Case: Bay City Electronics[19]

Financial analysis of new products at Bay City Electronics had always been rather informal. Bill Roberts, who founded the firm in 1970, knew residential electronics because he had worked for almost seven years for another firm specializing in home security systems. But, he had never been trained in financial analysis. In fact, all he knew was what the bank had asked for every time he went to discuss his line of credit. Bay City had about 45 full-time employees (plus a seasonal factory workforce) and did in the neighborhood of $18 million in sales. His products all related to home security and were sold by his sales manager, who worked with a group of manufacturers' reps, who in turn called on wholesalers, hardware and department store chains, and other large retailers. He did some consumer advertising, but not much.

Bill was inventive, however, and had built the business primarily by coming up with new techniques. His latest device was a remote-controlled electronic closure for any door in the home. The closure was effected by a special ringing of the telephone: For example, if a user wanted to leave a back door open until 9:00 p.m. it was simple to call the house at 9:00 and wait for 10 rings, after which the electronic device would switch the door to a locked position. A similar call would reopen the door.

The bank liked the idea but wanted Bill to do a better job of financial analysis, so the loan officer asked him to use the forms shown below in the Bay City Appendix as Figure 11.11, and Figure 11.12. After some effort, Bill was able to fill out the key data form, Figure 11.11, and his work is reproduced here. To date, Bay City had spent $85,000 in expense money for supplies and labor developing the closure and had invested $15,000 in a machine (asset). If the company decided to go ahead, it would have to invest $50,000 more in a new facility, continue R&D to validate and improve the product, and—if things went according to expectations—invest another $45,000 in year 3 to expand production capability.

He also had to fill out the financial worksheet, for this he used a friend of the family who had studied financial analysis in college. The friend had relied on a summary of how to do this, and this summary is attached. He also warned Bill that there were lots of judgment calls in that calculation, "so don't get into an argument with the people at the bank about details."

While waiting for his appointment at the bank, he spent some time just thinking about his situation. Did the numbers look good? Where were the shaky parts that the banker might give him trouble on? Most of all, he was curious about whether a friend of his at the LazyBoy chair firm in Monroe had to do the same thing, and would 3M require the same type of form from his daughter who now worked for them? Frankly, he didn't feel he personally had learned much about his situation from the exercise and was already wondering whether there weren't better ways for him to go about reassuring the bank that their loan was a good proposition.

FIGURE 11.11 Key Data Form for Financial Analysis, Part A

Financial Analysis Proposal: *Bay City Electronics Closure**
Date of this analysis: _____ Previous analysis: _____

1. Economic conditions, if relevant:
   Corporate scenario OK

2. The market (category):
   Stable–5% growth

3. Product life *5* years

4. List price: *$90*
   Distributor discounts: *$36*
   Net to factory: *$54*

   Other discounts:
   Promotion: *$1*
   Quantity: *$1*
   Average dollars per unit sold: *$52*

5. Production costs:
   Explanation of any unique costing procedures being used:
   None. Experience curve effect.

   Applicable rate for indirect manufacturing costs: _____
   20% of direct costs

6. Future expenditures, other capital investments, or extraordinary expenditures:
   Build production facilities: $50,000
   Ongoing R&D: $15,000; $10,000; $15,000; $10,000 for first four years after intro
   Special UL test during the 2nd year will cost $5,000
   Expand facilities in 3rd year for $45,000

7. Working capital: *35* % of sales
   10% inventory; recover 80% in period 5
   15% receivables; all recovered in period 5
   10% cash, all recovered

8. Applicable overheads:
   Corp.: *10* % of sales
   Division: – % of sales

9. Net loss on cannibalized sales, if any, expressed as a percent of the new product's sales: *10* %

10. Future costs/revenues of project abandonment, if that were done instead of marketing: *Abort now would net $3,000 from sale of machine.*

11. Tax credits, if any, on new assets or expenditures: *1% of taxes due to state and federal, based on positive environmental effect.*

12. Applicable depreciation rate(s) on depreciable assets: *25% on orig. plant and machines; 33 1/3% on expansion facilities*

13. Federal and state income tax rate applicable: *34* %
    Comments:

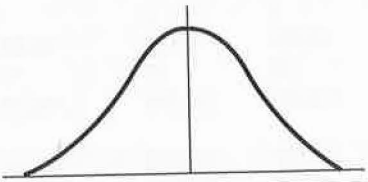
14. Applicable cost of capital: *16* %
    ± Premiums or penalties: *high-risk project 8* %

    Any change in cost of capital anticipated over life of product? *No*

*This key data form is filled in with demonstration data for the Bay City Electronics case.

FIGURE 11.11 (CONCLUDED) Key Data Form for Financial Analysis, Part B

15. Basic overall risk curve applicable to the NPV: Standard OK ✓



16. Key elements to be given sensitivity testing (e.g., sales, price cuts)
(see below)

17. Sunk costs:
Expenses to date: *Ignore*
Capital invested to date: *$15,000*

18. Elements of new product strategy that are especially relevant on this proposal: (e.g., diversification mandate or cash risk):
Strategy calls for us to strengthen company in diversified markets, which this product will do.

19. Basic sales and cost

Year	Unit sales	Direct production cost per unit	Marketing expenses
1	4,000	$16	$100,000
2	10,000	12	80,000
3	18,000	11	50,000
4	24,000	9	60,000
5	5,000	14	10,000

20. Hurdle rates:
Must have 40% gross margin after production costs.

21. Any mandatory contingencies: *None*

22. Other special assumptions or guidelines:
(1) The total $110,000 of facilities and machines will salvage for $10,000 when production is finished.
(2) The firm has other income to absorb any tax loss on this project.
(3) Ignore investment tax credit.

Sensitivity testing (Calculate the effect on NPV of the following):
(1) We may have to cut the price to $34 net at start of third year.
(2) Our direct manufacturing cost estimate may be overly optimistic. What if we never get the cost below the original $16?
(3) Competition may force much higher marketing costs—what if starting in year 2 the level we have to spend at is just twice what we forecasted above?
(4) How about a worst-case outcome, in which all of the above three contingencies are tested at one time?