



Biotech Valuation 101: How to Make “Pre- Revenue” Cool Again

...Minus the Tech Bros (If Possible)



Biotech Valuation: “Pre-Revenue” for the Win

In tech, “**pre-revenue**” is a bit of a joke, but in *biotech*, it’s the standard way of doing things.

All companies start out as “pre-revenue” as they spend money to develop their new drugs; if successful, they earn a lot of revenue and **become very valuable**.

Biotech Valuation: “Pre-Revenue” for the Win

The **other difference** is that everything is much more **grounded in reality...**

...in the form of actual data on patient populations, pricing, and the time required to ramp sales, which are all linked to **historical precedents.**

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GOAL: Explain the main points of Biotech Valuation, walk you through a simple example, and give you example presentations and valuations from banks.

FULL COURSE:

<https://breakingintowallstreet.com/biotech-valuation/>

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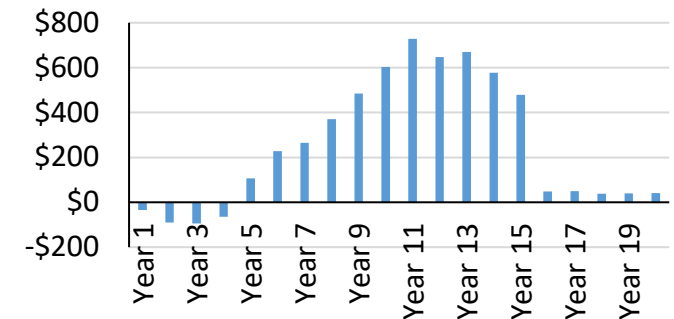
You can get the full Excel file, links, and my written summary for free via the link below (**pinned in the comments**):

<https://breakingintowallstreet.com/kb/biotech/biotech-valuation/>

Biotech Valuation: The Short Version

- **Standard Approach:** “Far in the Future” DCF over 20 – 30 years, with Revenue based on Potential Patients * Market Share * Price per Patient
- **Revenue:** Takes 4 – 8 years to “ramp” to reach “Peak Sales” and then falls to ~0 over time as generic competitors enter
- **Expenses and Cash Flow Lines:** Very high in the early periods when the company develops its drugs; fall to much lower levels in the “commercial period” post-launch (50 – 70%+ margins)
- **UFCF:** Factor in all the usual items *and* Net Operating Losses

Biotech - Typical Cash Flow Profile



Biotech Valuation: The Short Version

- **Discount Rate:** Either start much higher and reduce it over time as drugs launch and start generating revenue...
- **OR:** Use a single Discount Rate, but **probability-weight** the UFCFs based on the chances of reaching Phase II, III, etc., clinical trials and eventual commercial approval
- **No Terminal Value:** You simply assume that the cash flows fall to close to ~\$0 by the end of this 20 or 30-year period, which makes this valuation more “honest” than in many other industries

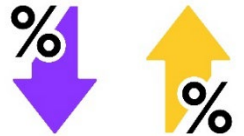


Biotech Valuation: Lesson Plan

- **Part 1:** Revenue and Expenses **5:44**
- **Part 2:** Discount Rate, Probabilities, and Terminal Value **12:06**
- **Part 3:** Valuation Multiples **14:14**
- **Part 4:** Added Complexities in Real-Life Biotech Valuations **16:22**

Part 1: Revenue and Expenses

- **Assumptions:** We are modeling a regulated, *patent-protected* drug that gets a time-limited monopoly if successful
- **So:** Prices can stay high for perhaps ~10 years – but generic competitors will eventually enter and force them down
- **Starting Points:** # of People with Disease or Condition, % Diagnosed, and Market Share or Market Penetration %
- **Data Sources:** Online searches/databases, company presentations, and the historical results of similar drugs



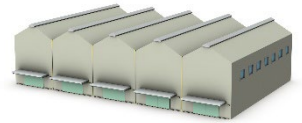
Part 1: Revenue and Expenses

- **Why:** Huge % of people with HBV here are in places like Africa and are undiagnosed with no access to advanced medical care
- **Final Market Share:** Quite low, such as < 10% or < 1% in massive markets, because it's *very* difficult to reach tens of millions
- **Ramp to Peak Sales:** Often around 4 – 8 years; 6 here based on performance of Entyvio for Crohn's disease
- **Pricing:** Yes, \$6K per year is very high, but insurance co's / governments pay for this; based on similar drugs in the past



Part 1: Revenue and Expenses

- **Expenses:** Mostly important to get these right during the development period; afterward, margins are often 50 – 70%+
- **CapEx / Change in WC:** Tend to be very modest because biotech startups do not manufacture anything themselves
- **NOLs:** Important because ~100% of biotech startups will have them; but usage may be limited based on region and time
- **UFCF:** NOPAT + Depreciation & Amortization +/- Change in Working Capital – CapEx, with NOPAT deducting *Cash Taxes*



Part 2: Discount Rate, Probabilities, and TV

- **Approach #1:** Start Discount Rate high, such as 30%+, and make them decline to a normal ~10% range over the phases
- **Approach #2:** Use more of a “normal” Discount Rate for established companies but **probability-weight** all the cash flows
- **Our Preference:** We use Approach #2 because the data is better/more accessible; must **pick one**, cannot use both
- **Terminal Value:** Should be \$0 because the cash flows drop to near-0 by the end; some exceptions for “platform” companies



Part 3: Valuation Multiples

- **Not That Useful:** Because valuation multiples typically focus on *near-term projections* and *historical results*, but biotech startups are all about the 20-year outlook
- **Most Common:** “L + 5 Revenue” (Launch Year + 5) or “T + 4 Revenue” (Txn Date + 4) or “Peak Sales” multiples
- **Screening:** Need to be very careful with separating *pre-revenue* companies from *low revenue* from *mid-revenue* companies (L + 5 Revenue makes no sense if it’s already near Peak Sales)

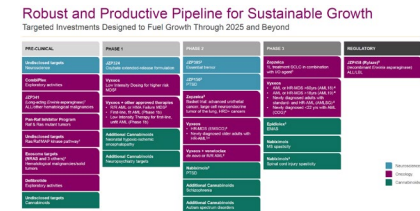


Part 4: Added Complexities in Real Life

- **Complexity #1:** Many companies have multiple drugs at different development stages in different markets and expense profiles



- **Complexity #2:** Many firms operate as “platform companies” and are constantly developing and acquiring new drugs



- **So:** You’ll see separate DCFs combined into one for the first case, and a more traditional DCF with separate projections for the speculative products in the second case



- **Terminal Value:** *Could* potentially exist in some cases for “platform companies,” but depends heavily on their strategy



Recap and Summary

- **Part 1:** Revenue and Expenses
- **Part 2:** Discount Rate, Probabilities, and Terminal Value
- **Part 3:** Valuation Multiples
- **Part 4:** Added Complexities in Real-Life Biotech Valuations

