

Finance 340 – Financial Management I

Summer 2002

Final Exam Sample Problems

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T-Th 1:30-4:30

- 1) Fernie Mining Corporation 7% semiannual coupon bonds are currently trading at \$1,050; they have 12 years remaining until maturity. Fernie preferred stock has a par value of \$100 with a 8.25% promised dividend, paid quarterly; the preferred stock is currently trading at \$110 per share. Fernie common stock currently sells for \$45 per share. Its latest dividend was \$5.19 per share; dividends are expected to grow by 4% per year for the foreseeable future.

The risk-free rate is currently 4.5% and average return on the market as a whole is 12.5%. Fernie's beta is 1.31.

When using the bond-yield-plus-risk-premium approach, Fernie assumes that its common equity requires a 9.1% risk premium over its own bonds.

Fernie's corporate marginal tax rate is 40%, and its capital structure includes 50% common equity, 35% debt, and 15% preferred stock.

Fernie is considering two different technologies for a new mine it will be opening next year. These technologies are mutually exclusive, so one of the two can be implemented.

Technology A will require an initial investment of \$2.5 million, and will generate annual net revenues of \$750,000 for each the first 3 years and \$300,000 for each of the following 7 years.

Technology B is more expensive to implement, but will allow the mine to be more productive longer. This technology will require an initial investment of \$3.3 million, and will generate revenues of \$625,000 for each of the next 10 years.

- What is Fernie's weighted average cost of capital (WACC)? Hint: In calculating the cost of Fernie's equity, take the average of the values calculated based on the discounted cash flow, CAPM, and bond-yield-plus-risk-premium approaches.
- Calculate the payback period for each technology. If Fernie requires any project to pay back its initial investment within 4 years, which technology will it accept?
- Calculate the discounted payback period *for Technology A only* given the WACC calculated in part *a*.
- Calculate the net present value (NPV) of each technology. Based on this method, which of these two technologies should Fernie choose?
- Calculate the internal rate of return (IRR) for each technology. Based on this method, which of these two technologies should Fernie choose?
- Calculate the modified internal rate of return (MIRR) for each technology. Which should be chosen based on this method?

- g) If you have done everything correctly thus far, you should have a conflict between the IRR and NPV methods. In light of these conflicting recommendations, which technology should be chosen? Explain.