CHAPTER 17 INTERNATIONAL CAPITAL STRUCTURE AND THE COST OF CAPITAL
SUGGESTED ANSWERS AND SOLUTIONS TO END-OF-CHAPTER
QUESTIONS AND PROBLEMS

QUESTIONS

1. Suppose that your firm is operating in a segmented capital market. What actions would you recommend to mitigate the negative effects?

Answer: The best solution for this problem is to cross-list your firm’s stock in overseas markets like London and New York that are not segmented. But you should be aware of the associated costs such as the cost of adjusting financial statements, fees charged by the listing exchanges, etc.

2. Explain why and how a firm’s cost of capital may decrease when the firm’s stock is cross-listed on foreign stock exchanges.

Answer: If a stock becomes internationally tradable upon overseas listing, the required return on the stock is likely to go down because the stock will be priced according to the international systematic risk rather than the local systematic risk. It is well known that for a typical stock, the international systematic risk is lower than the local systematic risk.

3. Explain the pricing spill-over effect.

Answer: Suppose a firm operating in a segmented capital market (like China, for example) decides to cross-list its stock in New York or London. Upon cross-border listing, the firm’s stock will be priced internationally. In addition, the pricing of remaining purely domestic stocks (other Chinese stocks) will be affected in such a way that these stocks will be priced partially internationally and partially domestically. The degree of international pricing depends on the correlations between these purely domestic stocks and internationally traded stocks.
4. In what sense do firms with nontradable assets get a free-ride from firms whose securities are internationally tradable?

Answer: Due to the spillover effect, firms with nontradable securities can benefit in terms of higher security prices and lower cost of capital, without incurring any costs associated with making the securities internationally tradable. This is an example of free-ride.

5. Define and discuss indirect world systematic risk.

Answer: The indirect world systematic risk can be defined as the covariance between a nontradable asset and the world market portfolio that is induced by tradable assets. In the presence of internationally tradable assets, nontradable assets will be priced partly by the indirect world systematic risk and partly by the pure domestic systematic risk.

6. Discuss how the cost of capital is determined in segmented vs. integrated capital markets.

Answer: In segmented capital markets, the cost of capital will be determined essentially by the securities’ domestic systematic risks. In integrated capital markets, on the other hand, the cost of capital will be determined by the securities’ world systematic risk, regardless of nationality.

7. Suppose there exists a nontradable asset with a perfect positive correlation with a portfolio T of tradable assets. How will the nontradable asset be priced?

Answer: The nontradable asset with a perfect positive correlation with portfolio T (for tradable) will be priced as if it were tradable by itself. In a word, it will be priced solely according to its world systematic risk.

8. Discuss what factors motivated Novo Industries to seek U.S. listing of its stock. What lessons can be derived from Novo’s experiences?
Answer: Novo, a rapidly growing company, was domiciled in a small and segmented Danish market. This restricted the firm’s ability to raise capital at a competitive rate. As discussed in the text, Novo solved this problem by listing its stock in London and New York stock exchanges. This move enabled Novo to gain access to large capital sources and lower its cost of capital.

9. Discuss foreign equity ownership restrictions. Why do you think countries impose these restrictions?

Answer: Many countries restrict the maximum fractional ownership of local firms by foreigners. Mostly, these restrictions are imposed to ensure domestic control of local firms.

10. Explain the *pricing-to-market phenomenon*.

Answer: The pricing-to-market (PTM) refers to the phenomenon that the same securities are priced differently for different investors. A well-known example of PTM is provided by Nestle. Up until 1988 November, foreigners were only allowed to hold Nestle bearer shares; only Swiss residents were allowed to hold registered shares. As indicated in Exhibit 16.11 in the text, bearer shares were trading for about twice the price of registered shares.

11. Explain how the premium and discount are determined when assets are priced-to-market. When would the law of one price prevail in international capital markets even if foreign equity ownership restrictions are imposed?

Answer: The premium and discount are determined by (I) the severity of restrictions imposed on foreigners and (ii) foreigners’ ability to mitigate the effect of these restrictions using their own domestic securities. In a special case where foreigners can exactly replicate the securities under restriction, then PTM will cease to apply.

12. Under what conditions will the foreign subsidiary’s financial structure become relevant?

Answer: The subsidiary’s own financial structure will become relevant when the parent firm is not responsible for the financial obligations of the subsidiary.
13. Under what conditions would you recommend that the foreign subsidiary conform to the local norm of financial structure?

Answer: It may make sense for the subsidiary to confirm to the local norm if the parent is not responsible for the subsidiary’s debt and the subsidiary has to depend on local financial markets for raising capital.

PROBLEMS

Answer problems 1-3 based on the stock market data given by the following table.

<table>
<thead>
<tr>
<th></th>
<th>Telmex</th>
<th>Mexico</th>
<th>World</th>
<th>SD(%)</th>
<th>$\bar{R}$ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telmex</td>
<td>1.00</td>
<td>.90</td>
<td>0.60</td>
<td>18</td>
<td>?</td>
</tr>
<tr>
<td>Mexico</td>
<td>1.00</td>
<td>0.75</td>
<td>1.00</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>World</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>

The above table provides the correlations among Telmex, a telephone/communication company located in Mexico, the Mexico stock market index, and the world market index, together with the standard deviations (SD) of returns and the expected returns ($\bar{R}$). The risk-free rate is 5%.

1. Compute the domestic country beta of Telmex as well as its world beta. What do these betas measure?
2. Suppose the Mexican stock market is segmented from the rest of the world. Using the CAPM paradigm, estimate the equity cost of capital of Telmex.
3. Suppose now that Telmex has made its shares tradable internationally via cross-listing on NYSE. Again using the CAPM paradigm, estimate Telmex’s equity cost of capital. Discuss the possible effects of international pricing of Telmex shares on the share prices and the firm’s investment decisions.
Solutions.

1. The domestic beta, $\beta^M_T$, and the world beta, $\beta^W_T$, of Telmex can be computed as follows:

$$\beta^M_T = \frac{\sigma_{TM}}{\sigma^2_M} = \frac{\sigma_T \sigma_{TM}}{\sigma^2_M} = \frac{(18)(15)(0.9)}{(15)^2} = \frac{243}{225} = 1.08$$

$$\beta^W_T = \frac{\sigma_{TW}}{\sigma^2_W} = \frac{\sigma_T \sigma_{TW}}{\sigma^2_W} = \frac{(18)(10)(0.6)}{(10)^2} = \frac{108}{100} = 1.08$$

Both the domestic and world beta turn out to be the same. As the market moves by 1%, Telmex stock return will move by 1.08%.

2. $\bar{R}_T = R_f + (\bar{R}_M - R_f) \beta^M_T$

   $= 5 + (14 - 5)(1.08) = 14.72\%$

3. $\bar{R}_T = R_f + (\bar{R}_W - R_f) \beta^W_T$

   $= 5 + (12 - 5)(1.08) = 12.56\%$

As the equity cost of capital decreases from 14.72% to 12.56%, Telmex will experience an increase in its share price. In addition, Telmex will be able to undertake more investment projects profitably.