

Eric Griffey, manager of the Celebes Products Division of the Dudley Company is trying to decide whether to launch a new model of food blender, BF97. Griffey is particularly excited about this proposal because it calls for producing the product in the company's old plant in Beaverton, Griffey's hometown. During the last recession, Dudley had to shut down this plant and lay off its workers, many of whom had grown up with Griffey and were his friends. Griffey had been very upset when the plant was closed down. If BF97 were produced in the new plant, most of the laid-off workers would be rehired.

Griffey asks Andrew Chen, the management accountant of the Celebes Products Division to analyze the BF97 proposal. Through the years the company has found that its products have a useful 6 years, after which the product is dropped and replaced by another new product. Chen gathers the following data.

- a. BF97 will require a new special-purpose equipment costing \$900,000. The useful life of the equipment is 6 years, with a \$140,000 estimated terminal disposal price at the time. However, the income tax authorities will not allow a write-off based on a life shorter than 9 years. Therefore, the new equipment would be written off over 9 years of tax purposes, using the straight-line depreciation method and assuming a zero terminal disposal price.
- b. The old plant has a book value of \$250,000 and is being depreciated on a straight-line basis at \$25,000 annually. The plant is currently being leased to another company. This lease has 6 years remaining at an annual rental of \$45,000. The lease contains a cancellation clause whereby the landlord can obtain immediate possession of the premises upon payment of \$30,000 cash (fully deductible for income tax purposes).



c. Certain nonrecurring market-research studies and sales-promotion activities will amount to a cost of \$300,000 at the end of year 1. The entire amount is deductible in full for income tax purposes in the year of expenditure.

d. Additions to working capital will require \$200,000 at the outset and an additional \$200,000 at the end of 2 years. This total is fully recoverable at the end of 6 years.

e. Net cash inflow from operations before depreciation and income taxes are expected to be \$400,000 in years 1 and 2, \$600,000 in years 3-5, and \$100,000 in year 6.

The after-tax required rate of return is 12%. The income tax rate is 36%.

Required

1. Use a net present-value analysis to determine whether Chen should recommend launching BF97.
2. Chen learns that the working capital required will be twice the amounts estimated in d above. All other data remain unchanged. He revises his analysis and presents it to Griffey. Griffey is very unhappy with what he sees. He tells Chen, "Try different assumptions and redo your analysis. I have no doubt that this project should be worth pursuing on financial grounds." Chen is aware of Griffey's interest in supporting his hometown community. There is also the possibility that Griffey may be hired as a consultant by the new plant management after he retires next year. Why is Griffey unhappy with Chen's revised analysis? How should Chen respond to Griffey's suggestions? Identify the specific steps that Chen should take to resolve this situation.



Income Statement	0	1	2	3	4	5	6
Net cash flow from operations		400,000	400,000	600,000	600,000	600,000	100,000
Depreciation 900,000 ÷ 9 =		(100,000)	(100,000)	(100,000)	(100,000)	(100,000)	(100,000)
Lease cancellation payment	(30,000)						
Lease cash flow foregone		(45,000)	(45,000)	(45,000)	(45,000)	(45,000)	(45,000)
Market research etc.		(300,000)					
Revenue from disposal of machine							140,000
Book value of machine							(300,000)
Earnings before taxes	(30,000)	(45,000)	255,000	455,000	455,000	455,000	(205,000)
Taxes 36.00%	10,800	16,200	(91,800)	(163,800)	(163,800)	(163,800)	73,800
Net income	(19,200)	(28,800)	163,200	291,200	291,200	291,200	(131,200)

I. Direct Method

Year:	0	1	2	3	4	5	6
Machines	(900,000)						
Working capital	(200,000)		(200,000)				400,000
Net cash flow from operations		400,000	400,000	600,000	600,000	600,000	100,000
Lease cancellation payment	(30,000)						
Lease cash flow foregone		(45,000)	(45,000)	(45,000)	(45,000)	(45,000)	(45,000)
Market research etc.		(300,000)					
Revenue from disposal of machine							140,000
Taxes	10,800	16,200	(91,800)	(163,800)	(163,800)	(163,800)	73,800
Cash flow	(1,119,200)	71,200	63,200	391,200	391,200	391,200	668,800

II. Indirect Method

Year:	0	1	2	3	4	5	6	
Net income	(19,200)	(28,800)	163,200	291,200	291,200	291,200	(131,200)	
+ Depreciation		100,000	100,000	100,000	100,000	100,000	100,000	
- Increase in working capital	(200,000)		(200,000)				400,000	
+ Loss on disposal of machine							160,000	
Cash flow form operations	(219,200)	71,200	63,200	391,200	391,200	391,200	528,800	
Cash flow from Investment	(900,000)						140,000	
Cash Flow	(1,119,200)	71,200	63,200	391,200	391,200	391,200	668,800	
Present value discount factor at	1.000	0.893	0.797	0.712	0.636	0.567	0.507	
Present value	Total € 82,629 Σ	(1,119,200)	63,571	50,383	278,448	248,615	221,977	338,835

III. Residual Income - EVA[®] Method

Investment - Beginning of year		1	2	3	4	5	6	
Machines		900,000	800,000	700,000	600,000	500,000	400,000	
Working capital		200,000	200,000	400,000	400,000	400,000	400,000	
Total Investment	<i>Investment</i>	1,100,000	1,000,000	1,100,000	1,000,000	900,000	800,000	
Net income		(19,200)	(28,800)	163,200	291,200	291,200	291,200	(131,200)
Imputed cost	12.00% × <i>Investment</i>	(132,000)	(120,000)	(132,000)	(120,000)	(120,000)	(108,000)	(96,000)
EVA [®]		(19,200)	(160,800)	43,200	159,200	171,200	183,200	(227,200)
Present value discount factor		1.000	0.893	0.797	0.712	0.636	0.567	0.507
Present value	Total € 82,629 Σ	(19,200)	(143,571)	34,439	113,315	108,801	103,953	(115,107)