Chapter Preview: Chapter 10

Answer the following questions briefly:

1. Explain the following terms:
   1. Volatility

[Answer]

Volatility is a statistical measure of returns for a given security or market index. It represents how greatly an asset’s price swing around the mean price.

* 1. Common risk, independent risk

[Answer]

The risk with strong correlation is called the common risk. On the other hand, if there is no correlation between factors, it is called the independent risk.

* 1. Firm-Specific, Systematic Risk

[Answer]

Systematic risk affects overall industries and companies.

Firm-Specific risk affects specific industries or companies. There are two factors that are related to the business aspect and financial aspect.

Diversifying risk can minimize firm-specific risks.

* 1. Risk premium

[Answer]

The greatest return that someone expects to see on an investment that requires them to take on greater risk.

Investment returns an asset is expected to yield in excess of the risk-free rate of return.

* 1. Market risk premium

[Answer]

Additional return that an investor can expect when taking on an investment that has a greater risk than U.S. Treasury bonds. In other words, it is the difference between the expected return on a market portfolio and the risk-free rate.

* 1. Efficient portfolio and a market portfolio.

[Answer]

Efficient portfolio is the portfolio which has the lowest risk compared to other portfolios with similar levels of return. It means that the portfolio cannot minimize risk more by diversifying.

A market portfolio is a theoretical portfolio that includes all investable assets in the market, weighted by their market values.

1. Explain why the risk premium of diversifiable risk is zero.

[Answer]

The risk premium for diversifiable risk is zero because rational investors can avoid it through diversification, and the market only compensates investors for bearing systematic risk, which cannot be diversified away.

1. Define the beta of a security.

[Answer]

Beta is a coefficient that represents how sensitive a particular Securities (stock) is to the movement of the market as a whole (e.g., S&P 500). In other words, when a market return changes 1%, it measures how much the stock's return changes on average.

Beta refers to how sensitive a particular stock is to market-wide movements and is an indicator of the degree of systemic risk it has.

1. How can you use a security’s beta to estimate its cost of capital?

[Answer]

The larger the beta of a stock, the more sensitive it is to market changes, so investors demand a higher return (reward).

Thus, beta allows us to quantitatively estimate the return (cost of capital) required by investors for that stock.

The typical model used at this time is the CAPM (Capital Asset Pricing Model).

Solve the following problem in the textbook.

Problems in chapter 8 #5 (p. 297)

After looking at the projections of the HomeNet project, you decide that they are not realistic. It is unlikely that sales will be constant over the four-year life of the project. Furthermore, other companies are likely to offer competing products, so the assumption that the sales price will remain constant is also likely to be optimistic. Finally, as production ramps up, you anticipate lower per unit production costs resulting from economies of scale. Therefore, you decide to redo the projections under the following assumptions: Sales of 50,000 units in year 1 increasing by 50,000 units per year over the life of the project, a year 1 sales price of $260/unit, decreasing by 10% annually and a year 1 cost of $120/unit decreasing by 20% annually. In addition, new tax laws allow 100% bonus depreciation (all the depreciation expense occurs when the asset is put into use, in this case immediately).

1. Keeping the other assumptions that underlie Table 8.1 the same, recalculate unlevered net income (that is, reproduce Table 8.1 under the new assumptions, and note that we are ignoring cannibalization and lost rent).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Incremental Earnings Forecast ($000s)** | **Year 0** | **Year 1** | **Year 2** | **Year 3** | **Year 4** |
| **Sales** | — | 13,000 | 23,400 | 31,590 | 37,908 |
| **Cost of Goods Sold** | — | -6,000 | -9,600 | -11,520 | -12,288 |
| **Gross Profit** | — | 7,000 | 13,800 | 20,070 | 25,620 |
| **Selling, General, and Admin** | — | -2,800 | -2,800 | -2,800 | -2,800 |
| **Research & Development** | -15,000 | — | — | — | — |
| **Depreciation** | -15,000 | 0 | 0 | 0 | 0 |
| **EBIT** | -30,000 | 4,200 | 11,000 | 17,270 | 22,820 |
| **Income Tax at 20%** | 6,000 | -840 | -2,200 | -3,454 | -4,564 |
| **Unlevered Net Income** | -24,000 | 3,360 | 8,800 | 13,816 | 18,256 |

[Answer]

1. Recalculate unlevered net income including lost rent and assuming that each year 20% of sales comes from customers who would have purchased an existing Cisco router for $100/unit and that this router costs $60/unit to manufacture.

[Answer]

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Incremental Earnings Forecast ($000s)** | **Year 0** | **Year 1** | **Year 2** | **Year 3** | **Year 4** |
| **Sales** | — | 13,000 | 23,400 | 31,590 | 37,908 |
| **Cost of Goods Sold** | — | -6,000 | -9,600 | -11,520 | -12,288 |
| **Gross Profit** | — | 7,000 | 13,800 | 20,070 | 25,620 |
| **Selling, General, and Admin** | — | -2,800 | -2,800 | -2,800 | -2,800 |
| **Research & Development** | -15,000 | — | — | — | — |
| **Depreciation** | -15,000 | 0 | 0 | 0 | 0 |
| **Cannibalization Loss** | — | -400 | -800 | -1,200 | -1,600 |
| **EBIT** | -30,000 | 3,800 | 10,200 | 16,070 | 21,220 |
| **Income Tax at 20%** | 6,000 | -760 | -2,040 | -3,214 | -4,244 |
| **Unlevered Net Income** | -24,000 | 3,040 | 8,160 | 12,856 | 16,976 |