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Economic Profits in the Biopharmaceutical Industry

A comparative analysis of the risk-reward landscape across industries

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Abstract

- Traditional profitability measures showing high profits for the biopharmaceutical industry do not account for the differing risks and costs of capital across industries.
- Including risk and cost of capital measures in the analysis enables a more comprehensive view of economic profitability that captures the risk-reward landscape across different industries.
- An evaluation of industry profitability using appropriate measures reveals that biopharmaceutical industry profits are generally below the median of all industries considered.
- Data are mixed on whether COVID-19 resulted in financial gains to the biopharma industry.

Introduction

Pricing and profitability in the prescription drug industry are public interest topics that are frequently in the news. The novel coronavirus pandemic heightened attention to the biopharmaceutical industry and highlighted the importance of vaccine and treatment discovery. In this context, it is useful to review evidence about the financial performance of this important sector. Typically, thoughts about perceived high prices of certain drugs are followed in near succession by perceptions of high profits in the industry. After all, how can profits not be high if prices are? The answer to that question has a great deal to do with a common failure to appropriately adjust for financial risks and costs. By analogy, if one looked at the earnings of a winner of a large lottery, one might be fooled into thinking a lottery ticket is a good investment. After winning, the winner certainly has a lot more money than he or she did previously. Of course that is not the correct comparison. For the vast majority of lottery players, the purchase of a ticket is a losing proposition. To judge the financial soundness of lottery ticket purchases only on the winnings of the lucky few would lead one to a seriously errant conclusion. In the same manner, analyses of biopharmaceutical industry financial performance that focus on the earnings of only the most successful innovative biopharmaceutical companies make the same mistake. Such analyses ignore that the sales and profits generated by the biopharmaceutical industry are based on the investments made by a host of investors over a long-time horizon. Like the lottery, most players do not win. The investments they make must not be ignored.

Analyses showing excess profitability among innovative biopharmaceutical companies typically rely on a view of accounting profitability that generally does not address the variation in costs and risks faced by companies across industrial sectors. In order to effectively compete, companies in certain sectors must carry higher levels of invested capital than do companies in other sectors. Different companies also face different costs of the capital they employ, which reflects the return required by investors in a business to compensate for the financial risks undertaken. Similarly, the accounting treatment of research and development (R&D) expenditures, and the failure to recognize intangible assets in income statements, also tends to overstate the return on invested capital for companies whose businesses require large investments in capital, which generate substantial intangible assets, such as innovative biopharmaceutical companies. In order to get a clear picture of the economic performance across sectors, these costs and risks must be accounted for.

Studies that focus on accounting profits in this sector have been common over the years. Relatively recently, a 2017 GAO report indicated that "[a]bout 67 percent of all drug companies saw an increase in their annual average profit margins from 2006 to 2015."[1] The report also noted that the annual average profit margin for the largest 25 drug companies fluctuated between 15 and 20 percent compared to a

1 U.S. Government Accountability Office (GAO), "Drug Industry: Profits, Research and Development Spending, and Merger and Acquisition Deals," 11/2017, available at https://www.gao.gov/assets/gao-18-40.pdf, at pdf 2.

range of 4 to 9 percent for the 500 largest companies in other industries. Similarly, research by Sood et al. focused on the common accounting measures of gross and net profit margins in discussing returns in the pharmaceutical industry compared to companies in other sectors, suggesting branded biopharmaceutical sector profits are higher than all other industrial sectors.[2] In another recent example, Ledley et al. compared the profitability of large pharmaceutical companies relative to other large public companies and found that "[f]rom 2000 to 2018, the profitability of large pharmaceutical companies was significantly greater than other large, public companies[.]"[3] The authors noted that this "difference was less pronounced when considering company size, year, or research and development expense." While the study did not fully account for cross-industry differences in costs and risks, it found that pharmaceutical companies had significantly higher median research and development expense as a fraction of revenue compared to S&P 500 companies generally. As we have described, an appropriate assessment of economic performance across companies and industries must consider not only these accounting measures, but also those that reflect differing costs of capital and risks across companies and sectors of the economy.

Well known studies performed at the Tufts Center for Drug Development have assessed the cost of drug development over the years. The most recent published analysis found that the estimated average out-of-pocket costs per approved new compound is $1.395 billion.[4] The authors find that including the opportunity cost of this large capital investment over the time involved in the development process (using a discount rate of 10.5%) raises this cost estimate to $2.558 billion. A key driver of this extraordinary cost is the low probability of success. Relatively few products make it from conception to FDA approval. Recent estimates find the probability of eventual FDA approval for a drug or biologic candidate in Phase I of the development process to be between 9.6%–13.8%.[5]

Following on prior work assessing the same conditions[6], this updated analysis of profitability in the biopharmaceutical industry takes cost of capital and risk measures into account. The most recently available public data (for the year 2021) show that economic profitability for the biopharmaceutical industry is near or below the median of all industries in the US economy. Moreover, the economic profitability of this sector has generally been declining over time as the required investments have been increasing. A commonly used measure of a company's financial performance in the literature that includes cost of capital is economic value added (EVA).[7] This measure is represented by accounting profits less capital expenses. Additionally, the EVA spread, expressed as Return on Capital (ROC) minus Weighted Average Cost of Capital (WACC), can be used to appropriately compare economic profitability across industries.

As explained above, drug and biologic development is a costly and risky process. The substantial investments in R&D required to develop biopharma products is reflected via a high level of invested

2 Sood, Neeraj, et al. (2017), "The Flow of Money Through the Pharmaceutical Distribution System," *USC Schaeffer Leonard D. Schaeffer Center for Health Policy & Economics*, available at https://healthpolicy.usc.edu/wp-content/uploads/2017/06/The-Flow-of-Money-Through-the-Pharmaceutical-Distribution-System_Final_Spreadsheet.pdf, at 6–7.

3 Ledley, Fred, et al. (2020), "Profitability of Large Pharmaceutical Companies Compared with Other Large Public Companies," *Journal of the American Medical Association* 323(9): 834–843.

4 DiMasi, Joseph A., Henry G. Grabowski, and Ronald W. Hansen (2016), "Innovation in the Pharmaceutical Industry: New Estimates of R&D Costs," Journal of Health Economics 47: 20–33.

Figures are in 2013 dollars.

5 Wouters, Olivier J., Martin McKee, and Jeroen Luyten (2020), "Estimated Research and Development Investment Needed to Bring a New Medicine to Market, 2009–2018," Journal of the American Medical Association 323(9): 844–853, at Table 1.

Biotechnology Innovation Organization, "Clinical Development Success Rates 2006–2015," 6/2016, at 7, available at https://www.bio.org/sites/default/files/legacy/bioorg/docs/Clinical%20Development%20Success%20Rates%202006-2015%20-%20BIO,%20Biomedtracker,%20Amplion%202016.pdf.

6 Manning, Richard and Saurav Karki (2020), "Policy Brief: Economic Profitability of the Biopharmaceutical, Industry, an Update," available at https://www.bateswhite.com/media/publication/188_Economic%20profitability%20of%20the%20drug%20industry.2020update.pdf.

7 Investopedia, Economic Value Added (EVA), 3/22/2022, https://www.investopedia.com/terms/e/eva.asp.

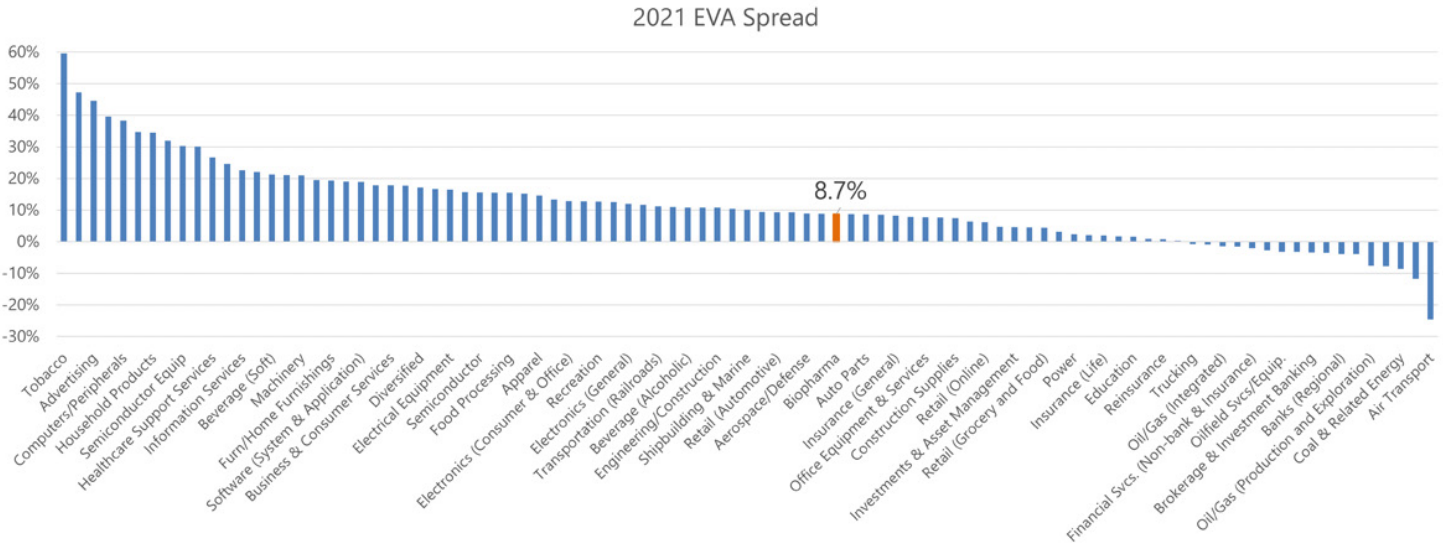
capital. Invested capital measures the funds invested in the operating assets of a company with which it seeks to generate earnings. The large up-front costs and uncertain payoffs in biopharmaceutical development contribute to relatively higher weighted average costs of capital for innovative biopharmaceutical companies.

In this brief, we illustrate how the biopharmaceutical industry's EVA spread, calculated as the Return on Capital (ROC) minus WACC, compares with that of other industries using the most recent publicly available data. We discuss how this industry's EVA spread has changed over time and also include illustrations of trends for EVA spread for other industries for comparison. We conclude with some observations of the potential effect of the COVID-19 pandemic on economic returns.

Biopharma's place in the distribution of economic profit rates

As measured by EVA spread, Figure 1 illustrates the rates of economic profit across all industrial sectors in the United States. As shown there, the biopharmaceutical industry's economic profits lie below the median of the distribution of all industries in the latest data available. This is not surprising because, although the biotech and pharmaceutical industries have higher levels of accounting profits, they also have substantially higher level of invested capital, and higher cost of capital. The industry's EVA spread for 2021 is below the median of industries for which data are reported.

Figure 1: Economic Value Added (EVA) Spread for 2021[8]



Trends over time

In addition to invested capital requirements and related issues discussed above, company performance depends on economic conditions that evolve over time, including business cycles and changes in overall demand patterns in an economy. An important example of such effects is the emergence of COVID-19. The pandemic and related effects had very large impacts on the global economy that

8 Chart constructed based on data from Damodaran Online, EVA data, 2021, at Column "ROC – WACC", available at https://pages.stern.nyu.edu/~adamodar/.

Appendix A shows 2021 EVA Spread values for all industries for which data are available.

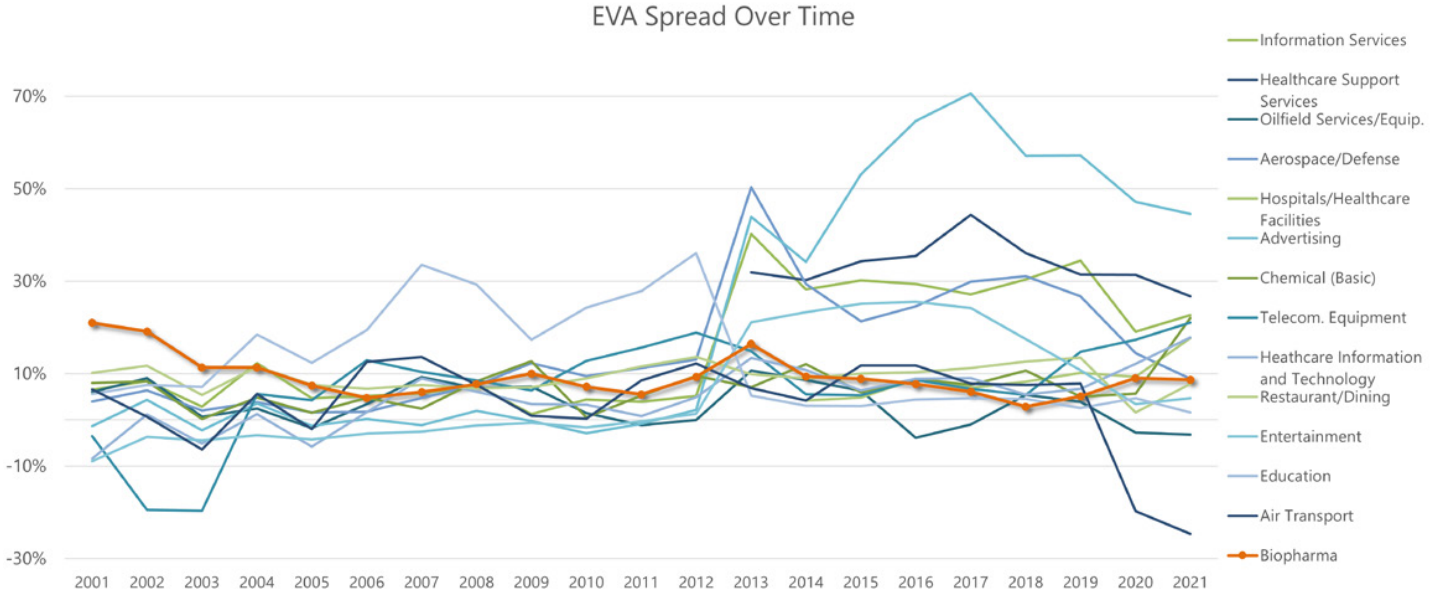
Data for each year updated in January of the following year. Thus, 2021 data is updated in January 2022. Biopharma EVA is calculated as the weighted average of Drugs (Biotechnology) and Drugs (Pharmaceutical) industries reported in the Damodaran data where the weighting factor is the Book Value of Capital. This adjustment reflects the nature of the biopharmaceutical product discovery and development process and the reality that few companies remain either purely small-molecule or purely biologics focused.

continue. The biopharmaceutical industry has played a key role in the response to the pandemic with the development of novel therapeutics and vaccines supported by substantial public-private coordination and investment.[9] Illustrating how economic performance of various industries has changed over time, Figure 2 presents the EVA spread for a handful of industries from 2001 through 2021. Unsurprisingly, some industries have experienced steady increase in EVA over time, and others have experienced fluctuations.

It is interesting that the EVA spread for the healthcare support services industry (which includes pharmacy benefit managers, drug wholesalers and insurers, among others) has been among the highest since 2013, when the data for that industry began to be reported. The EVA spread for the information services industry remained in a rather narrow band from 2001 through 2012, but has since grown quite substantially, albeit with a dip in 2020. The aerospace and defense sector increased steadily from the early 2000s to 2018 but declined in 2020 and 2021. The economic performance of the biopharmaceutical industry has been largely within the range of other industries over the time period for which we have data, but is not high compared to other industries particularly in later years. Of particular note is that the Healthcare Support Services industry had higher rates of EVA spread than the biopharma sector in all years for which we have data.

Figure 2 also provides interesting high-level indications of the changes in the global economy in this new century. For example, that the EVA spread for the oilfield services and equipment industry was negative in 2011 and has fluctuated between a low of negative 3.9% in 2016 and a high of 10.6 % in 2013. These relatively lower levels of EVA spread are most likely a reflection of relatively high invested capital requirements. Perhaps most striking is the growth in the profitability measure for the Advertising industry that has happened over the past decade, which casual empiricism seems to suggest is linked to the growth in social media and online commerce that has occurred in the same time period. Also notable is the strong decline in EVA spread for the Air Transport sector in 2020 and 2021 which seems almost certainly to be a COVID-19 related effect.

Figure 2: Economic Value Added (EVA) Spread for Various Industries[10]

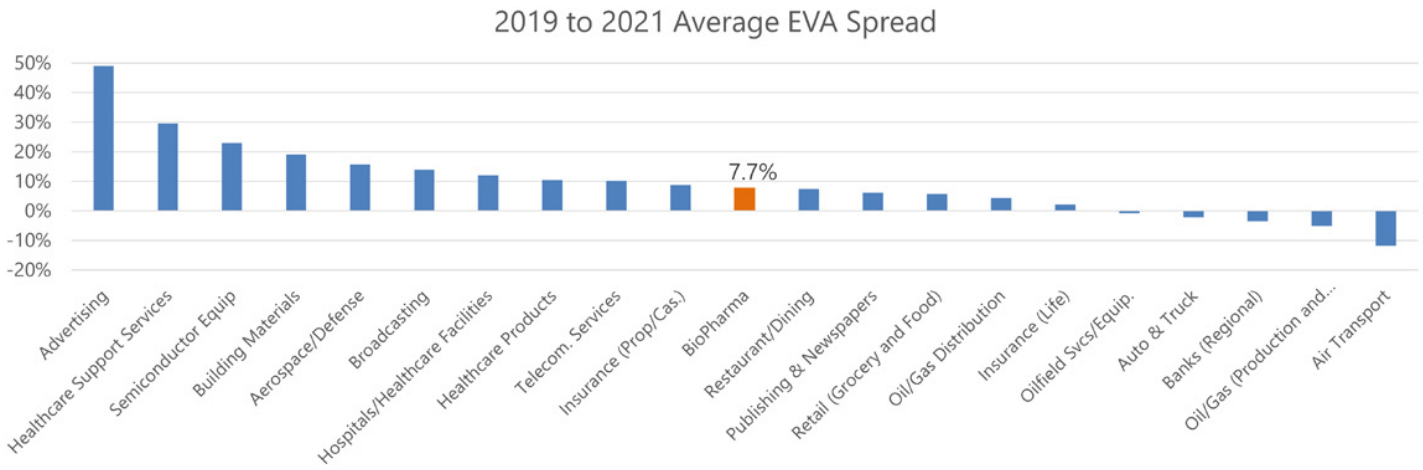


9 IQVIA Institute for Human Data Science, "Lessons Learned from COVID-19 Vaccine Trials: A CRO Perspective on Accelerating Clinical Development," 4/2022, at 3–4.

10 Chart constructed based on data from Damodaran Online, EVA data, 2001–2021, at Column "ROC – WACC", available at https://pages.stern.nyu.edu/~adamodar/. Certain industries may have slight changes in their names over the time period of analysis. In these instances, we group industries that are the same or highly similar. For example, "Healthcare Information and Technology" and "Healthcare Information" would be grouped under the same category.

In view of the fluctuations in EVA spread over time, Figure 3 shows the average EVA spread for various industries averaged over the last three years for which data are available. Of primary interest, the biopharmaceutical industry's 2019–2021 EVA spread of 7.7% is equal to the median of all industries for this time period, and is lower than the mean of 8.8% for all industries in the data. The industry with the highest three-year average EVA spread is Advertising, at 49.1% and the lowest is Air Transport at -11.8%. Following Advertising, the four industries with the next highest EVA spread over the past three years are: Tobacco (48.3%), Retail Building Supply (32.3%), Healthcare Support Services (29.6%), and Household Products (28.6%). On the other end of the spectrum, joining Air Transport among the five industries with lowest EVA spreads are: Hotel/Gaming (-6.3%), Trucking (-5.4%), Oil/Gas Production and Exploration (-5.1%), and Coal & Related Energy (-4.9%). A complete list of all industries and their latest three-year average EVA spreads is included in Appendix B.

Figure 3: Average Economic Value Added (EVA) Spread for Various Industries, 2019–2021[11]



Stock price indexes

Examining stock price returns over time is another way to assess economic profitability. The value of a company's stock is determined by investors' expectations about the company's future financial performance. Companies that outperform financial expectations will see their stock prices rise over time, and companies that fail to meet expectations will see their stock prices fall. A measure of how a company's financial performance compares to that of companies in the overall economy is a comparison of how that company's stock price has performed relative to the overall stock market.

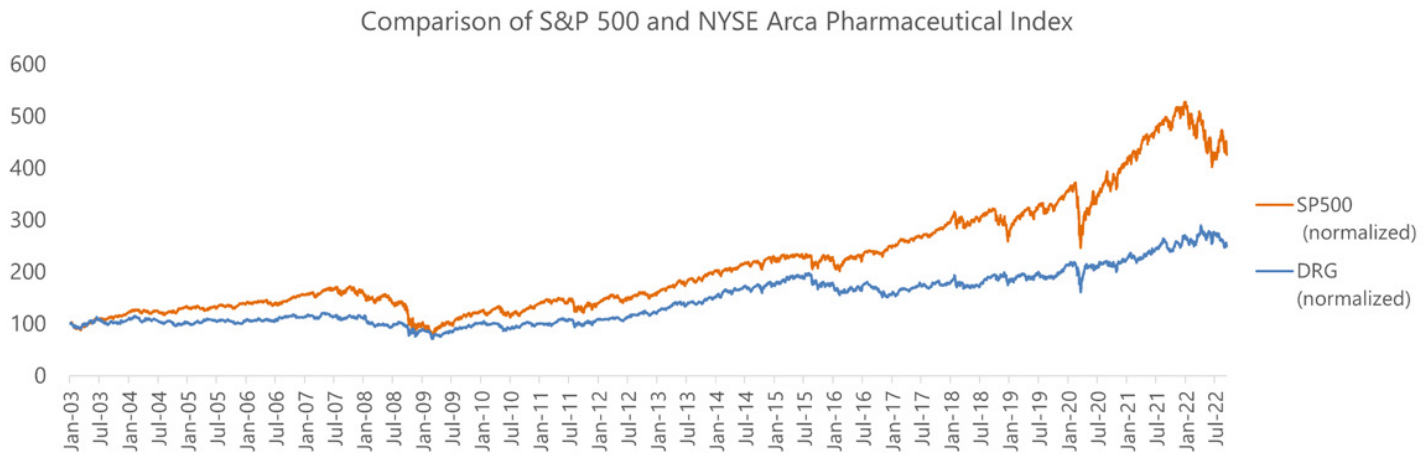
As an alternative to assessing economic profitability by the EVA spread comparisons provided above, we compare the performance of the S&P 500 to the NYSE Arca Pharmaceutical Index (also referred to as DRG) over time. The NYSE Arca Pharmaceutical Index consists of many biopharmaceutical companies including, for example, Sanofi, Merck & Co, Inc., Johnson & Johnson, Bristol-Myers Squibb Company, Pfizer, Abbott, Abbvie, and Novartis. Figure 4 shows that the performance of the S&P 500 has significantly exceeded the NYSE Arca Pharmaceutical Index, especially in more recent years, although since January 2020 the relative performance of the two indexes is closer. The S&P 500 has gained 18.9% while DRG has gained 17.0%[12]. Lagging stock price performance in this sector is consistent with the overall trend of declining economic profitability of the biopharma sector generally. This comparison

11 Chart constructed based on data from Damodaran Online, EVA data, 2019–2021, at Column "ROC – WACC", available at https://pages.stern.nyu.edu/~adamodar/.

12 Calculated as the percentage difference in stock price between September 16, 2022 and the first trading day in January 2020. It is also worth noting that over the current calendar year, to September 16, while the overall market (S&P 500) has lost about 19.2%, the DRG index has lost about 6.4%.

also suggests that the gains to those companies that have experienced success in COVID-19 related innovations have not been large enough to affect the industry's general performance relative to the overall market, though a fulsome analysis of COVID-19 effects is beyond the scope of this monograph.

Figure 4: DRG vs SP500 performance[13]



Evolving biopharmaceutical landscape

The EVA spread for the biopharmaceutical industry was approximately 9% in 2020 and 2021, compared to approximately 3% and 5% respectively in 2018 and 2019. Despite the continued sub-market stock price performance cited above, this increase may seem attributable to the impacts of the COVID-19 pandemic. COVID-19 had a profound impact on the clinical development landscape. The urgent need for vaccines to combat the pandemic fueled significant government investments, public-private partnerships, and regulatory allowances that fundamentally altered the clinical development landscape.[14] In vital classes of medicines, these factors "de-risked critical innovation and resourcing across the entire drug development process and allowed simultaneous changes across multiple levels of the pharmaceutical drug development business model."

According to IQVIA, "[o]ne of the most fundamental drivers of the rapid transformation of vaccine clinical research for COVID-19 was the financial de-risking that occurred as the healthcare ecosystem sought to address the global pandemic. Foremost in this initial de-risking was investment, support, and capacity-building, provided by public-private entities including Operation Warp Speed (OWS) and the Coalition for Epidemic Preparedness Innovations' (CEPI). An estimated $19Bn and $1.5Bn in clinical development funding came from these two sources respectively."[15]

It is possible that the infrastructure changes fueled by pandemic have had a substantial impact on the biopharmaceutical risk-reward landscape that may persist into the future. Moreover, whether any such effects extend beyond COVID-19 remain to be seen. Future analyses of EVA spread will allow us to more conclusively determine how these changes have impacted biopharmaceutical industry profitability.

13 Chart constructed based on data from the following sources and indexed to a common starting point of 100:

Refinitiv Eikon, "S&P 500 Index Price History," accessed 9/19/2022.

Refinitiv Eikon, "NYSE Arce Pharmaceutical Index Price History," accessed 9/19/2022.

14 IQVIA Institute for Human Data Science, "Lessons Learned from COVID-19 Vaccine Trials: A CRO Perspective on Accelerating Clinical Development," 4/2022.

15 IQVIA Institute for Human Data Science, "Lessons Learned from COVID-19 Vaccine Trials: A CRO Perspective on Accelerating Clinical Development," 4/2022, at 4.

Damodaran has included in his most recent release, an analysis of the impact of COVID-19 effects on various industries. Despite the increased investments into the healthcare space in response to the COVID pandemic, the reported change in market cap for the biopharma industry from January 2020 to December 2021 (38.4%) was smaller than the average and median of all industries combined (65.8% and 49.3% respectively).[16] Industries with the largest market cap increases during this time period were Auto & Truck at 701.1%, Green & Renewable Energy at 476.0%, and Electronics (Consumer & Office) at 268.1%. Clearly, there remains much to be learned about the immediate and the longer-term effects of the pandemic on this and other important industries.

Conclusion

After adjustment for risk and cost of capital measures, we find that the biopharmaceutical industry is not unusually profitable. In fact, it is less profitable than the median of industries for which data are available. This is a reality that policy makers and other stakeholders ought to bear in mind as policies are considered that will affect the future prospects of this vital American industry.

16 Damodaran Online, COVID Effects Data, 1/5/2022, available at https://pages.stern.nyu.edu/~adamodar/. Biopharma industry market cap is calculated as the sum of market cap for Drugs (Biotechnology) and Drugs (Pharmaceutical).

Appendices

Appendix A: 2021 EVA Spread for All Industries

Industry	2021 EVA Spread
Tobacco	59.52%
Retail (Building Supply)	47.28%
Advertising	44.56%
Paper/Forest Products	39.51%
Computers/Peripherals	38.27%
Shoe	34.64%
Household Products	34.46%
Steel	31.93%
Semiconductor Equip	30.29%
Metals & Mining	30.11%
Healthcare Support Services	26.72%
Building Materials	24.57%
Information Services	22.62%
Chemical (Basic)	22.05%
Beverage (Soft)	21.22%
Telecom. Equipment	21.02%
Machinery	20.97%
Environmental & Waste Services	19.51%
Furn/Home Furnishings	19.35%
Software (Entertainment)	18.93%
Software (System & Application)	18.88%
Healthcare Information and Technology	17.82%
Business & Consumer Services	17.78%
Hospitals/Healthcare Facilities	17.70%
Diversified	17.18%
Transportation	16.66%
Electrical Equipment	16.49%
Computer Services	15.66%
Semiconductor	15.53%
Homebuilding	15.41%
Food Processing	15.40%
Retail (General)	15.18%
Apparel	14.63%
Healthcare Products	13.38%
Electronics (Consumer & Office)	12.89%
Insurance (Prop/Cas.)	12.76%
Recreation	12.67%
Broadcasting	12.47%
Electronics (General)	11.88%
Telecom. Services	11.63%

Transportation (Railroads)	11.15%
Retail (Special Lines)	10.94%
Beverage (Alcoholic)	10.77%
Packaging & Container	10.77%
Engineering/Construction	10.74%
Retail (Distributors)	10.39%
Shipbuilding & Marine	10.15%
Chemical (Specialty)	9.42%
Retail (Automotive)	9.38%
Precious Metals	9.38%
Aerospace/Defense	8.88%
Publishing & Newspapers	8.79%
Biopharma	8.68%
Cable TV	8.67%
Auto Parts	8.57%
Farming/Agriculture	8.48%
Insurance (General)	8.21%
Restaurant/Dining	7.79%
Office Equipment & Services	7.74%
Chemical (Diversified)	7.65%
Construction Supplies	7.46%
Food Wholesalers	6.38%
Retail (Online)	6.26%
Entertainment	4.68%
Investments & Asset Management	4.57%
Utility (Water)	4.48%
Retail (Grocery and Food)	4.42%
Rubber& Tires	3.18%
Power	2.36%
Utility (General)	2.04%
Insurance (Life)	1.90%
Oil/Gas Distribution	1.63%
Education	1.57%
Telecom (Wireless)	0.89%
Reinsurance	0.77%
Real Estate (General/Diversified)	0.29%
Trucking	-0.74%
Auto & Truck	-0.95%
Oil/Gas (Integrated)	-1.46%
Green & Renewable Energy	-1.59%
Financial Svcs. (Non-bank & Insurance)	-2.10%
R.E.I.T.	-2.76%
Oilfield Svcs/Equip.	-3.19%
Real Estate (Development)	-3.21%
Brokerage & Investment Banking	-3.42%

Bank (Money Center)	-3.47%
Banks (Regional)	-3.87%
Software (Internet)	-3.88%
Oil/Gas (Production and Exploration)	-7.58%
Real Estate (Operations & Services)	-7.81%
Coal & Related Energy	-8.62%
Hotel/Gaming	-11.76%
Air Transport	-24.64%

Source:

Damodaran Online, EVA data, 2021, at Column "ROC – WACC", available at https://pages.stern.nyu.edu/~adamodar/.

Data for each year updated in January of the following year. Thus, 2021 data is updated in January 2022. Biopharma EVA is calculated as the weighted average of Drugs (Biotechnology) and Drugs (Pharmaceutical) industries where the weighting factor is the Book Value of Capital.

Appendix B: 2019–2021 Average EVA Spread for All Industries

Industry	2019 to 2021 EVA
Advertising	49.1%
Tobacco	48.3%
Retail (Building Supply)	32.3%
Healthcare Support Services	29.6%
Household Products	28.6%
Shoe	25.1%
Information Services	24.2%
Computers/Peripherals	23.6%
Semiconductor Equip	22.9%
Beverage (Soft)	21.0%
Building Materials	19.1%
Machinery	18.2%
Computer Services	17.6%
Telecom. Equipment	17.4%
Electrical Equipment	16.9%
Software (System & Application)	16.4%
Business & Consumer Services	16.0%
Aerospace/Defense	15.8%
Environmental & Waste Services	15.4%
Steel	14.3%
Broadcasting	13.9%
Metals & Mining	13.5%
Food Processing	13.3%
Healthcare Information and Technology	13.1%
Software (Entertainment)	12.9%
Semiconductor	12.4%
Furn/Home Furnishings	12.4%
Hospitals/Healthcare Facilities	12.1%

Chemical (Basic)	11.2%
Retail (General)	10.8%
Healthcare Products	10.4%
Paper/Forest Products	10.3%
Diversified	10.3%
Packaging & Container	10.2%
Telecom. Services	10.1%
Beverage (Alcoholic)	9.9%
Transportation	9.9%
Homebuilding	9.7%
Apparel	9.0%
Engineering/Construction	9.0%
Office Equipment & Services	8.9%
Insurance (Prop/Cas.)	8.7%
Recreation	8.7%
Electronics (General)	8.4%
Retail (Distributors)	8.4%
Transportation (Railroads)	8.0%
BioPharma	7.7%
Chemical (Specialty)	7.6%
Food Wholesalers	7.5%
Cable TV	7.5%
Restaurant/Dining	7.4%
Construction Supplies	7.2%
Auto Parts	6.5%
Insurance (General)	6.4%
Publishing & Newspapers	6.2%
Retail (Automotive)	6.0%
Entertainment	5.9%
Retail (Special Lines)	5.7%
Retail (Grocery and Food)	5.6%
Precious Metals	5.5%
Farming/Agriculture	5.1%
Retail (Online)	4.8%
Oil/Gas Distribution	4.3%
Chemical (Diversified)	3.7%
Utility (Water)	3.4%
Investments & Asset Management	3.3%
Utility (General)	3.2%
Power	3.1%
Education	2.9%
Telecom (Wireless)	2.3%
Insurance (Life)	2.1%
Shipbuilding & Marine	2.1%
Electronics (Consumer & Office)	0.7%

Rubber & Tires	0.5%
Reinsurance	0.1%
Real Estate (General/Diversified)	-0.6%
Green & Renewable Energy	-0.7%
Oilfield Svcs/Equip.	-0.8%
Software (Internet)	-0.8%
Real Estate (Operations & Services)	-1.5%
Financial Svcs. (Non-bank & Insurance)	-1.8%
R.E.I.T.	-1.9%
Auto & Truck	-2.2%
Bank (Money Center)	-3.0%
Brokerage & Investment Banking	-3.4%
Banks (Regional)	-3.5%
Oil/Gas (Integrated)	-3.7%
Real Estate (Development)	-3.8%
Coal & Related Energy	-4.9%
Oil/Gas (Production and Exploration)	-5.1%
Trucking	-5.4%
Hotel/Gaming	-6.3%
Air Transport	-11.8%

Source:

Damodaran Online, EVA data, 2019–2021, at Column "ROC – WACC", available at https://pages.stern.nyu.edu/~adamodar/.

Biopharma EVA is calculated as the weighted average of Drugs (Biotechnology) and Drugs (Pharmaceutical) industries where the weighting factor is the Book Value of Capital.

2019–2021 EVA is calculated as weighted average of BioPharma EVA for 2019, 2020, and 2021 where the weighting factor is the Book Value of Equity for each year. BioPharma Book Value of Equity was calculated as the sum of the Book Value of Equity for Drugs (Biotech) and Drugs (Pharmaceutical) categories.

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