



# How Much Can Pharma Lose?

A Comparison of Returns Between  
Pharmaceutical and Other Industries

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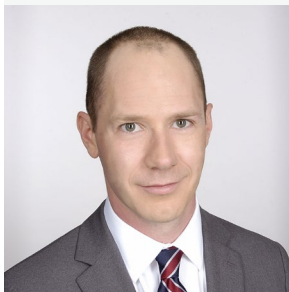
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The West Health Policy Center is focused on research and education to identify innovations and policy solutions that can slow the trajectory of rising healthcare costs while improving access to—and the quality of—care, particularly for our nation’s growing population of seniors. Specific areas of focus include reducing growth in U.S. spending on prescription drugs, promoting value-based care models, increasing price transparency, and limiting consumer exposure to high out-of-pocket costs. Solely funded by philanthropists Gary and Mary West, the Policy Center is based in Washington, D.C., and is part of West Health, a family of nonpartisan, nonprofit organizations dedicated to lowering the cost of healthcare to enable successful aging.

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## Introduction

Whenever policymakers consider approaches to reduce drug spending, the pharmaceutical industry sings a familiar refrain – any reduction in drug manufacturer revenues will cause investment to wither, depriving manufacturers of the resources needed to research and develop future treatments. The empirical validity of this argument has not, to our knowledge, been analyzed. In this analysis, we consider the historical level of returns on invested capital in the pharmaceutical industry and compare it to other industries; we then consider how much lower pharmaceutical industry revenues could be while maintaining returns at or above other industries. We find that large pharmaceutical manufacturers could endure significant revenue reductions, including the reductions considered in recent legislative proposals,<sup>1</sup> while maintaining current research investments and still achieve the highest returns of any market sector.

## Background

When attempting to regulate pharmaceutical spending, policymakers frequently assert that pharmaceutical manufacturer returns are significantly higher than other industries. A 2006 Congressional Budget Office report was among the first to systematically assess the question and provide support to some lawmakers' belief that the pharmaceutical industry could remain profitable with lower revenues.<sup>2</sup> More recently, the Government Accountability Office compared profit margins for drug companies and other industries, finding that margins for the largest drug companies significantly outpaced margins among the 500 largest companies in other industries.<sup>3</sup> Alarmed by the power of this argument, the industry has repeatedly attempted to justify high revenues with the costs of bringing a drug from theory to market, funding research that estimates high drug development costs<sup>4</sup> and citing losses associated with products that seemed promising but ultimately were unsuccessful.<sup>5</sup> Historically, these arguments have proved relatively effective, leaving a largely-unregulated drug pricing landscape and resulting in the pharmaceutical industry being considered among the most effective lobbying groups in Washington, DC.<sup>6</sup>

This argument has reprised itself in current debates on drug spending. During hearings in the House Energy and Commerce Committee<sup>7</sup> and the House Education and Labor Committee,<sup>8</sup> both witnesses and lawmakers considered sympathetic to the pharmaceutical industry raised concerns about the impact on investment in drug companies and the subsequent impact on innovation. Throughout these debates, however, there has been little evidence of the relative differences in investment returns between the pharmaceutical industry and other industries, nor consideration of the magnitude of a revenue reduction that the pharmaceutical industry could sustain and remain a competitive investment choice.

## A Bifurcated Industry

One of the principle arguments against reducing pharmaceutical industry profits is that lower profits will lead to less investment in early-stage research and discovery, harming the pipeline for future drug innovation. This argument, however, does not differentiate between investment in companies that engage in early-stage development and companies that focus on bringing promising therapies to market. According to the Government Accountability Office, “traditionally large companies are increasingly relying on mergers and acquisitions to obtain access to new research and are conducting less of their own research in-house.”<sup>9</sup> This approach leverages large pharmaceutical companies’ resources to conduct later-stage trials and navigate the approval, distribution, and marketing processes. It is these large, publicly-traded pharmaceutical companies whose revenue would be directly reduced by any new drug spending regulations.

“Traditionally large companies are increasingly relying on mergers and acquisitions to obtain access to new research and are conducting less of their own research in-house.”

– Government  
Accountability Office

If large pharmaceutical companies are the entities directly affected by drug spending regulations, how would these regulations affect early-stage research companies? One plausible explanation is that large pharmaceutical manufacturers would offer lower prices for the acquisition of candidate drugs, reducing the potential profit that could be realized by early-stage companies and their venture capital investors. However, this may not be the case – the price paid for candidate drug acquisition has grown significantly over the past decade due to the competitive nature of these acquisitions,<sup>10</sup> and it is unknown whether early-stage companies and their investors would accept lower prices to maintain large pharmaceutical companies’ current profit margins. If early-stage companies do not reduce their prices from current levels, the cost of drug acquisition becomes closer to a fixed cost, and the question becomes whether a large pharmaceutical company can remain sufficiently profitable with lower revenue and fixed costs to maintain current levels of investment.

For our analysis, we chose a measure – Net Operating Profit After Tax (NOPAT) – that includes the cost of drug acquisitions when considering each company’s and industry’s returns on investment. That means that the investment returns after lower revenues that we model for pharmaceutical companies include current expenses for drug acquisition. Our findings suggest that early-stage research companies and their investors could hold out for prices consistent with current rates and large pharmaceutical companies could still achieve market-leading returns even with lower revenues. Put simply, our analysis indicates that early-stage research companies and their investors could still maintain their current profit margins without reducing large pharmaceutical companies’ relative advantage in returns over other industries.

# Profitability Across Industries

For this analysis, we focus on the impact of drug spending regulations on large pharmaceutical companies, which we define as manufacturers that predominantly market brand drugs, are members of the PhRMA trade association, are publicly-traded, do not solely focus on orphan drugs, and whose public financial filings are sufficiently-included in the CompuStat database to allow us to calculate returns. CompuStat is a financial data aggregator that provides company financial data in a standardized, machine-readable format. The 23 companies included in our analysis are listed in Table 1. Together, drugs sold by these manufacturers accounted for 58% of gross Medicare drug spending in 2017 (\$104.9B of \$181.1B) and 72% of brand drug spending (\$104.1B of \$144.9B, per the Medicare Parts B and D Dashboards).<sup>11</sup>

To compare returns among large pharmaceutical manufacturers with other industries, we use Return on Invested Capital (ROIC). ROIC compares a company's net operating profit after tax to its total invested capital. Specifically, we calculated ROIC as:

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$$\text{ROIC} = \frac{\text{Net Operating Profits after Taxes (NOPAT)}}{\text{Invested Capital}}$$

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We used CompuStat to access financial data from 2009 to 2019 for 2,193 companies. We calculated ROIC using a 12-month trailing average for returns divided by quarterly invested capital, in line with industry approaches. Because of this trailing average and because some industries had data gaps for 2009, we only report ROICs beginning in 2011. To calculate NOPAT, we subtracted quarterly taxes from quarterly operating income after depreciation. We used the invested capital summary variable provided by CompuStat, which is the sum of the Book Value of Equity, Preferred Stock, Non-Controlling Interest in Consolidated Subsidiaries, Long-Term Debt, Capital Notes, and Mortgage Indebtedness minus Treasury Stock. We calculated the annual ROIC for each pharmaceutical company as well as the total ROIC for the period (Table 1); we also calculated annual ROIC by industry based on CompuStat's industry categories as well as ROIC for the period for each industry (Table 2). We also report total NOPAT for each company and industry for comparison. Analyses were performed in Stata and Excel.

The 23 large pharmaceutical manufacturers in this analysis had profits of **\$1.2T** from 2011-2019.

Across the study period, large pharmaceutical manufacturers have the highest average ROIC of any industry group. In fact, in nearly every year of the period, pharmaceutical manufacturers' ROIC leads all other industry groups. Overall, large pharmaceutical manufacturers see a period ROIC of 17.3%, compared to an unweighted average 11.5% across all other industries (excluding large pharmaceutical manufacturers). This high ROIC among large pharmaceutical manufacturers suggests that a reduction in profit may not lead institutional investors to shift funds to other industries.

# Table 1

Return on Invested Capital and Total Profits among Large Pharmaceutical Manufacturers, 2011-2019

Company	Return on Invested Capital (ROIC)										Period Profits (in millions)
	2011	2012	2013	2014	2015	2016	2017	2018	2019	Period	
Abbott Laboratories	21.3%	12.8%	8.9%	7.6%	9.1%	10.5%	5.0%	5.5%	7.7%	9.4%	\$29,139.3
Abbvie Inc.	47.2%	42.8%	31.1%	30.9%	27.3%	19.8%	21.2%	36.2%	53.7%	36.2%	\$65,685.8
Allergan PLC	9.8%	10.6%	6.2%	N/A	1.4%	1.9%	3.6%	5.4%	2.3%	3.2%	\$16,366.7
Amgen Inc.	13.0%	12.8%	12.4%	11.2%	12.6%	13.5%	11.6%	10.7%	22.8%	13.7%	\$55,642.0
Astrazeneca PLC	30.1%	28.8%	19.9%	14.7%	14.8%	15.1%	15.5%	12.9%	13.7%	19.4%	\$47,063.0
Bayer AG	15.6%	17.7%	16.6%	14.4%	14.4%	14.6%	12.1%	7.1%	8.2%	13.3%	\$55,312.9
Biogen Inc.	22.7%	23.5%	21.9%	23.0%	24.9%	23.7%	22.6%	21.0%	26.9%	27.0%	\$27,896.6
Bristol-Myers Squibb Co.	22.3%	23.4%	16.0%	12.8%	10.6%	11.3%	11.6%	6.0%	17.8%	15.8%	\$27,662.0
Celgene Corp.	17.3%	21.1%	20.5%	17.7%	15.5%	16.1%	21.7%	18.1%	22.1%	22.0%	\$27,150.2
Eisai Co Ltd.	8.7%	7.5%	5.6%	6.1%	5.4%	6.3%	5.0%	9.2%	8.8%	7.0%	\$4,079.6
Gilead Sciences Inc.	27.4%	20.2%	20.1%	36.3%	48.8%	41.9%	22.5%	8.9%	14.6%	30.2%	\$71,906.2
Glaxosmithkline PLC	17.2%	25.2%	21.6%	23.6%	12.4%	26.7%	33.1%	26.3%	26.9%	25.5%	\$65,467.3
Johnson & Johnson†	18.8%	18.4%	19.2%	20.2%	18.2%	17.4%	14.1%	8.5%	20.9%	18.3%	\$125,039.0
Lilly (Eli) & Co.	28.3%	20.4%	20.2%	14.4%	14.3%	13.6%	14.4%	15.2%	32.4%	19.3%	\$33,089.3
Mallinckrodt PLC	N/A	N/A	5.8%	5.7%	6.2%	8.0%	10.1%	15.0%	10.9%	10.9%	\$5,915.7
Merck & Co.	12.8%	12.2%	11.0%	10.9%	6.7%	12.5%	12.4%	7.3%	19.2%	11.9%	\$63,950.0
Novartis AG	13.3%	12.5%	12.0%	11.6%	9.5%	8.1%	6.7%	7.3%	10.3%	10.2%	\$72,788.0
Novo Nordisk A/S	42.3%	56.4%	63.8%	68.4%	84.9%	89.9%	80.5%	76.9%	74.1%	95.0%	\$41,481.0
Pfizer Inc.	13.8%	12.5%	8.4%	9.2%	11.4%	14.5%	15.6%	21.8%	16.6%	14.2%	\$119,700.0
Regeneron Pharmaceuticals	-22.6%	13.4%	37.6%	14.5%	14.6%	17.6%	18.3%	21.2%	22.1%	22.7%	\$7,364.6
Roche Holding AG	71.8%	73.9%	78.7%	70.6%	61.8%	59.7%	53.1%	61.3%	70.4%	85.9%	\$117,732.9
Sanofi	19.8%	20.5%	16.8%	17.1%	18.3%	18.1%	15.8%	13.8%	16.1%	18.4%	\$62,900.0
Shire PLC	26.7%	22.5%	28.3%	27.4%	23.4%	8.2%	8.8%	12.2%	^	13.4%	\$20,458.8
Overall	18.4%	19.6%	17.7%	16.2%	14.7%	15.7%	14.8%	13.1%	17.8%	17.3%	\$1,163,791.0

N/A - Insufficient data reported to calculate

†Johnson & Johnson's 2018 income before tax was 65% attributable to pharmaceuticals, 23% attributable to medical devices, and 12% attributable to consumer products. ROIC was calculated using total revenues, as invested capital could not be directly allocated to the pharmaceutical business.

^Shire was acquired by Takeda in January of 2019; Shire's historical financial data were used for ROIC

## Table 2

Return on Invested Capital by Industry, 2011-2019

Industry*	Return on Invested Capital (ROIC)										Period Profits (in millions)
	2011	2012	2013	2014	2015	2016	2017	2018	2019	Period	
Large Pharmaceutical Manufacturers	18.4%	19.6%	17.7%	16.2%	14.7%	15.7%	14.8%	13.1%	17.8%	17.3%	\$1,163,791.0
Accommodation and Food Services	13.3%	12.4%	13.5%	14.8%	13.4%	14.1%	13.7%	16.7%	12.8%	15.3%	\$207,850.6
Administrative and Support and Waste Management and Remediation Services	11.7%	12.0%	11.8%	11.9%	13.2%	11.3%	12.4%	13.7%	12.8%	13.3%	\$95,818.3
Agriculture, Forestry, Fishing, and Hunting	11.2%	12.6%	14.1%	13.6%	16.5%	24.1%	16.4%	56.0%	2.7%	13.5%	\$32,946.7
Arts, Entertainment, and Recreation	6.5%	7.2%	8.2%	10.2%	7.3%	8.7%	8.8%	14.9%	6.8%	9.5%	\$15,703.6
Construction	4.7%	5.1%	10.7%	11.1%	7.4%	6.4%	6.7%	6.6%	8.4%	8.4%	\$62,204.7
Educational Services	31.2%	23.7%	15.5%	11.0%	6.5%	12.4%	8.2%	9.2%	5.3%	12.6%	\$7,682.7
Finance and Insurance	6.6%	7.2%	7.6%	8.0%	7.6%	7.0%	7.0%	7.2%	8.4%	8.4%	\$3,244,796.0
Health Care and Social Assistance	14.9%	13.2%	12.4%	10.3%	11.0%	9.9%	9.4%	11.0%	11.8%	12.0%	\$133,522.8
Information	12.6%	12.7%	12.2%	12.9%	10.5%	11.2%	10.7%	13.4%	11.2%	12.9%	\$1,717,511.0
Manufacturing	14.1%	14.9%	14.9%	12.5%	13.0%	11.4%	10.5%	10.6%	12.4%	13.5%	\$3,879,422.0
Mining, Quarrying, and Oil and Gas Extraction	8.8%	7.9%	5.5%	6.6%	1.8%	-13.9%	-1.5%	5.5%	6.1%	3.0%	\$182,968.8
Other	5.6%	6.3%	6.0%	5.8%	3.8%	6.7%	6.8%	8.7%	7.0%	6.5%	\$352,984.7
Other Services (except Public Administration)	17.8%	14.1%	9.4%	12.2%	11.0%	12.7%	13.0%	16.8%	16.3%	14.6%	\$11,869.1
Pharmaceutical and Medicine Manufacturing <sup>^</sup>	14.7%	15.9%	12.4%	11.2%	8.6%	8.4%	10.5%	8.5%	11.5%	11.6%	\$101,077.4
Professional, Scientific, and Technical Services	20.2%	15.4%	15.7%	14.8%	14.0%	13.9%	12.2%	13.5%	12.2%	15.3%	\$159,201.5
Real Estate and Rental and Leasing	4.6%	4.7%	4.9%	4.8%	5.1%	5.3%	5.6%	5.5%	5.2%	5.5%	\$316,180.4
Retail Trade	13.4%	13.6%	13.5%	12.9%	13.9%	14.1%	14.3%	14.9%	12.4%	15.0%	\$700,901.1
Transportation and Warehousing	9.7%	10.9%	9.7%	12.0%	10.7%	13.5%	10.3%	15.2%	9.9%	12.4%	\$457,010.3
Utilities	7.8%	7.2%	7.0%	7.2%	6.8%	6.4%	6.9%	7.2%	6.6%	7.3%	\$550,401.7
Wholesale Trade	12.3%	13.1%	13.1%	11.8%	12.1%	12.1%	11.2%	12.6%	12.9%	13.5%	\$159,252.5

\*Large Pharmaceutical Manufacturers listed in Table 1; other industry categories as defined by CompuStat

<sup>^</sup>Excludes pharmaceutical manufacturers included in the Large Pharmaceutical Manufacturer category



## Revenues and Competitiveness

Recognizing that large pharmaceutical manufacturers have a greater ROIC than other industries, an important consideration for policymakers is the magnitude of profit loss that large pharmaceutical manufacturers could sustain while maintaining a higher or equal ROIC compared to other industries. We model the profits that large pharmaceutical manufacturers could lose and still achieve an ROIC over the period of 15.3% (greater than all other industries), 13.5% (greater than 75% of other industries), and 11.5% (the average of all industries, including large pharmaceutical manufacturers). To determine the change in profits that would achieve each lower ROIC, we first multiplied the ROIC thresholds by the total invested capital among large pharmaceutical companies over the period to determine profit loss associated with lower ROIC. Because profits are net of

expenses, including the cost of acquiring new drugs, we converted these profit losses to revenue losses, which represent the reduction in net sales dollars that manufacturers could sustain at each lower ROIC threshold. For this conversion, we calculated a margin of sales revenue to operating expenses. We then inflate the profit loss estimates

Large pharmaceutical manufacturers could have realized 11% lower profits and still maintained a market-leading ROIC from 2011-2019.

by this margin to estimate the net sales revenue losses that would yield the profit losses associated with each lower ROIC threshold. This step allows us to compare the fiscal estimates of reductions in net drug spending associated with legislative proposals with the lower ROIC thresholds and attendant lower profits that we have identified. Table 3 presents the reduction in profit needed to obtain the threshold ROIC and the associated reduction in net sales revenue over the 2011-2019 period.

From 2011-2019, large pharmaceutical companies generated \$1,163.8B in profits from \$5,336.8B in net sales revenue. We found that large pharmaceutical companies could have realized 11% lower profits (7% lower sales) and still maintained a market-leading ROIC during the period. A 21% reduction in profits (14% reduction in sales) would have resulted in an ROIC greater than 75% of other market sectors, and these companies could sustain a 32% reduction in profits (21% reduction in sales) and still maintain an average ROIC.

Looking forward, we estimated the dollar amount of profits and net sales revenues that large pharmaceutical manufacturers could face from 2020 through 2029 and still maintain these ROIC thresholds. We used the total profits and net sales revenues for large pharmaceutical manufacturers in 2018 and adjusted those for the projected growth in pharmaceutical spending, using annual growth estimates provided by the Centers for Medicare & Medicaid Services Office of the Actuary for National Health Expenditures (NHE).<sup>12</sup>

Because current NHE projections end in 2027, we used the growth projections for 2027 for growth rates in 2028 and 2029. We then summed the total projected profits and net sales revenues for large pharmaceutical companies from 2020-2029 and applied the profit reduction percentages previously established for various ROIC thresholds to estimate the dollar amount of profit reduction, using our margin of sales revenues to operating expenses to adjust profit reduction to net sales revenue reduction (Table 4).

### Table 3

Estimated Profit and Net Sales Revenue Reductions for Large Pharmaceutical Manufacturers at Various ROICs, 2011-2019

ROIC Threshold	Profit Reduction to Achieve ROIC Threshold, 2011-2019 (in millions)*	Reduction in Profits (%)	Reduction in Net Sales Revenue to Achieve ROIC Threshold (in millions)^	Reduction in Net Sales Revenue (%)
Highest Other Industry ROIC - 15.3%	\$126,981.8	10.9%	\$386,438.8	7.2%
75th Percentile Other Industry ROIC - 13.5%	\$243,393.3	20.9%	\$740,709.8	13.9%
Mean Other Industry ROIC - 11.5%	\$374,374.9	32.2%	\$1,139,321.0	21.3%
*Total Profit from 2011-2019 was \$1,163,791.0M				
^Total Net Sales Revenue from 2011-2019 was \$5,336,762.5M				

### Table 4

Projected Profit and Net Sales Revenue Reductions for Large Pharmaceutical Manufacturers at Various ROICs, 2020-2029

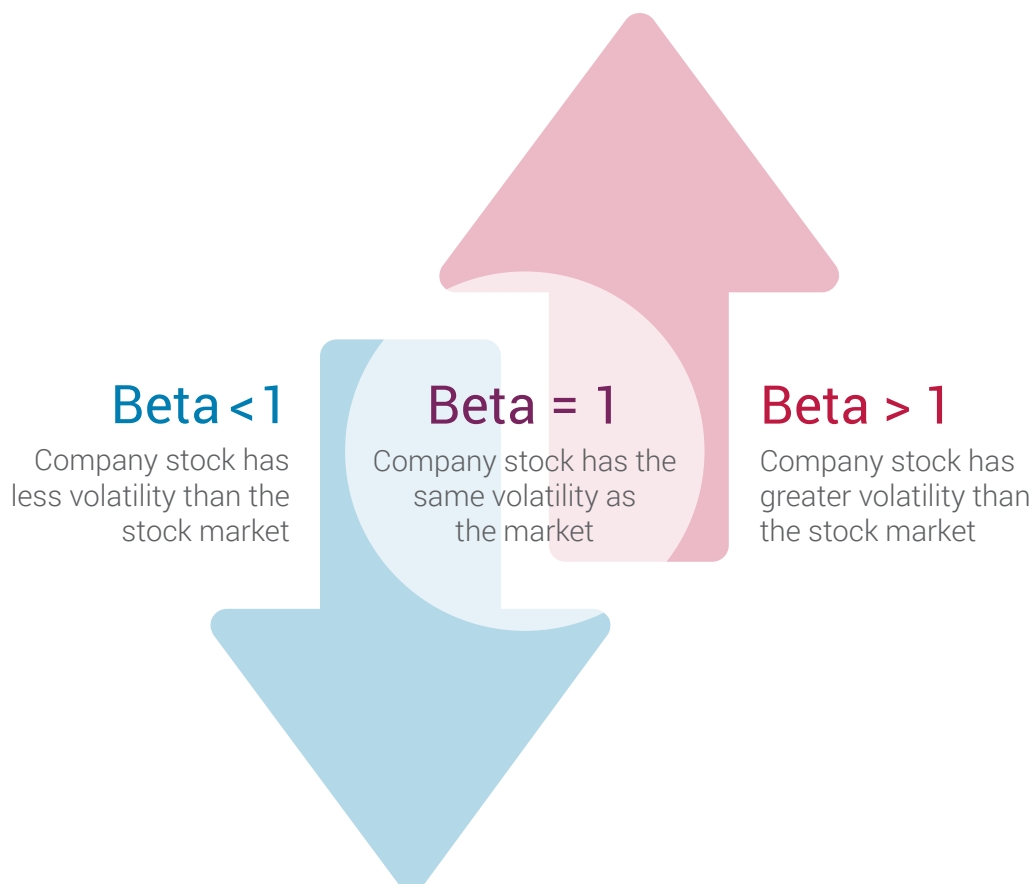
ROIC Threshold	Profit Reduction to Achieve ROIC Threshold, 2020-2029 (in millions)*	Reduction in Profits (%)	Reduction in Net Sales Revenue to Achieve ROIC Threshold (in millions)^	Reduction in Net Sales Revenue (%)
Highest Other Industry ROIC - 15.3%	\$249,118.9	10.9%	\$758,134.2	7.6%
75th Percentile Other Industry ROIC - 13.5%	\$477,500.4	20.9%	\$1,453,159.3	14.6%
Mean Other Industry ROIC - 11.5%	\$734,466.3	32.2%	\$2,235,173.9	22.5%
*Projected Total Profit from 2020-2029 is \$2,283,180.0M				
^Projected Total Net Sales Revenue from 2020-2029 is \$9,940,415.0M				

We find that over the projected 10-year period from 2020-2029, large pharmaceutical manufacturers would be expected to earn \$2,283.2B in profit on \$9,940.4B in net sales revenue. Of that revenue, large pharmaceutical manufacturers could see \$758.1B in revenue reduction and still maintain an industry-leading ROIC of 15.3%. These manufacturers could face a \$1,453.2B reduction in revenue and still maintain an ROIC greater than 75% of other industries, while a revenue reduction of \$2,235.2B would leave manufacturers with an average ROIC.

## Risk Across Industries

Even if gross measures of relative profitability like ROIC suggest that large pharmaceutical manufacturers would remain a lucrative investment choice even under lower profits, if those returns are volatile, investors may avoid investing in that sector. To compare the volatility of large pharmaceutical companies to other industries, we compared weighted-average betas for each industry. The beta is a measure of the volatility of one company's performance to the volatility of the market. We obtained betas for each company in our sample from NASDAQ<sup>13</sup> and weighted each company's beta by its share of total sales in each industry group from 2011-2019. A beta of 1 indicates that a company's stock has the same volatility as the market, while a beta below 1 indicates that a company is less volatile than the market. Because we weighted our industry average betas by sales dollars and because larger companies are generally less volatile than small companies, these weighted average betas are generally below 1. We also report unweighted betas for comparison (Table 5).

### A Measure of Volatility Relative to the Market



## Table 5

### Average Investment Volatility (Beta) by Industry

Industry*	Sales-Weighted Average Beta†	Unweighted Average Beta
Utilities	0.04	0.06
Agriculture, Forestry, Fishing, and Hunting	0.08	0.21
Educational Services	0.21	0.16
Health Care and Social Assistance	0.55	0.56
Retail Trade	0.58	0.83
<b>Large Pharmaceutical Manufacturers</b>	<b>0.61</b>	<b>0.88</b>
Real Estate and Rental and Leasing	0.67	0.59
Other Services (except Public Administration)	0.71	0.82
Construction	0.83	0.97
Accommodation and Food Services	0.84	0.83
Administrative and Support and Waste Management and Remediation Services	0.86	0.83
Information	0.86	0.92
Transportation and Warehousing	0.86	0.95
Professional, Scientific, and Technical Services	0.88	0.95
Manufacturing	0.88	0.97
Wholesale Trade	0.89	0.87
Finance and Insurance	0.89	0.81
Other	0.91	0.86
Mining, Quarrying, and Oil and Gas Extraction	0.93	1.09
Pharmaceutical and Medicine Manufacturing <sup>^</sup>	0.93	1.23
Arts, Entertainment, and Recreation	1.04	1.12
*Large Pharmaceutical Manufacturers listed in Table 1; other industry categories as defined by CompuStat		
<sup>^</sup> Excludes pharmaceutical manufacturers included in the Large Pharmaceutical Manufacturer category		
†Weighted by total sales, 2011-2019		

Overall, large pharmaceutical manufacturers have a weighted-average beta of .61, a lower beta than 75% of other industries. This suggests that investments in large pharmaceutical manufacturers are generally less volatile than other investments, refuting the idea that the investment returns of large pharmaceutical manufacturers are justified by risk.

## Discussion

Our analysis is consistent with previous analyses that have found large pharmaceutical manufacturers have significantly greater ROICs than other industries.<sup>14</sup> As such, large pharmaceutical manufacturers have a significant delta between current revenues and revenues that would make them less competitive compared to other industries. We find that large pharmaceutical manufacturers could face an 11% profit reduction and still have a more effective return on capital compared to other industries; a 21% profit reduction would leave these manufacturers more competitive than 75% of other industries.

Recent legislative proposals to address drug spending have been scored to reduce drug spending, and thus pharmaceutical manufacturer revenue, from \$100B<sup>15</sup> to \$481B<sup>16</sup> from 2020 to 2029. While the pharmaceutical industry has likened these losses to a “nuclear winter,”<sup>17</sup> we find that large pharmaceutical manufacturers would be able to weather these losses and still maintain an attractive ROIC compared to other industries. Given that our basket of large pharmaceutical manufacturers comprises only 72% of gross brand drug spend in Medicare and assuming that other brand pharmaceutical manufacturers have similar financial returns, brand drug manufacturers overall could support a \$1,053.0B revenue reduction and still maintain an industry-leading ROIC of 15.3% (\$758.1B revenue reduction for our basket of manufacturers divided by 72%). At the highest estimated change in manufacturer revenues over the period from recent policy proposals, \$481B from 2020-2029, we estimate that large pharmaceutical manufacturers would maintain an ROIC of 16.4%, still the highest of any market sector.

Most importantly, our analysis demonstrates that manufacturers could still maintain a revenue level that is attractive to institutional investors without reducing current expenditures for research and development. This finding rebuts the argument that recent legislative proposals drastically harm innovation whether through venture capital investment in early-stage research or in-house research investment. While we recognize that any reduction in revenues will change a company’s operational strategy, we find that large pharmaceutical companies would still maintain industry-leading returns on capital even with lower revenues and constant operating expenses. Even with lower revenues, large pharmaceutical companies would still present one of the best investment options for institutional investors, undercutting the notion that capital would flee to other industries and that large pharmaceutical companies would be unable to significantly reward venture capital investments in early-stage research.

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