: in the life sciences, it not only provides a cash bolus (and the promise of more) but also gets a company out from under the feet of venture capital investors. Despite the administrative strictures that characterize publicly quoted companies, newly public companies attain a greater level of autonomy on IPO.

Part of that autonomy is improved access to cheaper finance. Venture capital is an exotic and seductive form of finance, thriftily distributing money culled from the pecuniary risk-taking fringes to lure wild businesses inside the perimeter of credibility. Public finance markets can be more generous: the average \$27 million from a 1997 IPO might have been a big step up for some companies from trickling venture capital. However, the real prize – at least for some of them –

was the \$6.8 billion that came through follow-on offerings, PIPEs and other financial mechanisms. (See *Exhibit 2*.)

Exhibit 2

Event	\$bn
IPO	1.166
Secondary public offering	3.478
Private institutional placements	3.347
Total	7.991

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An IPO exposes a company to significantly more public scrutiny and judgment. In a rational world – where the evaluations of multiple knowledgeable stock market investors are expressed in aggregate as a valuation of a particular company – the level of finance raised at IPO might be expected to be a predictor of subsequent performance: companies with better prospects (as judged by the market) should be able to raise more money at IPO.

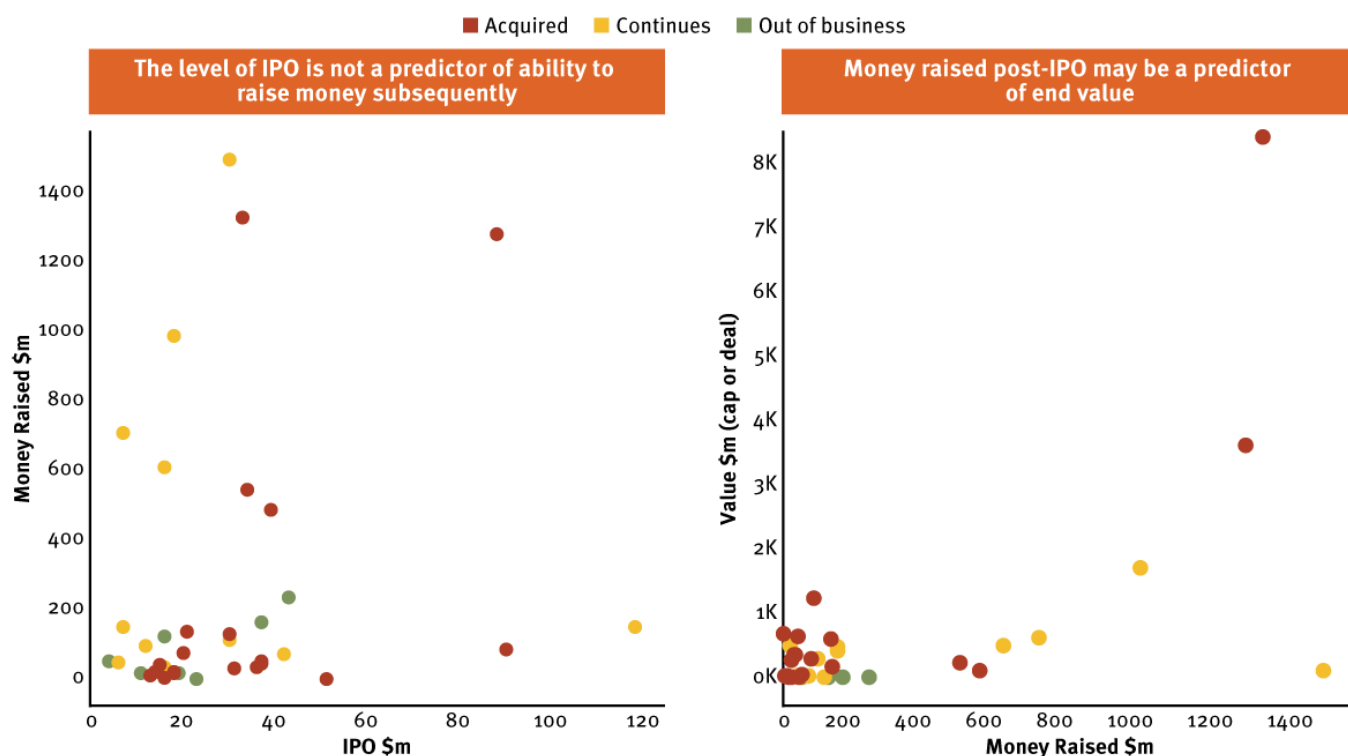
However, as the left side of *Exhibit 3* shows, there is no discernable correlation between the level of money raised in an IPO and the subsequent amounts of money that a company can raise. There is, though, a weak correlation between the money that a company raises after its IPO and the value it creates (*Exhibit 3, right side*).

The magnitude of an IPO reflects many aspects of a company's organization and behavior beyond the event itself, notably the assessment at the IPO of the "opportunity" that subsequent commercialization represents. In addition, a firm's initial valuation on the public market is likely to be inflated by the mere fact that it is made at a time when investor enthusiasm is high.

Exhibit 3

PINK SHEET

CITELINE REGULATORY



IPO value does not predict what money a company can raise afterwards (left); however, money raised later correlates weakly with enterprise end value or market cap (right).

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Acquisitions

The autonomy that arises on IPO doesn't necessarily last all that long. Of the 43 companies in the Class of '97 that completed an IPO, 22 have since been acquired – the most common outcome from this set. Around 40% of the acquisitions (9/22) were made within five years of IPO.

Roughly half of those early acquisitions were valued below the amount that the company raised at IPO. [Transcend Therapeutics Inc.](#), for instance, had already reduced its public offering when it raised \$18 million in June 1997 to fund development of treatments for oxidative stress. But it ceased activities two years later and was bought by ophthalmic specialist [KeraVision Inc.](#) for \$9.5 million in stock, the lure for Keravision being \$8.4 million in cash Transcend still had.

At least two of the early acquisitions were, however, highly lucrative for the IPO investors. [LeukoSite Inc.](#)'s 1997 IPO had raised just \$15 million but a subsequent secondary offering of \$12 million in 1998 during the genomics bubble allowed it to make two acquisitions, \$2.3 million for tiny [Progenics Pharmaceuticals Inc.](#) in June 1999 and \$19 million (in stock) for [CytoMed Inc.](#) in January 1999. Leukosite itself was then acquired by [Millennium Pharmaceuticals Ltd.](#) for \$585

million in genomics-bubble-inflated stock at the end of 1999.

Many of the companies that withdrew their 1997 IPOs were also acquired shortly afterwards: [Virologix Inc.](#) in 1999 by Access Pharmaceuticals, [Apollo BioPharmaceuticals Inc.](#) by [MitoKor](#) for stock in 2001, [Apollon Inc.](#) by [Wyeth Pharmaceuticals](#) in 1998 and [Jenner Biotherapies Inc.](#)'s cancer vaccines were bought up by [Immuno-Designed Molecules Inc.](#) in 2003 after Jenner was dissolved. (See sidebar, "Unsuccessful IPOs.")

The Survivors

Given the risky nature of product development in the life sciences sector, it is not a surprise that only 14 of the original 1997 IPO cohort continue independently in business. Indeed, the number of survivors that could claim to be in robust health is even lower than that. Four of the apparent survivors – [Ore Pharmaceuticals Inc.](#), [Echo Therapeutics Inc.](#), [Guided Therapeutics Inc.](#) and [Proteonomix Inc.](#) – have market capitalizations of below \$1 million.

Unsuccessful IPOs

By [John Hodgson](#)

20 Sep 2017

Not all initial public offerings are taken up, even in the best of funding years. Of the 54 life sciences IPOs registered in 1997, 11 (20%) were withdrawn because of pricing issues or lack of interest.

[Read the full article here](#)

The paths to these minuscule valuations are a warning, partly, of the unpredictability of trying to convert technical operations into commercial ventures, as the example of Ore Pharmaceuticals illustrates.

Ore started off as Gene Logic, a company founded in 1994 amid the excitement of the gene-on-a-chip drug discovery movement. It offered a suite of wet and *in silico* genomics drug discovery and drug repurposing deployed both in house and as an external service. The \$24 million it raised at IPO in November 1997 (at \$8 per share) was 30% shy of the anticipated \$33 million, but in January 2000 it raised what was then a record follow-on public offering of \$247.9 million as its stock shot up to \$144.

Then the genomics bubble burst and Gene Logic floundered. By the end of 2000, its stock was back down to single figures; in 2006 it sold its preclinical division to [Bridge Pharmaceuticals Inc.](#) for \$15 million and a year later sold its genomics assets to Ocimum for \$10 million in cash to launch a service business in drug repositioning under the name Ore Pharmaceuticals (mining pharma's prospect-rich strata). But by the end of 2008, the stock was in a death spiral: a one-for-five reverse stock split that year was followed by a one-for-ten-thousand reverse split in 2011. The company died operationally at that point, becoming an investing shell, Ore Holdings, with just one company in its portfolio, the e-cigarette supplier Ballantyne Brands. Its market

capitalization is now under half a million dollars.

A similar fate befell another survivor, [*ARCA biopharma Inc.*](#), back in 1997 a pioneer of sequencing by hybridization called [*Hyseq Pharmaceuticals Inc.*](#)

In 2003, Hyseq merged with Variagenics to become part of [*Nuvelo Inc.*](#), which attained a market valuation of over \$1 billion as its thrombolytic candidate alfineprase entered late-stage development. Nuvelo raised around \$277 million in four follow-on offerings between 2003 and 2006 as well as extracting a \$50 million up-front collaboration fee from [*Bayer AG*](#). But the Phase III trial of alfineprase did not reach its primary endpoint and Nuvelo became a well-financed shell lacking significant clinical assets. Up-and-coming venture-backed cardiovascular play ARCA biopharma took advantage, with a reverse merger into Nuvelo in September 2008 while the company still had around \$50 million in liquid assets.

Having received \$369 million in public financing all told as Hyseq and Nuvelo, ARCA is currently valued at around \$18 million.

Reinventing a company and changing its name doesn't necessarily propel it toward commercial oblivion. [*Sarepta Therapeutics Inc.*](#) has undergone two name changes but is still worth \$2.4 billion, the only surviving member of the Class of '97 to have a market cap in excess of a billion dollars.

In June 1997, Sarepta, then known as Antivirals, completed an oversubscribed IPO for \$19 million. Its near-term prospects were in developing drug delivery systems for cyclosporin and paclitaxel, the patents for which were about to expire. By the end of that year, it had acquired cancer vaccine outfit ImmunoTherapy for \$24 million in stock and changed its name to AVI BioPharma. Under the AVI name, between 1999 and 2011, the company accumulated \$230 million in 11 follow-on public offerings and stock placements.

But then the markets lost confidence in AVI and its stock price fell below \$1, even though the seeds of the company's efforts of exon-skipping RNA-based drugs had already been planted several years before. It was time for a one-for-six reverse stock split – to get the stock price up again – and another change of name to emphasize Sarepta's newest direction as a developer of RNA drugs for rare diseases.

As if by magic, the markets responded, throwing another \$770 million in follow-ons and placements at the freshly reminted company as its lead compound – etiprersen – wavered and teetered on the brink of FDA approval. That finally came in September 2016. The compound is currently awaiting approval in Europe.

Lessons For Now

There is not much left to say about the fate of the IPO Class of '97. A sixth of the companies (7) simply went out of business, creating virtually no terminal value: interestingly, two of those seven companies lasted until the start of 2017, nearly two decades of decline and another four firms (at least) are heading that way. Roughly half of the Class of '97 (22) were acquired and 40% of those were acquired soon after their IPOs. That leaves a third (14) continuing independently in some form or other.

Circumstances in biotechnology and in the financial markets are clearly different in 2017 than they were in 1997. However, we can be confident that some of the lessons of the past still apply.

Investors might like to think that they can already distinguish which of the 175 companies that jumped through the 2014–16 IPO window will make and which will not. But the evidence from the Class of '97 is that they cannot. Even when markets back the hottest technology prospects or pump money into public companies through secondary financings, enterprises still fail.

Imposing some of those numbers crudely on the 175 companies that completed an IPO in 2014–16, it seems perfectly plausible to predict that around 80 to 90 of them will have been acquired by 2035, that 30 to 40 of them will go out of business without having created any value and that another 30 to 40 will persist in one form or another as independent businesses. Probably half of those will remodel their businesses at least once and change their names.

It is also possible to make some predictions about the future financing patterns for companies that remain extant. Collectively, the members of the Class of 1997 that completed an IPO raised around \$1.17 billion in their first sorties onto the public markets. Subsequently, two-thirds of them returned to extract another \$6.8 billion from the public capital markets – a multiple of roughly six times.

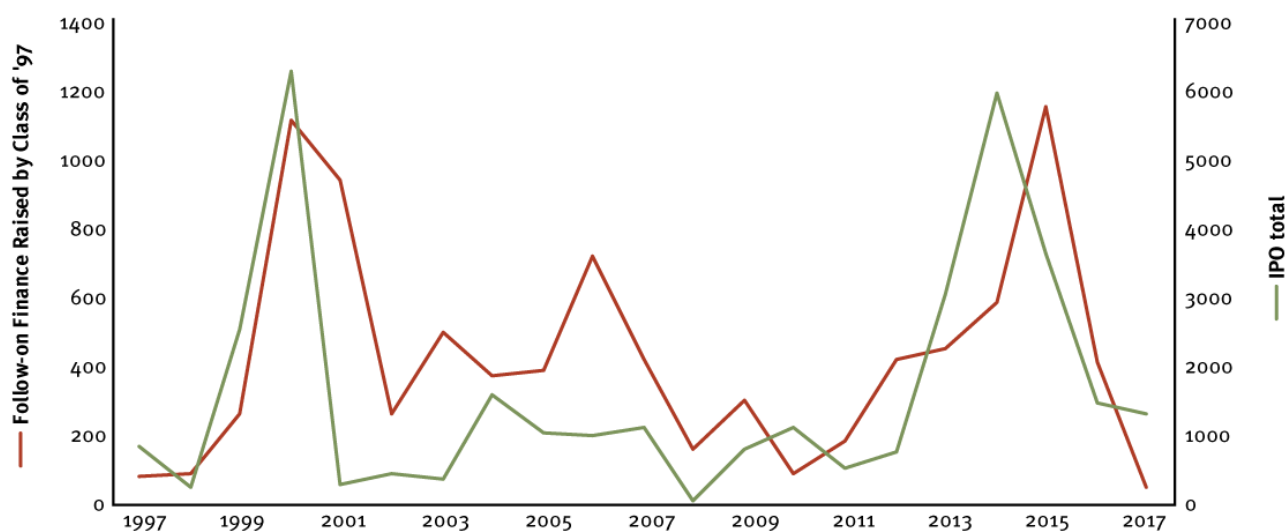
Extrapolating that would mean the Class of '14 –16 might hope to raise an additional \$90 billion over the next two decades.

Now, although that might seem like a reassuringly large amount of money, the precedent from 1997 suggests that the cash will not be evenly spread. Under one-third (13/43) of the Class of '97 companies conjured up more than \$100 million in additional finance and only eight firms managed to persuade investors to part with over \$250 million. Those eight – [*CTI BioPharma Corp.*](#), [*Synageva BioPharma Corp.*](#), Sarepta Therapeutics, [*Depomed Inc.*](#), Progenics Pharmaceuticals, [*Corixa Corp.*](#), Aastrom Biosciences (now [*Vericel Corp.*](#)) and Ore Pharmaceuticals – account for over 83% of all the post-IPO finance raised by the Class of '97.

Furthermore, the opportunity to raise addition finance is not in the gift of company management, any more than was the timing of the original IPO. To a very large extent, companies can only raise secondary finance when the public markets are open. (*See Exhibit 4.*)

It's not the finance window that a firm scrambles though that counts, but making it through to the next one.

Exhibit 4



Further finance for the Class of '97 was closely tied to open finance windows.

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So it seems reasonable to expect that the bulk of follow-on finance for the 2014–16 IPO cohort would be concentrated on just 20% of the firms, 30 to 35 companies. It seems less reasonable, however, to expect that the public markets would provide an additional \$90 billion worth of post-IPO money, the equivalent of the mark-up that the select few in the Class of '97 accumulated. The period of 2014–16 was one of exceptionally generous financing and it would require several more like it to satisfy the capital hunger of the bioscience companies that the IPO window generated.

Amazon Coda

Taken together, the life sciences cohort that floated in 1997 does not compare well with the dominant Internet retail and distribution giant. But perhaps comparisons with Amazon.com are unfair. Choosing the single most spectacular stock market story since Apple Inc. in 1980 as the benchmark will make the performance of any other company or sector appear shoddy. Many, if not most of the 700 companies that listed in 1997 haven't survived. Garden cookery suppliers Barbecues Galore folded in 2005 while flip-flop retailer Shoe Pavillion went into Chapter 7 liquidation in 2008. The quality smoke trader General Cigar Holdings was acquired – most

appropriately – by Swedish Match in 2005.

Thankfully, outdoor grilling products, watershoes and the finest Havanas can be ordered through Amazon.com and delivered to your door.