

# Homework — Company Valuation: Discounted Cash Flow

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*Optional. Worked solutions are on the website*

## Practice problems

### 9.1

1. Explain in three sentences what genuinely differs between valuing a five-year project and valuing a going-concern company.
2. A company's income statement shows operating profit of KSh 120M, which includes KSh 9M of interest earned on cash and a KSh 14M gain on the sale of a building. What EBIT figure should be used in a DCF, and what happens to the two excluded items?
3. State the difference between free cash flow to the firm and free cash flow to equity, and say which discount rate belongs with each.
4. Rift Valley Cooling earns 55% of its revenue from recurring service contracts. Explain why an acquirer would care about that proportion, and name two things you would want to know about those contracts.

### 9.2

1. A company has revenue of KSh 600M growing at 8%, an EBIT margin of 12%, depreciation of KSh 25M, capex of KSh 30M, working-capital intensity of 15% of the revenue change, and a 30% tax rate. Compute FCFF for Years 1 and 2.
2. A growing company reports capital expenditure below depreciation for three forecast years. Explain why this is a diagnostic rather than automatic proof of error, and name the reinvestment evidence you would reconcile before accepting the forecast.
3. An analyst forecasts a company growing at 22% a year for ten years, ending at a terminal growth rate of 3%. Describe two problems with this forecast.
4. Rift Valley Cooling's explicit forecast contributes KSh 161.9M of a KSh 480M asking price. Explain what this implies about where the analytical effort should go, and name the two assumptions that will matter most.

### 9.3

1. A firm's Year 5 FCFF is KSh 80M, its Year 5 EBITDA is KSh 145M, the WACC is 15% and terminal growth is 6%. Compute the perpetuity terminal value and the implied exit multiple. Comparable firms trade at  $7\times$  EBITDA — what does the comparison tell you?
2. A model uses 4% terminal growth in a market with 3% inflation. Compute the implied real growth rate and comment on whether it is defensible for a mature manufacturer.

3. Explain when liquidation value is the appropriate terminal-value method, and what it means if it exceeds the going-concern value.
4. An analyst's perpetuity terminal value implies an exit multiple of  $14\times$  while comparable transactions have occurred at  $6\times$ . List three things that could explain the gap and say which you would investigate first.

#### 9.4

1. A firm has an enterprise value of KSh 900M, debt of KSh 220M, cash of KSh 40M, a 25% minority interest in a consolidated subsidiary valued at KSh 60M, and an equity stake in an associate worth KSh 55M. Compute equity value.
2. Explain in three sentences why cash is added in the bridge rather than being included in the DCF.
3. A distressed firm has KSh 400M of debt at face value, trading at 55 cents on the dollar. Its enterprise value is KSh 500M. Compute equity value using book and market debt, and say which is correct and why.
4. An analyst leaves interest income inside EBIT and also adds cash in the bridge. Describe the error, state its direction, and estimate its size for a firm with KSh 100M of cash earning 9% at a 14% WACC.

#### 9.5

1. For each firm, state whether business risk, financial risk, or country risk dominates: (a) a debt-free tobacco company with stable demand; (b) a highly levered property developer; (c) a mobile-money operator in a country with an unstable regulator; (d) a start-up with no revenue and no debt.
2. Explain in four sentences why debt increases the risk of a firm's equity without changing its operating cash flows.
3. A regulated water utility carries debt equal to 65% of its value; a software start-up carries none. Explain why the utility's equity may still be less risky.
4. A privately held Ugandan logistics company is being valued at a WACC of 19%. Ugandan government bonds of similar tenor yield 16%. Explain what the difference between those two numbers represents, why a gap of that size should concern you for a company of this kind, and estimate a range you would consider more defensible.

#### 9.6

1. A firm's terminal value is  $FCFF_6 / (WACC - g)$  with  $FCFF_6 = \text{KSh } 60\text{M}$ . Compute the terminal value at WACC of 13%, 15%, and 17%, with  $g$  at 5% and 7%. Present the six results as a grid.
2. Using your grid, explain why the effect of a change in WACC is larger when  $g$  is high.
3. Rift Valley Cooling's equity value ranges from KSh 367M to KSh 696M across the grid. Explain why this is not a criticism of the analysis.

4. Write a four-sentence recommendation to a client considering a business at an asking price that sits in the middle of your sensitivity range.
5. A family-owned freight forwarder in Lagos is being acquired. The managing director, who is also the majority shareholder, retires on completion, and the two customer relationships producing 60% of revenue are personally his. Explain why a sensitivity grid over discount rate and growth does not capture this risk at all, and describe two deal structures that would address it.