Chapter 10: Global Cost of Capital and Financial Structure

Review of WACC & Portfolio Theory

Demand for Foreign Securities
• Case: Nestlé

Cost and Availability of Capital: Liquidity and Segmentation

The Effect of Going Global
• Case: Novo

MNEs vs. Domestic Firms on Cost of Capital

Foreign Affiliates

Exercises: 1 & 3

The Weighted Average Cost of Capital (WACC)

What discount rate should a firm use to evaluate new investment projects?

1. Let’s assume that marginal cost of capital equals average cost of capital.
2. Let’s assume that the firm’s financial structure (e.g. D/E) is optimal.

\[ WACC = \bar{r}_{Equity} \cdot \frac{E}{V} + \bar{r}_{Debt} \cdot (1 - t) \cdot \frac{D}{V} \]

• \( V = D + E \).
• \( E, D \) are market values
• \( t \) is the marginal tax rate (interest payments deductible.)
The Portfolio Approach to Asset Demand

Investors maximize return for a given risk.

Assumption: The risk investors care about is that of their whole portfolio

Implications:
1. Investors will seek to diversify their holding across many assets.
2. Investors will demand a higher return for riskier assets, or more precisely, for assets that make their portfolio riskier.
3. The risk that matters is the market or non-diversifiable risk.

Result is CAPM

\[ \bar{r}_{Equity} = r_{riskfree} + (\bar{r}_m - r_{riskfree}) \cdot \beta_{Equity} \]

\[ \beta_{Equity} = \frac{\text{Cov}(r_{Equity}, r_m)}{\text{Var}(r_{Market})} \]

This gives us the \( \bar{r}_{Equity} \) to use in WACC.

CAPM vs International Finance

How does CAPM change as we move national => international context?

The key is the set of stocks from which investors get to build portfolios.

- international context contains all domestic stocks plus more, so international investors can better diversify (face less risk), get higher \( r \).
- \( \bar{r}_m, \bar{r}_{riskfree} \), etc should be global rates, not national.
- \( \beta \) should be based on global index, not national.
Illustrative Case: Nestlé

**Domestic (Swiss) investor:** faces $r_{riskfree} = 3.3\%$ (Swiss govt. bonds, in CHF), $r_{Equity} = 10.2\%$ (Swiss equities, in CHF) and sees $\beta_{Nestle} = 0.885$.

\[
\hat{r}_{Nestle} = 3.3 + (10.2 - 3.3) \cdot 0.885 = 9.4065\%
\]

**Global (Swiss) investor:**

\[
\hat{r}_{Equity} = 13.7\% \text{ (Global equities, in CHF) and sees } \beta_{Nestle} = 0.585
\]

\[
\hat{r}_{Nestle} = 3.3 + (13.7 - 3.3) \cdot 0.585 = 9.384\%
\]

Nearly the same! But it could have been very different. (Honest!)

Nestlé’s **WACC:**

We’re told $D/V = 35\%$, taxes = 20\%, and they pay 4\% (CHF) on their debt, so

\[
WACC = 9.384 \cdot 0.65 + 4.0 \cdot (1 - 0.2) \cdot 0.35 = 7.2196\%
\]

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**Market Liquidity**

**Definition:** Liquidity is the degree to which you can transact large amounts without changing the prices you face.

In the context of raising capital, this means revisiting the WACC assumption that average cost = marginal cost.

Small domestic firms, family-owned firms, face poor liquidity.

- Not well known, limited access to existing capital markets.

Firms limited to their domestic & illiquid capital markets face same problem.

- Rising marginal cost of capital, as investors get overexposed.
- Particularly important for big firms, emerging & small economies

We assume that liquidity is better (or no worse) in global markets.

If they have access to global markets, firms face better liquidity, which helps to lower marginal cost of capital.

- euromarkets, directed security issues, foreign affiliates, etc.
Market Segmentation

Market Efficiency: In this context, efficiency is about market prices incorporate all available information (i.e. whether returns are predictable.)

Market Segmentation: when the same asset would command different prices (i.e. rates of return) in different places.
- Therefore, required rates of return on firm’s equity, debt could differ.

Most middle & heavy-weight stock markets look efficient, but segmentation is a serious concern.

Obviously implies there must be some barrier to arbitrage.
- taxes?
- residency restrictions on buying? selling?
- regulations? (securities law? accounting practices?)
- corruption? cronyism?
- lack of information? language barriers?

Effects of Illiquidity & Segmentation

Exhibit 10.3 Milken Institute Capital Access Index:
These are not binary variables - they are a matter of degree

Exhibit 10.4 Effect on MCC and Firm Size
Downward sloping MRR curve reflects falling marginal product of capital.
- illiquid domestic finance gives 20% cost, $40 M raised.
- more liquid finance gives 15% cost, $50 M raised.
- unsegmented access to intl markets gives 13% cost, $60 M raised
  (note typo in textbook: they mean line SS_{u1})

Textbook always assumes that segmentation raises the cost of capital for firms. Is this necessarily true?
(Think: must segmentation raise the rate of return for investors?)

There’s lots of complex econometric modelling on measuring segmentation. To see its effects, we’ll look at the case of Novo Industri A/S.
Illustrative Case: Novo Industri A/S

Exhibit 10.5: The fact that Novo shares quadruple in value while various benchmarks look stable (Danish industry, NY & London indices) is strong evidence of segmentation.

- No big news about the business, yet valuation clearly changes.

Understanding the barriers to arbitrage means understanding the barriers to accessing the global markets and the sources of segmentation.

1. Asymmetric Information
   - Danes not permitted to buy foreign private equities, so they didn't follow news
   - International analysts didn't follow the Danish market, and didn't read Danish
   - Different accounting principals.

Solutions:

- Increase publication of materials in English.
- Meet SEC disclosure standards.

Novo Industri A/S (cont.)

2. Taxation
   - Everyone bought bonds due to favourable capital gains tax treatment.
   - Greatly increased cost of equity finance in Denmark

Solution: sell to foreign investors, who are taxed differently.

3. Domestic Investment Portfolios
   - Lack of diversification made β's high, further raising cost of capital.

Solution: sell to foreign investors, who have more diversified portfolios.

4. Financial, FX and Political Risks
   - Debt ratios higher than in UK or US, but normal by continental standards.
   - FX risk not a big factor (hard currency, internationally diversified operations.)
   - Stable Western Democracy, but not esp. friendly to intnl. corporate interests.
Novo Industri A/S (cont.)

Outcomes

Increase English publication of information.

1978 - issue convertible bonds and list on LSE.
- slight drop in share price - worries about dilution - raises cost of capital!

1980 - marketing in NY to cash in on 1st biotech wave.
- US investors buy via London (bonds & stock), stock price > doubles!

1981: NASDAQ listing, ADR (5-for-1 split).
- SEC prospectus to prepare for NYSE listing
- foreigners now own > 50% of shares, Danes consider it wildly overpriced.

Afterwards

USD becomes functional currency for much reporting, evaluation of the firm.

Cost of Capital: MNEs vs Domestic Firms

So far, the textbook has been a cheerleader for the benefits of globalization

It has relentlessly sold the tapping of global capital markets as a way to lower the cost of capital. In the process, they have given only one (circa 1980) case study as evidence that it really does so.

On p. 323, they finally admit that much research has found the opposite.

MNEs (defined as firms that are accessing global capital markets) have higher WACC, higher β and lower debt ratios than their domestic counterparts.

Why? The authors give no single answer, but several possibilities exist.

1. Globalization brings many added costs (reporting, regulatory and translation burden, increased cost of issuing and marketing securities, political, and foreign exchange risk, etc.)
2. Since debt is cheaper than equity, the higher debt ratios of domestic firms tends to lower WACC. (This is not explain why MNEs don't follow such a strategy.)
Cost of Capital: MNEs vs Domestic Firms (cont.)

3. MNEs may have higher, not lower, βs.

\[ \beta = \frac{\text{Cov}(r_{\text{Equity}}, r_{\text{Market}})}{\text{Var}(r_{\text{Market}})} = \rho_{\text{Equity}, \text{Market}} \cdot \frac{\text{Var}(r_{\text{Equity}})}{\sqrt{\text{Var}(r_{\text{Market}})}} \]

- International diversification of operations should lower \( \rho \).

However, if this means leaving a stable domestic economy (e.g., U.S., Germany) and starting operations in less stable economies (e.g., Russia, Brazil, Kuwait), this may mean higher \( \text{Var}(r_{\text{Equity}}) \).

- This would imply that emerging-market MNEs should benefit doubly from global financing.

4. Domestic Finance could be cheaper finance, particularly for smaller firms.

- In some cases, regulatory barriers may prevent domestic savings from being invested abroad, creating abnormally low cost of capital in domestic market.

This does not imply that domestic firms could be the size of MNEs and still keep lower WACC (see Exhibit 10.7).

Financial Structure of Foreign Affiliates

Typical debt ratios vary from country to country. Should MNEs foreign affiliates “go native” (i.e., follow local norms) or maintain parent-corp. debt ratios? A disadvantage of going native

- Better public relations with the locals.
- Helps management compare ROE relative to local competitors (esp. in high inflation environments.)

Disadvantages of going native

- Why discard the supposed advantage of overcoming international barriers to the movement of capital (i.e., why reintroduce market segmentation?)
- This may make it difficult to manage the ratios for the consolidated firm, so as to respect the norms of international investors.
- Debt ratios for affiliates is largely cosmetic, since lenders ultimately look to parent corp. for guarantees.

Suggested compromise: Deviate from the overall optimal policy for the consolidated firm only to the extent that it is costless to do so.