2.3.5 Modcon Part 2

Exercise Answer

Unit: Unit 1 – Treasury Strategy

Module: Module 2 – Risk and return

Date: 1 September 2015

Summary: Answers to exercise based on a proposal to build a housing project in Qatar requiring application of project appraisal techniques.

Answer 1

a) Refer to the spreadsheet 2.3.4 Modcon Part 2… to check your cash flow analysis. Select the Modcon Answer tab.

b) Geared analysis with free access to cash flows. Cannot solve the IRR because there are two sign changes and actually no solution – see sensitivity graph.

   If you plug the first loan draw-down so that net cash in year 1 is Nil (and draw the balance the next year) you achieve a 61% IRR.

c) The geared (return to shareholders) IRR is 61%, whereas the un-geared (overall project) IRR is 20.36%. This is an excellent return for the shareholders, but highly leveraged and therefore risky. In fact it is too good to be true because the early extraction of free cash increases the risk to the bank, who would not allow it.

Answer 2

a) Refer to the spreadsheet 2.3.4 Modcon Part 2… for the shareholder cash flow analysis.

b) Shareholder analysis – the IRR is reduced to 30.4% because cash is trapped in the project company by lender and legal restrictions - much of it until the company is wound up at year 10. The model assumes a final dividend of cash on hand with no liquidation costs. The risk to the bank is thereby reduced but at a big cost to the shareholders. The IRR of 30% looks like a good return for this high risk project, but the shareholders have to wait essentially until the loan has been repaid (i.e. until year 7), to get their return.

c) Required rate of return:

   i) The debt costs 8%, and we have a risk-free rate of 6%, an equity premium of 5% and an asset beta for a housing project of 0.9. Recall that Qatari tax is Nil%, and that the funding mix is 1 Equity to 8 Debt.

      Geared beta = 0.9 x (1 + (1 x 8)) = 8.1
      i.e.: raw beta x (1 + {(1-0% tax rate) x 8 debt/1 equity}
      And the required return on leveraged equity = 6 + (8.1 x 5) = 46.5%

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Note the effect of a tax rate of zero - more risk to shareholders because the cost of interest is gross.

ii) With reference to the un-geared analysis the required rate of return would be as follows:

Note first, the un-geared cost of equity

Un-geared cost of equity = 6 + (0.9 x 5) = 10.5%
The geared cost of equity, from above = 46.5%

NB. In the absence of taxes gearing does not bring down the weighted cost of capital (provided the cost of debt is equal to the risk - free rate of 6%)

Check: Geared WACC (6%) = $(\frac{8}{9} \times 6) + (\frac{1}{9} \times 46.5) = 10.5\%$

iii) But since debt actually costs 8%

Geared WACC (8%) = $(\frac{8}{9} \times 8) + (\frac{1}{9} \times 46.5) = 12.3\%$

The 20.36% project return beats this easily.

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