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Galaxy Systems, Inc.

As the three division managers of Galaxy systems, Inc. entered the central headquarters meeting room each felt under pressure. They were there to meet with Marlene Davidson, the senior vice president of finance.

Marlene, a CPA who had spent seven years with Ernst and Young before being recruited by Galaxy Systems, was a strong believer in implementing the latest techniques in corporate financial management.

She maintained that there should not be one figure for cost of capital that was uniformly applied throughout the corporation. Although the current figure of 12 percent was well documented, she intended to propose that different types of investments utilize different discount rates. Her first inclination was to suggest that the nature of the project be the controlling factor in determining the discount rate. The riskier the project the higher the discount rate required. For example, repair to old machinery might carry a discount rate of six percent; a new product, 12 percent; and investments in foreign markets, 20 percent. This was a well accepted method that she had used a number of times while on consulting assignments at Ernst and Young.

When she discussed this approach with Joe Halstead, the CEO of Galaxy Systems, he said the risk-adjusted discount rate made a lot of sense to him. He went on to say that management as well as stockholders tend to be risk averse and, therefore, higher risk projects should meet tougher return standards.

However, in the case of Galaxy Systems, Mr. Halstead suggested they consider a slightly different approach. He maintained that his company was made up of three distinctly different businesses and that each business should have its own imputed rate to be used as its discount rate.

The three divisions were a) the airline parts manufacturing division; b) the auto airbags production division, and c) the aerospace division. The latter division built modern missile and control systems and jet fighter planes under contract with the defense department of the U.S. government.

Mr. Halstead maintained that each division had a risk dimension that was uniquely its own. He asked Marlene Davidson about a strategy to measure risk exposure for each division. She suggested that there were two major approaches to do this.

A. Find comparable public companies in each industry the division was in and look up their betas.* The higher the average beta for a given industry, the more risk the comparable companies in that industry had. Divisions that were in industries with high average betas would have higher required rates of return.

B. A second approach would not rely on betas for comparable companies to the division, but rather would utilize internal data for that division. The more volatile the *divisions's* annual earnings relative to the *company's* annual earnings, the riskier the division and the higher the required rate of return.

The Meeting

CEO Joe Halstead liked these ideas and suggested that Marlene Davidson present them to the division managers. After the usual social patter following their arrival at central headquarters, Marlene laid her ideas on the table. At first, the division managers seemed somewhat shocked at her proposals. Marlene had not realized the extent that "empire building" had developed over the years. The three division managers clearly were apprehensive about what discount rate (sometimes referred to as a hurdle rate) would be assigned to their divisions.

The head of the airline parts manufacturing division argued against the use of the betas of publicly traded companies to determine risk. He said there were very few companies that were exclusively engaged in the manufacturing of airline parts. Most of his competitors were subsidiaries of other large companies such as McDonnell Douglas or Ratheon, which were involved in numerous activities. He argued that using the betas of such multi-industry firms and applying them to his division to determine risk would be unfair.

The head of the auto airbags production division had another concern. His three plants were all located in California and the state had tough environmental laws. About one out of every five investments in his division were mandatory under California law.

Finally, the head of the aerospace division said that risk should not be the key variable for determining the divisional discount rates. He suggested that the key consideration in determining the discount rate should be the perceived importance of the division to the corporation. He said "Galaxy Systems was founded as an aerospace company and our future should be tied to our heritage." Approximately 40 percent of Galaxy Systems revenues and earnings were currently tied to the aerospace division, while the other two divisions split the remainder of sales and income almost evenly.

The Initial Decision

After receiving the input from her boss and the three division heads, Marlene Davidson decided to go with the following system. The weighted average cost of capital of 12 percent for the entire corporation would be the starting point for the corporation.

The airline parts manufacturing division would continue to use 12 percent as its discount rate.

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* As described in Chapter 11, the beta measures the historical volatility of an individual stock's return to the stock market in general. The typical stock has a beta of one. That is, it is as volatile as the market. Stocks that move more rapidly than the market might have a beta of 1.3 (30% more volatile than the market). Other less volatile stocks might have a beta of only .7.

Because firms comparable to the auto airbags production division had an average beta of .8 and the division itself had less variable earnings from year to year than the corporation, it would be assigned a discount rate of 10 percent.

The head of the aerospace division was displeased to be assigned a discount rate of 15 percent. Marlene Davidson justified the high hurdle rate on the basis of an average beta of 1.35 in the aerospace industry and the highly risky business of dealing with the government. Contracts were often cut back when a new administration came into power.

Application of Divisional Hurdle Rates

The application of the new system got its first test when the auto airbags production division and the aerospace division simultaneously submitted four proposals.

Proposal A

The auto airbags production division submitted a proposal for a new airbag model that would cost $2,355,600 to develop. The anticipated revenue stream for the next 10 years was $400,000 per year.

Proposal B

The aerospace division proposed the development of new radar surveillance equipment. The anticipated cost was $2,441,700. The anticipated revenue stream for this project was $450,000 per year for the next 10 years.

Proposal C

Proposal C was a second proposal from the auto airbags division. It called for special equipment to be used in the disposal of environmentally harmful waste material created in the manufacturing process. The equipment cost $145,680 and was expected to provide cost savings of $15,000 per year for 15 years.

Proposal D

Proposal D was a second proposal from the aerospace division. It called for the development of a new form of a microelectric control system that could be used for fighter jets that were still in the design stage at another aerospace company. If the other aerospace company was successful in the development of the fighter jets, they would be sold to underdeveloped countries in various sectors of the world. The cost to produce the microelectric control system was $1,262,100 and the best guess estimate was that the investment would return $300,000 a year for the next eight years.

Required

1. Compute the internal rate of return and the net present value for each of these four proposals.
2. Based strictly on the calculations, which proposals should be accepted or rejected. Use the appropriate divisional discount rate. The net present value provides the answer directly while the internal rate of return must be compared to the discount rate (which is the same as the required rate of return).
3. What subjective elements might override or influence any of the answers provided to question 2.
4. Assume the head of the aerospace division asked for a second review on the new radar surveillance equipment (Proposal B). He maintains that the numbers presented in Proposal B are correct, but he wants you, the analyst, to know that $300,000 has already been spent on the initial research on this project. (It's not included in the $2,441,700). He suggests that this might influence your decision. What should be your response?