Drug Revolution/Grace Pharmaceuticals Joint Venture

Karen M. Hogan & Gerard T. Olson

Abstract

This case is a joint venture decision between a large fictional pharmaceutical company called Drug Revolution and a biotech firm known as Grace Pharmaceuticals. The joint venture is an international venture, which evaluates the financial potential of a new Type II Diabetes drug. The drug known as Zipit will be marketed both in the US and through Europe over the course of the drug’s patented life. The students are asked to develop detailed pro-forma and cash flow analyses given marketing and financial estimates already known about the drug, calculate the cost of capital, compute NPVs, do a sensitivity analysis with expected values, and discuss other investment analysis tools available to the firm. This case is suitable for both upper-level undergraduate corporate case or mergers and acquisitions class as well as an MBA level corporate class.

Background Information

In early 2013, Kieran Gregory, President and CEO of Drug Revolution, met with members of a joint-venture negotiating team to develop proposed terms of a joint venture agreement. The venture would combine capabilities of Drug Revolution, Inc. and Grace Pharmaceuticals, Inc. Drug Revolution has announced that it is interested in acquiring a 70% share to Zipit a Liquid Filled Capsules from Grace Pharmaceuticals, Inc. Zipit is specifically indicated for the relief of mild to moderate acute pain in adults (18 years of age or older). Zipit is supplied as a 25mg liquid filled capsule for oral administration. The approved dose is 25 mg four times a day. The product uses proprietary delivery technology to deliver a finely dispersed, rapidly absorbed formulation of the drug. The mechanism of action of Zipit, like that of other NSAIDs, is not completely understood but may involve inhibition of the cyclooxygenase (COX-1 and COX-2) pathways. Zipit’s mechanism may also be related to prostaglandin synthetase inhibition.

Zipit was introduced to the US market by Grace Pharmaceuticals in 2009 after it was approved by the FDA that same year. While Grace Pharmaceuticals has done a decent job of marketing Zipit, the company doesn’t have much in the way of extra funds or detailed distribution channels so the sales could potentially be much higher than what Grace has been able to achieve at this point. Drug Revolution is looking to acquire a 70% share in the product in return for an upfront payment to Grace of $25.9 million in cash.

"We are pleased to expand our portfolio of pain products with the addition of Zipit to our sales force of 164 reps and 78 flex reps that today are detailing Drug Revolution’s small molecule pain medications," said Kieran Gregory of Drug Revolution. "Zipit is an NSAID that we believe is differentiated in the pain space, allowing 167 rapid absorption of the lowest available oral dose of the drug. Zipit will have an almost immediate positive impact on Drug Revolution’s financials. We believe we will have the runway to achieve significant returns for our shareholders from this joint venture, with the Orange Book listed patent for Zipit expiring in 2030. We plan to utilize our sales force to promote Zipit
to pain specialists, neurologists, and high prescribing PCPs, including those we currently detail for our small molecule drug in addition to current prescribers of Zipit."

Grace Pharmaceuticals had been looking for a partner that would contribute cash and marketing expertise in exchange for a share of profits in a joint venture.

The joint venture with Grace was attractive to Drug Revolution for several reasons as noted above. Kieran Gregory was eager to conclude a deal with Grace’s board and launch the venture with Grace. Important questions, however, had to be addressed before consummating an agreement.

**What was the likely NPV of the joint venture?**

Gregory wanted the joint venture to be a 70/30 balance of interests between Drug Revolution and Grace Pharmaceuticals. Initial discussions had focused on Drug Revolution paying a lump-sum payment of $25.9 million for their 70 percent interest in the venture.

Rather than concentrate efforts on the next big hit Drug Revolution had decided to manage its R&D like a portfolio by outsourcing innovations through partnerships. Drug Revolution’s strategy was to supplement its internal R&D with strategic alliances with external companies in order to access high-quality products in late-stage development or recent approval. Because of encouraging results of Grace Pharmaceutical’s limited launch of the drug, management believed that Zipit would be launched full force in the U.S. immediately and in Europe starting 2014. The possible joint venture between Drug Revolution and Grace Pharmaceuticals would concern only the U.S. and European markets. Depending on market conditions (e.g. competition, health-care policies, patents and market need), the life cycle of Zipit drug was estimated at 18 years including year 2013.

**Market Characteristics**

The target markets for Grace Pharmaceuticals were patients with mild to moderate arthritis who would be treatable with an NSAID category drug. Drug Revolution’s projections show that there are approximately 250 million current prescriptions filled each year for these types of ailments. Drug Revolution estimates a compounded annual rate of 5 percent over the last 10 years, driven by multiple factors including the aging of the population and increases in the incidence of chronic illness. They feel comfortable that the 5% growth rate will continue in the US for the length of the project. Europe has the same number of prescriptions for forecasting purposes, with the prescriptions growing at approximately 6% annually. These growth rates were expected to continue into the foreseeable future.

**Forecast of Income Statements**

Since many factors vary predictably with the volume of sales, the primary variable forecasted was Zipit revenues. People with aspirin-sensitive asthma or allergic reactions
due to aspirin or other NSAIDs should not take Zipit. Prescription Zipit should be used exactly as prescribed at the lowest possible dose for the shortest time needed. The team projects that after being fully rolled out in the U.S. market during 2013 the drug is expected to enter the European market the following year. It is estimated that 90 percent of the U.S. market would be eligible for the drug, while this ratio might be lower (85 percent) for the European market. Many factors are expected to influence revenues.

- Peak penetration rate in the market: Based on different marketing analyses and analysts’ reports, the best guess of market penetration for the drug are seen in below:

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<tr>
<td>Market Penetration</td>
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- Compliance: Not all patients who use the drug will do so faithfully, even with a doctor strongly recommending its use. The team believes that the most likely compliance rate would be an average of 87 percent. (i.e. The number of actual prescriptions filled in any given year would be equal to (eligible prescriptions)* (percent penetration)*(.87))

- Price per prescription: The annual price of the drug per patient would depend on many things, including how many capsules the patient used and competitive pressures on the price that could be charged for the capsules. The joint venture team had worked up an estimated figure of $300 as the average cost per prescription filled.

**Variable Costs**

Although the variable costs of the drug are hard to pinpoint, they are not the most critical variable in the success of the drug. The team members decided to use the industry average of 30% of annual sales revenues to forecast variable costs each year.

**Fixed Costs**

Fixed Costs which would include sales, marketing, and general and administrative expenses are projected as follows. (Note: the values are in thousands of dollars):

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<td>Fixed Expenses</td>
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<td>6,950</td>
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**Net Working Capital**

Net working capital for the joint venture is estimated to comprise a 45-day collection period for receivables, a 90-day period for Zipit inventory, and a 45-day period for payables. Below are the overall changes in net working capital for each year. (Note: the values are in thousands of dollars):
### Capital Expenses and Depreciation Expenses

The team forecasts capital spending of $7.1 million, split over the first three years of the venture (i.e. outflows of $2.5 million in 2013, $2.6 million in 2014, and $2.0 million in 2015). The yearly depreciation used is show below (Note: the values are in thousands of dollars):

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### Cost of Capital

The last decision that had to be made by the Drug Revolution’s joint-venture team is choosing a required rate of return for discounting the cash flows for the joint venture. The company’s debt currently has a yield to maturity of 10%. The tax rate appropriate for the joint venture was 30%. Debt constitutes 30% of the cost of capital. Preferred stock usually makes up 10% of all capital and the average current cost of preferred is 14%. Common stock makes up 60% of all capital sources and has an average cost of 16.5%. While the firm expects the drug to be a success they recognize that most new drug ventures come with additional risks and thus have designated a risk premium of 4.6% in addition to the calculated weighted average cost of capital.

### Capital Budgeting Analysis

1. Set up the Net Income Statement for the joint venture.

2. Calculate the joint venture’s annual cash flows from the project.

3. Calculate the Net Present Value of the overall joint venture prior to Drug Revolution’s payment of $25.9 million under a base case scenario.

4. Assuming Drug Revolution will negotiate a 70% share in the venture and that they pay a lump sum payment of $25.9 million in 2013, what is the resulting NPV to Drug Revolution under the base case scenario?

5. How much will Grace end up with including the $25.9 million cash payment under the base case scenario?
6. Should Drug Revolution enter into this joint venture using only the base case scenario? Explain your answer.

7. As a way of understanding how sensitive their numbers are to sales forecasts Drug Revolution has decided to analyze the NPV using a sensitivity analysis based off the Total Revenue for all sources of income line on the pro-forma statement. Drug Revolution will use a ±20% of Total Global Sales to estimate how sensitive their NPV results are to changes in total global revenue. Determine what the NPV for each of these scenarios would be.

8. Assume the base case is assigned a probability of occurrence of 50%. Also assume that the best and worst case scenarios have probabilities of 10% and 40% respectively. Given these adjustments what would the expected NPV for Drug Revolution be? Should this analysis adjust your recommendations of an accept/reject decision for Drug Revolution?

9. What are some of the other methods that are used to evaluate investment projects and compare them to NPV? No specific calculations here, just a discussion. Explain some of the potential drawbacks in this specific case with using the other investment evaluation methods.

10. Would it be possible to calculate the IRR of this joint venture? What are the possible problems, if any, with its calculation in this specific problem?

Authors

Karen M. Hogan, Haub School of Business, Saint Joseph’s University, 5600 City Ave, Philadelphia, PA 19131-1395, hogan@sju.edu

Gerard T. Olson, Department of Finance, School of Business, Villanova University, Villanova PA 19085, gerardolson@villanova.edu