# **List of Equations** (Chapters 8 to 12)

## Chapter 8

8.1. NPV = PV – required investment

8.2. $$\text{Profitability index} = \frac{\text{net present value}}{\text{initial investment}}$$

8.3. $$\text{Equivalent annual annuity} = \frac{\text{present value of costs}}{\text{annuity factor}}$$

8.3a. $$\text{annuity factor}: \left[\frac{1}{r} - \frac{1}{r(1+r)^t}\right]$$

## Chapter 9

9.1. Total cash flow = cash flows from capital investments
+ cash flows from changes in working capital
+ operating cash flows

9.2. Operating cash flow = revenues – cash expenses – taxes

9.3. Operating cash flow = after-tax profit + depreciation

9.4. Operating cash flow = (revenues – cash expenses) × (1 – tax rate)
+ (tax rate × depreciation)

## Chapter 10

10.1.

$$\text{Break - even level of revenues} = \frac{\text{fixed costs including depreciation}}{\text{additional profit from each additional dollar of sales}}$$

10.2. $$\text{DOL} = \frac{\text{percentage change in profits}}{\text{percentage change in sales}}$$

10.3. $$\text{DOL} = 1 + \frac{\text{fixed costs}}{\text{profits}}$$

## Chapter 11

11.1. $$\text{Precentage return} = \frac{\text{Capital gain+Dividend}}{\text{Initial share price}}$$

11.2. Variance = average of squared deviations around the average

11.3. Standard deviation = square root of variance

11.4. Portfolio rate of return = (fraction of portfolio in 1st asset × rate of return on 1st asset) + (fraction of portfolio in 2nd asset × rate of return on 2nd asset)

## Chapter 12

12.1. Beta of portfolio = (fraction of portfolio in 1st stock × beta of 1st stock) + (fraction of portfolio in 2nd stock × beta of 2nd stock)

12.2. Expected return = risk-free rate + risk premium

$r = r_f + \beta \cdot (r_m - r_f)$