

Individual Project

Unit Five

ACG\_420

Managerial Accounting

And

Organizational Controls

July 8, 2006

## Introduction

Deer Valley Lodge, a ski resort in the Wasatch Mountains of Utah, has plans to eventually add five new chairlifts. Suppose that one lift costs \$2 million, and preparing the slope and installing the lift costs another \$1.3 million. The lift will allow 300 additional skiers on the slopes, but there are only 40 days a year when the extra capacity will be needed. (Assume that Deer park will sell all 300 lift tickets on those 40 days.) Running the new lift will cost \$500 a day for the entire 200 days the lodge is open. Assume that the lift tickets at Deer Valley cost \$55 a day and the added cash expenses for each skier-day are \$5. The new lift has an economic life of 20 years.

1. Assume that the before-tax required rate of return for Deer Valley is 14%. Compute the before-tax NPV of the new lift and advise the managers of Deer Valley about whether adding the lift will be a profitable investment. Show calculations to support your answer.

### Part 1:

1. What is the initial investment? = \$3,300,000  
(\$2,000,000 one chairlift cost + 1,300,000 installing of lift and slope preparation)
2. What are the expected cash inflows? = \$660,000  
(300 lift tickets x \$55 cost of each lift ticket x 40 extra days)
3. What are the expected cash outflows? = \$160,000  
\$60,000 (300 lift tickets x \$5 extra cost x 40 extra days)  
\$100,000 (\$500 cost x 200 days of entire operation)
4. What are the net cash flows (inflows - outflows)? = \$500,000  
\$660,000 (inflows) - \$160,000 (outflows)
5. Present value of net cash flows: = \$3,311,550  
\$500,000 (net cash flow) \* 6.6231 (PV of ordinary annuity) (Horngren, Sundem & Stratton, 2005, p. 674, table 2)
6. Compare to the initial investments and make the determination of will this be a profitable investment? = \$11,550  
(Initial investments) vs. (PV of net cash flows)  
\$3,311,550 - \$3,300,000

My recommendation to the managers of Deer Valley is to add the chairlift. The profit will be \$11,550 making it a profitable investment. See table #1

**Table #1:**

<b>Back grown information regarding Deer Valley Lodge, ski resort, Wasatch Mountains, Utah</b>		
	Cost of one chairlift	\$2,000,000
	Cost of preparing the slope and installing the lift	\$1,300,000
	Cost of initial investment	\$3,300,000
	Number of additional skiers per lift	300
	Number of days a year the extra capacity is need	40
	Number of lift tickets sold for those 40 days	300
	Cost of running the new lift per day	\$500
	Number of days lodge is open	200
	Cost of lift tickets a day	\$55
	Cost for each skier-day of added cash expenses	\$5
	Number of economic life years	20
	% before-tax	14%
<b>Calculations for part 1</b>		
#1	Initial investment	\$3,300,000
#2	Expected cash inflows	\$660,000
	Outflows	\$100,000
	Extra lift ticket cost	\$60,000
#3	Expected cash outflows	\$160,000
	Annuity of	\$660,000
	20 years at 14% =	6.6231 (Horngren, Sundem & Stratton, 2005, p. 674, tab
	PV of	\$3,311,550
#4	Net cash flows	\$500,000
#5	PV of net cash flow	\$3,311,550
#6	Profitable investment	\$11,550

- Assume that the after-tax required rate of return for Deer Valley is 8%, the income tax rate is 40%, and the MACRS recovery period is 10 years. Compute the after-tax NPV of the new lift and advise the managers of Deer Valley about whether adding the lift will be a profitable investment. Show calculations to support your answer.

Part 2:

- What is the after tax value of net cash flows as determined in question #1?  
 $500,000 - (500,000 * 40\%) = \$300,000$
- What is the present value of this annuity? (Use table 2)  
 20 years, 8%  
 $\$300,000 * 9.8181 = \$2,945,430$
- What is tax savings from MACRS depreciation (Use directions on top of page 490) and what is the present value of this tax savings (Use Exhibit 11-7 for the PV factor)?  
 Initial investment \* tax rate \* PV factor (8%, 10 years)  
 $\$3.3 \text{ million} * 40\% * .7059 = \$931,788$
- Add the two computations together and compare to the initial investment. Is it still profitable on an after tax basis?  
 PV of after tax cash flows vs. initial investment  
 $\$2,945,430 + \$931,788 = \$3,877,218$  vs.  $\$3,300,000$   
 $\$3,877,218 - \$3,300,000 = \$577,218$

My recommendation to the managers of Deer Valley is to add the chairlift. The after tax profit will be \$577,218 making it a profitable investment. See Table #2

<b>Table #2:</b>			
	Net cash flows =	\$500,000	
	cost of initial investment	\$3,300,000	
<b>Calculation for part 2</b>			
	Tax rate	40%	
#1	After tax value of net cash flows	\$300,000	
	20 years at 8% =	9.8181	(Horngren, Sundem & Stratton, 2005, p. 674)
	10 years at 8% =	0.7059	(Horngren, Sundem & Stratton, 2005, p. 674)
#2	Present value of annuity	\$2,945,430	
#3	Tax savings	\$931,788	
	Present value of after tax cashflows =	\$3,877,218	
#4	Profitable investment	\$577,218	

### 3. What subjective factors would affect the investment decision?

Some of the subjective factors which would affect the investor's decisions to invest would be:

- Is the company set up with additional labor for sales and marketing to handle the increased volume?
- Is the area capable of handling the increase traffic flow i.e. (Emergency medical services, street maintenance, hotel capacity, and restaurants ext.)?
- Does the company have adequate labor or a labor pool to draw from to handle the increase ticket sells to 300?
- Will the weather hold cooperate?
- Is the after-tax required rate of return for Deer Valley is 8%, the income tax rate is 40% realistic?

#### **“Net Present Value**

Accountants are usually involved in the phase of capital budgeting that involves post audits and choosing which investments to make.

Capital Budgeting is the process of determining whether or not projects such as building a new plant or investing in a long-term venture are worthwhile - it affects financial results over more than just the next year

Accountants are involved in the capital budgeting process and it has 3 phases: identifying potential investments, choosing which investments to make, and follow-up monitoring of the investments

Popular methods of capital budgeting include net present value (NPV), internal rate of return (IRR), discounted cash flow (DCF), and payback period.

It is also known as investment appraisal. An approach used in capital budgeting where the present value of cash inflows is subtracted by the present value of cash outflows. NPV is used to analyze the profitability of an investment or project. It focuses on the expected cash inflows and outflows rather than net income and it is based on the theory of compound interest.

NPV analysis is sensitive to the reliability of future cash inflows that an investment or project will yield. NPV compares the value of a dollar today versus the value of that same dollar in the future, after taking inflation and return into account. Basically, once the calculations are completed and the NPV of a prospective project is positive, then it should be accepted. However, if it is negative, then the project probably should be rejected because cash flows are negative. The minimum desired rate of return can have a large effect on NPV -the higher the minimum desired rate of return, the lower the present value of each future cash inflow and the lower the NPV of the project. Investments that are desirable at one rate of interest may be undesirable at a higher rate of interest. Since we are concerned with cash flows, and not revenues and expenses, depreciation is an expense that does not require a current cash outlay. Depreciation affects capital budgeting decisions by creating a tax savings in the amount of the tax rate multiplied by the depreciation claimed.” (Paysse, 2006)

## References

1. Horngren, Sundem, Stratton (2005) Introduction to Management Accounting 13 Edition, Prentice Hill ISBN 0-13-144071-3
2. Unit 5 Course Materials Retrieved July 2, 2006
3. Net Present Value, Chat Session Information, Unit 5 Retrieved July 5, 2006