

Chapter 9 critical essay

[Economics](#), [Money](#)



Chapter 9 closing case Ashford University BUS 650 Managerial Finance When should Bunyan Lumber, harvest the forest? The cash flow will grow at the inflation rate of 3.7%. Utilizing the real cash flow formula $(1+R)^t = v(1+R)^t(1+H)^t$ $1.10 = (1+R)(1.037)$ $R = 6.08\%$ The conservation funds are anticipated to grow slower than the inflation rate. The return for the conservation fund will be, $(1+R) = (1+R)(1+H)$ $1.10 = (1+R)(1.032)$ $R = 6.5\%$ The cash flow from the thinning process is as follow, Cash flow from thinning = Acres thinned x cash flow per acre Cash flow from thinning = 7,500 (\$1,200) Cash flow from thinning = \$9,000,000

Thinning beyond the initial thinning is conducted on a schedule and can be included. After tax cost of the conservation fund will be, After tax conservation fund cost = $(1 - C) \times (\$250,000)$ After tax conservation fund cost = \$162,500 For each analysis the cost and revenue are; Revenue [$E(\% \text{ of grade})(\text{harvest per acre})(\text{value of board game})](\text{acres harvested})$ $(1 - C \text{ defect rate})$ Tractor cost = $(\text{Cost MBF})(\text{MBF per acre})(\text{acres})$ Road cost = $(\text{Cost MBF})(\text{MBF per acre})(\text{acres})$ Sale preparation and administration = $(\text{Cost MBF})(\text{MBF acre})(\text{acres})$ It is assumed that there is no depreciation as a result of the harvest.

This is an indicator that operating cash flow is equal to net income. The NPV of the thinning, the NPV of all future harvests, minus the present value of the conservation fund costs. Revenue \$39,800,250 Tractor cost 7,200,000 Road 2,700,000 Sale preparation & admin 945,000 Excavator piling 1,200,000 Broadcast burning 2,287,500 Site preparation 1162,500 Planting costs 1,800,000 EBIT \$22,505,250 Taxes 7,876,838 Net income (OCF) \$ 4,628,413 First harvest after 20 years PV First = $\$14,628,413 / (1 + .0608)^{20}$ PV

First = \$4, 496, 956 Projection of thinning after 40 years 40-year project
 interest rate = $[(1 + .0608)^{40}]^{-1}$ C1 0-year project interest rate = 958. 17%
 40-year conservation interest rate = $[(1 + .0659)^{40}]^{-1}$ C1 40-year
 conservation interest rate = 1, 183. 87% Present value of future thinning on
 this schedule, which will be; PV Harvest = $[(\$14, 628, 413/9.5817)] / (1 + .$
 $0608)^{20}$ PV Harvest = \$469, 325. 52 Present value of conservation funds
 deposit PV Conservation = ? C\$162, 500 ? C\$162, 500/11. 8387 PV
 Conservation = ? C\$176. 226. 22 Current value of conservation PV
 Conservation = ? C\$176, 226. 22/ $(1 + .0659)^{20}$ PV Conservation = ? C\$49,
 182. 52 NPV of a 40-year harvest schedule is: NPV = \$4, 496, 956 + 939,
 286. 45 + 469, 325. 52 ? C9, 182. 52 NPV = \$5, 856, 385. 9 45-year harvest
 schedule: Revenue \$55, 462, 853 Tractor cost \$9, 840, 000 Road \$3, 690,
 000 Sale preparation & admin \$1, 291, 500 Excavator piling \$1, 200, 000
 Broadcast burning \$2, 287, 500 Site preparation \$1, 162, 500 Planting costs
 \$1, 800, 000 EBIT \$34, 191, 353 Taxes \$11, 966, 973 Net income (OCF) \$22,
 224, 379 The PV of the first harvest in 25 years is: PV first = $\$22, 224, 379 /$
 $(1 + .0608)^{25}$ PV First = \$5, 087, 23 45 year interest rate 45-year project
 interest rate = $[(1 + .0608)^{45}]^{-1}$ C1 45-year project interest rate = 1, 321.
 11% 45 year interest rate for the conservation fund 45-year conservation
 interest rate = $[(1 + .0659)^{45}]^{-1}$ C1 5-year conservation interest rate = 1,
 666. 38% PV of future thinning PV Thinning = $\$9, 000, 000 / 13. 111$ PV
 Thinning = \$681, 246. 84 Utilizing the OCF of \$22, 024, 504, the PV are as
 follow, PV Harvest = $[(\$22, 224, 379 / 13. 21111)] / (1 + .0608)^{25}$ PV Harvest
 = \$385, 073. 30 The present value of these deposits is: PV Conservation = ?
 C\$162, 500 ? C \$162, 500/16. 6638 PV Conservation = ? C\$174, 800. 29 NPV

of a 45-year harvest schedule is: NPV = \$5,087,231 + 681,246.84 + 385,073.30 ? C 35,458,26 NPV = \$6,118,092.40 50-year harvest schedule: Revenue \$64,610,783 Tractor cost \$11,280,000 Road \$4,230,000 Sale preparation & admin \$1,480,500

Excavator piling \$1,200,000 Broadcast burning \$2,287,500 Site preparation \$1,162,500 Planting costs \$1,800,000 EBIT \$41,170,283 Taxes \$14,409,599 Net income (OCF) \$26,760,684 The PV of the first harvest in 30 years is: PV First = \$26,760,684 / (1 + .0608)³⁰ First = \$4,561,202 The effective 50-year interest rate for the project is: 50-year project interest rate = [(1 + .0608)⁵⁰] ? C1 50 year project interest rate = 1,808.52% 50 year interest rate for the conservation funds 50-year conservation interest rate = [(1 + .0659)⁵⁰] ? C1 50-year conservation interest rate = 2,330.24% Present value of future thinning on this schedule, which will be

PV Thinning = \$9,000,000 / 18.0852 PV Thinning = \$497,644.82 The operating cash flow from each harvest on the 50-year schedule is \$26,531,559, so the present value of the cash flows from the harvest are: PV Harvest = [(\$26,760,684 / 18.0852) / (1 + .0608)³⁰] PV Harvest = \$497,644.82 Present value of the conservation fund deposits PV Conservation = ? C\$162,500 ? C \$162,500 / 23.3024 PV Conservation = ? C\$171,485.25 Today's conservation value PV Conservation = ? C\$171,485.25 / (1 + .0659)³⁰ PV Conservation = ? C\$25,283.50 NPV of a 50-year harvest schedule is: NPV = \$4,561,202 + 497,644.82 + 252,206.52 ? C 25,283.0 NPV = \$5,285,770.21 55-year harvest schedule: Revenue \$72,972,113 Tractor cost \$12,600,000 Road \$4,725,000 Sale preparation & admin \$1,653,750

Excavator piling \$1, 200, 000 Broadcast burning \$2, 287, 500 Site preparation \$1, 162, 500 Planting costs \$1, 800, 000 EBIT \$47, 543, 363 Taxes \$16, 640, 177 Net income (OCF) \$30, 903, 186 First harvest in 35 years PV First = $\$30, 903, 186 / (1 + .0608)^{35}$ PV First = \$3, 922, 074

Thinning 55 years from today: 55-year project interest rate = $[(1 + .0608)^{55}]$
 ? C1 55-year project interest rate = 2, 463. 10 55 year conservation fund 55-year conservation interest rate = $[(1 + .0659)^{55}]$? C1 5-year conservation interest rate = 3, 243. 60% Present value of future thinning: PV Thinning = $\$9, 000, 000 / 24.6310$ PV Thinning = \$365, 392. 74 Present values of the cash flows from the harvest are: PV Harvest = $[(\$30, 903, 186 / 24.6310) / (1 + .0608)^{35}]$ PV Harvest = \$159, 233. 03 Present value of the conservation fund deposits: PV Conservation = ? C\$162, 500 ? C \$162, 500 / 32.4360 PV Conservation = ? C\$169, 097. 37 Today's value of the conservation fund PV Conservation = ? C\$169, 097. 37 / $(1 + .0659)^{35}$ PV Conservation = ? C\$18, 121. 00 NPV of a 55-year harvest schedule NPV = \$3, 922, 074 + 365, 392. 74 + 159, 233. 03 ? C18, 121. 00 NPV = \$4, 428, 578. 40