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Flex Technology Case Study

**Introduction**

William Krause wants help valuing his new product, Flexible Herbert Screw which aids in the healing process of small curved bones like the collarbone. When Krause went to a consulting firm to get their estimate of the product, they used a discount rate of 70% and valued the company at about $500,000. Krause feels that this value is grossly underestimated and thinks that his product is worth more. He gave us a few ballpark estimations for market size, market growth, initial market share, market share growth, and other pertinent facts about the company. One such fact is that he believes that there could be significant growth to the company, but market share will never get over 50%, which needed to be accounted for. Krause has also received an offer from BioDevice, a large producer of medical devices. They made an initial offer of $3 million for his intellectual property. But Krause feels that after two years they would offer him $1.5 million if he wanted to sell to them at that point.

1. Ignoring the option to sell to BioDevice in year two, at what price do you value the project?

Without looking at the option to sell in year 2, the average expected value of the company is $1,947,084. The lowest value that the simulation predicted was -$1,019,121. The maximum value predicted was $13,732,567. The standard deviation of the project was rather high with a value of $2,743,332. Out of the 10,000 simulations run, there were negative returns on 31.2% of them.

1. How does the option to sell in year two change your analysis? Can you estimate what percentage of the time he will exercise this option?

When looking at the NPV of the project from 2016-2023, the average expected value was $3,753,604. The lowest value that the simulation predicted was -$780,204. The maximum value predicted was $23,251,880. The standard deviation of the project was extremely high with a value of $4,551,374. When looking at the observations that yielded less than $1.5M, which Krause feels would be a reasonable offer after two years, 44.8% of the simulations were less than that threshold.

1. Which inputs have the most impact on these two valuations?

Out of the inputs that affected the NPV of the project the most, market share growth had the highest correlation with the outcome. Market share growth had a correlation of .9 on the entire projects NPV and 0.93 on years 2016-2023, followed by initial market share with a correlation of 0.36 for every year and .31 from 2016-2023, then came SG&A -0.08 and -0.09, Manufacturing cost -0.08 and -0.08, market size 2014 0.05 and 0.04, and finally market growth rate 0.04 and 0.03.

1. Are there any other concerns that you would advise Krause to consider?

I first decided to examine how fixed cost and start-up costs would affect the project, but the affects were minimal at best. I then wanted to see how changing the discount rate would value the project. I ran 5 simulations with discount rates from 30% up to 70%. What I found was that an increase of the discount rate by 10% decreases the value of the project by roughly 50%. This was much larger than expected. This large decrease in the NPV of the project that corresponds to a small increase in the discount risk is my biggest concern with the project. It is also unclear whether BioDevice’s offer accounts for taxes or not. If the offer does account for taxes, then the projected probability of exercising the option to sell is accurate, but if it does not account for taxes then the option for Krause to sell the product himself becomes a better alternative.

**Conclusion**

My recommendation is for Krause to sell his intellectual property to BioDevice. The $3 million that BioDevice is willing to offer is an extremely good offer since the simulations projected the value of the Flexible Herbert Screw to have a 71.3% chance of being less than $3 million. If Krause were to try his luck to sell the product himself, there would be a 44.8% chance that he would sell his intellectual property after the two years. There is also the uncertainty that the offer will remain after a two-year window and the uncertainty that BioDevice would be willing to pay $1.5 million, especially if the market had not received the product well. Another reason to sell the product is the nature of the discount rate. If Krause is wrong in predicting the discount rate to be 30%, and it is in fact higher, than the value of the company will be much lower than current projections. Due to the high probability that the Flexible Herbert Screw will be worth less than $3 million, the high likelihood that he would exercise the option to sell the product after a two year program, and the large decrease in value due to slight increases in the discount rate, Krause should exercise his option to sell his intellectual property to BioDevice for $3,000,000.











