Capital budget

Please offer your recommendations, based on (a) (b) (c) (d) the payback period method; the IRR method; the pro? tability index method; and the NPV method. 3. Case Study: Randgold Resources plc Randgold resources plc is a London Stock Exchange gold mining and discovery ? rm with almost all its activities centred in Africa. This case study concerns a hypothetical gold discovery of 300, 000 ounces of gold in the Mwanza region at the north tip of Tanzania. Randgold can only extract 50, 000 ounces per year from the Mwanza mine and variable extraction costs are a function of the gold price.

The gold price is expected to evolve as follows: 1 Cases and Exercises for Value and Capital Budgeting Year Gold price 1 $1, 070 2 $1, 120 3 $1, 200 4 $1, 100 5 $1, 000 6 $950 The discovery comes on the heels of a massive ? ve-year exploration and discovery programme that cost $20 million. Although the exploration and discovery programme has now been completed, the ? rm still need to pay $8 million this year and $5 million next year (year 1) as a delayed payment to suppliers. Randgold will need to lease the land from the Tanzanian government for $10 million per annum.

Mining equipment and mining quarters (spanning ? ve miles) will need to be constructed at the cost of $70 million and this should be depreciated using 20 per cent reducing balances over the 6 year project. Assume that the equipment and mining quarters can be sold for only 20 per cent of residual value at the end of the project. The workforce will cost $10 million per annum but 30 per cent of the workforce will come from existing operations elsewhere in Africa. If the Mwanza mine is not put into operation, the workforce that comes from existing operations would lose their jobs.

Working capital is expected to increase by $8 million at the start of the project and this will fall to zero at the end of the project. The effective tax rate of Randgold Resources is 28 per cent and the appropriate discount rate is 20 per cent. (a) Is it worthwhile for Randgold Resources to start production? Use three investment appraisal methods to justify your answer. (b) What are the main risk factors facing Randgold Resources in the mining project? Discuss these in detail. 4. We are evaluating a project that costs ? 896, 000, has an eight-year life, and has no salvage value.

Assume that depreciation is 20% reducing-balance method. Sales are projected at 100, 000 units per year. Price per unit is ? 38, variable cost per unit is ? 25, and ? xed costs are ? 900, 000 per year. The tax rate is 35%, and we require a 15% return on this project. (a) Calculate the accounting break-even point. (b) Calculate the base-case cash ? ow and NPV. What is the sensitivity of NPV to changes in the sales ? gure? Explain what your answer tells you about a 500-unit decrease in projected sales. (c) What is the sensitivity of OCF to changes in the variable cost ? gure?

Explain what your answer tells you about a ? 1 decrease in estimated variable costs. (d) Suppose the projections given for price, quantity, variable costs and ? xed costs are all accurate to within ±10%. Calculate the best-case and worst-case NPV ? gures. 5. The ? rm SENSITIVITY is studying the realisation of a project of launching a new toothpaste. The Marketing Department indicates the following estimations (in thousands of euros): Parameter Sales (quantity) Advertisement costs Sales price Value 1, 450 tonnes 10% of sales 5/tonne 2 Cases and Exercises for Value and Capital Budgeting.