

CASE STUDY

ALHASAN INSTRUMENTS CAPITAL BUDGETING

Read the following case carefully and follow the rubrics to provide a detailed report, excel based models, and executive summary for the analysis.

PART ONE

Ali Hasen, the newly appointed vice president of finance of Hasen Instruments, was eager to talk to his investment banker about future financing for the firm. One of Ali's first assignments was to determine the firm's cost of capital. In assessing the weights to use in computing the cost of capital, he examined the current balance sheet, presented in Figure 1.

In their discussion, Ali and his investment banker determined that the current mix in the capital structure was very close to optimal and that Hasen Instruments should continue with it in the future. Of some concern was the appropriate cost to assign to each of the elements in the capital structure. Ali Hasen requested that his administrative assistant provide data on what the cost to issue debt and preferred stock had been in the past.

When Ali got the data, he felt he was making real progress toward determining the cost of capital for the firm. However, his investment banker indicated that he was going about the process in an incorrect manner. The important issue is the current cost of funds, not the historical cost. The banker suggested that a comparable firm in the industry, in terms of size and bond rating (Baa), Rollins Instruments, had issued bonds a year and a half ago for 9.3 percent interest at a 1,000 par value, and the bonds were currently selling for \$890. The bonds had 20 years remaining to maturity. The banker also observed that Rollings Instruments had just issued preferred stock at \$60 per share, and the preferred stock paid an annual dividend of 4.80.

In terms of cost of common equity, the banker suggested that Ali Hasen use the dividend valuation model as a first approach to determining cost of equity. Based on that approach, Al observed that earnings were 3 a share and that 40 percent would be paid out in dividends (D_1). The current stock price was 25. Dividends in the last four years had grown from 1.1 to the current value.

With all this information in hand, Ali Hasen sat down to determine his firm's cost of capital. He was a little confused about computing the firm's cost of common equity. He knew there were two different formulas: one: one for the cost of retained earnings and one for the cost of new common stock. His investment banker suggested that he follow the normally accepted approach used in determining the marginal cost of capital. First, determine the cost of capital for as large a capital structure as current retained earnings will support; then, determine the cost of capital based on exclusively using new common stock.

Figure 1

**Hasen Instruments
Statement of Financial Position
Dec. 31, 2023**

Assets		
Current assets:		
Cash		\$ 400,000
Marketable securities		200,000
Accounts receivable	\$ 2,600,000	
Less: Allowance for bad debts	<u>300,000</u>	2,300,000
Inventory		<u>5,500,000</u>
Total current assets		\$ 8,400,000
Fixed Assets:		
Plant and equipment, original cost.....	30,700,000	
Less: Accumulated depreciation.....	<u>13,200,000</u>	
Net plant and equipment		<u>17,500,000</u>
Total assets.....		<u>\$25,900,000</u>
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable.....		\$ 6,200,000
Accrued expenses		<u>1,700,000</u>
Total current liabilities.....		7,900,000
Long-term financing:		
Bonds payable.....		\$ 6,120,000
Preferred stock		1,080,000
Common stock	} Common equity	6,300,000
Retained earnings		<u>4,500,000</u>
Total common equity		10,800,000
Total long-term financing		<u>18,000,000</u>
Total liabilities and stockholders' equity.....		<u>\$25,900,000</u>

In a thorough analysis talk about the weighted average cost of capital (WACC) and the economic and firm related indicators that effect this rate. Also, retrieve Hansens Instrument WACC by walking through the different steps in your calculations by following the following questions. Please refer to any considerations you may see important in your calculations.

1. In details, talk about the importance of the weighted average cost of capital. Why do companies need to know this WACC and how do they retrieve it.
2. Determine the weights of capital of Hansens Instruments based on the information in the capital structure. The percentage composition in the capital structure for bonds, preferred stock, and common equity should be based on the current capital structure of long-term financing as shown in Figure 1 (it adds up to \$18 million).
3. Comparing to Rollins Instruments, what is the cost of debt K_d and preferred stock K_p ?
4. What is the cost of common stock K_e using the information provided?
5. What is the WACC using the information retrieved in question 3 & 4?
6. Using the information provided in the excel sheet regarding the previous closing prices for Hasens Instruments and the market index, retrieve the beta for the company.
7. What information can be retrieved from the beta and how will this help in your analysis?
8. Assume the investment banker also wishes to use the capital asset pricing model to compute the cost (required return) on common stock. Assume $R_f= 3$ percent and K_m is 7 percent. What is the value of K_e ?
9. What is the WACC using the capital asset pricing method for K_e ?
10. In your opinion, what is the best method to retrieve the WACC?

PART TWO

After retrieving the WACC for Hasens Instruments it was time to investigated probable investment opportunities. Ali composed a team that to research several investments prospects. The team had just completed summarizing the financial aspects of four capital investment projects that were open for the company during the coming year, and they were faced with the task of recommending which should be selected. What concerned the team was the knowledge that their boss, Ali Hasan, with excellent background in financial theory, would immediately reject their reports if any minor information was left out. They knew that selecting projects purely on expected cashflows was not going to be accepted. Hence, they needed to prepare an extensive summary indicating all aspects of the proposed projects.

The details of the four projects, all of which they should consider are as follows:

A- A proposal to add a jet to the company's fleet. The plane was only six years old and was considered a good buy at 300,000. In return, the plane would bring over 700,000 in additional revenue during the next five years with only about 58,000 in operating costs.

B. A proposal to diversify into copy machines. The franchise was to cost 700,000, which would be amortized over a 40-year period. The new business was expected to generate over 1.6 million in sales over the next five years, and over 1.6m in aftertax earnings.

C. A proposal to buy a helicopter. The machine was expensive and, counting additional training and licensing requirements, would cost 40,000 a year to operate. However, the versatility that the helicopter was expected to provide would generate over 1.5 million in additional revenue, and it would give the company access to a wider market as well.

D- A proposal to begin operating a fleet of trucks. Ten could be bought for only 51,000 each, and the additional business would bring in almost 700,000 in new sales in the first two years alone.

The evaluation methods that should be used: payback, internal rate of return, and net present value.

One additional constraint is that no outside financing be used this year. Ali Hansen was worried that the company was growing too fast and had piled up enough debt for the time being. He was also against a stock issue for fear of diluting earnings and her control over the firm. As a result of Ali's prohibition of outside financing, the size of the capital budget this year was limited to 800,000, which meant that only one of the four projects under consideration could be chosen. The team aren't too happy about that, either, but they had decided to accept it for now, and concentrate on selecting the best of the four.

In details, talk about Capital Budgeting and refer to the factors that affect this process. Mention the methods used and how are they similar/different. Analyze the proposed projects mentioned previously by answering the following question and using the WACC retrieved in Part One. Reflect on any considerations that might enhance your decision making.

1. Refer to excel for the 4 projects. Extract the incremental revenues for the four projects and the Free Cash Flows knowing that the tax rate is 15%. Given what you know at this phase, what project seems attractive based on the earnings given?
2. Compute the payback period, internal rate of return (IRR), and net present value (NPV) of all four alternatives based on cash flow. For the payback method, merely indicate the year in which the cash flow equals or exceeds the initial investment. You do not have to compute midyear points.
3. a. According to the payback method, which project should be selected?
b. What is the chief disadvantage of this method?
c. Why would anyone want to use this method?
4. a. According to the IRR method, which project should be chosen?
b. What is the major disadvantage of the IRR method that occurs when high IRR projects are selected?
c. Can you think of another disadvantage of the IRR method?
(*Hint: Look over the four alternatives and compare the sizes of the projects. Ask yourself whether you would prefer to make a large percent return on a small amount of money or a small percent gain on a large amount of money.*)
d. If the team had not put a limit on the size of the capital budget, would the IRR method allow acceptance of all four alternatives? If not, which one(s) would be rejected and why?
5. a. According to the NPV method, which project should be chosen? Does this differ from the answer under the IRR?
b. If Ali had not put a limit on the size of the capital budget, under the NPV method which projects would be accepted?
c. Do the NPV and IRR both reject the same project(s)? Why?
6. Do a sensitivity analysis and show how your decision might change if the WACC was to change by +2% or -2%
7. If you can choose more than one project, what are the projects that would be accepted?
8. Are there any other considerations that might affect the decision? Explain in details.