Capital budgeting: cash flow projections of bauer industries - math problem examp...

Finance

Capital Budgeting: Cash flow projections of Bauer Industries

Capital Budgeting Table of Contents Problem 23 a) 3 Problem 23 b) 4 Problem 23 c) 5 Problem 23 d) 6 Reference 8 Problem 23 a) The free cash flow projections of Bauer Industries for the next ten years period are (in million Dollars): Years 0 1 2 3 4 5 6 7 8 9 10 Revenues 100 100 100 100 100 100 100 100 100 100 Manufacturing expenses 35 35 35 35 35 35 35 35 35 35 Marketing Expenses 10 10 10 10 10 10 10 10 10 10 Depreciation 15 15 15 15 15 15 15 15 15 15 EBIT 40 40 40 40 40 40 40 40 40 40 Taxes (35%) 14 14 14 14 14 14 14 14 14 14 Unlevered Net Income 26 26 26 26 26 26 26 26 26 26 Depreciation 15 15 15 15 15 15 15 15 15 15 Increases in Net working 5 5 5 5 5 5 5 5 5 5 Capital expenditures -150 Continuation Values 12 Free Cash flow 36 36 36 36 36 36 36 36 36 48 Based on these cash flows, the NPV of the Bauer Industries' plant to construct lightweight trucks will be the summation of the present values of all the cash flows from year 1 to year 10 discounted back appropriately by the Cost of Capital 12% minus the Capital Expenditure made in the Year 0. As the capital expenditure is marked in negative, the NPV is computed by adding the Capital Expenditure to the summation of the PVs of the ten cash flows (Johnson, n. d.). Present Values of the 10 free cash flows: 32. 14 28. 7 25. 62 22. 88 20. 4 18. 24 16. 3 14. 5 12. 98 15. 45 The deduction of the capital expenditure value from the summation of the above mentioned PVs gives us the project's NPV which is equal to 57. Problem 23 b) Since the management of Bauer is not certain about the forecast of revenue in the coming years, they plan to check the NPV's sensitivity to revenue variations. They consider two cases, one: where

the revenues are 10% higher than the given revenue forecast and two: where the revenues are 10% lower than the mentioned revenue forecast. Case 1) When the revenues are 10% higher than the forecast, then the Free Cash flows are 42. 5 42. 5 42. 5 42. 5 42. 5 42. 5 42. 5 42. 5 54. 5 Present Values are 37. 95 33. 9 30. 3 27 24. 12 21. 53 19. 2 17. 2 15. 33 17. 55 Thus, the project's NPV, when the flow of revenue increases by 10%, would be 94. Case 2) When the revenues are 10% lower than the forecast, then the Free Cash flow are 29. 5 29. 5 29. 5 29. 5 29. 5 29. 5 29. 5 29. 5 41. 5 Present Values are 26. 3 23. 5 21 18. 7 16. 739 14. 9 13. 3 11. 9 10. 6 13. 4 Thus, the project's NPV, when the revenue flow decreases by 10 %, is 21. Problem 23 c) The management of Bauer does not want to assume that the cash flows for the project in the coming years would be stable. They want to check the sensitivity of the NPV of the project to possible growth in the revenue as well as operating expenses. They assume that the revenues, manufacturing expenses and the marketing expenses remain constant in year 1 but increase by 2% per year starting from the 2nd year. They plan to assume that the capital expenditure made initially, the depreciation, working capital additions and the value of continuation are the same as mentioned initially in the table. The values of the Free Cash Flows change with the growth in the revenue and the operating expenses. They are as follows: 36. 00 36. 72 37. 44 38. 19 38. 95 39. 72 40. 51 41. 32 42. 14 54. 97 The present values of the same are 32. 14 29. 27 26. 65 24. 27 22. 10 20. 12 18. 32 16. 69 15. 19 17. 70 The project's NPV will be 72. 46. If they consider the growth rate of revenue, marketing expenses and the manufacturing expenses to be 5% instead of 2%, the free cash flows available would be as

follows: 36. 00 40. 29 45. 09 50. 48 56. 50 63. 25 70. 81 79. 28 88. 77 111. 39 The present values of the same would be: 32. 14 32. 12 32. 10 32. 08 32. 06 32. 05 32. 03 32. 02 32. 01 35. 86 The project’s NPV hence calculated would be 174. 47. Thus, it can be seen that as the growth rate of revenue, manufacturing and marketing expense is changed from 2% to 5%, the NPV of the same project increases by around 102. Problem 23 d) The management of Bauer Industries wants to observe the sensitivity related to the NPV of the project with reference to the discount rate which is the cost of capital for the project. Hence, the Project’s NPV is computed for a range of discount rates starting from 5% going up to 30%. The NPVs are 135 for 5%, 76 for 10%, 34 for 15%, 3 for 20%, -20 for 25% and -38 for 30%. It can be noticed that the NPV of the project becomes negative when the discount rate becomes slightly greater than 20%. Hence, the project has positive value of NPV for 5% to 20% range of discount rate. Reference Johnson, D., (No Date). NPV Analysis. NPV Analysis and Applications for Competitive Intelligence. Retrieved Online on July 20, 2011 from http://www. aurorawdc. com/dlj_cics_npv_analysis. pdf