

Pharma Mega-Mergers – What Do They Mean for (Smaller) Biopharma Deal Making?

Summary/Conclusions

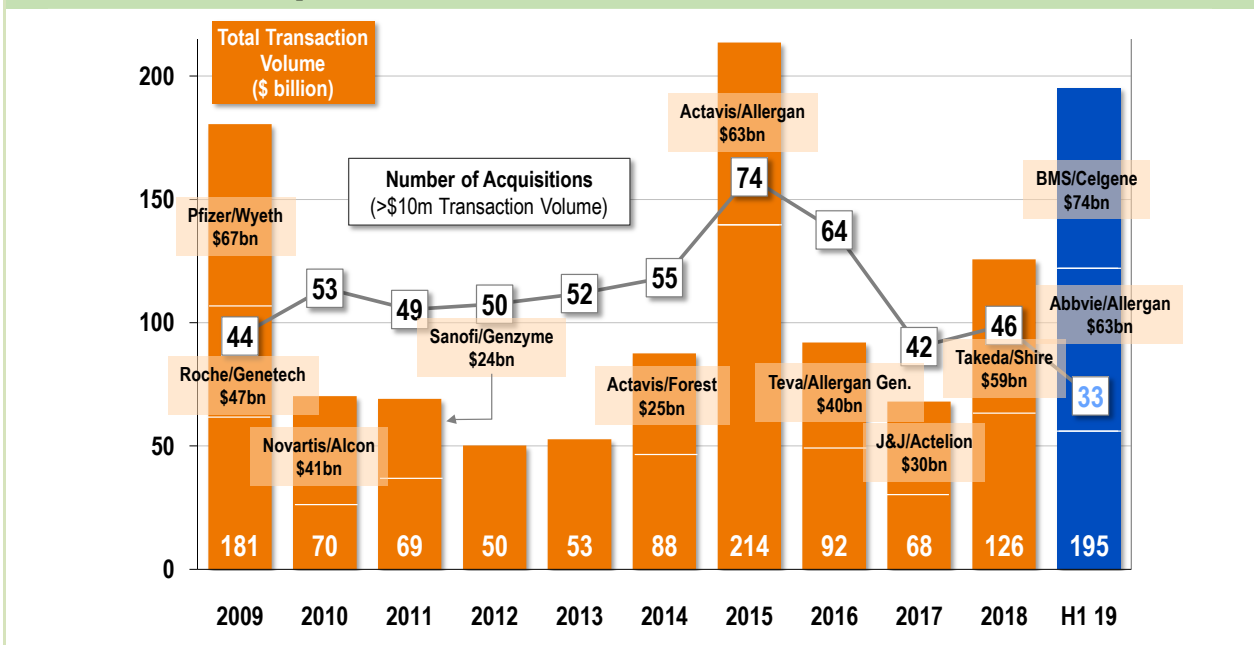
Since the beginning of 2018, three mega-deals with a total transaction value of \$196 billion have been announced (Takeda/Shire, BMS/Celgene, Abbvie/Allergan). As a result, biopharma M&A deal volumes during the first half of 2019 in the US and Europe has already reached \$190 billion (see chart below and page 6), a number which is higher than many previous full-year values.

All the six companies involved in these three mega-mergers were among the 20 largest pharma companies and as such had been quite active in M&A with a total of 35 biopharma acquisitions during the four years 2015-2018 with a total value of \$150 billion¹. Due to increased debt burden, cost cutting and other reorganizations, as well as the much-expanded product pipelines post-merger, we do expect that the three merged companies will be less active in M&A or even stop doing acquisitions, at least for a certain time-period.

Our analysis of six previous mega-mergers shows that companies involved in mega-deals usually become less active in pursuing further acquisitions for at least four years after the transaction. But deal making does not stop completely and selected acquisition opportunities are still pursued.

We assume that such reduced M&A activity will also apply to the three recent mega-deals, i.e. 6 previously active company buyers will be reduced to three less active participants in biopharma M&A. Factoring in that in 2019 Pfizer, Eli Lilly, GSK and Roche already spent significant money on acquisitions², the outlook for selling innovative biopharma companies during the remainder of 2019 may not be very bright. There might be more willing sellers than potent buyers for some time.

Chart 1: Worldwide Biopharma M&A Transaction Volume 2009 to June 2019



Source: HBM Biopharma M&A Database, GlobalData

Total M&A transaction volume (upfront plus contingent payments) for acquisitions of US and European biopharma companies with a therapeutic focus. Does not include acquisitions of product lines, assets or subsidiaries.

Completed deals for years 2009-2018. Announced deals for H1 2019. The Takeda-Shire deal, announced in early 2018 and formally closed just after end of 2018, is included in the 2018 numbers

¹ Total deal value 2015-2018 \$500 billion, 226 deals with a \$10 million or more transaction value

² Pfizer/ArrayBio Pharma \$11.4 billion, Eli Lilly/Loxo Oncology 8 billion, GSK/Tesaro \$5.1 billion, Roche/Spark \$4.3 billion

Mega-Mergers: Potential Implications for Smaller Biopharma Deal Making

In this analysis, we are not going to speculate if this is the beginning of a new wave of pharma consolidation or who could be the next target. We rather look at the M&A activity after mega-mergers that happened a few years ago and its potential implications for smaller biopharma deal making.

One would expect that companies involved in mega-deals to be less active in deal making, at least for some time after the merger, mainly due to (a) increased debt burden, (b) reorganizations including cost-cutting to exploit synergies, and (c) combination of product pipelines (and a respective jump in the number of development projects).

Increased Debt Burden

In these very large transactions, the buyers most often do not have enough cash to finance the whole deal (see Table 1 with the largest deals since 2009). Besides raising equity (including offering equity to the sellers in some cases), these deals are further financed by debt which may limit future investments until such debt is reduced to normal levels.

Of the 13 largest transactions since 2009, only J&J had enough cash to pay for its acquisition of Actelion. All other deals were partially financed with debt. Please note that the debt numbers quoted below in some cases also include bridge loans which might be refinanced otherwise.

Table 1: Largest Biopharma M&A Transactions Since 2009

Buyer	Target	Year Announced / Completed	Transaction Value (Equity)	New Debt to Finance Deal*	Targeted Synergies**	# of Clinical Products in Phase 1-3 Buyer+Target**
			\$ billion	\$ billion	\$ billion	
BMS	Celgene	2019	74.0	32.0	4.0	33+12 (+36%)
Actavis***	Allergan	2014/15	70.5	27.5	1.8	16+15 (+93%)
Pfizer	Wyeth	2009	66.7	22.5	4.0	n.a.
Abbvie	Allergan	2019	63.0	38.0	2.0	21+29 (+138%)
Takeda	Shire	2018/19	59.0	31.0	1.4	24+14 (+58%)
Roche	Genetech	2009	46.8	35.0	0.8	n.a.
Merck & Co.	Schering Plough	2009	42.0	8.5	3.5	28+20 (+71%)
Novartis	Alcon	2010	41.2	20.0	0.3	n.a.
Teva	Allergan Generics	2016	40.5	15.0	1.4	n.a.
Shire	Baxalta	2016	28.0	18.0	0.5	25+17 (+68%)
J&J	Actelion	2017	30.0	0.0	n.a.	n.a.
Actavis	Forest	2014	25.0	7.0	1.0	15+6 (+40%)
Sanofi	Genzyme	2011	23.9	7.0	0.7	18+16 (+88%)
Total			610.6	261.5	21.4	

Source: HBM Biopharma M&A Database, company presentations

* Can include bridge financing / ** Expense reductions as announced before the transaction / *** Merged entity renamed to "Allergan"

Reorganization and Cost Cutting

Potential synergies are often mentioned by buyers to make a deal more feasible. Such synergies always include plans to cut expenses in G&A, R&D etc. in the merged entity. In Table 1 we have listed such planned cost reductions as communicated by the buyers.

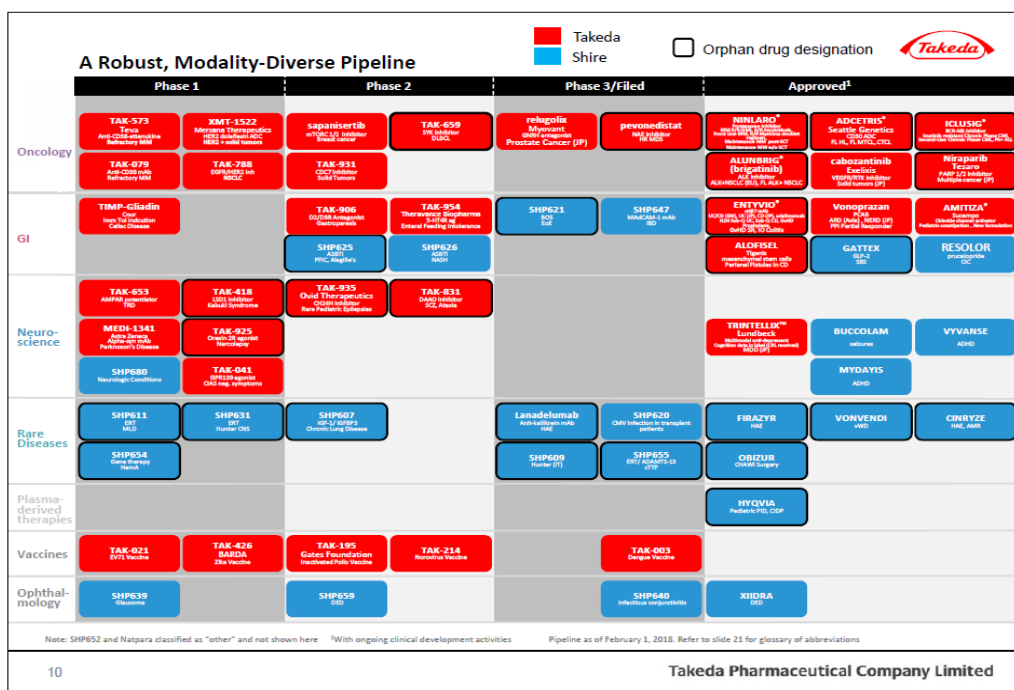
Independent of cost cutting, major reorganization measures are usually implemented after the closing of the transaction leading to a general slow-down of new business initiatives with external partners.

Expanded Product Pipelines

In mega-mergers, the development pipeline suddenly becomes much larger. In the 8 mergers where such information was available (see Table 1), on average 16 clinical-stage products were added to the buyer’s pipeline. We can thus expect, that the merged companies are not in urgent need to further add to their product pipelines, i.e. will do fewer acquisitions and licensing deals and the like.

Investor presentations before the merger often include a slide with the combined product and development portfolio. Below is the example from Takeda’s presentation for the Shire takeover which illustrates impressively the step-change in the portfolio.

Chart 2: Takeda-Shire’s Combined Product Portfolio



Source: Takeda Investor Presentation

Slow-Down of Acquisitions After a Mega-Merger – Evidence from Past Mergers

Due to the reasons quoted above, one can expect fewer acquisitions after a mega-merger. For this analysis we compared the number and value of acquisitions 4 years before and 4 years after the merger. Specifically, we analysed:

- (a) the number and total value of acquisitions by the buyer and the target company in the 4 years before the announcement of the transaction, and
- (b) the number and total value of acquisitions by the buyer (i.e. merged entity) in the 4 years after the completion of the transaction.

We only looked at mega-deals that happened a several years ago, i.e. were we have enough post-transaction history. We have excluded the Actavis-Forest deal in 2014 as Actavis was shortly thereafter involved in an even bigger transaction. We have included the acquisition of Alcon by Novartis, even though there was little portfolio overlap, but Novartis spent in total over \$40 billion on the deal. We also included the Roche-Genentech deal which is a special case, as Roche already owned a majority of Genentech before 2009, but Genentech operated quite independently until the full takeover.

Table 2: Biopharma M&A Transactions Before and After Mega-Mergers

Buyer - Target		All 4	Years Before Merger				Year of Merger	Years After Merger				All 4	Change
		Years	4	3	2	1		1	2	3	4	Years	
Actavis (new Allergan) - Allergan	TV \$ billion	\$38.1	\$0.3	\$0.4	\$9.5	\$28.0	2014	\$4.4	\$4.6	\$0.0	\$0.3	\$9.3	-76%
	# of Acq.	5	1	1	2	1	\$70.5 bn	4	7	1	1	13	160%
Pfizer - Wyeth	TV \$ billion	\$4.9	\$2.8	\$0.8	\$0.3	\$1.0	2009	\$0.7	\$3.6	\$0.1	\$0.7	\$5.0	1%
	# of Acq.	13	4	2	3	4	\$66.7 bn	1	1	2	1	5	-62%
Roche - Genentech	TV \$ billion	\$0.6	\$0.2	\$0.0	\$0.1	\$0.4	2009	\$0.0	\$0.5	\$0.2	\$0.0	\$0.8	29%
	# of Acq.	5	1	0	1	3	\$46.8 bn	0	1	1	0	2	-60%
Merck & Co. - Schering Plough	TV \$ billion	\$1.9	\$0.0	\$1.6	\$0.4	\$0.0	2009	\$0.0	\$0.9	\$0.0	\$0.0	\$0.9	-52%
	# of Acq.	4	0	3	1	0	\$42 bn	0	2	0	0	2	-50%
Novartis - Alcon	TV \$ billion	\$3.7	\$0.0	\$1.3	\$2.4	\$0.0	2010	\$0.0	\$1.5	\$0.0	\$0.0	\$1.5	-59%
	# of Acq.	6	0	2	3	1	\$41.2 bn	0	1	0	1	2	-67%
Sanofi - Genzyme	TV \$ billion	\$7.2	\$0.3	\$3.2	\$2.9	\$0.7	2010	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	-100%
	# of Acq.	10	1	2	4	3	\$23.9 bn	1	0	0	0	1	-90%
Total		\$56.4	\$3.6	\$7.2	\$15.5	\$30.1		\$5.0	\$11.1	\$0.3	\$1.0	\$17.5	-69%
		43	7	10	14	12		6	12	4	3	25	-42%

Source: HBM Biopharma M&A Database / Ordered by size of transaction / TV = Total transaction volume (upfront plus contingent payments) for acquisitions of biopharma companies. Does not include acquisitions of product lines, assets or subsidiaries. / Change = % change values or numbers 4 years before vs. 4 years after the merger

Please note that the above analysis only includes acquisitions of entire biopharma companies. Acquisitions of subsidiaries, business lines, products or other assets are not included

The table above clearly shows that after a mega-deal, the number and value of further acquisitions slowed down significantly in most cases. The merged entities (with the exception of Allergan) reduced their M&A spending for several years, usually only stepping up to larger deals again 5-6 years after the merger.

Comments by Company

Allergan continued to acquire a good number of innovative and generics companies. E.g. Kythera (\$2.1 billion) and Naurex (\$560 million) were acquired within only one year after the merger with more deals to follow thereafter.

Pfizer also continued to do deals, but at a slower pace than before. Nevertheless, Pfizer picked up King for \$3.6 billion less than two years after the takeover of Wyeth. Pfizer really stepped up M&A activity in 2015 (6 years after the merger) with several large deals (Hospira \$17 billion, Medivation \$14 billion and Anacor \$5.2 billion).

Roche, Merck & Co., Novartis and **Sanofi** all reduced their M&A deal making significantly after their respective mega-transactions.

Roche made the first larger deal (Intermune \$8.3 billion) approx. 5 years after the Genentech takeover.

Merck & Co. started to do larger deals again only in 2014 (Idenix \$3.9 billion) and 2015 (Cubist \$8.4 billion).

Novartis acquired dermatology/generics company Fougera for \$1.5 billion only 18 months after the Alcon deal, but then only made 2 further small deals until in 2014 when the company spent approx. \$9 billion on the asset swap with GSK

After the merger with Genzyme, **Sanofi** had been pretty much absent from the M&A scene. Significant deal making only started again mid-2017 with the acquisition of Protein Sciences for \$650 million, followed in 2018 by larger deals (Bioverative for \$11.6 billion and Ablynx for \$4.5 billion). Sanofi earlier swapped its animal health business for Boehringer's OTC business receiving several billion dollars.

Potential Effect of the Three Recent Mega-Mergers on Future Biopharma M&A

As mentioned already, Takeda, BMS and Abbvie (and their merger partners) had been quite active in M&A during the four years from 2015 to 2018, together accounting for \$120 billion or more than 10% of the value all biopharma acquisitions during these four years (total value \$495 billion) (see Table 2).

A reduced appetite for M&A of these three (previously six) companies from the M&A market could have a significant impact on the number and/or value of biopharma takeovers going forward especially if other larger buyers do not become more active.

Factoring in that in 2019, Pfizer, Eli Lilly; GSK and Roche already made large purchases, biopharma M&A activity for the remainder of 2019 might be lower than expected. At the very least, the absence of several potent buyers from competitive M&A processes could lead to lower take-out valuations than would have resulted otherwise.

Table 3: Biopharma Acquisitions 2015-2018 by BMS, Celgene, Abbvie, Allergan, Takeda & Shire

Buyer(s)		2015	2016	2017	2018	4 Years
BMS/Celgene	# of Acquisitions	4	4	3	2	13
	Total value \$bn	11.0	1.7	1.8	16.0	30.5
Abbvie/Allergan	# of Acquisitions	4	9	0	2	15
	Total value \$bn	25.3	14.5	0.0	0.3	40.1
Takeda/Shire	# of Acquisitions	4	1	1	1	7
	Total value \$bn	12.2	32.0	5.2	0.6	50.0
All 6 Companies	# of Acquisitions	12	14	4	5	35
	Total value \$bn	48.5	48.2	7.0	16.9	120.6

Source: HBM Biopharma M&A Database. Total M&A transaction volume (upfront plus contingent payments) for acquisitions of biopharma companies.

Potential Effect on Licensing, Collaborations etc.

We also did some initial analysis of the number of other deal types (licensing, collaborations etc.) before and after mergers. While we observe some decline in such deal-making post-merger, the change is not that significant or not applicable for some mergers. Substantial further analysis of the hundreds of deals would be needed to come to any meaningful conclusions here.

It seems however, that the annual spending on upfront payments is reduced substantially following a merger, thus following the same pattern as the spending on acquisitions.

Annex: H1 2019 Biopharma Acquisitions US & Europe

Acquisitions of US and European biopharma companies with a therapeutic focus. Not including acquisitions of business lines, products or subsidiaries.

Announced Date	Deal Status	Buyer	Target	Deal Headline	Total Deal Value (\$ million)
03-Jan-2019	Announced	Bristol-Myers Squibb Co	Celgene Corp	Bristol-Myers Squibb to Acquire Celgene	89'535
25-Jun-2019	Announced	AbbVie Inc	Allergan Plc	AbbVie to Acquire Allergan	65'210
14-Jun-2019	Announced	Pfizer Inc	Array BioPharma Inc	Pfizer to Acquire Array BioPharma	11'400
05-Jan-2019	Completed	Eli Lilly and Co	Loxo Oncology Inc	Eli Lilly Acquires Loxo Oncology for USD8 Billion	8'000
25-Feb-2019	Announced	F. Hoffmann-La Roche Ltd	Spark Therapeutics Inc	Roche to Acquire Spark Therapeutics	4'300
22-Jan-2019	Completed	GSK	Teasro	GSK acquires Tesaro	5'100
21-Mai-2019	Announced	Merck & Co.	Peloton Therapeutics Inc	Merck to Acquire Peloton Therapeutics	2'200
01-Apr-2019	Completed	Novartis AG	IFM Tre Inc	Novartis Acquires IFM Tre	1'575
25-Feb-2019	Completed	Ipsen SA	Clementia Pharmaceuticals Inc	Ipsen Acquires Clementia Pharma	1'303
06-Jun-2019	Announced	Vertex Pharmaceuticals Inc	Exonics Therapeutics Inc	Vertex Pharma to Acquire Exonics Therapeutics	1'000
04-Mär-2019	Completed	Biogen Inc	Nightstar Therapeutics PLC	Biogen Acquires Nightstar Therapeutics	877
08-Mai-2019	Announced	Pfizer Inc	Therachon AG	Pfizer to Acquire Therachon for USD810 Million	810
10-Jun-2019	Announced	Merck & Co.	Tilos Therapeutics Inc	Merck to Acquire Tilos Therapeutics for USD773 Million	773
12-Mär-2019	Completed	Smith & Nephew Plc	Osiris Therapeutics Inc	Smith & Nephew Acquires Osiris Therapeutics for USD660.5 Million	661
06-Mai-2019	Completed	H. Lundbeck AS	Abide Therapeutics Inc	H. Lundbeck Acquires Abide Therapeutics	400
21-Jun-2019	Completed	Karo Pharma AB	Trimb Healthcare AB	Karo Pharma Acquires Trimb Healthcare for USD360.7 Million	361
20-Feb-2019	Completed	Merck & Co.	Immune Design Corp	Merck Acquires Immune Design	300
18-Mär-2019	Completed	Scilex Pharma	Semnur Pharmaceuticals Inc; Scilex	Scilex Pharma Merges with Semnur Pharma	280
25-Apr-2019	Announced	Repligen Corp	C Technologies Inc	Repligen to Acquire C Technologies for USD240 Million	240
21-Mai-2019	Announced	Amgen Inc	Nuevolution AB	Amgen to Acquire Nuevolution	167
27-Feb-2019	Completed	Sarepta Therapeutics Inc	Myonex Therapeutics Inc	Sarepta Therapeutics Acquires Myonex Therapeutics for USD165 Million	165
02-Mai-2019	Announced	Misonix Inc	Soluble Systems LLC	Misonix to Acquire Solsys Medical for USD97 Million	97
20-Mai-2019	Announced	Evotec SE	Just Biotherapeutics Inc	Evotec to Acquire Just Biotherapeutics for USD90 Million	90
31-Jan-2019	Completed	Hitachi Chemical Advanced T	apceth Biopharma GmbH	Hitachi Chemical Acquires apceth Biopharma from apceth for USD86 Million	86
14-Jan-2019	Completed	ProKidney LLC	InRegen	ProKidney Acquires inRegen for USD62 Million	62
10-Jun-2019	Completed	AptarGroup Inc	Gateway Analytical LLC; Nanopharm	AptarGroup Acquires Nanopharm and Gateway Analytical	50
28-Mai-2019	Announced	Novoheart Holdings Inc	Xellera Therapeutics Ltd	Novoheart to Acquire Xellera Therapeutics for USD25 Million	25
24-Jan-2019	Completed	Aldeyra Therapeutics Inc	Helio Vision Inc	Aldeyra Therapeutics Acquires Helio Vision	25
02-Mai-2019	Announced	Altemate Health Corp	Blaine Labs	Altemate Health to Acquire Blaine Labs	20
04-Apr-2019	Announced	HemaGenetics Technologies	HemaGenetic Research Group	HemaGenetics Technologies to Acquire HemaGenetic Research Group	19
29-Jan-2019	Announced	Strides Pharma Science Ltd	Vensun Pharmaceuticals Inc	Strides Pharma to Acquire Vensun Pharma	18
22-Apr-2019	Announced	FSD Pharma Inc.	Prismic Pharmaceuticals Inc	FSD Pharma to Acquire Prismic Pharma	18
13-Feb-2019	Completed	SCM Lifescience Co Ltd; Gen	Colmmune Inc	SCM Lifescience and Genexine Acquires Argos Therapeutics	11
14-Mär-2019	Announced	Kitov Pharmaceuticals Ltd	FameWave Ltd	Kitov Pharma to Acquire FameWave	10
H1 2019		Total			195'187