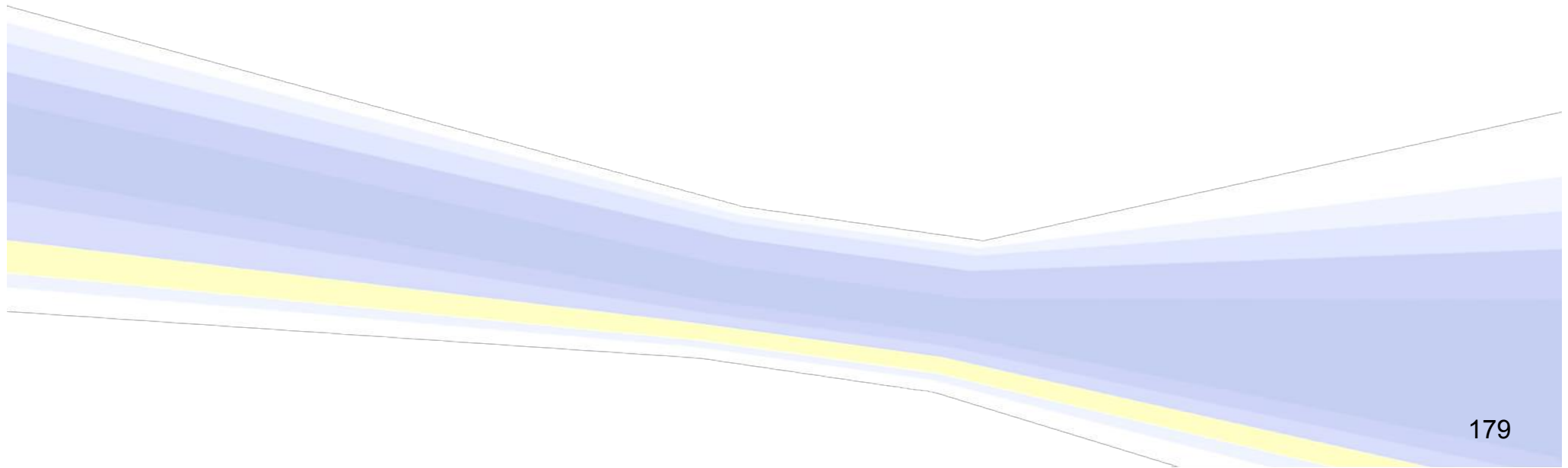


CASE 18 – PHARMA CO.



Case 18: Pharma Co.

Prompt

Pharma Co. has developed a new AML drug X (type of cancer). Preliminary Phase I trials indicate tremendous potential, but the costs to get the drug FDA approved and to market are extremely high. A private equity firm has approached Pharma Co. offering to pay \$150M for 50% of all future drug X profits. Pharma Co. wants you to tell it what to do.

Behavioral Questions

- What are three traits that your former colleagues would use to describe you? Briefly explain each.
- Tell me about something not on your resume that you are proud of.

Interviewer Guidance

Information that can be provided to the interviewee / used to direct the interviewee during case:

- The only known objective is to determine how Pharma Co. should proceed
- Pharma Co. has no experience taking a drug to market
- Cancer drugs tend to be extremely expensive (\$100k+) for the patient
- ONLY U.S. insurance will reimburse the cost of the drug, thus Pharma Co. only wants to consider the U.S. market
- Pharma Co. does have other drugs in the pipeline
- This new drug has not completed U.S. FDA Phase I, Phase II, or Phase III trials
- Assume patent life of 10 years
- Side effects are consistent with similar drugs so a non-factor
- There will be competition (will be explored later)

Case 18: Pharma Co.

Analysis

The interviewee should quickly recognize that market opportunity needs to be evaluated against the total costs - a good framework will include these two points as its primary pillars. Other points that would likely be included within the framework include patent expiration, insurance reimbursement, current experience / capability set, probability of FDA trial success, and competition.

Guide interviewee towards total market opportunity if not initiated. Begin by asking interviewee what inputs should be used to determine total opportunity and how these inputs could be collected (sample answers - push interviewee to explore and defend new inputs):

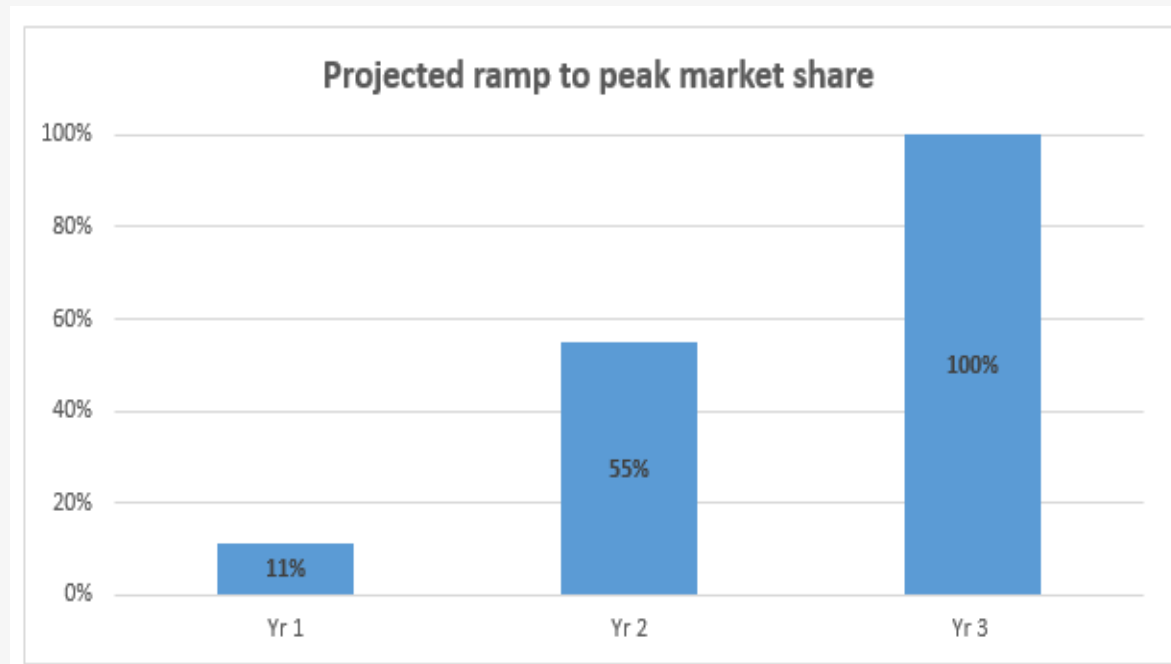
- Interviews with experts in the field (doctors, insurance experts, pharmaceutical business experts, healthcare experts)
- Review of government census data for population / demographic data
- Review of medical journals for cancer incidence trends
- Review of FDA records of trials of competitive drugs to see if competition could cut into market share
- Review of the ramp of adoption of similar drugs
- Survey / interview with potential patients and their willingness to try drug X
- Review of the price points of similar drugs
- Financial reports for competitors' drug performance / drug pipeline information (competition)
- Review of negotiated blanket contracts similar drugs have in place with the government (think Medicare)

Fortunately, for the interviewee a lot of that information has already been collected. Provide Exhibit 1 to the interviewee. Ask interviewee to provide total market opportunity for drug X.

Case 18: Pharma Co.

Exhibit 1

- Annual patients afflicted with AML are **3,300**
- Estimated cost of drug X is **\$125,000** per patient per year
- Interviews indicate that doctors are willing to prescribe drug X to **70%** of their patients
- Assume drug X achieves **100%** of its projected market share after Yr 3



Competitor market share

Year (Yr)	YR1	YR2	YR3	YR4	YR5	YR6	YR7	YR8	YR9	YR10 (1)	YR11
Competitor Market Share	0%	0%	0%	0%	25%	25%	25%	25%	25%	25%	100%

(1) Drug X goes off patent after 10 years

Case 18: Pharma Co.

Total market opportunity calculation (for interviewer only)

	YR1	YR2	YR3	YR4	YR5	YR6	YR7	YR8	YR9	YR10
Number afflicted	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300
Willingness to prescribe	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
Patients (pre-ramp)	2310	2310	2310	2310	2310	2310	2310	2310	2310	2310
Share of market	100%	100%	100%	100%	75%	75%	75%	75%	75%	75%
Patients (after competitor cut)	2310	2310	2310	2310	1733	1733	1733	1733	1733	1733
Ramp	11%	55%	100%	100%	100%	100%	100%	100%	100%	100%
Patients (after ramp)	254	1271	2310	2310	1733	1733	1733	1733	1733	1733
Total patients (after ramp)	16,543									
Price	\$ 125,000									
Total Market Opportunity	\$ 2,067,875,000									

Case 18: Pharma Co.

Analysis

Great! That is a lot of money! But we need to take into consideration the probability that drug X receives FDA approval.

This probability is applied to the total market opportunity to determine the “risk-adjusted” market opportunity.

An internal team has developed percentages of failure at each phase. The percentages that drug X completes each stage are (TOTAL PROBABILITY AND RISK-ADJUSTED MARKET OPPORTUNITY TO BE CALCULATED BY INTERVIEWEE):

- Phase I probability - 90% (*already begun and results are promising resulting in high %*)
- Phase II probability - 30%
- Phase III probability - 50%

How should these probabilities be applied to the total market opportunity that was just calculated?

- Total probability that drug X receives FDA approval - 13.50% (FOR INTERVIEWER ONLY)
- Risk-adjusted market opportunity for drug X is ~\$280M (FOR INTERVIEWER ONLY)

Case 18: Pharma Co.

Analysis

With the risk adjusted market opportunities in hand, costs should now be calculated. Ask the interviewee what costs should be considered (sample answers - difficulty can be increased by eliminating time to structure thoughts):

- Regulatory fees
- Promotional materials
- Marketing campaigns
- Production costs (e.g. materials, quality, sourcing)
- Adding personnel (e.g. sales, marketing, administrative, regulatory)
- New facilities
- Packaging materials
- Shipment (e.g. logistics)
- Distribution costs (e.g. McKesson)
- Taxes

Fortunately, Exhibit 2 outlines these costs and should be provided to the interviewee. Using Exhibit 2 and the market opportunity numbers calculated in the first half of the case the interviewee should be prompted to begin calculating the EBITA for the “risk-adjusted” scenario (FOR RISK ADJUSTED KEY THAT INTERVIEWEE RISK ADJUSTS COSTS AS THEY ALIGN WITH THE FDA PHASES - HINT IF NECESSARY). Total EBITA is \$38M (FOR INTERVIEWER ONLY). If interviewee initiates NPV discussion, redirect to total EBITA noting management has specifically requested a total EBITA number as part of the analysis and that NPV will follow.

Interviewee should ask for discount rate to calculate NPV of the 50% profit stream that the private equity company has offered \$150M for. Provide a discount rate of 5% BUT BEFORE interviewee begins to calculate ASK HOW they would structure the NPV calculation. Once explained, note that the NPV will likely be negative (or ask interviewee based on information provided where they think it would fall without doing any calculations), and that time is running short so you need to move on...

With a negative NPV estimate (approximate NPV is -\$25M) for the 50% profit stream, total EBITA, and the total assuming the private equity firm’s offer is accepted of \$181M (\$150M offer + \$31M profit split), ask for the recommendation.

Case 18: Pharma Co.

Exhibit 2

Phase I

- \$160M (1)

Phase II

- \$125M

Phase III

- \$75M

Production

- Manufacturing costs: 5% of price
- Logistics: 5% of price
- All other costs: 10% of price

(1) The \$160M includes both what has been invested AND the projected amount required to complete Phase I trails

Case 18: Pharma Co.

Exhibit 1 ("RISK ADJUSTED" ANSWERS - FOR INTERVIEWER)

Phase I

- \$160M

Phase II

- \$125M

Phase III

- \$75M

Production

- Manufacturing costs: 5% of price
- Logistics: 5% of price
- All other costs: 10% of price

- Phase I: $\$160M \times 90\% = \sim\$144M$
- Phase II: $\$125M \times (90\% \times 30\%) = \sim\$34M$
- Phase III: $\$75M \times (90\% \times 30\% \times 50\%) = \sim\$10M$
- Total for production:
 - $\sim 2B \times (5\% \times 5\% \times 10\%) = \$400M$
 - $\$400M \times (90\% \times 30\% \times 50\%) = \underline{\sim\$54M}$
- EBIDTA is: $\$280M - \$242M = \sim\$38M$

Case 18: Pharma Co.

Recommendation

An argument can be made to both accept and turn down the private equity firm's offer, though most will suggest that it be accepted based on the numbers. But an argument could be made that because other drugs are in the pipeline this could serve as a foundation drug, that the risk adjustment numbers are too conservative, etc. Either recommendation should mention risk tolerance of Pharma Co., need for capital, validation of the risk adjustment percentages, risks because Pharma Co. has never taken a drug to market, possible exploration of alternative paths forward (partner, license, or sell the technology). Additional questions to probe / challenge recommendation:

- Probe for alternative solutions?
- What additional analysis would the interviewee like to perform?
- Would it make sense for Pharma Co. to reevaluate after Phase I approval? Phase II and III approvals?
- What data would be required to further explore / validate alternative solutions?
- What are the non-financial risks to pushing forward with development?
- How can the risk adjusted numbers be validated?
- What are logical next steps for Pharma Co.?

Performance Evaluation

The case evaluates the interviewees ability to recognize a profit case, thinking logically and quickly through a long-term strategic problem, and perform simple math. An exceptional interviewee will do the following:

- *Recognize that there is risk that the drug will not make it through all FDA approvals (and appropriately apply to the total market opportunity and costs)*
- *Able to quickly and logically identify reasonable means for collecting inputs required to determine market opportunity*
- *Understand that there are both non-recurring costs (R&D, trials, etc.) and recurring costs (manufacturing, staffing, selling, etc.)*
- *Note that the market will be cut or end because of generic competition once the patent ends*
- *Identify other geographies and other uses as key channels to push total profits higher*
- *Able to quickly and logically identify key costs*
- *Note that competition is likely and needs to be considered*

Case Interview feedback form

Case _____ Case type _____ Interviewer _____

Execution

- Structure 1 2 3 4 5
 ➤Logical approach Comments:
 ➤MECE
 ➤Appropriate drive to solution

- Quantitative Ability 1 2 3 4 5
 ➤Speed Comments:
 ➤Accuracy
 ➤Comfort, reaction to mistakes

- Business intuition 1 2 3 4 5
 ➤Practical Comments:
 ➤Insightful
 ➤Breadth & depth across multiple functions
 ➤Creativity

Communication

- Professionalism 1 2 3 4 5
 ➤Poise Comments:
 ➤Confident-Persuasive
 ➤Articulate-concise
 ➤Client ready

- Written 1 2 3 4 5
 ➤Clarity of writing and page layout Comments:
 ➤Ability to refer back
 ➤Comfort, reaction to mistakes

Behavioral (optional)

- Quality of star stories 1 2 3 4 5 Comments:
- Length 1 2 3 4 5
- Clarity 1 2 3 4 5
- Relevance 1 2 3 4 5

Case start time ____:____

- Framework development _____ min
- Framework explanation _____ min
- Case discussion _____ min

Case end time ____:____

Overall Rating: 1 2 3 4 5

Strengths

Weaknesses

Key: 1=Bottom 10%, 2= 10th-25th percentile, 3= middle 50%, 4= 75th-90th percentile, 5=Top 10%