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MERGERS AND ACQUISITIONS IN THE PHARMACEUTICAL SECTOR

SOME NECESSARY CONSIDERATIONS

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Mergers and Acquisitions in the Pharmaceutical Sector

The purpose of this short submission is simply to emphasize very significant issues associated with monopoly power and mergers and acquisitions in the pharmaceutical sector. After analyzing the dynamics of collaboration at play among Big Pharma companies, this submission analyzes the evolution of M&As in the pharmaceutical sector by analyzing the overall "Buy-to-build ratio" in the sector. This submission then offers illustrations of the dynamic at play in terms of innovation, affordability and profitability by looking at two specific drugs: *Strensiq* and *Sovaldi*. Finally, the submission takes a look at current dynamics at play in the generic pharmaceutical sector.

Collaboration Agreements between pharmaceutical giants

In 2017, I was able to use the Clarivate's Cortellis database in order to list all collaboration agreements between core pharmaceutical companies also referred as "Big Pharma". Our research results showed that 296 collaboration agreements existed among the 13 largest drug companies in terms of market value. These collaboration agreements could take the form of Drug development/Commercialization licenses, Mergers and acquisitions, authorized generics, joint-ventures or asset divestment. In order to better visualize the dynamics of collaboration at play in this sector, I drew a line for every collaboration agreement between these companies. Note that the full list of all collaboration agreements, with a description of the nature of the collaboration for each is available on demand.

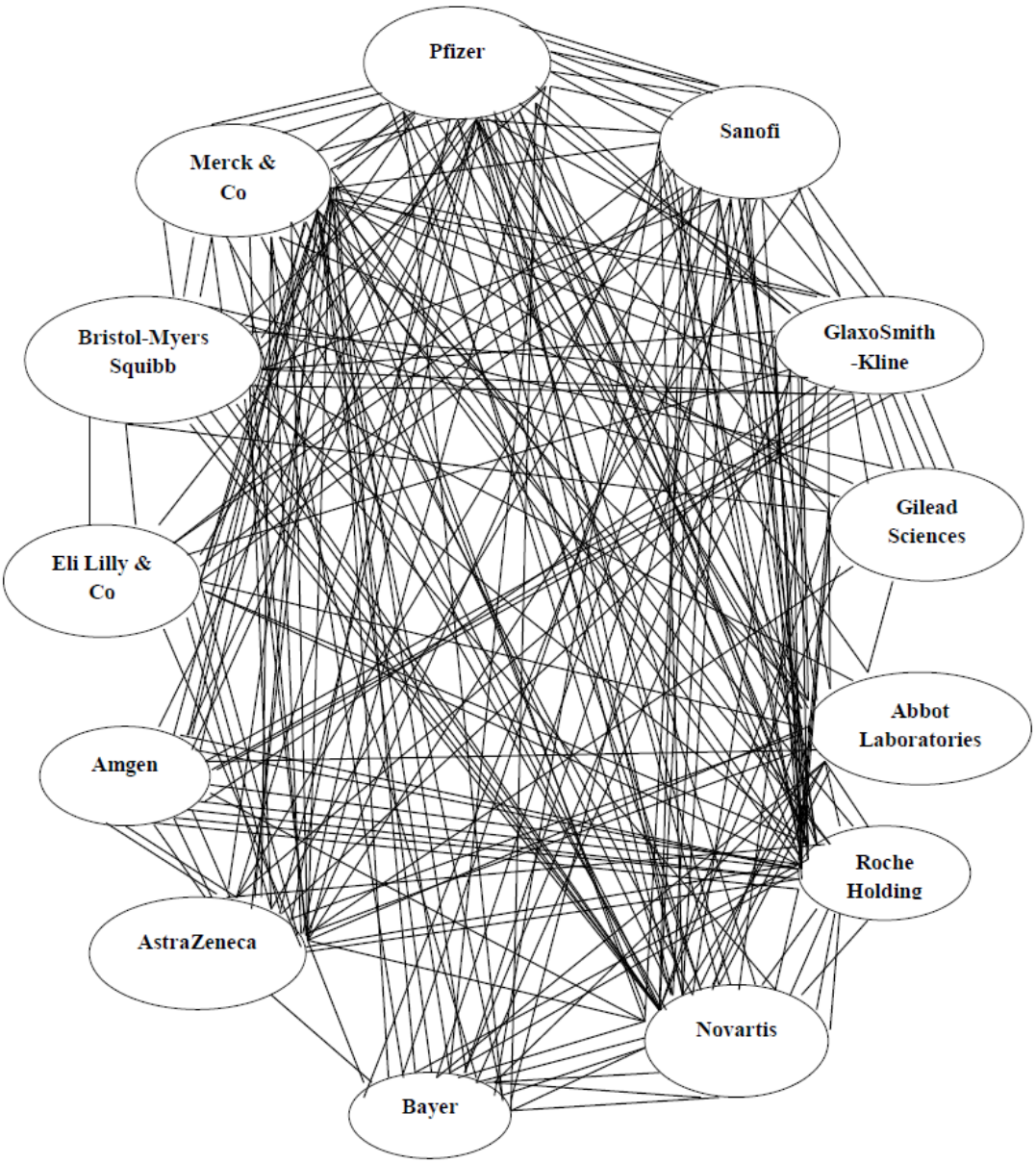
With 296 declared cooperation agreements among the 13 firms embodying Big Pharma, this means that each dominant firm has on average more than twenty cooperation agreements with other dominant firms. In this cooperation web, there is no visible central knot, and we find ourselves clearly facing a network of cooperation, and not a pyramidal structure with a central decision-making process. Market competition in the pharmaceutical sector here becomes an elusive concept when compared to the reality of organized systematic cooperation. While there is no cartel agreement in the legal sense of the word, we find ourselves confronted with the multiplication of quasi-cartel agreements, which results in the same consequence: increased monopolistic capacities.

This trend begs a question: If collaboration and not competition is the driving engine of the pharmaceutical sector, why do we remain stuck in obsolete models built on the myth of competition? Why do we remain focused so much on defending and extending intellectual property and secrecy instead of building science on principles of collaboration found in open-science?

Figure 1

Active Collaboration Agreements between Big Pharma Companies in 2017.

Source: Clarivate Analytics, Cortellis database



Buy versus Build

When a drug company develops a strategy to maximize returns on investment, it must face the dilemma of make or buy: "should we invest by creating new productive capacities, or should we invest by acquiring already existing productive capacities"? Creating new productive capacities can fuel productivity and innovation, while acquiring already existing capacities often end up in reducing capital formation and increase monopolistic capacities.

It is possible to compare firms' internal growth with external growth by comparing the ratio between the value of M&As and the value of "productive" investments as determined by Gross fixed capital formation (GFCF). Following Bichler and Nitzan (2009), we can call this the "Buy-to-Build Indicator", where a ratio of 50% would mean that for every dollar spent in building new tangible assets (GFCF), 50 cents would be spent in buying already existing assets through mergers and acquisitions (M&As).

In their works, Nitzan and Bichler (2002, 54), show that the average Buy-to-Build Ratio for all American firms between 1895 and 1980 was, year in, year out, about 5%. In other words, for each dollar spent in "productive investments" (GFCF), only 5 cents was spent in M&As in order to buy back already existing "productive capacities". Then, between 1981 and 2004, the average "Buy-to-Build Ratio" jumped to 40% for all American firms and up to 61% in the ten years between 1995 and 2004. In the case of pharmaceuticals, the average "Buy-to-Build Ratio" achieved the high score of 403% for the period 1981 to 2003, or 492% if we include only the period 1995 to 2003 (Gagnon 2009).

Advocates of the "knowledge-based economy" might assert that the problem with the Buy-to-Build ratio is that "productive investments" are here confined to GFCF, whereas intangible assets, such as patents or intellectual capital are not included in GFCF and we should thus include expenditures in research and development (R&D). The results and trends, however, are the same if we include all business expenditures in R&D (BERD) as part of GFCF, even without discounting tax credits for R&D, which usually turn around 50% of BERD depending on state legislation. The only overall difference is that the ratios are slightly lower in each case but the trends are similar. When BERD is included, we observe that, between 1981 and 2004, the average "Buy-to-Build Ratio" was 36% for all American firms and up to 55% in the ten years between 1995 and 2004. In the case of pharmaceuticals, the average "Buy-to-Build Ratio" amounted to 129% for the period 1981 to 2003, and 163% for the period 1995 to 2003.

If we look at the most recent data, things have not changed in the pharmaceutical sector. According to Market Watch, the value of M&As in the pharmaceutical sector have reached $342 billions in 2019 in the United States alone (Lee 2019). In comparison, according to the

US Census Bureau[1], GFCF in the pharmaceutical sector was only $15.6 billion in the United States in 2019. The "Buy-to-Build ratio" was thus 2192%, which means that for every dollar invested to create new productive capacities, 21$ was spent to acquire already existing productive capacities.

According to the Congressional Budget Office (2021), in 2019 the US pharmaceutical industry spent $83 billion in 2019 in research and development (without deductions of tax credits). If we include BERD, the buy-to-build ratio remains 346%, which remains twice as much than the average between 1995 to 2003, a period of intense mergers and acquisitions.

Those numbers not only show how central M&As became for pharmaceuticals, but also bluntly show that the driving forces for capital accumulation in the early XXIth Century have little to do with the increase of productivity. Investments for greater earning-capacities translate less and less into building more productive capacities and more and more into extending control over already existing productive capacities. The situation is even more acute for pharmaceuticals. The break between productivity and profitability could not be here more obvious.

Internalizing profits, externalizing risks and innovation: The cases of Strensiq and Sovaldi

We often hear the claims that more profits for drug companies will create more R&D, which might have been true some decades ago, but which has become non-sense in our financialized world. In fact, the massive profits in the pharmaceutical sector, as compared to other industrial sectors (Ledley et al. 2020), have been used instead for industrial concentration through mergers and acquisitions, barring the way to new innovative companies. Share buy-backs are also at an all-time high. You now have drug companies specializing on ultra-rare diseases, producing maybe three products for a handful of patients across the globe and still ranking among the largest global 500 companies in terms of market value. The commercial success is based on demanding astronomical prices for drugs that were mostly developed in the public sector or by other companies. One could call this capitalizing on despair.

Strensiq can be a good example to illustrate the point. *Strensiq* is a drug for an ultra-rare bone disease called hypophosphatasia. The basic research was done by academics at Montreal universities (where I worked for many years) with public funding. Once the research team found the mechanisms to tackle the disease and discovered potential silver bullets, the product development was done by the start-up *Enobia Pharma*, directed by a great academic researcher associated with the University of Montreal. The company also benefitted from

[1] I used the 2019 Annual Capital Expenditures from the US Census Bureau, available here: https://www.census.gov/library/publications/2020/econ/2019-aces-summary.html
See: Table 4a: Capital Expenditures for Structures and Equipment for Companies With Employees by Industry: 2019.

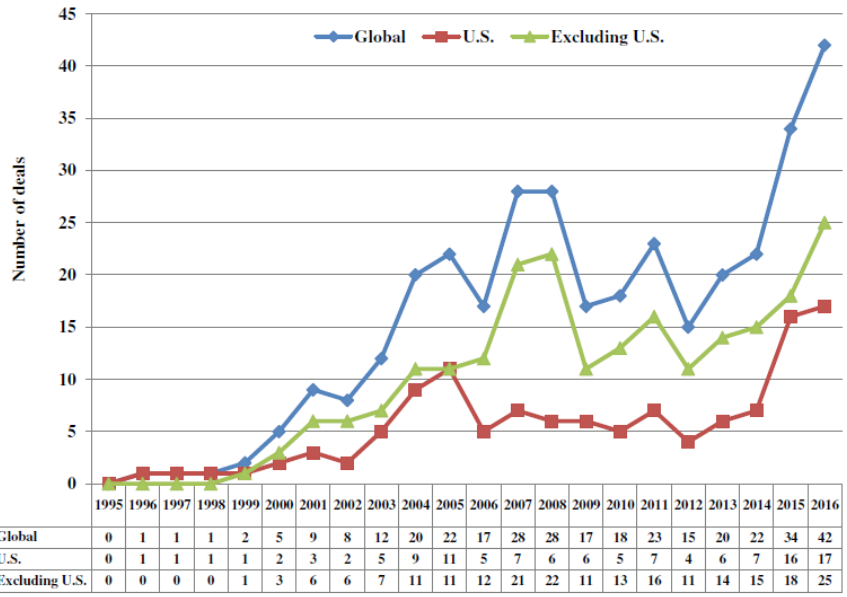
important tax credits. Note that this is now the standard way of doing things. Basic research is mostly done through public funds and when you have a silver bullet, you launch a start-up to develop the drug. However, if you can end up with a good drug for patients, most start-ups cannot even try to compete with larger companies to market drugs, so they prefer to simply be acquired by larger companies. The US company *Alexion* acquired *Enobia* in 2012 and it now demands such a price for *Strensiq* that drug plans refuse to reimburse the product for most Canadians, or co-pays make the drug unaffordable for most Americans. Because the use of the drug depends on the weight of the patients, only newborn babies and toddlers have access to the drug at around $250,000/year. The drug can cost up to $2 million/year for adults, which is simply prohibitive. A drug discovered by Canadian public researchers is becoming unaffordable for most Canadians who need it while transforming a foreign drug company into a profit-machine. In fact, following the acquisition of *Enobia*, Alexion's CEO, Leonard Bell, in 2014 became the world's highest paid pharmaceutical executive ever with total compensation of $196 million (Lazonick 2017), an amount bigger than total payroll for all non-executive employees at the company. One can become somewhat skeptical about implementing a system that simply gives away more money to pharmaceutical companies without making sure that the money will be spent for research. Many might see the situation and consider that Canadians are paying twice for the drug; they pay for the R&D through grants, subsidies and tax credits, and then, because of the patent system that provide market exclusivity for the product, they pay unaffordable prices that make the drug inaccessible for most patients.

Strensiq is just an example of a more general trend about how things are being done. In particular, the same story repeats itself the year after with *Sovaldi*, a drug against hepatitis C. The drug was discovered at Emory University, and was then given transferred to a start-up company: *Pharmasset*. The start-up company was then acquired by *Gilead Sciences*, which marketed the drug by more than doubling the intended price by *Pharmasset*, making it the most profitable drug launch ever (Roy 2017). In 2015, Gilead Sciences' CEO, John C. Martin, became the most world's highest paid pharmaceutical executive ever with total compensation of $232 million (Lazonick 2017). The Committee of Finance of the US Senate (2015) launched an investigation on the pricing of *Sovaldi*, showing how deviant has become the business models in the pharmaceutical sector, but no action was taken to change the situation.

M&As among generic manufacturers

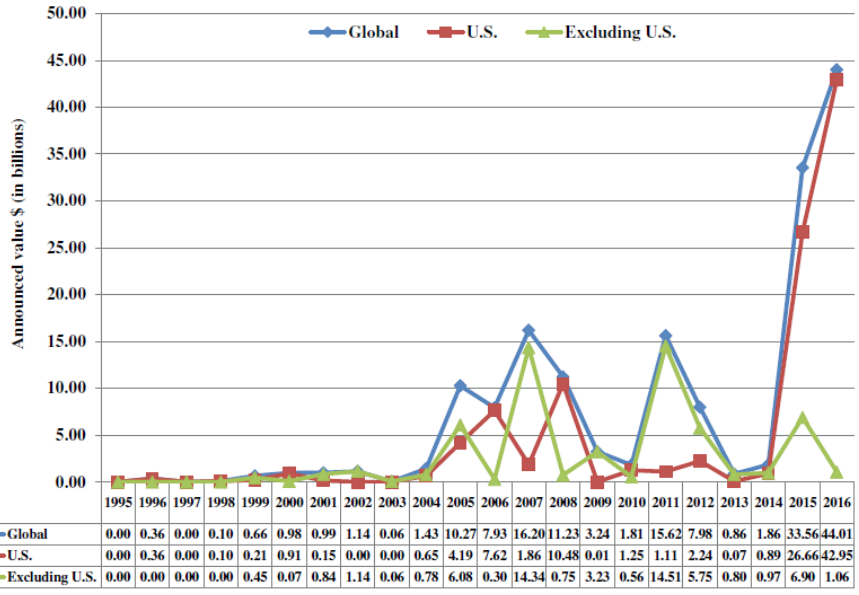
Beyond Big Pharma, t is important to also look at dynamics at play in the generic sector. M&A activity in the generic drug sector were negligible in the 1990s, but the total value of deals rose to $44 billion in 2016, representing 35% of all mergers and acquisitions among pharmaceuticals (Gagnon and Volesky 2017). The surge in mergers and acquisitions recorded

for 2015 and 2016 indicates sectorial transformations, for which further research will be needed to determine the specific impacts on the availability and pricing of generic drugs. We can only observe that the structures of the generic market are changing. In a 2017 paper, I analyzed the evolution of deals and value of M&As in the US generic pharmaceutical sector (see tables below).



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Global	0	1	1	1	2	5	9	8	12	20	22	17	28	28	17	18	23	15	20	22	34	42
U.S.	0	1	1	1	1	2	3	2	5	9	11	5	7	6	6	5	7	4	6	7	16	17
Excluding U.S.	0	0	0	0	1	3	6	6	7	11	11	12	21	22	11	13	16	11	14	15	18	25

Fig. 2 Number of completed merger and acquisition deals with generic targets from 1995 to 2016. Data were gathered from Bloomberg Finance L.P. The number of deals included deals that did not release the announced value



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Global	0.00	0.36	0.00	0.10	0.66	0.98	0.99	1.14	0.06	1.43	10.27	7.93	16.20	11.23	3.24	1.81	15.62	7.98	0.86	1.86	33.56	44.01
U.S.	0.00	0.36	0.00	0.10	0.21	0.91	0.15	0.00	0.00	0.65	4.19	7.62	1.86	10.48	0.01	1.25	1.11	2.24	0.07	0.89	26.66	42.95
Excluding U.S.	0.00	0.00	0.00	0.00	0.45	0.07	0.84	1.14	0.06	0.78	6.08	0.30	14.34	0.75	3.23	0.56	14.51	5.75	0.80	0.97	6.90	1.06

Fig. 3 Total announced value of completed deals with generic targets from 1995 to 2016. Data were gathered from Bloomberg Finance L.P. terminal. Financial figures are in billions of United States dollars not adjusted for inflation and rounded to two decimal places

The generic drug industry has changed since 1995, and it is thus necessary to update regulations and procurement policies accordingly to develop institutional capacities to deal with potential problems. In particular, Antitrust authorities should scrutinize current practices, public drug plans should consider modifying their procurement process to ensure the safety of drug supply, and governments could also explore the possibility of establishing public generic manufacturers.

Conclusion

I would like to offer here a clear conclusion about what is going on in this sector, but I must admit that I do not have a convincing explanation about how crazy the indicators have become in terms of collaboration, buy-to-build ratio, overall M&As, and profitability and compensation.

The only clear conclusion that we can make is that none of the traditional explanations in terms of synergy and productivity can explain the dynamics at work in the pharmaceutical sector, and it is time for antitrust authority to start putting some light at these dynamics and start cleaning the mess of a sector of high business profitability based more on price gouging of products mostly developed elsewhere, than real business innovation.

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