Boat finance

Finance 1 NETCO case Capital budgeting report Capital Budgeting Report Introduction At present the boat Cynthia II no longer has economic value for NETCO meaning that either an overhaul of said boat has to be financed or a new boat should be purchased. Therefore, an NPV budget decision has to be computed in order to determine which alternative, an overhaul of the current boat or the purchase of a new one, is most profitable. To compare the profitability of these two options we used the difference between the present values of both options and computed only one Net Present Value.

Evidently, the incremental costs and revenues of the purchase of the new boat minus the incremental costs and revenues of the overhaul of the Cynthia II should be taken into consideration. Assumptions Several aspects of both buying decisions were unclear. Therefore, we had to make the following assumptions in order to be able to complete our calculations: All cash flows are in nominal terms, meaning that 3% inflation is included. Year 0 corresponds with 2009, year 1 with 2010 etc.

We compared the depreciation of the new boat with the depreciation of the overhauled Cynthia II, therefore the depreciation is the difference between the depreciation of both options. We calculated depreciation according to the MACRS method, including a 10 year economic life time for both boats. We assumed that the training costs are €75000. We did not include the interest expense in the cash flows, because we wish to evaluate the earning contributions from the projects on their own, separate from the financing decision.

We assumed a discount rate of 13. 5%, which is the sum of a yield to maturity on Treasury Bonds of 3, 5% and a risk premium of 10% (since the yield to maturity is estimated at 3-4%, we assumed an average of 3. 5%). The amount at " Purchase of equipment" is the difference between the purchase of the new boat (€2000000) and the overhauling of the Cynthia II (€600000), which yields a negative cash flow of - € 1, 400, 000. We assumed that changes in the NWC are 0; since the money obtained by the submission of bonds is spent immediately on the new boat.

Estimations predict that the scrap parts of the overhauled Cynthia II can be sold for € 40. 000 after 15 years. Adjusted for a tax loss and for inflation this would come down to a present value of € 46427. 429. Furthermore, the sale of the new boat would yield €400, 000, resulting in a Net Present Value of € 464274. 2901, corrected for both a tax loss and inflation. The difference between these two options is € 464274, 2901 - € 46427. 429 = € 417846. 86 Which is the salvage cash flow at the end of the 15th year. Calculations

There are no incremental revenues in year 0, 2009, thus it has a value of 0 during this time period. In y ear 1 incremental revenues are equal to 100, 000 but this value, as well as in the following years, must be corrected for inflation. Therefore the value of incremental revenues from year 1 onwards is equal to: Incremental Revenues = XXX ? (1+Interest Rate) year Incremental Revenues = 100000 ? 1. 03n Incremental Revenues in Year 1 = 100000 ? 1. 031 = 103000 There are no incremental costs throughout the entire time period therefore we can calculate Incremental gross profit with the following formula:

Incremental Gross Profit = Incremental Revenues + Incremental Costs Incremental Gross Profit in Year 1 = 103000 + 0 = 103000 (Incremental costs are represented by negative cash flows, whereas gain on/less incremental costs are represented by a positive cash flow.) In year 0 there is no cash flow for selling, general and administrative expenses, since the boat is only bought at the end of 2009 (31 December). Selling. General and Administrative Expenses = Operating Expenses New Boat – Operating Expenses of the Overhauled Cynthia II

Given the fact that operating expenses for the new boat are negative € 141, 000 and that the values must be corrected for inflation modifies the previous formula to* Selling, General and Administrative Expenses = -141000 ? 1. 03n In year 0 there is no cash flow for depreciation since the new boat/overhauling of the Cynthia II is done at the end of 2009. Our depreciation calculations can be found in the assumptions and in the excel file. The Cytnhia II is depreciated over a value of €630, 000 since the costs of the overhaul are €600, 000 and the current book value of the Cynthia II is €30, 000.

The gain on the sale of the Cynthia II is the sale value of the Cynthia II can be calculated by: Gain on the Sale of the Cynthia II = Sale value including the spare parts – book value of the spare parts Sale of the Cynthia II = 100000 - The following formula can be used to calculate the incremental free cash flow: Incremental Free Cash Flow = Incremental Earnings + Add Back Depreciation + Purchase of Equipment + Changes in Net Working Capital + Salvage Cash flows. Incremental Free Cash Flow = 82866. 35 + 137000. 00 + 0. 00 + 0. 00 + 0. 00 = 219866. 35 Sensitivity analysis

A sensitivity analysis was included to evaluate the budgeting decision further. The two variables chosen for this analysis are the annual incremental revenue and the discount rate. The width of the discount rate was of 7. 5% through 17. 5% and that of the annual incremental revenue is 94000. 00 through 115000. From the output of the analysis we see that in the worst case the NPV is - 56372, 29 and in the best case the NPV is 983245, 71. Looking at the table as a whole we see that with a discount rate equal or greater than 17. 5 the NPV is negative for all amounts of annual incremental revenue.

It can be concluded from this that the NPV is not very sensitive for different annual incremental revenues. In addition, the NPV is more sensitive to a higher discount rate; however, the discount rate has to be sufficiently higher than the base case we assumed in order to create a negative NPV. In conclusion, looking at the sensitivity analysis this investment seems very profitable and reliable. Conclusion The difference between the Net Present Value of buying a new boat and overhauling the Cynthia II is estimated at € 251394, 02 in favour of buying a new boat.

Therefore, our advice is to purchase a new boat and dispatch the Cynthia II. Unfortunately, there is a limitation regarding this analysis. The results may not be valid if inflation is very different from what we assumed. Moreover, a difference between the estimated sale values and the real sale values of the new boat as well as the Cynthia II will influence our results, although fortunately there is only a small probability that such differences will be large enough to yield a negative NPV.

Appendix We did not receive any comments from Finance group En-2-005. As a consequence, we cannot include any comments of the discussion in our appendix. Nor will it be possible to include our response to comments in the appendix. Therefore, we included the comments of our teacher in the appendix. However, in week 5 we did receive several comments from our teacher. First, the teacher noted that we should depreciate the Cynthia II and the new boat over 10 years instead of over 15 years.

Secondly, we initially computed depreciation by depreciating € 1, 400, 000, the difference between the purchase value of the new boat and the overhaul costs. However, the teacher said that we should depreciate the book value, € 2, 000, 000, and the Cynthia II (including the overhaul costs) separately and compare the difference. Furthermore, our salvage cash flows were incorrect. We have taken another look at them and adjusted them for the tax gains and tax losses. Please find the data tables and the sensitivity analysis in the excel file.