

## Updating Your Study Manual

### Instructions for Inserting Version 1.1, 2003

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The followings serve as the instructions for updating **Topic 3: Principles of Corporate Finance** of Study Manual 11 for the Licensing Examination for Securities and Futures Intermediaries. Please be reminded that only the updated sections are provided for downloading. You may replace the relevant sections with this updated version for the study manual you possess.

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#### **Instructions:**

1. Download and print out the following pages.
  2. **Remove** pages 3-7 to 3-8      and      **Insert** new pages 3-7 to 3-8.
  3. **Remove** pages 3-11 to 3-12      and      **Insert** new pages 3-11 to 3-12.
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- 1) Strict position limits for traders to ensure that the intra-day and day-end positions (i.e. balances outstanding in different financial instruments, assets and liabilities, currencies, maturities, etc.) are consistent with the FI's own predetermined risk profile.
- 2) Continuous real-time analysis of the FI's aggregate position in regard to different financial instruments, assets and liabilities, currencies, maturities, etc. This process is generally referred to as ALCO (Asset and Liability Coordination).
- 3) Monitoring of markets by independent analysts, and provision of advice to dealers and traders.
- 4) Strict procedures for settlement of transactions.
- 5) Regular review of exposures and examination of alternative portfolio management approaches, such as hedging.
- 6) Running simulations to determine the impact of adverse change in the market environment in which the financial institution operates.
- 7) Regular checking by the financial institution's internal audit: encompassing systems checking, audit of trading and back-office records, internal control reviews and reviews of traders' positions, and of the ALCO process.

### 1.3.3 Transaction risks

Transaction risks are risks that arise in the course of, or because of, specific transactions. Key transaction risks include the following:

Credit risk	Loss on lending, venture capital, investment, structured finance portfolios, due to inter-party default or deterioration.
Market risk	Loss due to change in value of assets and liabilities.
Operating risk	Loss attributable to a breakdown in the FI's own operating systems, leading to errors in consummation of the transaction.

*Table 2: Key transaction risks*

Measures that are taken to manage [transaction](#) risk include:

- 1) Establishing and maintaining credit approval processes, to ensure that credit risk is undertaken in a controlled and measured manner.

- 2) Credit approval limits, which require higher authority for larger and more complex or specialised lending applications and products.
- 3) Regular review of portfolio exposures, to identify and rectify excessive sector, geographic or other exposures.
- 4) Pre-determined trading limits which are monitored by independent personnel.
- 5) Segregation of duties to ensure that proposal, approval, and operations (documentation, disbursement and collection) of credit exposures are done by different parts of the organisation.
- 6) Regular checking by the financial institution's internal audit, encompassing systems checking, audit of approvals, documentation and disbursements, portfolio exposure reviews and internal control reviews.

#### **1.4 Interest and discount**

Interest represents two things:

- 1) The cost of borrowing for the borrower.
- 2) The return for the lender. For the lender, interest represents the opportunity cost of making funds available to a borrower, rather than investing the funds elsewhere. Therefore, the level of interest charged is determined by a number of factors, including:
  - a) The lender's cost of funds
  - b) The likelihood of the lender being able to place the funds elsewhere
  - c) The lender's perception of the risk of placing the funds with that particular borrower (*credit risk*)
  - d) The lender's perception of trends in the economy in which the transaction is being consummated (*market risk*)
  - e) Current market interest rates.

Interest is paid *in arrears* at agreed intervals.

However, interest can also be paid in advance, by deduction from the amount of the original loan or deposit. Thus, an amount of \$04.85 placed on deposit for one year at 10 per cent p.a. *compounded daily* will produce a repayment of \$1,000. This is calculated as follows:

The cost of debt is the cost to the borrower of its debt funding<sup>3</sup>.

The cost of equity can be derived from the *Capital Asset Pricing Model* (CAPM) or the constant growth model. CAPM is a model based on simplified economic assumptions that has been developed in the financial markets to provide a means of relating systemic risk and return in capital markets. It seeks to explain how the premium for risk in a share's expected return is determined. It assumes that, as an investor perceives greater risk in a proposed investment, he or she will require a corresponding increase in the return from that investment.

The CAPM model is as follows:

$$r_e = r_f + \beta_e(r_m - r_f)$$

where:

$r_e$  = cost of equity for stock e

$r_f$  = risk-free rate of return

$\beta_e$  = volatility of stock e relative to the overall volatility of the market (a measure of systemic risk)

$r_m$  = market rate of return.

Essentially, the CAPM combines three factors:

- 1) The risk-free rate of return. In general, financial markets assume that lending to the Government of the country is risk-free. Therefore, the Government bond rates of the country is generally taken as the risk-free rate of return. This may not be the case in emerging markets: for example, in Russia the local equivalent of the long-term government bond is regarded as a risky investment. In Hong Kong, United States treasuries are used as the reference rate, as the Hong Kong's Exchange Fund Bills are too short-term to be useful. Some analysts still use Exchange Fund Notes as the risk-free rate benchmark.
- 2) The estimated market risk premium. Economists in institutions that track financial markets generally calculate this premium.
- 3) An adjustment for the relative risk of the individual investment relative to the market. This adjustment factor is known as *Beta* ( $\beta$ ).

<sup>3</sup> There is a continuing debate within the financial community as to whether lenders should use *average* cost of funds or *marginal* cost of funds (i.e. the cost of additional funds over and above the institution's existing funding base). However, in these notes, average cost of debt funds will be used, as this is more relevant to corporate finance borrowers.

By comparison, the cost of debt is relatively easy to calculate: it is the after-tax weighted cost of each component of interest-bearing debt. Note that we have to use the *existing* interest rates of the interest-bearing debt.

When a company has calculated its cost of debt and cost of equity, the cost of capital is the weighted average of the two sources of funding. This is calculated as follows:

$$\begin{aligned} \text{Weighted average cost of capital (WACC)} &= (\text{weighted average cost of equity} \times \\ &\text{percentage of total funds contributed by equity}) \\ &+ (\text{weighted average cost of debt} \times \\ &\text{percentage of total funds contributed by debt}) \\ &\times (1 - \text{tax rate}) \end{aligned}$$

For example, a company's balance sheet may show total assets of HKD245 million funded 60% by debt and 40% by equity. The company calculates that its weighted average cost of debt is 3.9760%, and the cost of equity, using the CAPM, is 9.4675%. The tax rate is 16%. The weighted average cost of capital (in HKD millions) will be 5.5667% p.a., calculated as follows:

	<u>Debt</u>	<u>Equity</u>
Percentage of Capital	60%	40%
Weighted cost	3.9760%	9.4675%
WACC = 3.9760% x 60% + 9.4675% x (1-16%) x 40%		
= 5.5667%		

## 1.6 Alternative methods of calculating cost of equity

There are a number of alternative methods of calculating the cost of equity. We will discuss the three most commonly used methods in the follow section.

### 1) *Constant growth model*

Assumptions:

- a) Dividend growth depends upon the return on equity and the rate of return on new investment by the business
- b) The rate of return on equity and the company's retention ratio (i.e. the proportion of net profits retained in the business, as opposed to being distributed to shareholders) remain constant.

On this basis, the value of a share can be calculated as follows: