

HBM Pharma/Biotech M&A Report 2020

Analysis of Biopharma M&A in 2019 (and previous years)

Key Findings

- Worldwide biopharma M&A volume of completed and announced deals (including contingent payments and asset deals) reached a record of \$254 billion in 2019 (as compared to \$155 billion in 2018 and \$76 billion in 2017).
- The two mega-deals, BMS/Celgene (\$74 billion) and Abbvie/Allergan (\$63 billion) got most headlines in 2019 with the acquisition of Celgene by BMS being the third largest pharma acquisition in history.
- US biopharma deal activity was very strong with 12 \$1-billion-plus deals closed in 2019 and another 5 such deals announced. European deal volume (outside of the \$63 billion Abbvie/Allergan transaction) was only around \$10 billion.
- As in previous years, M&A transaction volume outside of the US and Europe in 2019 was modest with a transaction volume of only \$5.4 billion.
- Premiums paid in 2019 for public companies reached an average of almost 100%, demonstrating the continued appetite for companies with new products in development or on the market.
- Return multiples to VC investors from M&A stayed at high levels in 2019 but did not reach the values of previous years.
- VC-backed company trade sales in oncology dropped in number and deal volume, whereas non-oncology orphan companies generated one third of transaction volume.

About the HBM Pharma/Biotech M&A Report

The HBM Pharma/Biotech M&A Report covers all completed trade sales of US and European biotechnology and pharma companies with a therapeutic focus (Rx incl. generics as well as OTC). For 2015-2019, additional data for asset deals and transactions outside of the US and Europe is provided. Where mentioned, M&A data for 2019 may also include announced transactions.

The report does not cover nutritional supplements, diagnostics, medical technology, digital health, life sciences tools, CROs, pharma manufacturing and services. Reverse mergers or minority investments are not included. Acquisitions that were structured as mergers for tax or other reasons are included.

Upfront transaction value is defined in this report as the upfront consideration in cash and/or shares. By contrast, the total transaction value also includes contingent ("biodollar") payments linked to reaching certain milestones.

Additional data such as invested capital, exit multiples, stage of lead product etc. were collected from various sources. Please note that such data may be based on estimates and may not have been available for all transactions.

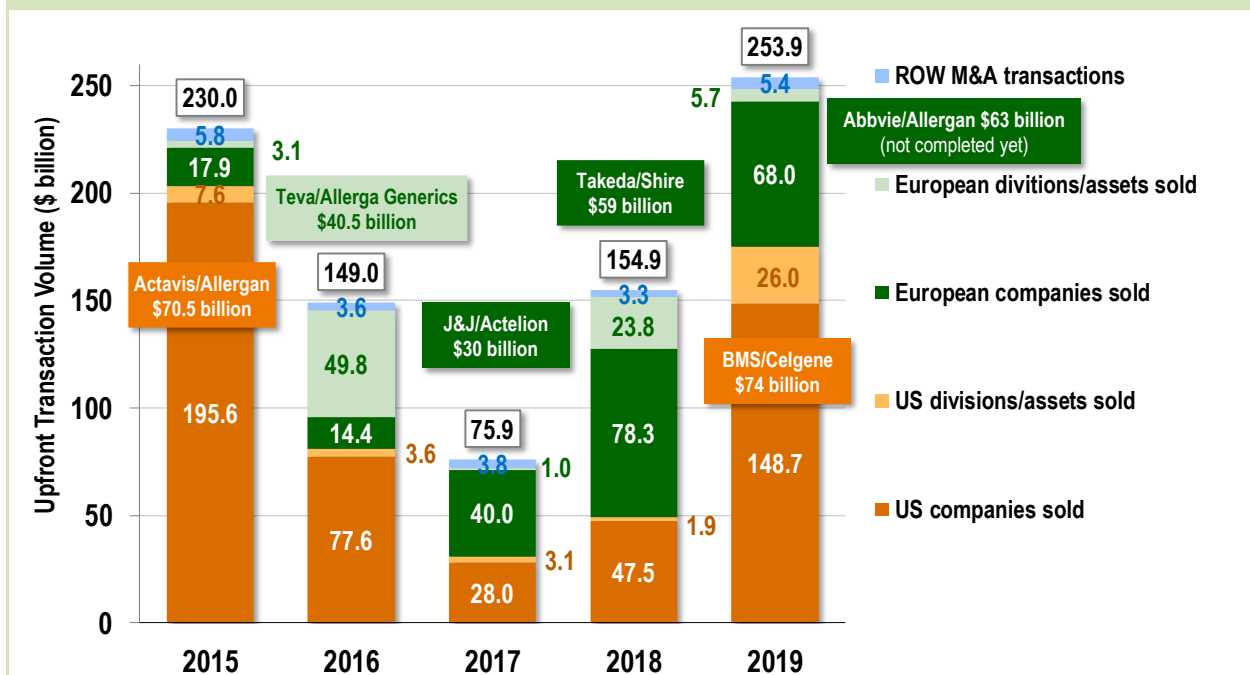
Further information about the HBM Pharma/Biotech M&A Report including a list of all transactions can be found under <http://www.hbmpartners.com/reports>. The use of data and charts is permitted with reference to "HBM Partners Pharma/Biotech M&A Report".

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Record Worldwide Biopharma M&A Transaction Volume in 2019

Worldwide Biopharma M&A Transaction Volume 2015 -2019



Completed transactions and in 2019 announced transactions, including asset deals, sale of subsidiaries and divisions. Transaction volume including contingent payments. Europe includes Israel.

- Worldwide biopharma M&A volume of completed and announced deals (including contingent payments and asset deals) in 2019 jumped to a record high of \$254 billion. This number was driven of course by the two mega-deals **BMS/Celgene** (\$74 billion) and **Abbvie/Allergan**¹ (\$63 billion). M&A transaction volume outside of these two mega-mergers reached \$117 billion, also a historically high number. Please note that we put the \$59 billion **Takeda/Shire** deal into 2018 even though the transaction was legally closed only in early 2019 (but was approved by shareholders in late 2018).
- The majority of larger M&A deals (above \$1 billion transaction volume) were in oncology or in the orphan/genetic disease areas.
- US biopharma M&A activity in 2019 was very strong with 18 private and 16 public companies sold at \$100 million or more. In Europe, only 9 company trade sales reached that level and transaction volume (excluding the **Abbvie/Allergan** deal) was only around \$10 billion.
- As in previous years, biopharma M&A transaction volume outside of the US and Europe remained relatively low (\$5.4 billion) with only a handful of significant transactions reported. It should be noted, however, that it is difficult to get reliable M&A data from China.

While the mega-mergers attracted the most headlines in 2019, there were a high number of other significant transactions mainly in the US (see next page), both in the first and second half of the year. Our prediction that the second half of 2019 could see a slow-down (due to the six companies involved in recent mega-mergers being absent in the M&A market) turned out to be too pessimistic.

¹ The transaction will close only in 2020. Allergan has been classified as a European company, even though main operations are in the US.

Table: Largest Completed and Announced Biopharma M&A Transactions in 2019

	Target Company/Business	Public/ Private	VC- or PE- Backed / Premium	Buyer	Upfront Deal Value (\$m)	Total Deal Value (\$m)	Phase/Stage of Lead Product	Est. VC Investment (\$m)	Therapeutic Area(s)
US	Celgene / US	Public	53%	Bristol-Myers Squibb / US	74'000	80'000	Market		Oncology, autoimmune diseases
Europe	NC Allergan / Ireland	Public	45%	AbbVie / US	63'000	63'000	Market		Medical aesthetics, eye care, CNS
US	Otezla (Celgene product) / US	Asset/Div.		Amgen / US	13'400	13'400	Market		Psoriasis, arthritis
US	Pfizer Upjohn / US	Merger		Mylan (new Viatris) / Netherlands	12'000	12'000	Market		Various generics
US	Array BioPharma / US	Public	62%	Pfizer / US	11'400	11'400	Market		Oncology
US	NC The Medicines Company / US	Public	24%	Novartis / Switzerland	9'700	9'700	3		Genetic cardiovascular diseases
US	Loxo Oncology / US	Public	68%	Eli Lilly / US	8'000	8'000	2		Oncology
US	Tesaro / US	Public	57%	GlaxoSmithKline / UK	5'100	5'100	Market		Oncology
US	Spark Therapeutics / US	Public	122%	Roche / Switzerland	4'300	4'300	2		Gene therapy
Europe	Merck KGaA Cancer IO Pipeline / German	Asset/Div.		GSK / UK	340	4'200	2		Cancer IO products
US	NC Audentes Therapeutics / US	Public	110%	Astellas Pharma / Japan	2'700	2'700	NDA		Genetic neuromuscular diseases
US	NC ArQule / US	Public	107%	Merck & Co. / US	2'700	2'700	2		B-cell malignancies
US	NC Synthorx / US	Public	172%	Sanofi / US	2'500	2'500	1		Cancer, solid tumors
US	Peloton Therapeutics / US	Private	VC	Merck & Co. / US	1'050	2'200	2	137	Oncology, kidney cancer
US	NC Ra Pharmaceuticals / US	Public	100%	UCB / Belgium	2'100	2'100	3		Myasthenia gravis
US	Alder Biopharmaceuticals / US	Public	79%	Lundbeck / Denmark	1'950	2'020	NDA		Migraine
US	IFM Tre / US	Private	VC	Novartis / Switzerland	310	1'575	1	242	NASH, inflammation, genetic dis.
US	Promedior / US	Private	VC	Roche / Switzerland	390	1'390	2	77	Anti-fibrotic diseases
Europe	Veloxis Pharmaceuticals AS / Denmark	Public		Asahi Kasei Corp / Japan	1'300	1'300	Market		Prevention of organ rejection
ROW	Clementia Pharmaceuticals / Canada	Public	70%	Ipsen / France	1'000	1'263	3		Genetic diseases
Asia	Kyowa Hakko Bio / Japan	Public		Kirin Holdings / Japan	1'200	1'200	Market		Consumer health
US	Paragon Bioservices / US	Private	VC	Catalent / US	1'200	1'200	n.a.		Gene therapy production
US	Achillion Pharmaceuticals / US	Public	72%	Alexion Pharmaceuticals / US	930	1'100	2		Factor D inhibitors, genetic dis.
Europe	GSK (rabies vaccine etc.) / UK	Asset/Div.		Bavarian Nordic / Denmark	336	1'050	Market		Rabies & encephalitis vaccines
US	Exonics Therapeutics / US	Private	VC	Vertex / US	245	1'000	Preclinical		Genetic diseases, DMD
US	Dova Pharmaceuticals / US	Public	36%	SOBI Swedish Orphan Biovitrum	915	965	Market		ITP, chronic liver disease
US	Semma Therapeutics / US	Private	VC	Vertex Pharmaceuticals Inc / US	950	950	Preclinical		Type 1 diabetes
US	Rodin Therapeutics / US	Private	VC	Alkermes / Ireland	100	950	Preclinical	45	Neurodegenerative disorders
Europe	Nightstar Therapeutics / UK	Public	69%	Biogen / US	877	877	3		Genetic dis., choreoideremia (CHM)
Europe	Therachon / Switzerland	Private	VC	Pfizer / US	340	810	1	163	Genetic diseases, achondroplasia
US	Tilos Therapeutics / US	Private	VC	Merck & Co. / US	not discl.	773	Preclinical	57	Cancer, fibrotic diseases
US	Xyphos Biosciences / US	Private	VC	Astellas Pharma / Japan	120	665	Preclinical	100	Cancer, bi-specific AB
ROW	Takeda (Russian OTC business) / Russia	Asset/Div.		Stada Arzneimittel AG / Germany	660	660	Market		Various OTC and RX products
US	1) Osiris Therapeutics / US	Public		Smith & Nephew / UK	660	660	Market		Wound healing, regenerative medicine
US	BlueRock (remaining 60%) / US	Private	VC	Bayer / Germany	240	600	1		Cell therapies, neurology, cardiology etc
US	Calport Therapeutics / US	Private	VC	Merck / US	not discl.	576	Preclinical		Lysosomal storage disorders
Europe	Breath Therapeutics / Germany	Private	VC	Zambon / Italy	156	558	3		Respiratory, bronchiolitis
Asia	Kyowa Pharma (subs. Lupin) / Japan	Asset/Div.	PE	Unison Capital / Japan	526	526	Market		Branded generics
Europe	NovImmune (emapalumab assets) / Switzer	Private	VC	SOBI / Sweden	520	520	Market	10	Primary haemophagocytic lymphohistiocytosis
Asia	Aspen Japan (subs. Aspen Global) / Japan	Asset/Div.		Novartis / Switzerland	331	442	Market		Generics
US	NC Progenics Pharmaceuticals / US	Public		Lantheus Holdings / US	412	412	Market		Oncology
US	Modis Therapeutics / US	Private	VC	Zogenix / US	250	400	2	240	Genetic disease; Thymidine Kinase 2 deficiency
US	Abide Therapeutics / US	Private	VC	Lundbeck / Denmark	250	400	2		Gilles de la Tourette's syndrome, Neurodegenerative disorders
Europe	Amal Therapeutics / Switzerland	Private	VC	Boehringer Ingelheim / Germany	not discl.	366	Preclinical		Cancer IO and vaccines
Europe	Trimb Healthcare / Sweden	Private	PE	Karo Pharma / Sweden	360	360	Market		Various, OTC
Europe	Pensa (generics subs. Esteve) / Spain	Asset/Div.		Towa Pharmaceutical / Japan	356	356	Market		Generics
US	AvKare / US	Private		Amneal Pharmaceuticals / US	340	340	Market		Generics
US	Cavion / US	Private	VC	Jazz Pharmaceuticals / Iceland	53	313	2		Essential tremor
US	Immune Design / US	Public	300%	Merck & Co. / US	300	300	2		Cancer vaccines
US	Spectrum Pharmaceuticals / US	Asset/Div.		Acrotech (Aurobindo Subs.) / India	160	300	Market		Hematology, oncology
ROW	Grupo Biotoscana (51% stake) / Uruguay	Public	PE	Knight Therapeutics / Canada	143	281	Market		Specialty generics
Asia	Arrow Pharmaceuticals (subs. Strides Pharma) / India	Asset/Div.	PE	Arrotech Australia / Australia	208	272	Market		Generics
US	BioElectron Technology / US	Asset/Div.	VC	PTC Therapeutics / US	10	210	Phase 2		Genetic mitochondrial diseases
Asia	Boan Biological Technology / China	Private		Luye Pharma / China	103	205	Preclinical		Biosimilars
US	Synergy (from bankruptcy) / US	Asset/Div.		Bausch Health / Canada	200	200	Market		GI
Asia	Takeda (OTC drugs EM) / Japan	Asset/Div.		Acino / Switzerland	200	200	Market		Primary care products
US	Semnur Pharmaceuticals / US	Private	VC	Scilex Holding (formerly Sorrento) / US	60	200	3		Non-opioid pain management

Notes:**Transactions ranked by total transaction value**

Regions and countries (columns 1 and 3): In case of whole companies sold = location of headquarter; in case of asset/division deals = country of business (if available)

NC = Announced transactions, not completed yet at year end 2019

"Asset/Div." = Sale of assets, divisions and subsidiaries

"Market" = Approved or marketed drugs | "NDA" – NDA filed | "1", "2" and "3" = Phase 1 2 3, stage of lead product

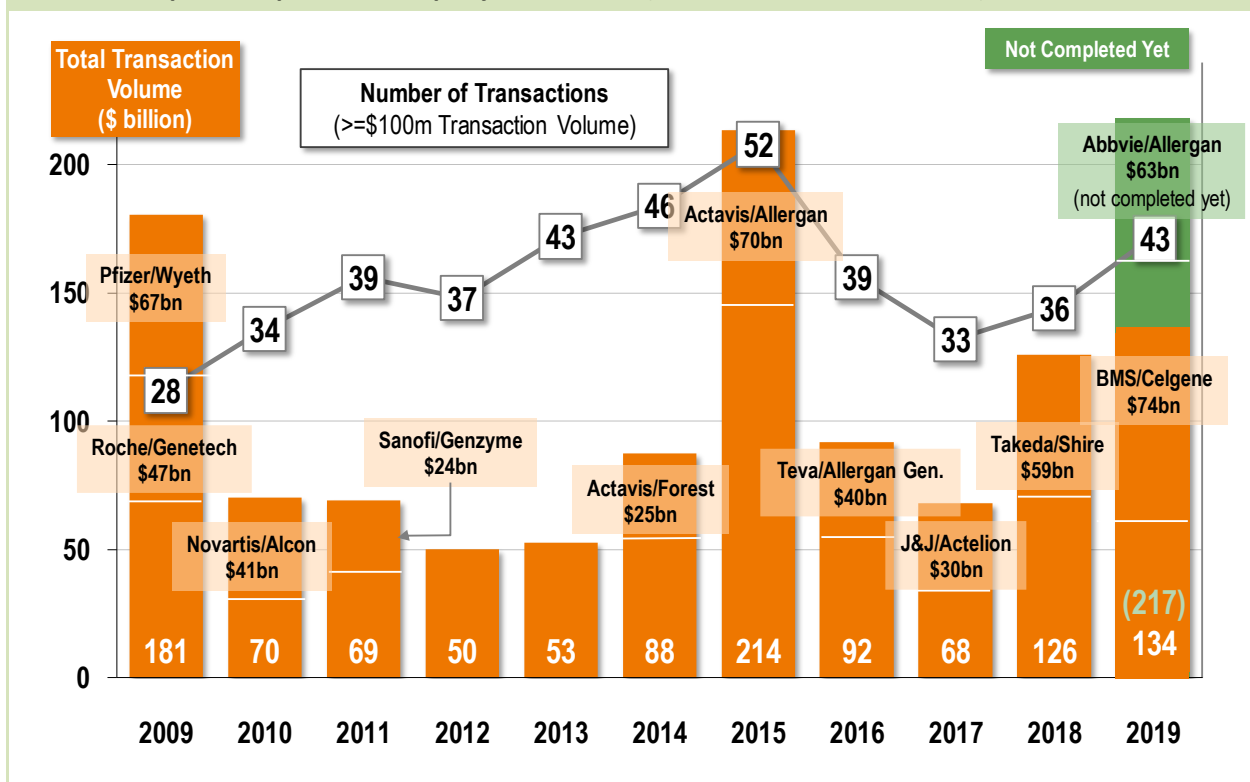
1) Osiris with its regenerative medicine products including skin, bone graft and articular cartilage substitutes was classified as a "biopharma company" even though one could argue that it is more a medtech-like company.

A list of all biopharma US and European M&A transactions since 2005 with disclosed transaction volumes (Excel sheet) can be found here <http://www.hbmpartners.com/reports>.

Sale of US and European Biopharma Companies

Please note that the M&A transaction data presented in the next pages only relate to the sale of (entire) US and European biopharma companies with a therapeutic focus. Asset deals, the sale of divisions or subsidiaries, M&A transactions outside of the US and Europe are not included. Where mentioned, the 2019 numbers may also include announced transactions during that year. For the purpose of this analysis, Israel is included under Europe.

US and European Biopharma Company Trade Sales (Total Transaction Volumes)



Completed and in 2019 announced trade sales of public and private US and European biopharma companies, not including asset deals or purchase of divisions. Transaction volume including contingent payments. European numbers include Israel.

Total deal volume generated by the sale of US and European biopharma companies in 2019 reached a record level. The \$229 billion transaction volume includes the \$63 billion **Abbvie/Allergan** deal and 7 other announced transactions that will only close in 2020. The value of closed transaction was \$134 billion.

The acquisition of **Celgene** by **BMS** for \$74 billion is the third largest pharma merger in history¹ after **Warner Lambert/Pfizer** (\$90 billion, closed in 2000) and **Glaxo Wellcome/SmithKline Beecham** (\$76 billion, closed in 2000).

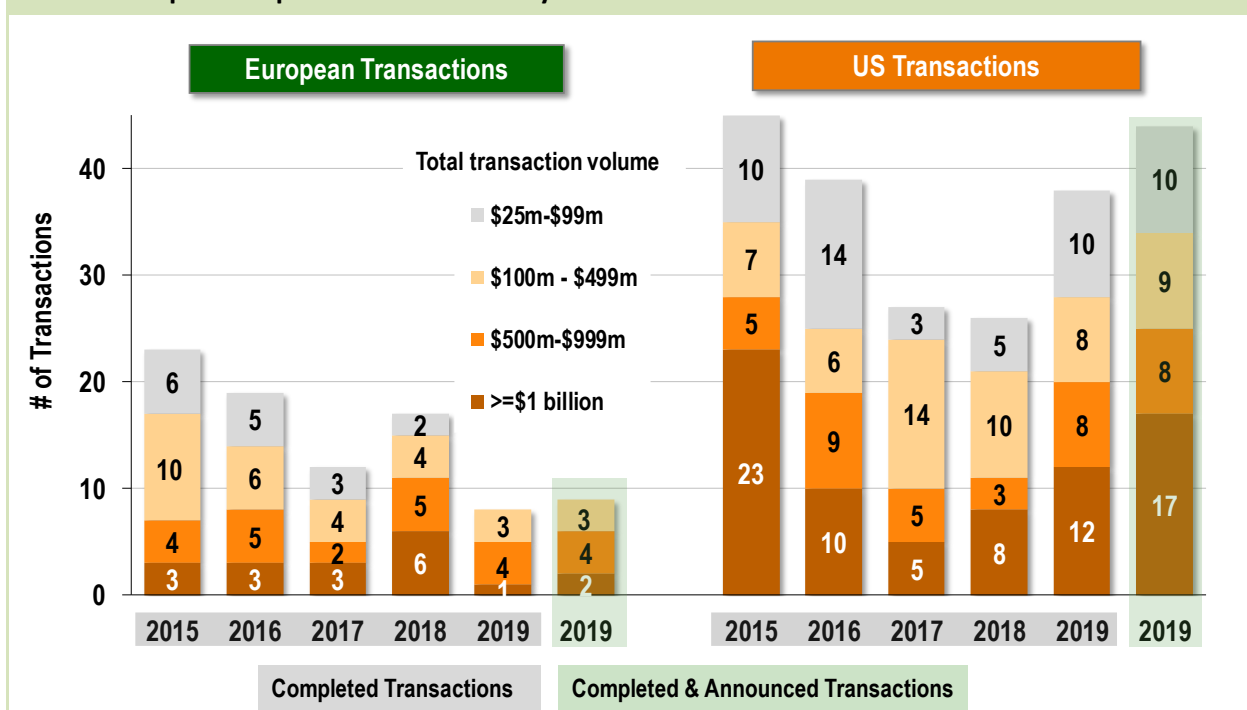
The \$92 billion transaction volume (outside of the two mega-deals) is high as well, with another 17 biopharma companies sold at \$1 billion or more and 41 deals at \$100 million or more.

¹ Reported deal values might differ depending on if debt assumed is included or not. Further information: [here](#)

As mentioned previously, these strong numbers were mainly driven by US deal activities. In the US, 12 deals with a transaction volume of at least \$1 billion were completed and another 5 such deals announced (see chart below).

Deal count and volume in Europe was weak with only 9 European biopharma companies sold in 2019 for \$100 million or more. It should be mentioned that Allergan is headquartered in Europe but has its main business in the US. The transaction volume generated from the other 8 (real) European companies sold only reached \$5 billion.

US and European Biopharma Trade Sales by Total Transaction Size

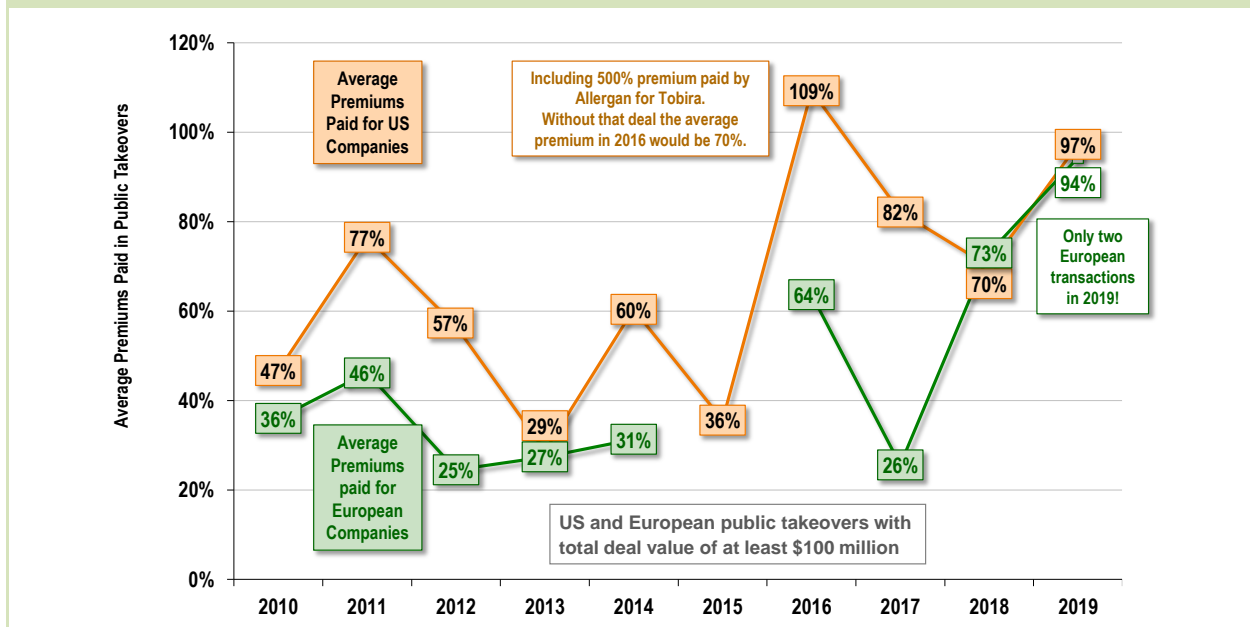


Trade sales of public and private US and European biopharma companies, not including asset deals or purchase of divisions

Premiums Paid for Public US and European Biopharma Companies

Premium = Increase of stock price on the day of deal announcement. Only deals with an upfront consideration of at least \$100 million are included in this analysis. Given the high degree of variation in premiums paid, the average numbers should be interpreted with caution.

Premiums Paid for US and European Public Biopharma Companies

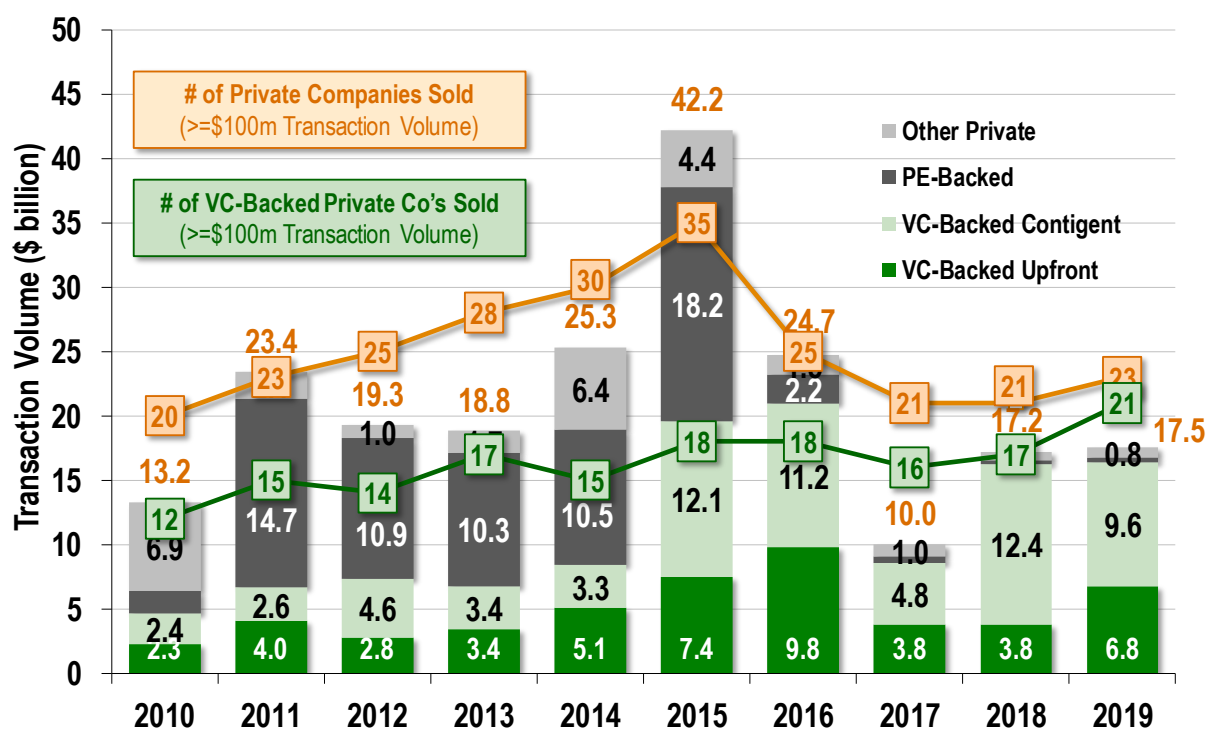


Completed and announced (2019) trade sales of public US and European biopharma companies with total deal value of at least \$100 million. Non-weighted average premiums.

- Average premiums paid in 2019 for public US and European biopharma companies reached almost 100%. These very high premiums show that there is a continued appetite for acquisitions despite the already high valuations of public biopharma companies.
- The premiums paid in large deals (\$10 billion or more) was generally lower than that for smaller companies: The average premiums paid in the 13 \$10-billion-plus deals done during the five years 2015-2019 was 43% vs. the average premium of 84% paid in smaller transactions).
- As seen in the chart above, premiums paid for European companies have - until 2017 – been lower than for US companies. In 2018 and 2019 premiums paid in Europe caught up with the numbers in the US.
- Smaller and clinical-stage companies generally received higher premiums than companies with approved or marketed products (see table below).

Average Premiums Paid for US & European Public Biopharma Companies 2015-2019 by Stage of Lead Product (total deal value \$100 million or more)

	Phase 2	Phase 3	NDA Filed	Approved/ Marketed	Total*
# of public companies sold	15	16	8	36	75
Average premium paid	136%	65%	72%	43%	72%

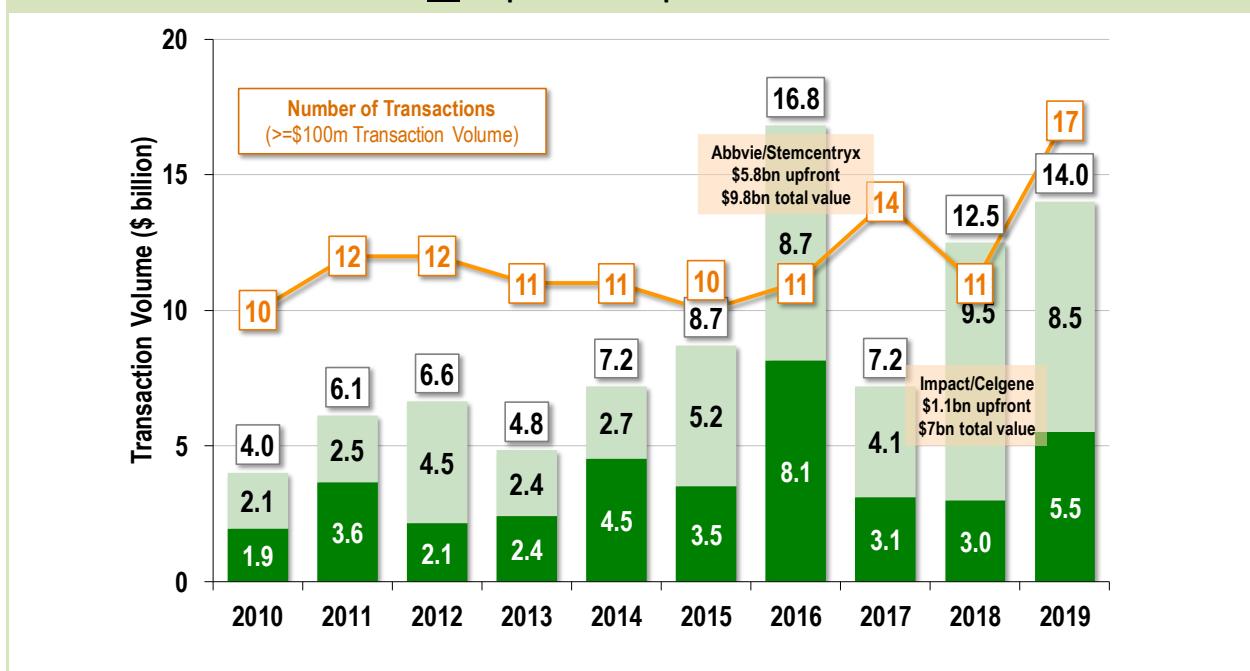
Trade Sales of Private US & European Biopharma CompaniesTrade Sales of Private US & European Biopharma Companies

Completed trade sales of private US and European biopharma companies, not including asset deals or purchases of divisions. "Other private companies" are companies not majority-owned by venture or private equity investors.

- As in the years before, the bulk of transaction volume from private deals in 2019 was generated by the venture-backed companies that were sold during the year (\$6.8 billion upfront and \$16.4 billion potential total value). Out of the 23 private companies sold in 2019 with a deal value of at least \$100 million, 21 were venture-backed.
- While the upfront and total amounts generated by the sale of VC-backed biopharma companies in 2019 did not quite reach the high levels of 2015 or 2016, the deal volume still is very respectable considering many private biotechs pursued the IPO route.
- Notable transactions outside of VC-backed exits were the sale of Swedish consumer healthcare company **Trimb Healthcare** (backed by Avista Capital) to listed **Karo Pharma** for \$360 million and the purchase by **Amneal** of a 65% stake for \$340 million in privately-held **AvCare**, a US provider of generics to government agencies.
- One can only speculate why the number of significant pharma transactions outside of the venture segment has been so low. There is certainly a continued appetite from strategic buyers and larger buyout funds to acquire privately-held pharma companies. But it seems that the number of private pharma companies "available for sale" in Europe and the US has shrunk considerably since the beginning of the decade.

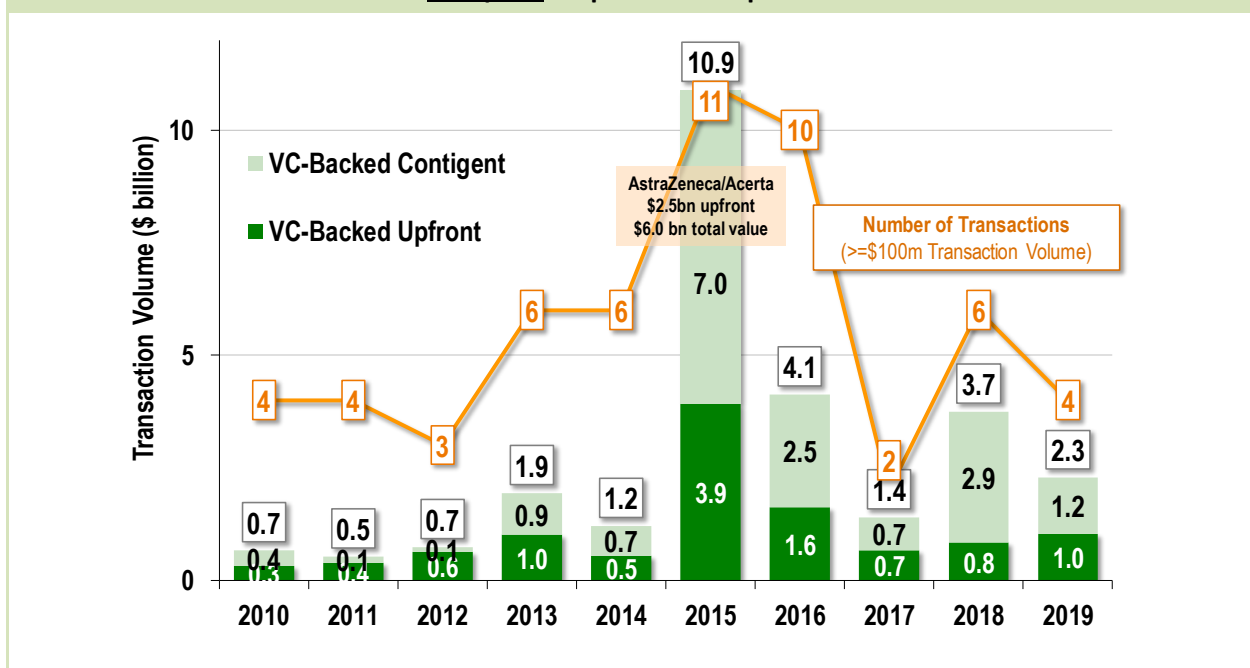
Trade Sales of VC-Backed US and European Biopharma Companies

Trade Sales of Private VC-Backed US Biopharma Companies



Completed trade sales of private VC-backed US biopharma companies.

Trade Sales of Private VC-Backed European Biopharma Companies



Completed trade sales of private VC-backed European biopharma companies.

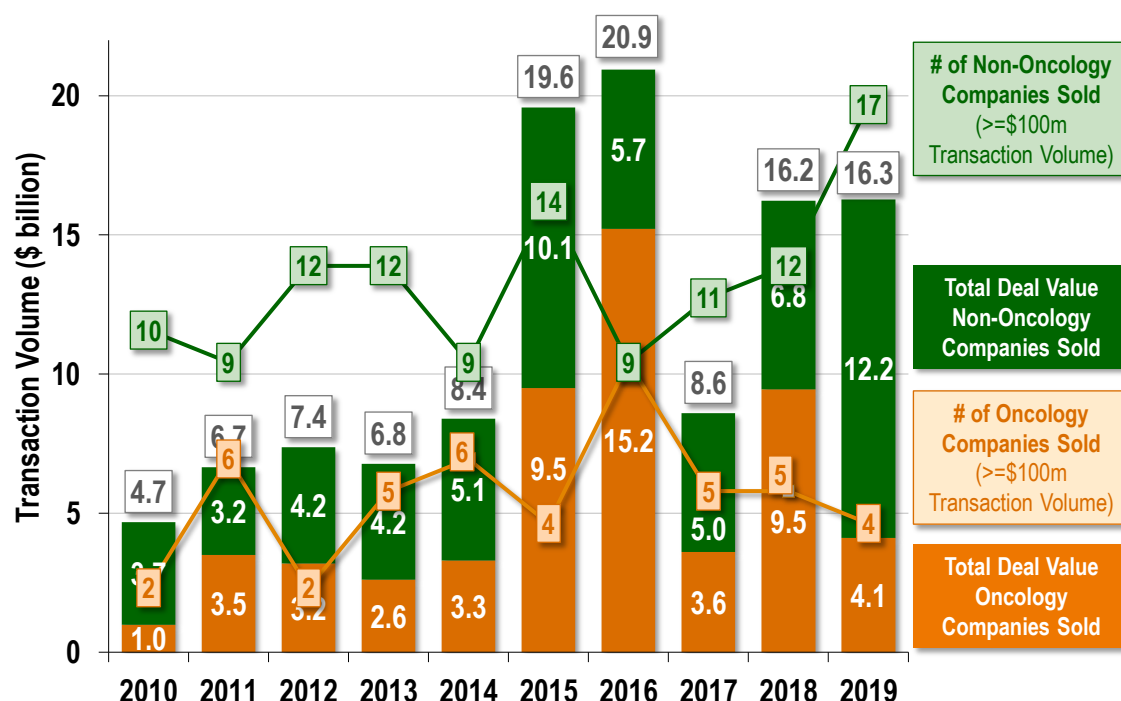
As the charts above show, Europe is and has been lagging the US in terms of VC-backed biopharma exits (except in 2015 when transaction volume in Europe and the number of larger deals were very high). The same is true, of course, for IPOs where the European stock markets have been less receptive to larger biotech public offerings.

Considering that in the US VCs invest about 5x to 6x as much as investors in European biopharma ventures, this outcome is not surprising. Nevertheless, we believe that more than 4-5 larger European M&A exits per year are needed to sustain a healthy biotech VC industry.

VC-Backed Company Exits by Therapeutic Areas

During the past years, oncology has been the “hottest” area for VC investments and company exits. In 2016 the sale of cancer companies generated 80% of overall proceeds. Since then, the relative importance of oncology in private exits has, however, declined. As the field with hundreds of companies and compounds in development has become more crowded, it seems that buyers have and will become more selective in buying young cancer companies.

Trade Sales of Private VC-Backed Oncology (vs. Non-Oncology) Biopharma Companies

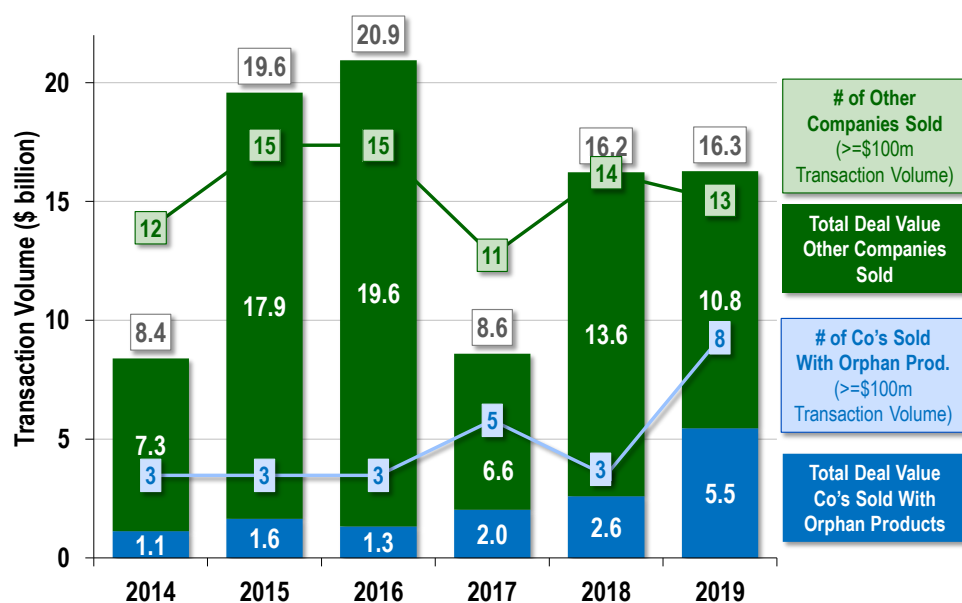


Total transaction values (including contingent payments) of completed trade sales of private VC-backed US and European biopharma companies (all transaction sizes).

As shown in the chart on the next page, companies developing orphan products (outside of oncology) have in 2019 been able to attract more buyers and a higher total transaction volume than cancer companies. We expect the orphan space to remain very active, as there are still many untreated rare diseases and small companies seem to very productive in finding and developing new compounds in this field.

Another therapeutic area that did well in 2019 was CNS with 6 VC-backed companies in this field sold for a total of \$3 billion.

Trade Sales of VC-Backed Orphan (vs. "Other") Companies



Total transaction values (including contingent payments) of completed trade sales of private VC-backed US and European biopharma companies (all transaction sizes).

Noteworthy Venture Exits in 2019

In May 2019, US-based **Peleton Therapeutics** was sold to Merck for \$1.05 billion upfront plus potential milestone payments of up to \$1.15 billion. Peleton with its phase 3-ready kidney cancer drug was founded in 2010. It is estimated that over \$200 million were invested by VCs in the company generating significant returns for investors such as Column Group, EcoR1, Nextech, RA and Foresite.

Also in May 2019, US **IFM Tre** was acquired by Novartis for \$310 million upfront plus contingent payments of up to \$1.265 billion. IFM Tre's portfolio of NLPR3 antagonists, consisting of one clinical and two preclinical programs, target chronic inflammatory and fibrotic disorders. With only about \$30 million invested, the exit should provide a great return for Atlas and Abingworth. And, another sibling company of IFM was already sold in 2017 to BMS for up to \$1.3 billion.

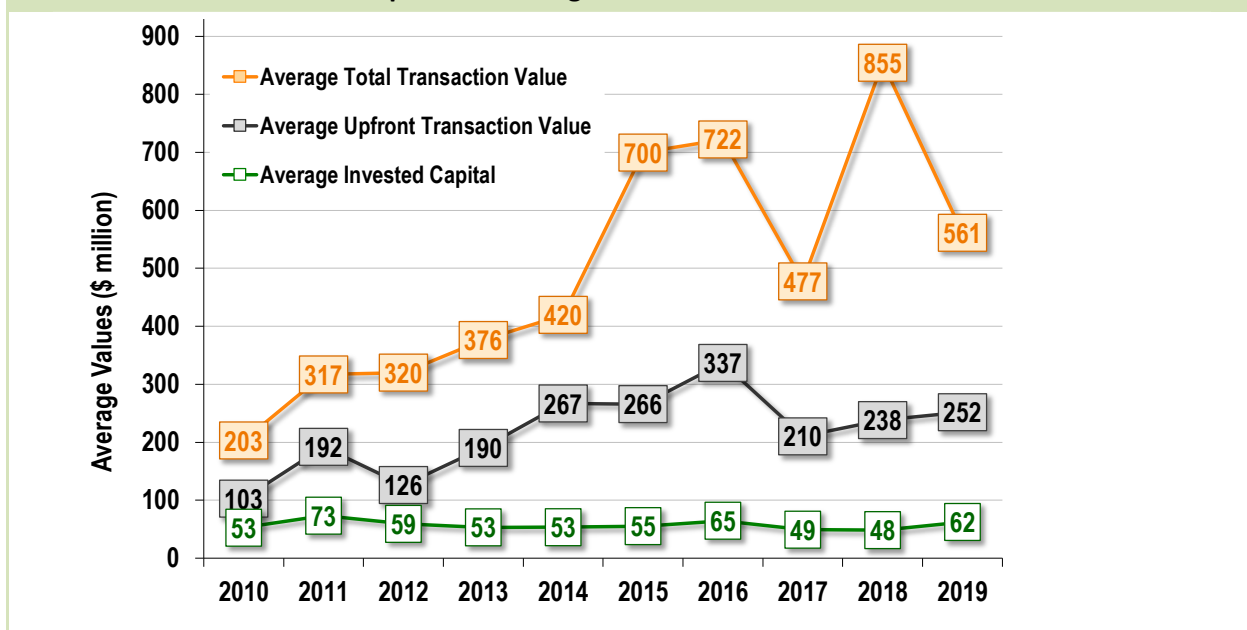
In November 2019, Roche acquired US **Promedior** for up to \$1.39 billion (\$390 million upfront), a year after previous suitor BMS opted not to exercise its right to acquire the developer of treatments for fibrotic diseases. Earlier in 2019, Promedior generated positive Phase II results in idiopathic pulmonary fibrosis (IPF) and myelofibrosis (MF). The company, founded in 2006, was financed with an estimated \$63 million by various VCs (Forbion, Polaris, Morgenthaler, Healthcare Ventures, Easton Capital), thus providing great returns to investors.

Vertex acquired two companies in 2019. Vertex picked up **Exonics Therapeutics** in June 2019 (for \$245 million upfront and \$1 billion total potential value) with its SingleCut CRISPR gene editing technology to develop treatments by repairing mutations that cause DMD and other genetic neuromuscular diseases. Exonics was launched in 2017 and received \$45 million of financing by CureDuchenne Ventures and Column Group.

With the acquisition of **Semma Therapeutics** in October 2019 for \$950 million in cash, Vertex made a bet on the use of stem cell-derived human islets as a potentially curative treatment for type 1 diabetes. Semma was founded in 2016 and financed with an estimated \$163 million by VCs such as Eight Roads, Arch, MPM, Cowen, F-Prime and the corporate venture funds of Novartis and Medtronic.

Average Investment Amounts and Transaction Values

Trade Sales of VC-Backed Companies – Average Investment Amounts & Transaction Values



Completed trade sales of private VC-backed US and European biopharma companies. Only for deals where respective information was available. Includes transactions of all sizes.

Average (non-weighted) upfront and average total deal values in 2019 stayed at high levels in 2019, but did not quite reach the numbers of previous years. Comment: The very high average total deal value in 2018 stems in part from the \$7 billion potentially to be paid to owners of Impact Biosciences by acquiror Celgene. One should note that median deal values are usually lower than average deal values.

Average investment amounts - until an exit could be achieved - remained quite stable over the year.

Contingent Payments

Since 2009 the use of contingent payments especially in clinical-stage acquisitions has become the norm (see chart on next page). And, since 2015, total contingent amounts have been higher than total amounts paid upfront (see also chart on page 7). Only very few deals nowadays are closed with a fixed amount, i.e. without contingent payments.

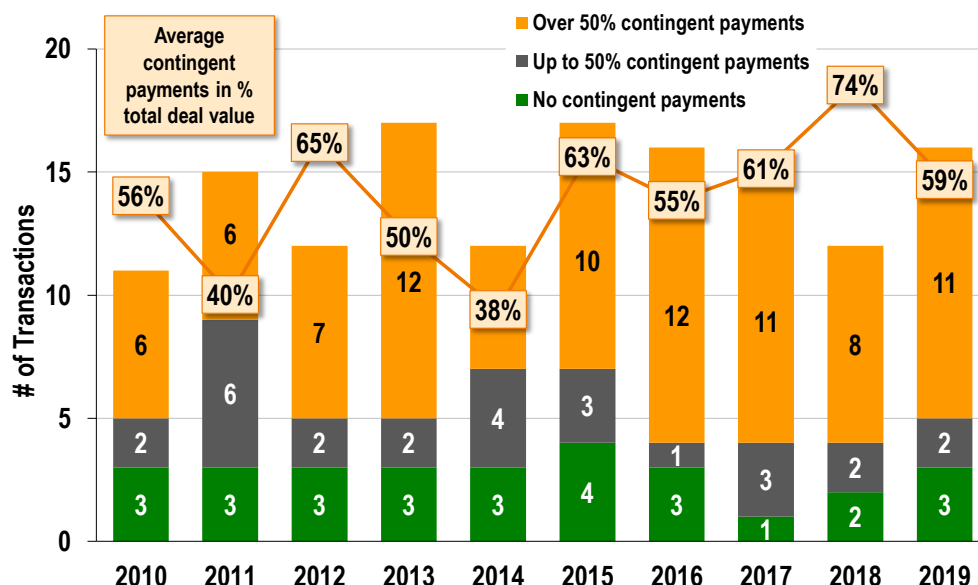
Such “straight deals” are done more frequently in deals with companies that have a product on the market and, interestingly, also with pre-clinical companies.

Number of VC-Backed Biopharma Exit Without Contingent Payments by Stage of Lead Product

(Transactions 2015-2019 with at least \$100 million total deal value)

	Pre-Clinical	Phase 1	Phase 2	Phase 3	Approved
# of companies sold	17	13	29	7	7
# w/o contingent payments (%)	4 (24%)	4 (15%)	3 (10%)	0 (0%)	4 (57%)

Trade Sales of VC-Backed Companies – Contingent Payments



Completed trade sales of private VC-backed US and European biopharma companies. Only for deals with a total transaction volume of at least \$100 million and where respective information was available.

Further Reading – 2019 SRS Acquiom Life Sciences M&A Study

The recent 2019 SRS Acquiom Life Sciences M&A Study (published in September 2019 [here](#)) provides interesting additional insights into private biopharma M&A deals structured with contingent payments.

The study covers 100 private biotech/pharma M&A deals since 2011 up to June 2019 with a total transaction value of \$51.5 billion (including \$20.7 billion upfront payments and \$30.8 billion of contingent or earn-out payments). While SRS does not specify exactly which deals are included (i.e. US, Europe, stage of company etc.), we can assume that the majority deals are trade sales of VC-backed US clinical-stage biopharma companies with a few European deals included.

Here are the most important results of the study:

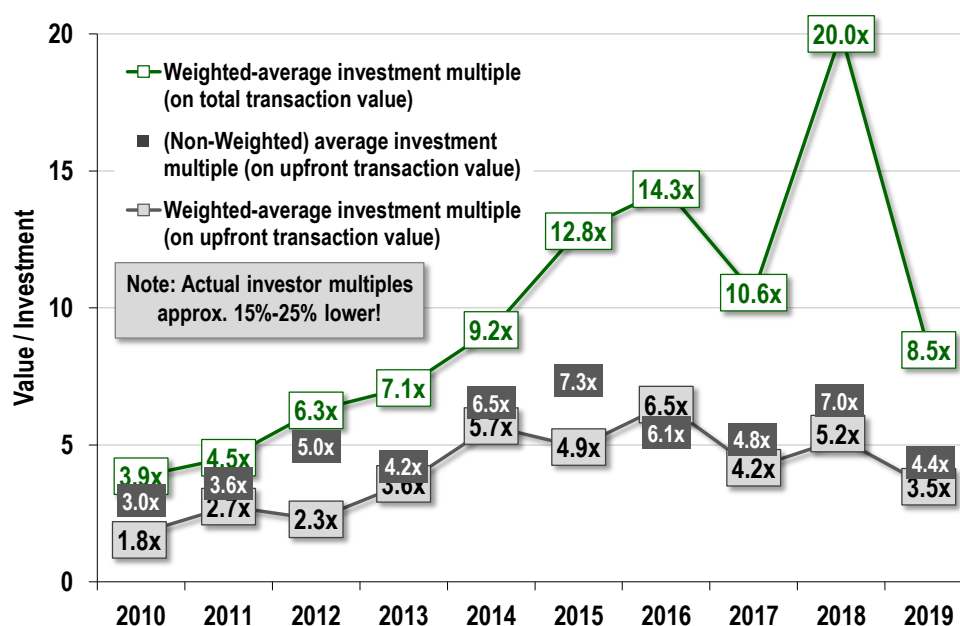
- Over 80% of biopharma transactions had an earn-out structure. This percentage was much higher than in medical device, diagnostics or tech deals.
- The earn-out amounts in biopharma deals are usually higher than the upfront amounts.
- The highest contingent amounts are usually paid in the second year after the transaction with significant payouts also in year 3 and 4.
- Pre-clinical and phase 1 milestones are reached more often than phase 2 milestones.
- Typical (i.e. most frequent) milestone amounts are: around \$20 million for pre-clinical milestones, \$20-50 million for phase 1 \$30-50 million for phase 2 and \$50-100 million for phase 3 milestones.
- From the results of the study about “milestone met” or “missed”, one can thus assume that, on average, about 35% of contingent payments will eventually be paid out.

Investor Returns from the Sale of VC-Backed Biopharma Companies

We have approximated the return multiples for venture investors from biopharma trade sales using the ratio of upfront (and total) proceeds divided by invested capital. To calculate the average multiples in a given year, we have divided the sum of exit values (upfront or including contingent payments) by aggregate VC investments. These averages, weighted by deal size, provide – in our view – a good indicator of the overall exit performance in a given year. Non-weighted averages (included in the chart below as well) are generally a bit higher and medians generally a bit lower.

The valuations paid by investors in private biopharma companies are generally higher than the invested capital (as some of the fully-diluted equity belongs to founders, management etc.). Therefore, the multiples shown here are about 20-25% higher than the actual investor returns.

Trade Sales of VC-Backed Companies – Investment Multiples

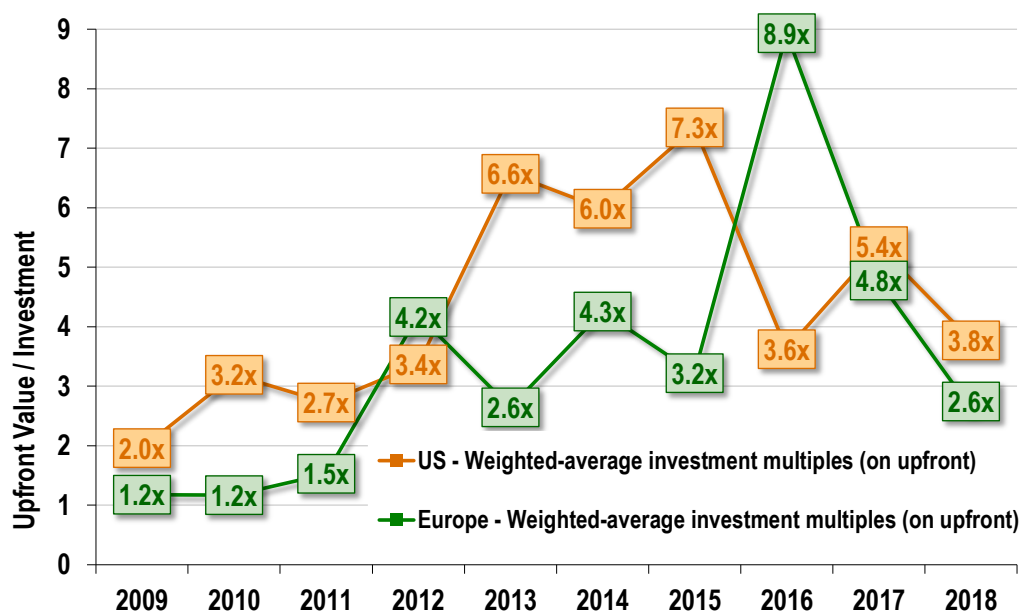


Completed trade sales of private VC-backed US and European biopharma companies. Only for deals where respective information was available. Includes transactions of all sizes.

Investment multiples (non-weighted and weighted) have shown a significant upward trend since 2010 with a peak in 2016. 2019 returns -while still high - were clearly below the numbers seen in previous years.

The upfront multiples achieved until 2015 from US exits were better than from European deals. Deal multiples in Europe have recently improved, however. The high 2017 European number is based on just two significant exits (**Ogeda** 12.5x and **Rigontec** 4.3x) and, thus, is not really representative.

Trade Sales of VC-Backed Companies – Investment Multiples US vs. Europe

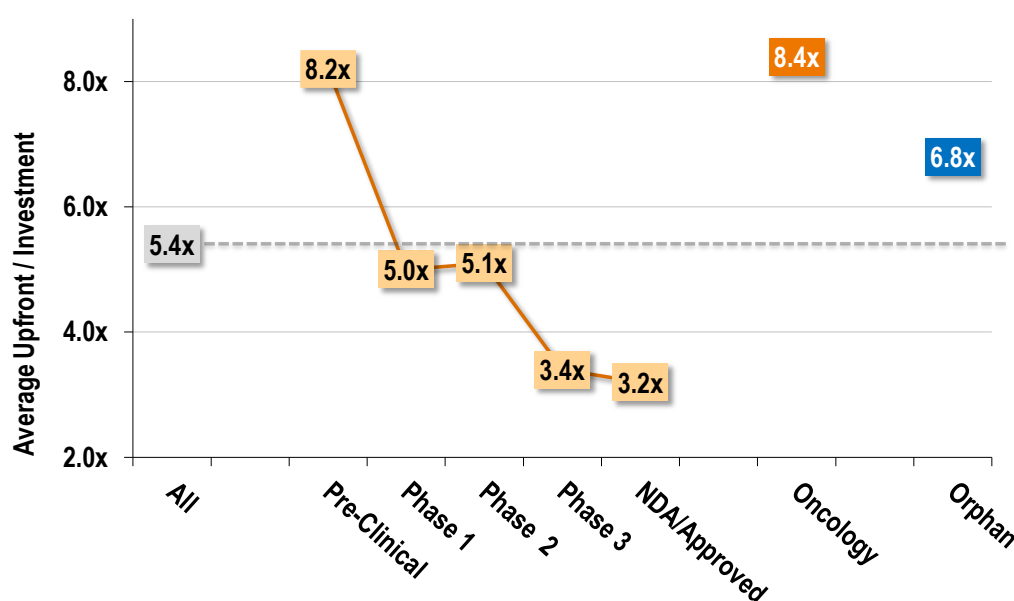


Completed trade sales of private VC-backed US and European biopharma companies. Only for deals where respective information was available. Includes transactions of all sizes.

Our return data also indicate that in recent years early exits (i.e. at early stages of clinical development with less money invested) generated higher average multiples (see chart below).

Also, multiples generated by the sale of oncology and orphan disease companies were higher than average.

Trade Sales of VC-Backed Companies 2015-2019– Investment Multiples



Completed trade sales of private US and European VC-backed biopharma companies. Stage of lead product at time of company sale. Investment multiples (upfront / investment) non-weighted. Includes transactions of all sizes.

Summary and Outlook

2019 was a strong year for biopharma M&A mainly in the US. Even though some players that have been engaged in very large transactions might be less active as buyers for some time, the appetite for biopharma companies with unique assets will remain high.

We expect to see further active M&A deal making especially if the stock markets would become less receptive for IPOs and if public company valuations come down.

Zug, 1 February 2020

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About HBM Partners

HBM Partners is among the global leaders in healthcare-focused investing with approximately \$1.7 billion in assets under management. HBM focuses on development stage, growth and buy-out financings of private and public biopharma, medical device and diagnostics companies. Investments in private companies usually range between \$10 million to \$50 million.

HBM Partners advises HBM Healthcare Investments AG (SIX: HMBN) as well as other specialized private & public equity funds.

HBM Partners has been an active contributor to value creation in its portfolio companies, generating over 60 trade sales and IPOs since its inception in 2001.

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