

Whale watching: What a decade of change at Big Pharma taught us about corporate phenotypes

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Confronted with decreasing R&D productivity and scarcity of true new blockbusters, pharmaceutical companies continuously seek growth opportunities by adopting new organizational structures and business strategies. These changes can be distinguished into global adaptive trends within the industry, such as the development of transformative therapies for rare diseases, and pharma-specific approaches, for instance the choice between relying on organic growth or increasing partnering and business development activities.

Understanding the drivers behind strategic changes within the pharmaceutical industry is of significant interest to numerous stakeholders, including venture capitalists. Therefore, we have attempted to capture and explain recent key change events for several companies within the big pharma league. This “whale watching” exercise has revealed interesting insights regarding the industry and helped us to identify key behavioral patterns of big pharma companies.

In our analysis, we have studied a representative sample of some of the largest multinational public pharma companies, looking at three key types of events that happened over the past decade: mergers and acquisitions (M&A), divestments, and key corporate development events (such as restructuring and strategy shifts). We have made use of the Global Data and publicly available resources to compile the dataset. Below we describe our findings and discuss their relevance in light of the ongoing evolution of the pharmaceutical and biotech industries.

Mergers and acquisitions

Since several companies (such as Bayer, J&J or Roche) in our selection have business units or subsidiaries that operate beyond pharmaceutical and biotech business, we decided to analyze both overall and pharma/biotech specific deal-making trends. In both analyses, cumulative M&A activity within our sample was relatively stable within the 11-year period studied, with two notable dips around 2013 and 2017 and a spike in 2015 (see Fig. 1 and Fig.2)

Fig. 1. Completed pharma/biotech M&A deals, 2008-2018, accounted by the announcement date

Company	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Allergan		1	1	1	2	2	4	4	8	1	1	25
Amgen				2	3	1		2				8
Astellas			1	1				1	1	2	3	9
AstraZeneca		1		1	1	3	1	3				10
Bayer	1					3	2					6
Biogen			1		1			1			1	4
BMS	1	1	1	1	2		1	2	2	1		12
Celgene		1	1		1			2	2	2	2	11
Eli Lilly	2		2							2	2	8
Gilead		1	2	2	1			1	1	2		10
GSK	3	3	2	2	2	1	2	1			2	16
J&J		1	2	1	1	1	2	2		1	1	12
Merck & Co		1	1	1			3	1	2	1	1	11
Merck KGaA												0
Novartis	3	3	1		1	1	2	2	2	1	3	19
Novo Nordisk						1		2			1	4
Pfizer	2	1	2	3	1		2	2	6			19
Roche	4		1	1			5	2	1	1	2	17
Sanofi	3	9	3	2	1	1			1	1	2	23
Takeda	2	1		2	4	1			1	1	2	14
Teva	3		2	4		1	2	5	1			18
Total	24	24	23	22	21	16	26	33	28	16	23	256

Fig. 2. Completed M&A deals (all events including subsidiary and non-pharma/biotech related deals), 2008-2018, accounted by the announcement date

Company	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Allergan		1	1	1	2	2	4	5	10	3	2	31
Amgen				2	4	1		2				9
Astellas			1	1				1	1	2	3	9
AstraZeneca		1		1	1	6	2	3				14
Bayer	2		1	1	2	4	3		1			14
Biogen			1		1			1			1	4
BMS	1	1	1	1	2		1	2	2	1		12
Celgene		1	1		1			2	2	2	2	11
Eli Lilly	2		2	1	1		2			2	2	12
Gilead		1	2	2	1			1	1	2		10
GSK	3	3	3		2	1	2	1			2	17
J&J	6	3	3	3	2	3	2	4	5	6	6	43
Merck & Co		1	1	1		1	3	2	3	1	2	15
Merck KGaA			1	3	1		1			2		8
Novartis	3	3	2	1	4	1	3	2	3	1	4	27
Novo Nordisk						1		2			1	4
Pfizer	2	1	3	3	1		2	2	6			20
Roche	6	1	3	4		2	8	7	1	4	4	40
Sanofi	3	10	3	2	3	1			1	1	2	26
Takeda	3	1		2	4	1			1	1	2	15
Teva	3	1	2	4		1	2	5	1			19
Total	34	29	31	33	32	25	35	42	38	28	33	360

Although the overall picture is rather static, some interesting patterns can be observed at the enterprise level. For example, certain companies actively pursued inorganic growth (Allergan and Pfizer being prime examples), while on

the other side of the spectrum, players such as Novo Nordisk and Merck KgAA apparently preferred to achieve business continuity through organic growth.

In some cases, one can possibly attribute individual cases of increased deal activity to leadership changes – thus, Sanofi had a surge of M&As when Chris Viehbacher took the helm in late 2008 and Allergan did some extensive shopping upon Brenton Saunders becoming a CEO in 2014.

Divestments

The number of divestment events per year gradually increased during the observation period, with peaks of activity overlapping with the merger and acquisition deal peaks (Fig. 3). 2018 stands out as a record year: 11 out of 21 companies had collectively spun-out 19 business units (Bayer, Novartis and Sanofi leading the pack).

Fig. 3. Annual divestment dynamics, 2008-2018 (events accounted by the announcement date)

Company	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Allergan								2	1		2	5
Amgen	1											1
Astellas								1				1
AstraZeneca	1			1				1	1	1	1	6
Bayer							1	2			3	6
Biogen									1			1
BMS	1	1				1		1	1		1	6
Celgene									1			1
Eli Lilly											1	1
Gilead												0
GSK			1	1		1	1		1		1	6
J&J				2			1	1	1	1	2	8
Merck & Co				1		1	2	1				5
Merck KGaA										1	1	2
Novartis						1	4	1	1	1	2	10
Novo Nordisk			1									1
Pfizer				1	1	1			1	2		6
Roche				1								1
Sanofi				1					1		3	5
Takeda								1		1	2	4
Teva					1			1		2		4
Grand Total	3	1	2	8	2	5	9	12	10	9	19	80

For several reasons, cutting back non-core assets has become increasingly common in big pharma. First, with growing competition and a decreased return on investment of R&D, big pharma players show a preference to specialize in areas of their (ever-evolving) core competency instead of maintaining broad portfolios that cover a diverse set of therapeutic areas.

Second, for most of the companies, mergers and acquisitions have become an inevitable source of growth, and divestments are often necessary to fund these activities. Cash is king, and the recent case of Teva's downturn demonstrates how a lack of cash can jeopardize the business when large deals are done.

Inorganic growth (especially in very large companies) in its turn commands subsequent optimization of the new "sum-of-the-parts" structure to remove the inefficiencies. Optimization is also fueled by the shareholders and activist-investors who are putting more and more pressure on companies to "unlock" the value and improve performance. Oftentimes, they propose to break apart the organization or spin-off the assets that might affect profitability.

Finally, buy-side environment has become more favorable in the recent years, with mid-size pharma seeking to build and strengthen their portfolios (thus, Leo Pharma acquired dermatology portfolios from Astellas and Bayer in 2015 and 2018 respectively), big pharma reshuffling their business units (GSK-Novartis swap in 2014) and private equity firms striving with excess "dry powder" that they are eager to deploy to support spin out of assets from large pharma (examples include Advent International's acquisition of Zentiva from Sanofi for EUR1.9B, Bain Capital backing neuroscience assets of Pfizer, and most recently Blackstone spinning out Anthos from Novartis).

Restructuring, changes of strategy and their drivers

Besides M&A and divestments, we also searched for publicly announced events that led to significant cuts in headcount, major changes in organizational structure or adoption of new business strategies. Planned staffing changes (for instance those that result from a relocation of a manufacturing facility), regional structural changes or strategy updates that did not deviate from previous strategy were not included in the analysis.

During the study period the occurrence of "change events" increased, with numbers peaking in 2018 (Fig. 3). That seemed to be driven by the ongoing consolidation of the industry, the evolution towards more focused business models and also in response to investor pressure.

Fig. 4. Annual dynamics of change events, 2008-2018 (events accounted by

the announcement date)

Company	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Allergan											2	2
Amgen				1		1	2			2		6
Astellas						1	1	1			1	4
AstraZeneca		1	1	1	1	1			2			7
Bayer			1		1		1		1	1	2	7
Biogen			1					1	1	1		4
BMS					1			1	1			3
Celgene												0
Eli Lilly		1				1		1	1	4		8
Gilead												0
GSK			2				2		1	1	4	10
J&J		1		1		1			1	1		5
Merck & Co			1	1		2			2	1		7
Merck KGaA					1					1		2
Novartis				2	1	1	5		4	1	4	18
Novo Nordisk	1						1	1	2		2	7
Pfizer	2	3	2	2		1		1	1	1	5	18
Roche		1	2		1			2		1	1	8
Sanofi	1	4	1	1	2			3	2	1	3	18
Takeda	1	1			1	1	1		1			6
Teva	1		1		1	1	1			1	1	7
Total	6	12	12	9	10	11	14	11	20	17	25	147

At the enterprise level we noted remarkable differences between companies: Gilead, Celgene and Merck KgAA remained very stable with respect to their strategy and organizational structure, while Pfizer and Sanofi experienced a higher degree of turbulence. For some other companies, such as BMS, Novartis or Novo Nordisk, a perceptible push for change commenced around 2014-2015.

Who drives the strategic change?

While the push for evolving the pharma business model is constant, and large companies are known to undergo major strategic review cycles every 3-5 years, it takes a serious effort to propose and lead an impactful change.

Several studies have demonstrated that strategic review and implementation of major changes come more naturally to new management than to an established C-suite. Thus, Schepker (Schepker et al., 2017) confirms the generally held belief that CEO succession correlates with substantial strategic changes in the broader industry landscape and showed that external CEO successors (especially when there was a forced departure of the preceding leader) bring more substantial changes to their organizations, as compared to internally promoted successors.

We were curious if the same relationship held true in the pharmaceutical

industry, and whether a new CEO background could predict the degree and timing of future changes. To answer this question, we studied whether new CEO appointments (from inside or outside the organization) influenced the rate of M&As, divestments and other change events.

Overall, within the 11-year window we saw no clear relationship between the number of major deals and CEO turnover – new leadership arrival did not necessarily impact deal activity. Instead, strategy was largely determined by the typical “style” of a particular company or executive (as mentioned earlier), and in the long run the rate of major events remained within its own characteristic range for most of the enterprises.

However, we confirmed that externally-hired CEOs drove more immediate (within 1 year after succession) “change events” in comparison to their internally promoted counterparts (see fig. 5). Sanofi and Teva are good illustrations of this effect, and it seems that the recent external hire Daniel O’Day is also starting to reshape Gilead. Also, external hires within our sample demonstrate more mid-term (within 3 years after appointment) divestment activities.

Fig. 5 Major strategic changes following arrival of external or internally promoted CEOs.

Restructuring

	Within 1 year	Within 2 years	Within 3 years
External CEOs	70% (7/10)	78% (7/9)	71% (5/7)
Internal CEOs	41% (9/22)	80% (16/20)	88% (15/17)

Strategy change

	Within 1 year	Within 2 years	Within 3 years
External CEOs	30% (3/10)	33% (3/9)	57% (4/7)
Internal CEOs	14% (3/22)	10% (2/20)	18% (3/17)

Restructuring + strategy change (total change events)

	Within 1 year	Within 2 years	Within 3 years
External CEOs	90% (9/10)	89% (8/9)	86% (6/7)
Internal CEOs	50% (11/22)	80% (16/20)	82% (14/17)

Divestments

	Within 1 year	Within 2 years	Within 3 years
External CEOs	20% (2/10)	56% (5/9)	86% (6/7)
Internal CEOs	23% (5/22)	35% (7/20)	35% (6/17)

Sample sizes for external/internal CEO groups as per their duration of stay (<2, <3 or 3 and above years) were as follows: 10/22, 9/19 and 7/17

There are several striking cases of internal successors implementing bold changes in their organizations – Emma Walmsley at GSK, Lars Fruergaard Jørgensen at Novo Nordisk and Vas Narasimhan at Novartis are good examples, though drivers for change in each case may not have been the same. While in the case of Novartis the reorganization era seems to have been planned well in advance by the exiting CEO, at Novo Nordisk, the unexpected leadership change (previously the company had stated that its ex-CEO Lars Rebién Sørensen would remain in his role until 2019) and following restructuring was likely an urgent

response to the company's first real tough period.

It is worth noting that the frequency of leadership changes and origin of new management (external vs internal) also depend on the company culture and shareholder composition. For example, Japanese pharma companies are known for a more traditional approach with few or smaller changes and internally developed CEOs. Similarly, companies with a significant family ownership (such as Roche) tend to be more stable and promote internal successors.

And finally, although we mainly studied the impact of CEO succession, it is clear that significant changes can be also driven by other members of the C-suite, including COOs and CSOs. Decisions of the latter are particularly important in the pharmaceutical industry, where R&D represents a paramount value. Some bright examples include the R&D restructuring of Merck & Co in 2013, which is attributed to R&D chief Roger Perlmutter and the reshaping of Johnson & Johnson's R&D approach around 2011, driven by CSO Paul Stoffels.

Systema Naturae

Together, our findings allow us to loosely classify the companies in our sample into three major groups:

Stable companies with low CEO turnover, leaders are typically internally promoted. The rate of major strategic events in these companies is low, and transformations are usually gradual:

- *Amgen* — stable in terms of therapeutic focus over time, mostly organic growth and only 1 divestment within the last 11 years;
- *Astellas* — very few acquisitions, only one business unit divestment; However, most recently new CEO has initiated a restructuring program;
- *Bayer* — announced adoption of a more focused business structure in 2014, did big acquisition of Monsanto in 2016 and initiated subsequent business optimization in 2018;
- *BMS* — had stated transformation towards a specialty biopharma model in 2013, later spun-out several businesses and reorganized its structure;
- *Novo Nordisk* — divested non-core business units in 2014 to fully focus on metabolic and endocrine disorders, initiated additional restructuring in 2018;
- *Roche* — stable M&A rate, only 1 divestment, most of the restructuring events

were related to business optimization;

- *Celgene* and *Gilead* — both have been very stable in their strategy and organizational structure, however the latter is currently undergoing changes — the senior management team (including the CEO) have decided to step down, and newcomer Daniel O'Day might initiate a big turn.

Quasi-stable companies with internally promoted CEOs but significant strategic changes

- *GSK* – Andrew Witty executed a giant swap of business units with Novartis, his successor Emma Walmsley then has led several divestments, acquisitions and restructuring with the help of R&D chief Hal Baron;
- *Novartis* – the business underwent significant and carefully orchestrated optimization under Joe Jimenez, who came in 2010. With his successor Vas Narasimhan (started in 2017) the company is now moving towards more innovation as well as sustained focus on the core oncology unit, with a planned ophthalmology unit separation;
- *Pfizer* (Ian Read has been CEO since 2010, recently changed by Albert Bourla who before served as Pfizer's COO) – the company has gone through a number of transformations under Ian Read and before him, but as in the case of Novartis, recent succession looks like something planned well in advance. Significant optimization (mostly in respect to R&D) has been undertaken after the acquisition of Wyeth in 2008-2009 and most recently in 2018.

Companies with externally hired CEOs that drove major changes

- *Allergan* (we refer to the initially existing Actavis) — with the arrival of new CEO and CSO in 2014, the company engaged in a divestment of the generics business and major deal-making spree;
- *AstraZeneca* — Pascal Soriot initiated major restructuring and new strategy soon after taking over in 2012;
- *Biogen* (two external CEOs in the past 11 years) — George Scangos led the divestment of the oncology business to sharpen the focus on CNS, and Michel Vounatsos implemented the Bioverativ spin-out and company-wide reorganization;
- *Sanofi* — two external CEOs over the last 11 years, both implemented significant transformations (Chris Viehbacher: 2009 new R&D model, 2011 Genzyme

acquisition among other things; Olivier Brandicourt led a big transformation in 2015, a swap of business units with Boehringer Ingelheim in 2016, and the acquisition of Bioverativ in 2017);

- *Teva* — three new CEOs in the past 10 years, all external, all initiated significant changes, with the company frequently changing directions. Jeremy Lewin (joined in 2012) sold animal and OTC business, led a major restructuring in 2013, attempted to increase the specialty focus; Erez Vigodman (joined in 2014 after Lewin was fired) bought the generic business from Allergan. New CEO Kåre Schultz comes from Novo Nordisk, currently conducting a major restructuring effort to salvage the struggling company.

What's ahead?

While the competitive pressure keeps growing and the paradigm of healthcare keeps evolving, the industry and especially its big players are trying to find new identity. The rate and magnitude of changes in pharma and biotech steadily increase and “whale watching” becomes more and more fascinating – just have a look at BMS’ recent decision to merge with Celgene. And although it remains difficult to predict the future, we have no doubt that a lot of bold moves are yet to come.

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