

EXAMINATION

April 2005

Subject SA5 — Finance Specialist Applications

EXAMINERS' REPORT

Introduction

The attached subject report has been written by the Principal Examiner with the aim of helping candidates. The questions and comments are based around Core Reading as the interpretation of the syllabus to which the examiners are working. They have however given credit for any alternative approach or interpretation which they consider to be reasonable.

**M Flaherty
Chairman of the Board of Examiners**

28 June 2005

- 1** (i) Characteristics of capital allocation framework
- should incorporate sound theoretical principles
 - should place capital where most likely to be needed
 - should allow meaningful comparison of potential profit with risk cost of engaging in business
 - should charge greater price for risks which have greater effect on overall portfolio
 - greater solvency requirements placed on more risky enterprises
 - should recognise potential cost of risk in measuring performance of different units
 - should recognise that capital calculations only as accurate as risk assessments they are built on and place appropriate emphasis on results
 - especially true for correlated / dependent risks and when aggregating risks
 - capital allocated to particular risks designed to capture likelihood or otherwise of bank to realize value of assets
 - different probability of realisation assets for cash (credit risk)
 - different liquidity of assets

Requirements of regulators, providers of capital

- shareholders seek maximum return on capital
 - prefer to minimise amount of capital required
 - shareholders also dislike frequent injections of capital
 - conflicting objectives: minimise capital but retain enough to operate effectively through sensible business cycle
- regulators prefer to increase amount of capital required
 - concerned over stability of overall banking system
 - well-managed banks can be allowed to hold less capital

- creditors
 - higher capital available increases creditworthiness which increases willingness to extend finance
- credit rating agencies [bonus]
 - transparent process
 - higher level of capital means higher rating possible

Capital setting

- involves determining total amount of capital required for the enterprise
- take overall risk tolerance, security aims and available resources

Capital allocation

- splitting capital between separate activities of company
- may be notional allocation within single legal entity
- or physical separation of capital into legally distinct subsidiaries
- three ways of allocating capital described in notes — student should describe at least one:
 - stand-alone capital calculated for each activity
 - total capital allocated in proportion stand-alone capital bears to sum of all stand-alone capitals

or

- marginal capital calculated for each activity (= additional capital needed to introduce activity to rest of group)
 - total capital allocated in proportion marginal capital bears to sum of all marginal capitals

or

- as for 2., but with negative marginal capitals set to zero
 - total capital allocated in proportion marginal capital bears to sum of all marginal capitals

(ii) Surplus capital

- additional capital required beyond that realistically demanded to meet expected losses from business
- reasons why it may be desirable
 - growth opportunities identified which require additional investment and these opportunities give similar or better return on capital (ROC) to existing business
 - company anticipates unattractive rates or other handicaps in raising new finance
 - uncertainty in calculation of capital required; deem prudent to hold apparent excess
 - company faces off-balance-sheet contingencies, litigation, etc. not captured within capital allocation calculation, e.g. client advisory compensation
- reasons why it may be undesirable
 - company has no clear plans for growth or investment of capital
 - especially if company is strong free cash flow generator already
 - management considered likely to waste capital on low-return acquisitions; not in shareholders' interest
 - management has less incentive to improve operational efficiency

(iii) Basel capital requirement (approx)

- mortgages to owner-occupiers get 50% risk weighting
- risk weighted assets therefore $£600\text{m} \times 50\% = £300\text{m}$
- capital requirement is 8% thereof or £24m
- actual capital is $£640\text{m} - £590\text{m} = £50\text{m}$
- surplus = £26m
- no further capital required on this basis

method for allocating capital outlined in Core Reading is earnings-at-risk / ROC rate where earnings-at-risk is standard deviation of earnings
[other methods may be proposed by student]

Per division:

mortgage	$£5.5 / 10\% = 55$
advisory	$£2 / 10\% = 20$
total	£75m
actual capital	$£640m - £590m = 50m$
deficit	$50 - 75 = £25m$

- requires capital injection from parent or raising additional debt finance

(iv) Problems of large, unpredictable negative events

- Event-risk cannot be easily modelled using a distribution
- no sensible historic data from which to determine distribution
- percentile on e.g. value at risk (VaR) chosen might exclude the event and understate severity of losses

Incorporation into model

- could set/force parameters explicitly to simulate event taking place
- parameters chosen from scenario test or what-if analysis
- or choose parameters from historical period which includes the event (if one exists) and model the asset/liability response

Mitigation of this risk

- risk transfer: professional indemnity or other insurance
- risk transfer: enter into suitable indemnity agreements with clients
- risk control: decline to advise on transactions with potential loss greater than certain limit; amending contract terms to limit liability to a specific amount
- risk control: separate business unit into legally distinct entity (however, reputation may require bank to stand good for loss anyhow)

(v)

- securitisation
 - write business but sell tranches off to someone else or into special purpose vehicle (SPV)

- credit insurance / credit default swap unlikely to be feasible on residential borrowers
- raise additional debt capital
- close advisory division and reallocate capital
- reduce earnings volatility
 - improve credit assessments, concentrate on sub-sectors of market (e.g. professionals)
 - better collection mechanisms
- partner with another bank with greater capacity (e.g. white-label someone else's mortgages)

2 (i) How to Securitise

- An SPV will need to be created to buy the assets and registered at companies house.
- The assets identified and valued at the current rates.
- The assets will need to be sold to the SPV at current market value.
- The SPV will fund the purchase via proceeds from the bonds.
- Company A becomes holder of equity in SPV.
- The securitisation will require a credit rating which will require:
 - valuation
 - detailed report of structure
 - legal opinions
- The investment bank will need to distribute bonds to investors which will require:
 - roadshows to investors explaining the transaction
 - launch and price the bonds
 - managing transfer of proceeds
 - notifying stock exchange
 - manage investors queries + pricing

An audit firm will be required to establish the account for:

- the SPV accounts
- the company A accounts

How to Raise Equity

- Contact UKLA.
- Provide business & financial information (in listing particulars and prospectus).
- Up to date information will require property valuations and audited accounts.
- Provide information of the basis on which shares are offered.
- Appoint sponsor investment bank to distribute shares and ensure approval with UKLA.
- The investment bank will need to distribute equity to investors which will require:
 - Road shows to investors explaining the transaction
 - managing transfer of proceeds
 - notifying stock exchange
 - manage investors queries + pricing

(ii) **Hedging Risks**

The risks the company may run are:

1. Interest rate risk on the securitisation if long dated fixed rates changed
2. Credit spread risk
3. FX risk on purchasing non-sterling European assets
4. Equity risk on equity launch

Hedges to consider:

1. Interest rate options, forwards and swaps. Markets matching the risk are available with good liquidity.
2. Credit Default Swaps. There is unlikely to be a good hedge to the securitisation spread.
3. FX forward and options. Markets matching the risk are available with good liquidity.

4. Equity market options and forwards. Markets matching the market risk are available with good liquidity.
5. Equity stock options. Markets matching the specific risk may be available. Care needs to be taken with insider trading.

The effectiveness of all forwards and swaps depends on knowing the nominal amount required and the timing of the hedge. This may be good in some cases (e.g. amount of bonds issued), but not in others (e.g. amount of property bought in non-sterling markets).

Options will be more effective and they may be executed over various timeframes and with variable nominal amounts. However, the option premiums will need to be included in the overall transaction costs.

(iii) **Under the securitisation**

Using formula:

$$r_{\text{equity}} = r_{\text{assets}} + \text{Debt/Equity} \times (r_{\text{assets}} - r_{\text{debt}})$$

Hence:

$$r_{\text{assets}} = (1 / (1 + \text{Debt/Equity})) \times [r_{\text{equity}} - \text{Debt/Equity} \times r_{\text{debt}}]$$

- Average return on assets = $2/3 \times 12 + 1/3 \times 9 = 8 + 3 = 11\%$
- Assume further assets purchased yield 11%
- New return on equity expected = $2 [11 - 9/4 - 6/4]$
 $= 2 \times [11 - 2.25 - 1.5]$
 $= 2 \times 7.25 = 14.5\%$

Hence equity holders will see an increase in leverage, which should increase, expected returns.

This is confirmed empirically by many studies which show how increased leverage increases equity returns.

Under the new equity raising

Equity: average return on assets = 11% (from above)
→ New return on equity expected = $11 + 500/1500 \times [11 - 9] = 11.667\%$

Risk profile and Dividend policy

Increased dividends have been shown empirically to increase equity prices as investors prefer dividends to retained earnings

Increasing leverage will increase the risk of financial distress. This may ultimately erode equity values if equity investors' risk tolerance is exceeded. It would also impact the ratings of the existing debt holders (as described). There may be a concern amongst investors that this would force the management into risky projects and/or higher dividend to increase equity values.

The dividend policy should be reviewed, including:

- target
- expected trends
- costs
- impact of any changes
- avoidance of future reduction
- information delivered through policy

If securitisation is pursued, the flexibility of dividend payments is reduced and it may be more difficult to avoid future falls. A lower dividend payout ratio may be considered in the short term. This may cause equity prices to fall, however this should ultimately be mitigated by higher expected returns through leverage

If equity is pursued, flexibility is increased although expected returns have fallen. A higher payout ratio may be considered to improve the equity prices.

(iv) **Under the securitisation**

The increased leverage and subordination of debt holders to securitisation may result in a downgrade of the credit rating of company A. This will bring about several consequences including:

1. The prices of the bonds will fall if there is a downgrade. This will not please existing bondholders. It will be important to have their support as they are required to buy the securitisation (i.e. they are the same investors). This may require either an increase in the coupon as compensation of increased restrictions in the bond covenants or a combination of the two. This is a key point for the transaction to be successful.
2. Bank debt holders will require higher internal provisions of debt. It is important to notify lending banks that will potentially increase the charges for bank facilities on renewal and/or impose tighter restrictions. It is also important to maintain good relations with company A's banks.
3. The trustees of existing debt holders may need to be contacted if there is a material change in assets charged to bondholders.

Overall, it is important to recognise that all of the investing stakeholders (apart from the banks) are likely to be the same institutions. This will need to be carefully managed as there will be contrasting impacts (equity good, debt

bad). Management and Directors of company A will need to commit sufficient time in addressing concerns to ensure the bond securitisation is successfully sold to investors.

A key question will be the use of the bond proceeds. The directors are recommended to outline an investment strategy to communicate to stakeholders and property investment intermediaries who have made investment proposals.

Equity holders will see an increase in leverage, which should increase expected returns.

Under the new equity raising

The likely change in credit rating for Company A is up or the same. This would not have been previously anticipated by investors, but will be a positive event.

Unlike the securitisation, there is no need to address concerns of debt holders. For good investor relations stakeholders should receive communications about the equity issuance.

The following Comments are relevant to either transaction

The change in leverage will bring about 2 main consequences for equity holders, which must be addressed.

First, the price of equity should change instantly. The information about the securitisation is price sensitive and Chinese walls must be in place with intermediaries.

Second, increased or decreased leverage changes risk (beta). This should be addressed to shareholders, explaining the benefits (i.e. growth) of being exposed to the higher risks.

The transactions are costly to set up. These costs will have to be communicated to shareholders and justified. Careful cost management and association with experienced counterparties (e.g. lawyers, investors bank) is recommended.

In addition to the investor relations, significant senior management and Director time will be consumed setting up the transactions: Management must ensure sufficient time is set aside to avoid conflict with other duties.

Tax. M&M dividend irrelevance theory depends on tax neutral regime. UK dividends are paid post-tax vs interest which is pre-tax. Financing with debt is likely to be most cost effective if Company A is profitable. Given it is expected to be, the marginal preference is likely to be for debt.

END OF EXAMINERS' REPORT