Fly – by – night airlines assignment

Environment, Air

1. 0 EXECUTIVE SUMMARY This assignment consists of two case studies, the Simpson and Selph Ltd and the Fly – by – Nights Airlines.

Case Study 1: The Simpson and Selph Ltd, a small carpet manufacturing company located in Macon, Georgia. The Simpson and Selph Ltd are faced with a replacement of their carpet – binding machine. The Machine to be replaced was purchased five years ago and has depreciated to zero. They have two carpet – binding machines to choose from, the Harley Model, same brand they are replacing and the Davidson. Brian Douglas, a corporate financial analyst for Simpson and Selph Ltd is charged with evaluating the replacement of a carpet – binding machine. They have two sets of the Harley and the Davidson.

Brian Douglas needs to do a financial analysis to consider and choose the appropriate machine for the company. Brian must advise on what machine to be bought that would be a more viable option. Case Study 2: The Fly – by – Night Airlines, a major commercial air carrier offering passenger service between most large cities in the United States. One of its profitable routes is between Los Angeles and New York. Due to the intense competition on this route, Fly – by – Night Airlines considers upgrading the quality of the fleet of Aircraft used on the Los Angeles to New York route.

James " Red" Baron is a supervisor of transcontinental operations for Fly – by – Night Airlines. As it has in the past, Fly – by – Night Airlines plans to purchase all its new planes from Puddle Jumper Aircraft Company. At the moment, Puddle Jumper is marketing three aircrafts, the old reliable PJ-1, the soon to be introduced PJ-2 and PJ-3, the technologically advanced and is still on design. The problem is that to get the other aircrafts, you Page 1 of 17 need to order today and the delivery will be later.

Fly – by – Night is very interested in the newer models (PJ-2 and PJ-3) because they are more fuel efficient and less polluting, requires less maintenance and much quieter than the old PJ-1. James " Red" Baron needs to do a financial analysis to decide to order the new aircrafts or not for the Fly – by – Night Airlines company. James must advise on whether to order the newer aircrafts to be bought that would be a more viable option. Page 2 of 17 2. 0 2. 1 CASE STUDY 1 (SIMPSON AND SELPH LTD) Introduction

Manufacturing companies have a challenge of having a need to purchase equipment that will be used to increase production and produce the required product. The equipment bought has life-cycle when they will have no value at all but still producing the product. The companies that manufacture the equipment have a challenge to produce newer version of equipment that when compared to the old model can produce more using less in everything i. e. time, power, labour etc. Brian Douglas had to evaluate whether it is worthwhile to replace the existing machine with the new advanced models that will increase production and revenue.

When considering replacing equipment, there are restrictions that must be taken into consideration, Infrastructure, Capital Funding, Competition. Both New Machines will increase revenue. In Budgeting, decisions are taken for replacing equipment after comparing asset replacement options and take into account the restrictions stated above. For this case study, we need to make a decision on two options. We will use an internal rate of return (IRR), Net Present Value (NPV), Payback Period and the Profitability Index (PI).

We need to optimise the effect of risk in the process using appropriate discount rates and a consideration needs to be given to the company's cost of capital and the cash flow risk associated with the new machines to be bought. We determine the cost of equity using the dividend growth method and the Security Market line approach. Page 3 of 17 Dividend Growth Method Common Stock Price (P) Forecasted Dividend (D) 4 = 0. 06 Cost of Equity = (D / P) + g = (4 / 42. 625) + 0. 06 = 15. 4% Security Market Line Method Beta (? Risk free rate (Rf) Treasury Bill Market risk premium (Rm) = = = = 1. 2 90 – day 6. 4% 15% = = $ 42. 625 $ 4. 00 G = Growth rate = 0. 033 + 0. 048 + 0. 077 + 0. 071 Cost of Equity = Rf + ? x (Rm – Rf) = 6. 4 + 1. 2 x (15 – 6. 4) = 16. 72% Cost of Dept Cost of Debt = 3 200 000 6 400 000 = 0. 5 = 50% Tax = 11% = 40% (Assumed) W. A. C. C. = 0. 5 x (1 – 0. 4) (11) + 0. 5(16. 72) = 11. 66% *This will be used as our discount rate* Page 4 of 17 Question 1 The New Harley Machine: Sales, Fixed costs, Variable costs and depreciation being straight line depreciation per year are given.

The cost of Purchasing and Installation of the new Harley equipment was given as $ 250 000. 00 + $ 10 000. 00 = $ 260 000. 00. Depreciation = $

260 000. 00 / 5 Capital Expenditure = $ 52 000. 00 per year = New Equipment + Scraping Fee = $ 260 000 + $ 50 000 = $ 310 000 Refer to Exhibit 1 for New Harley Equipment Cash flows The Davidson Machine: Sales, Fixed costs, Variable costs and depreciation being straight line depreciation per year are given. The cost of Purchasing and Installation of the new Harley equipment was given as $ 325 000. 00 + $ 15 000. 00 = $ 340 000. 0. Depreciation = $ 340 000. 00 / 5 Capital Expenditure = $ 68 000. 00 per year = New Equipment + Scraping Fee = $ 340 000 + $ 50 000 = $ 390 000 Refer to Exhibit 2 for the Davidson Machine Cash flows Page 5 of 17 The Project that we are looking for is a project with a higher NPV, IRR and PI and the lowest payback period. But in this case, there conflicting aspects, when looking at the above variables for the perfect selection. A Machine that I can choose is the Davidson Machine. The Net Present Value of this Machine is higher than of the New Harley Machine.

Although the payback is higher than the New Harley and the profitability index is lower than of the New Harley. The Davidson is solely chosen based on the NPV, because NPV is the difference between an investment's market value and its cost. The Payback method is ignored, because it does not cater for risk, only the amount of time required for an investment to generate cash flows to recover its initial costs. QUESTION 2 *Option 1* Refer to Exhibit 3: Discount Rate NPV IRR MIRR Payback PI = = = = = = = 11. 66% – $ 11, 233. 09 10. 59% 10. 31% 4. 3 Years 1. 29 Page 6 of 17 OPTION 2* Refer to Exhibit 4: Discount Rate NPV IRR MIRR Payback PI = = = = = = = 11. 66% $ 24, 207. 76 13. 44% 12. 86% 4. 11 Years 1. 39 We recommend the New Davidson Machine. The NPV of the New Harley is negative, that is why we will choose

the New Davidson Machine as it has a positive NPV. It is clear from the results that the IRR, MIRR, Payback and the PI of the New Davidson are more than the IRR, MIRR, Payback and the PI of the New Harley Machine. QUESTION 3 *New Davidson with 2% More Risk* Refer to Exhibit 5 Discount Rate NPV IRR MIRR Payback = = = = = 13. 66% $ 395, 175. 70 43. 0% 29. 20% 2. 15 Years Page 7 of 17 *New Harley with 2% Less Risk* Refer to Exhibit 6 Discount Rate NPV IRR MIRR Payback = = = = = 9. 66% $ 448, 352. 82 48. 90% 30. 66% 1. 90 Years We recommend the New Harley Machine. The NPV of the New Harley is more than the NPV of the New Davidson when the risks are considered. This shows us why we will choose the New Harley Machine over the Davidson Machine as the New Harley Machine has a More NPV Value. It is clear from the results that the IRR, MIRR and Payback of the New Harley are more than the IRR, MIRR and Payback of the New Davidson Machine.

Page 8 of 17 3. 0 3. 1 CASE STUDY 2: (FLY – BY – NIGHT AIRLINES) Introduction Fly – by – Night Airlines is a major commercial air carrier offering passenger service between most large cities in the United States. One of its more profitable routes is between Los Angeles and New York. Almost all existing companies want to remain in business and competitive, the Airlines companies should regularly replace and upgrade the Airlines. James " Red" Baron is a supervisor of transcontinental operations for Fly – by – Night Airlines.

As it has in the past, Fly – by – Night Airlines plans to purchase all its new planes from Puddle Jumper Aircraft Company. At the moment, Puddle Jumper

is marketing three aircrafts, the old reliable PJ-1, the soon to be introduced PJ-2 and PJ-3, the technologically advanced and is still on design. The problem is that to get the other aircrafts, you need to order today and the delivery will be later. Fly – by – Night is very interested in the newer models (PJ-2 and PJ-3) because they are more fuel efficient and less polluting, requires less maintenance and much quieter than the old PJ-1.

James " Red" Baron needs to do a financial analysis to decide to order the new aircrafts or not for the Fly – by – Night Airlines company. James must advise on whether to order the newer aircrafts to be bought that would be a more viable option. James Baron has three options, to keep the PJ 1, buy the new PJ 2 and PJ 3. He uses a 15 year planning horizon for all options. The orders must be placed soon and be paid for. James now will need to establish is it worth to continue using PJ 1 for (3) three more years and replacing them with PJ 2 for the next (12) twelve years.

Option B is the same as option A, but to replace PJ 2 after the sixth year with the PJ 3 and use them for the Page 9 of 17 remainder of (9) Nine years or to continue with PJ 1 for (06) six years and replace them with PJ 3 for the remaining (09) Nine years as option C. The price tickets will be same, regardless of the Aircraft used, but will increase at 4% per annum. The fuel price will increase at about 9%, and is assumed that the national economy will behave consistently, the demand will remain the same and the level of competition will be fixed. Question 1 No. f PJ – 2 Planes Required: No. of Passengers (Minimum) Capacity per Plane (PJ 2) No. of Flights per year (PJ 2) Annual Plane Capacity = = = No of PJ 2 Planes Req. = = = Say = = = = 300

000 250 320 Capacity per Plane x No. of Flights 250 x 320 80, 000 No. of Passengers Annual Plane Capacity 300, 000 / 80, 000 3. 75 4 Planes No. of PJ – 3 Planes Required: No. of Passengers (Minimum) Capacity per Plane (PJ 2) No. of Flights per year (PJ 2) = = = 300 000 350 335 Page 10 of 17 Annual Plane Capacity = = = No of PJ 2 Planes Req. = = = Say Question 2 REVENUES: No. of PJ 1 Planes =

Capacity per Plane x No. of Flights 350 x 335 117, 250 No. of Passengers Annual Plane Capacity 300, 000 / 117, 250 2. 56 3 Planes = = 5 5 x 200 x 300 x 0. 95 285, 000 4 4 x 250 x 320 x 0. 90 288, 000 3 3 x 350 x 335 x 0. 82 288, 435 = 5 = = 5 x 200 x 300 x 0. 92 276, 000 Passengers carried per year (PJ 1) = No. of PJ 2 Planes = = No. of PJ 3 Planes = = Passengers carried per year (PJ 1) Passengers carried per year (PJ 3) = Passengers carried per year (PJ 2) = No. of PJ 1 Planes (After Intro of PJ 2 or 3) The Cost of ticket is $ 400. 00 per passenger, and will increase at 4% per annum.

Refer to Exhibit 1, ticket revenues are computed that would be generated by Fly – by – Night in each year over the 15 year period. Page 11 of 17 Question 3 OPERATING COSTS: PJ – 1 Planes: No. of Flights = 5 x 300 = 1, 500 Annual Fuel Consumption (in Gallons) = No. of Flights x gallons consumed = 1 500 x 4 000 = 6, 000, 000 PJ – 2 Planes: No. of Flights = 4 x 320 = 1, 280 Annual Fuel Consumption (in Gallons) = No. of Flights x gallons consumed = 1 280 x 3 000 = 3, 840, 000 PJ – 3 Planes: No. of Flights = 3 x 335 = 1, 005 Annual Fuel Consumption (in Gallons) = No. f Flights x gallons consumed = 1 005 x 2 000 = 2, 010, 000 The Fuel cost is $0. 55 per Gallon by year end and will increase by 9% per year. Maintenance costs will be $ 60, 000 per day Page

12 of 17 MAINTENANCE COSTS: PJ – 1 Planes: Maintenance cost / Year = Maintenance cost/plane x No. of = = PJ – 2 Planes: Maintenance cost / Year = Maintenance cost/plane x No. of = = PJ – 3 Planes: Maintenance cost / Year = Maintenance cost/plane x No. of = = UPGRADING COSTS: PJ – 1 Planes: Upgrading cost / Year = Upgrading cost/plane/year x No. of Planes = = PJ – 2 Planes: Upgrading cost / Year = Upgrading cost/plane/year x No. f Planes = = $ 50, 000 x 4 $ 200, 000 $ 100, 000 x 5 $ 500, 000 $ 60, 000 x 3 x 20 $ 3, 600, 000 Planes x Maintenance time / year $ 60, 000 x 4 x 30 $ 7, 200, 000 Planes x Maintenance time / year $ 60, 000 x 5 x 40 $ 12, 000, 000 Planes x Maintenance time / year Page 13 of 17 PJ – 3 Planes: Upgrading cost / Year = Upgrading cost/plane/year x No. of Planes = = $ 16, 666. 67 x 3 $ 50, 000. 01 The Personnel Costs are simply 0. 85% of the Annual revenues. Exhibit 2 – 4 shows the calculation of the Fuel Cost, Maintenance Cost, Upgrading Cost and Personnel Costs for each Option.

Question 4 – 5 Refer to Exhibit 5 – 7, NPV values are calculated for each option Question 6 The Viable option that James " Red" Baron would choose would be option A. It is practically make sense. Buying an Asset that costs too much, and be used for only a short time doesn't make business sense. Although the maintenance costs and the fuel consumption are low for option B and C, Option A sounds well, and for James, he must choose option A as it yields a higher NPV than option B and C. 4. 0 CONCLUSION AND RECOMMENDATIONS In Budgeting, various aspects of Budgeting tools are considered before making a decision.

The NPV indicates the shareholders value in a company. To increase the company's wealth, you need to increase the NPV, the higher the NPV, the Higher the share price plus dividends. The NPV method is recommended to be used, especially when you want to choose the best project. Page 14 of 17

5. 0 BIBLIOGRAPHY ? Firer C. , Ross S. A. , Westerfield R. W. and Jordan B. D. , Fundamentals of Corporate Finance, (Third South African Edition, 2004) (McGraw – Hill International Edition) ? Steyn P. G. Prof; Maritz M. Prof. , Financial Management of Corporate Projects and Programmes, Module M6 Page 15 of 17 Page 16 of 17