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HDTV Division of Global Electronics, Inc.

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CASE DESCRIPTION

The primary objective of this case is to describe realistic capital budgeting issues within a large organization. The case illustrates ways that staff inside a corporate finance department (and in related departments) position themselves in the capital planning process. The case also stresses steps that a large firm can take to leverage its size to gain the maximum benefit of investment projects. Further,, the case demonstrates sensitivity analyses in the capital budgeting process, and the resulting internal rates of return.

We suggest the case be used to follow the related case "HDTV Systems", which shows the firm as a medium-sized enterprise and its capital budgeting issues before becoming a division of Global Electronics. This case should be used for students who have been exposed to capital budgeting in a prior course, either undergraduate or graduate. Class time should not exceed two hours, with approximately four hours of student preparation time.

CASE SYNOPSIS

This case involves a need for a decision regarding a large capital expenditure. Students will find that capital planning involves not only the use of accepted capital budgeting techniques, but also a considerable impact based on staff viewpoints that reflect their particular department's biases. Also explicitly presented are multiple levels of investment worth based on alternative, realistic assumptions. Students can verify IRR and payback calculations using Excel, and they will see that capital budgeting involves fragile forecasts and biases that managers bring to the analytical process.

INSTRUCTORS' NOTES

Teaching Suggestions

This case is primarily intended to demonstrate the nature of capital budgeting within a multinational firm. Instructors can emphasize both advantages and disadvantages that large firms possess. For example, although large firms may have strong negotiating power with regard to external purchasing, and advantages through synergy with other divisions, there is uncertainty about quality and reliability of parts purchased from outside suppliers. As specific divisions compete for funding, staff may overestimate the projected performance of their division's projects and receive funding. Other divisions that more objectively develop their capital requests may not be funded because they appear less worthy. The case provides an opportunity to consider the effects of capital rationing.

Also, the instructor may want to stress that the involvement in capital planning by a large number of people may be an asset or a liability. While it will be useful to obtain a number of inputs into the process, it may also cause capital planning to drag on beyond the ideal time for introduction of a new product before the firm's competition beats them to the market.

In order to demonstrate that large firms may also use weak capital budgeting methods, Global also uses Payback Period. Instructors can use Global's environment in which divisions compete for capital, and then focus on the impact of capital rationing.

The case uses a number of financial management personnel at both the division and corporate levels. Instructors can use the interactions between these people to demonstrate real-life capital budgeting processes, as well as the divergent opinions expressed by the staff. Additionally, the challenging nature of forecasting is displayed within the case.

The case demonstrates the difficulty of generating above average IRRs in a highly competitive market. One way to achieve higher return on projects is to include a product "enhancer" like the television stand which will be a source of additional cash flow. Instructors may also want to stress the issue of timing of equipment changes to accommodate product modifications in an industry characterized by rapidly changing technology.

Instructors may wish to emphasize the realistic assumption of a decline in product price over time in the electronics industry. Further, the case shows the IRR on the project moving around with different assumptions about inputs such as product pricing and investment cost savings when combined with the cost associated with capital requests from other divisions. The case also brings in the possibility of accepting a project which does not meet the customary criteria, but holds a "protect position" benefit in which the company maintains its presence in the market.

A committee of staff from various departments within Global Electronics is introduced with the assignment of improving the firm's overall capital expenditure process, as well as pinning down the merits of the Ultra High Definition TV project. One person recommends the stand as a closely aligned TV product that could make a difference for the sucess of the primary product, encouraging students to look for creative ways to present a firm's products to the marketplace. Also, the case provides explicit differences of opinion about the merits of the project when viewed by individuals with differing stakes in the capital budgeting process; included are staff in engineering, procurement, marketing, plant management, and capital planning. In this way, instructors can enhance interest in capital budgeting processes for students with majors other than finance, and at the same time emphasize the importance of company departments outside of corporate finance to students majoring in finance.

Additionally, the quantitative analysis in the Exhibit includes various IRR results under different assumptions about product pricing, quantity sold, and purchase price savings. Instructors may want to emphasize these factors which lead to various rates of return.

DISCUSSION QUESTIONS

1. **Identify some aspects of the capital budgeting process that you believe large, multinational firms might deal with successfully, as well as other aspects of the process that large firms might perform poorly, if at all.**

The various divisions of Global could engage in in-fighting for capital, and overstate their analysis in favor of their own favored projects. The issue is divisional objectivity and appropriate desire for growth for the benefit of shareholders versus excessive optimism. We would expect a large organization to use generally accepted capital budgeting analytical procedures, and we would expect large firms to develop a more reliable cost of capital. Also, large firms might be expected to conduct better market analysis in developing new product ideas and the associated revenue and cost projections.

2. **Identify and discuss inputs to the IRR calculation that were varied in the case in order to assess the sensitivity of the IRR calculations. Can you identify additional inputs that could be adjusted in order to help management understand the uncertainty inherent in the UHDTV project?**

The case uses a 4% annual price drop, lower unit demand in the later years, and a 10% vendor discount on the production equipment. Some additional examples include varying production cost levels, and shorter or longer cash flow generation periods than the eight years used in the Exhibit.

3. **Using the net cash flows in the Exhibit, verify the accuracy of the 11.9% and 13.2% IRRs shown.**

These can be verified with a calculator or Excel.

4. **How did the pilot committee members contribute to a more comprehensive, enterprise level view of the UHDTV project?**

Marketing suggested a stand to be packaged with the UHDTV. Design Engineering pointed out that the stand did not adequately utilize company engineering talent, and it was outside existing competencies across products and use of equipment. Procurement voiced opposition to low cost foreign vendors, although this opposition could probably be overcome by evaluating vendor capabilities more closely. Operations Management strongly supported making as many component parts as possible within the company. Specifically, the case states that plant capacity for in-house production is available, and in-house costs are believed to be lower than out-sourcing. There should be a benefit to the informed, collective judgment by bringing these department leaders together on this project, and for the company's capital budgeting process in general.

5. What is the appropriate capital budgeting decision when an asset's IRR only marginally clears the cost of capital?

The analysis should include calculations based on various assumptions to gain an appreciation of the sensitivity of the IRR result to the level of the inputs. Also, an investment can be analyzed to see if the expected value of the IRR, developed through a probability distribution of possible IRRs, exceeds the cost of capital. Realistically, actual results of accepted projects will be above or below the expected value. Also, an investment with marginal return could be justified on the basis of "protect position" in which value is seen in maintaining the company's presence in the marketplace. Additionally, a divisional cost of capital could be developed by using a beta within the cost of equity drawn from firms that make only or primarily the division's products.

6. Using the stand/TV combination, the IRR increased to a range between 14% and 16.3%. Can the firm depend on this return range, when consumers could simply buy a stand separately?

The much higher IRRs with the addition of the stand seem unreasonable. Perhaps the revenue, cost and volume assumptions are excessively optimistic. If consumers perceive a purchasing advantage from the inclusion of the stand (and perhaps the more exact match with the television in terms of color and style of an included stand), then the combination will probably be accepted in the product market.

7. What steps can Global Electronics take to reduce the divisional cost of capital faced by the HDTV division? Evaluate the results of (1) raising capital in the debt and equity proportions currently used, (2) increasing the proportion of debt, and (3) increasing the proportion of equity.

The middle of the road approach would be continuing the current capital mix and may be desirable. If the company can safely meet the debt service of additional borrowings, the weighted average cost of capital will decline because of the tax deductibility of interest expense. The use of additional equity in the mix will raise the weighted average cost of capital because the cost of equity is above the cost of debt.

8. Discuss the advantages and disadvantages of building a new plant for the potential UHDTV project, including the fact that excess plant capacity currently exists within Global Electronics.

This is a key issue in the case. The company faces the choice of high capital requirements associated with an efficient, new production facility, or higher product manufacturing costs if the company has excess capacity within existing facilities. A new production facility is under consideration for the UHDTV project.

9. What can be predicted about the future dividend policy of Global Electronics, if its other divisions have similar financial performance and capital requirements as HDTV Division?

The combination of weak profitability and large capital requirements suggests that Global's future dividend policy will lean toward high retention of net income.

10. Ms. Cunningham initially calculated a 10% IRR, and then in a subsequent round, she found an IRR of 13.5%. Explain how these and possibly additional IRR calculations under different assumptions can be collectively considered in an assessment of the risk of the UHDTV project.

Through the use of sensitivity analysis, a distribution of IRRs can be developed by calculations under different cash flow assumptions, with an estimated probability for each outcome. An expected value for IRR can thus be determined, as well as standard deviation to measure risk.

11. Discuss the importance of management and marketing staff identifying worthy future projects given the depreciation expense of a potentially disappointing UHDTV project.

Failed capital projects may require write off of assets no longer useful, and identification of new, financially viable projects hold the potential to offset the consequences of abandonment. However, through reworking the fixed assets, potential exists for their use in the production of other products. Close monitoring on a regular basis will help minimize losses; follow-up analysis of project performance leading to possible abandonment can avoid continuing, excessive losses.

12. **Develop some specific incentive mechanisms and penalties that can be put in place that would be sufficiently effective in ensuring that divisional managers maintain realism in capital budgeting projections.**

One possibility would be to rank divisions based on realized returns from prior capital expenditures. Divisions with weak capital expenditure performance should be scrutinized very closely to help ensure future results.