



## Prescription Drug Supply Chain Profitability

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October 25, 2018

When the topic of rising drug prices is discussed, the focus often turns to the revenues and profits of biopharmaceutical manufacturers. Critics have asserted that the profitability of biopharmaceutical manufacturers is excessively high. They have argued that one needs to look no further than the entire prescription drug supply chain, where biopharmaceutical manufacturers' profit margins are supposedly an order of magnitude higher than the tiny percentage profit margins of drug wholesalers, pharmacy benefit managers (PBMs), managed care organizations (MCOs), and retail pharmacies.

However, a closer look at those profit figures reveals a very different story (see *box*). For companies in the prescription drug supply chain, the majority of "revenues" are simply pass-through costs reflecting the price of the medicines moving through the supply chain. Every one of these supply chain companies counts these same costs as part of their revenues, making their profits look like a small fraction of their revenues. Adjusting profits to exclude the pass-through dollars that artificially inflate revenues, we see that drug supply chain companies are able to convert a very large share of their gross profits (essentially what they are paid to provide their service) into bottom line profits.

Several analysts have separately pointed this out recently, including *Wall Street Journal* columnist Charley Grant<sup>2</sup> and University of Southern California economist Geoffrey Joyce.<sup>3</sup> Both singled out PBMs as having the highest, most outsized profitability. Professor Joyce said large PBMs often portray themselves as behind-the-scenes, low-margin middlemen fighting the 'good fight' on behalf of employers and employees. In reality, he said, they are highly profitable intermediaries that typically do not take possession of the drug, bear little to no risk, and minimally innovate. "Major PBMs are living large," he said.

### Understanding Supply Chain Profit Measures

Standard accounting profit calculations include gross profit and net profit:

- **Gross profit** is revenue minus cost of goods sold. For drug supply chain companies, gross profit can be thought of as the fees or revenue the companies receive specifically related to the service of moving drugs from manufacturers to patients.
- **Net profit**, or earnings, is the gross profit minus operating expenses. This brief uses the commonly-used measurement EBITDA (earnings before interest, tax, depreciation, and amortization) to calculate net profit.

To understand how profitable a company is, we look at profit divided by revenue. For companies in the drug supply chain, counting the cost of drugs, which are essentially pass-through costs, as part of revenue will artificially inflate their revenue and therefore make their profit margins appear artificially smaller.

A more appropriate measure of the profitability of these companies is earnings (or net profit) divided by gross profit (revenue or fees charged by a company to move drugs). This measure removes the pass-through costs of drugs (i.e., cost of goods sold) from the revenues used to calculate the profit margin.

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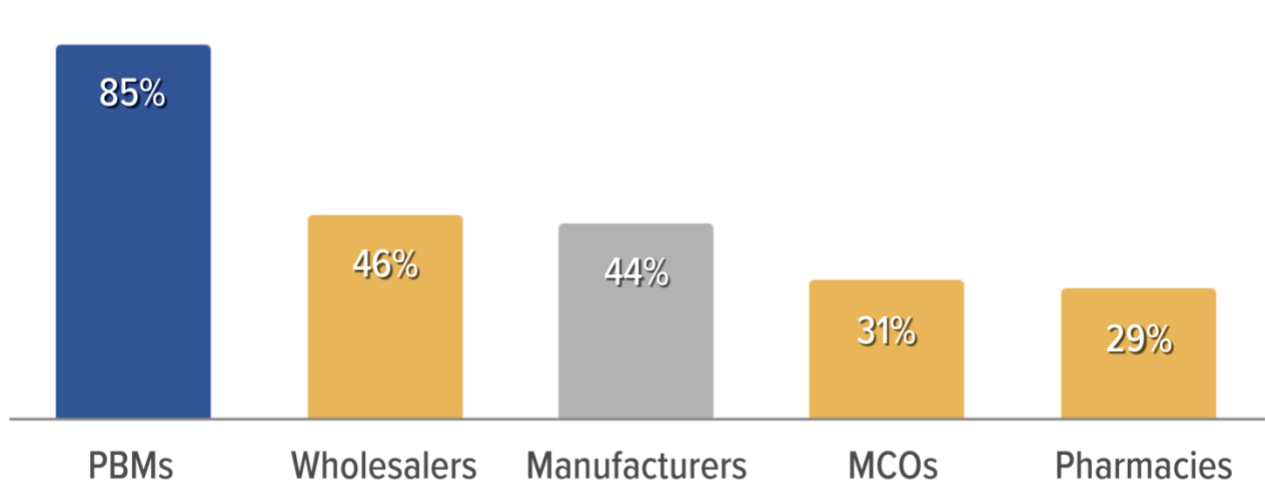
<sup>2</sup> Grant, Charley. 2018. "Hidden Profits in the Prescription Drug Supply Chain." *The Wall Street Journal*, February 24.

<sup>3</sup> Joyce, Geoffrey. 2018. "An economist's change of heart: It's time to regulate the prescription-drug middlemen." *MarketWatch*, August 13.

To take the supply chain profitability analysis one step further, ndp | analytics replicated the calculation for biopharmaceutical manufacturers and added them to the comparison. The general assumption is that those who take the most risk reap the highest rewards. Because supply chain intermediaries do not take on anything close to the same level of risk as the biopharmaceutical companies that developed the drugs in the first place, we would expect profits for manufacturers to be well above those for supply chain companies.

Our results do not bear this out. The profitability of these supply chain intermediaries from the fees they charge for their services are similar to the profitability of biopharmaceutical companies or, in the case of PBMs, are much higher (85% for PBMs versus 44% for manufacturers). Manufacturers, who take enormous risks including an average of \$2.6 billion risk capital over a decade to develop just one new drug,<sup>4</sup> achieve a margin only half as large as that of PBMs who bear little to no risk.

### The Profitability of Biopharmaceutical Manufacturers and Other Companies Along the Supply Chain, 2016-17<sup>5</sup>



<sup>4</sup> DiMasi, JA, HG Grabowski, and RW Hansen. 2016. "Innovation in the pharmaceutical industry: New estimates of R&D costs." *Journal of Health Economics*.

<sup>5</sup> Profitability is calculated as earnings before interest, tax, depreciation, and amortization (EBITDA) divided by gross profits (total revenue minus cost of goods sold). Sources: Bernstein Research. 2018. "US Healthcare Services: Amazon - Dual threats to healthcare services and their implications to the sector including ESRX." February 22 (for profitability of supply chain entities); ndp | analytics calculation using Compustat data (for profitability of manufacturers).