Institute of Actuaries of India

Subject SA5 – Finance

May 2012 Examination

INDICATIVE SOLUTION

Introduction

The indicative solution has been written by the Examiners with the aim of helping candidates. The solutions given are only indicative. It is realized that there could be other points as valid answers and examiner have given credit for any alternative approach or interpretation which they consider to be reasonable

Solution

1 (a).

Liquidity is the ability to meet normal and adverse cash needs without problems, that is, without affecting surplus too much or losing too much value on the sale of securities.

Following events could strain a company's liquidity level:

Company-specific events:

- Downgrade of the company by rating agencies – Policyholders will go get their money back, which will only make the situation worse.
- Rumor of financial problems (even if false) – same problem as above
- Loss of a source of revenue/liquidity.
- Reports below expectations (i.e., reported earnings or dividend). – Investors will think company is in trouble.

Industry-wide events:

- Problem with a big insurance company – Policyholders will be concerned.
- Perceived problems with a certain product – Everyone will want to get money out of this product in all companies.
- Sudden change in customer demand – Companies need time to adjust themselves.
- Macro-level economic and political instability – A change in the regulatory environment could cause problems.

The actions that a company may take to manage liquidity stress situation are as following:

- Issue short-term securities in money market.
- Issuance of commercial paper.
- Get a line of credit with bank – Might be refused if company has real problems.
- Sell marketable securities.
- Securitize unmarketable securities.
- Repurchase agreements.
- Company could also add to its policies , if possible:
  - **a.** Surrender fees.
  - **b.** Surrender values adjusted to market.
- Keep regulators and rating agencies informed regularly
- Control public view of situation
- Inform agents

1 (b).

Securitization of assets:

- Borrower received funding upon initiation of transaction, repays principal and interest over time.
- Originator (issuer) is exposed to borrower (investor)'s credit risk, but not vice versa
- Sale of loans to another financial institution does not have material effect on borrower's economic position; thus a true sale of assets is allowed, extinguishing originator's financial interest entirely.

Securitization of liabilities:

- Policyholder is exposed to financial institution's credit risk. Thus selling policy obligation to another party can significantly affect buyer's economic position because it could increase his exposure to default risk.
- This reversal of credit risk exposure is a barrier to a true sale of liabilities. Regulators usually will not allow insurers to enter transactions that wipe out their liability to policyholders.
- Thus liability "securitizations" are really monetization as there is not a true sale of the liability.
- An ongoing direct relationship continues between the policy holder and the insurer.
- These transactions are typically "on balance sheet."

1 (c).

Affect of securitization on Income statement is as follows:

- Insurer passes on cash flows to investors
- Mortality, longevity, and persistency risk are also passed on to the investors.

Affect of securitization on Balance Sheet is as follows:

- Free up capital which can be used for other investment
- The insurer passes on insurance risk to the capital markets
- Might improve RBC ratio because capital intensive products are removed

1 (d).

Some of the steps that Medium Life can take are as follows :

- Slow or eliminate new business growth – Internal Action
- Reduce Expenditures – Internal Action
  - Salaries or other fixed costs
  - Watch for morale problems
- Improve quality of investment portfolio

    - Decrease exposure to risky assets such as equity and real estate
    - Increase quality of bonds
    - Decrease long term expected returns
    - Has immediate impact on surplus
- Debt- External
  - Not a good idea for Medium Life as rating agencies will dislike Watch for morale problems
  - Types
    - Public and private bond offerings
    - Commercial Banks
    - Lines of credit
  - Advantages
    - Tax relief
    - No loss of governance Lines of credit
    - Low cost for large numbers
  - Disadvantages
    - Covenants
    - Rating agencies dislike
    - Must pay interest and principal back
- Securitize Assets – External
  - Existing assets or future revenues
  - Agents receivables
  - Policy loan
  - Advantages
    - Eliminate junky asset risk
    - Lower cost than debt or equity
    - Rating agencies will like
    - Flexibility

  - Disadvantages
    - Costly for small amounts
    - Requires regulatory permission

- Issue new preferred or common stock
- Reinsurance
  - Advantages
    - Reduces RBC requirements
    - Improve surplus
    - Rating agencies like

Award marks for any other point that the Examiner considers reasonable.

1 (e).

Information asymmetry is the knowledge gap that exists between management and investors. Management has an incentive to raise capital when the firm is "over valued". Investors recognize this information gap and the incentive for the management to exploit investors. All else being equal, investors tend to discount the value of the firm upon announcement for the need for capital.

Raising capital through a common stock offering has historically and significantly negative impact on stock prices. Not only for the reasons cited above, but also because the decrease in leverage is also a sign that management is not confident about its prospects. Common stock offering is generally on the bottom of the pecking order when it comes to capital raising alternatives.

Raising capital through a public debt offering has historically had an insignificant impact on the stock prices .Investors recognize management's incentive to explicit investors but this is counterbalanced by increased leverage which is a sign that management is confident about its prospects.

Raising capital through a private bank loan has historically had a significant positive impact on stock prices. The reasons given for the public debt offering also hold true for a private bank loan. But beyond that, a private bank loan sends positive signals to the market due to underwriting a bank conducts before it loans money to a company. The bank generally has inside information about the company, will place covenants on the loan, and will monitor the company closely.

The information asymmetry problem can be reduced if management tries to communicate with investors what it plans to do with the capital raised. But even this does not completely eliminate the information gap problem because investors recognize that management has the tendency to over exaggerate its prospects.

1 (f).

Company capital structure should be mostly equity. It is new and rapidly growing, therefore a high risk/high reward profile

Bankruptcy Costs likely to be high due to lack of tangible assets and the fact that it is a high risk company. As a high risk firm, the agency costs of debt may also be high. Covenants can restrict flexibility and constrain managers from making value – increasing investments.

Students should be awarded marks for other arguments given in the favor of equity.

1 (g).

Leveraged Buy Out is defined as the acquisition of another company using a significant amount of borrowed money (bonds or loans) to meet the cost of acquisition. Often, the assets of the company being acquired are used as collateral for the loans in addition to the assets of the acquiring company. The purpose of leveraged buyouts is to allow companies to make large acquisitions without having to commit a lot of capital.

An LBO is not appropriate for this situation. LBOs work best for low growth, mature business with stable cash flows and low capital requirements. There should also be tangible assets to collateralize the loan. None of this applies here.

Examiner to award appropriate marks for other points mentioned.

1 (h).

In developing dividends, earnings level needs to be looked at and there needs to be confidence at sustaining and growing these earnings into the future since the market punishes those companies that cannot continue their dividend payments.

There are number of other issues to consider including:

- The number and type of institutional investor along their needs.
- Whether the company has positive NPV opportunities and hence should lower their dividend payments.
- The overall capital intensity of the company should increase.
- The free cash flow should increase as well due to the company being well capitalized.

Method of returning profits to shareholder, the company may use stock repurchase which could lower shareholder taxes by shifting income to capital gains. Alternatively, the company may increase retained earnings and invest in new profitable opportunities to increase return in future.

Examiner to award appropriate marks for other points mentioned.

1 (i).

a. Flowing are the possible organizational issues related to asset liability management for this block of flexible premium life insurance policies

(1) ALM Process

- The assets and liabilities should be coordinated effectively to minimize losses.
- The actuaries should understand this process and have well-defined responsibilities.
- Frequent communication among the managers is required

(2) Investment Policy

- It should be stated in the investment policy a neutral position and the permissible deviation from this position.
- The managers should have written guidelines as to how to manage the portfolio.his policy should be frequently reviewed.

(3) ALM Expertise

- Makes sure that the manager's handling this has a proven track record and the knowledge and expertise. They should also understand both the assets and liabilities side of the flexible premium life business.

(4) Segmentation of Assets

- Flexible premium life policies can be segmented into the insurance part and an investment portion.
- Different segments have different risk management strategies.
- Be careful not to over-segment the assets because this can result in reduced yield.

(5) Liability Pricing Practice

- When pricing, the assumptions should be realistic

b. Cash-Flow matching

This is the process by which we have an asset maturing (payable) to use at the same time as our liability is due. It can be a difficult task matching all cash flows. It may be required to rebalance if asset defaults.

To do this, you must understand:

(i) Nature of your liabilities

In order to cash-flow match, you'd have to know what liabilities you have, when they
are payable, the amount.

(ii) Constraints of cash-flow matching

- Call risk. If you are backing your liabilities with callable bonds and they get called, you
may not have sufficient funds to pay them off.
- Type of issuer.
- Diversification. Thus, if the sector or group of securities happens to default, you won't
lose considerable money and be unable to make payments.
- Credit. You want to have good credit securities backing your assets to prevent default
risk.
- Liquidity. Need liquidity in order to make any required payment.

(iii) Cash Flow

- The cash flow on your assets will be value of assets at beginning + interest income +
reinvestment income = required payment.

(iv) Reinvestment Rate

- The rate which you assumed your asset cash flows will be reinvested at.
- Need to be conservative to ensure the payments of liabilities. If we have an aggressive reinvestment rate, we may not have enough assets to pay for liabilities.

(v) Pricing the Bonds

- If we've supported our assets with bonds, it's important to ensure that they are priced correctly. We may want to get an independent firm to assist with the pricing.
- Defaults are the most important concern.
- Downgrades.

Examiner to award appropriate marks for other points mentioned.

(51 Marks)

Solution 2.

i)

The main reason for companies merging is to benefit from economies of scale. This is particularly important due to technological advances. (Often referred to as horizontal merger.)

Some mergers involve combining a company with its supplier or its sales force (called vertical integration). Such mergers aim to reduce costs and simplify administration.

A merger may be carried out to increase the operation's market share. This may lead to an increased influence on the industry pricing process.

If a company wishes to expand into another business area then merging with another company can prove an effective and quick way to achieve this objective. Mergers can lead to increased diversification away from the core business and hence reduced risk. (These are referred to as conglomerate mergers.)

A merger could be opportunistic, if another company is believed to be undervalued

A possible reason for a merger is to use cash – however this course of action should be taken only after considering the alternative of returning money to shareholders. Occasionally the merger can enable the company to gain tax advantages.

Mergers may also:

- give the company access to new opportunities
- reduce the threat of takeover
- reduce financing costs (big companies can borrow more cheaply)

ii)

The regulation should aim to ensure that:

All shareholders are treated fairly (in particular minority shareholders)

The rights of employees of the two companies are protected (including pension benefits)

Customers are protected, in particular individuals who will have less bargaining power

Suppliers are treated fairly

The aim is to have regulation that is simple to understand and apply, so as to minimize costs. The regulation should not be so onerous so as to discourage appropriate mergers.

The regulation should be generic enough to apply to as many industries as possible without needing modification – although special regulation may be needed for certain industries (in particular natural monopolies)

The regulation must have set procedures and timescales, set so as not to hold up deals inappropriately.

The scope of the regulation needs to be considered, will it apply to all mergers or only certain industries or large-scale mergers?

The regulation needs to be able to deal with cross-border mergers. Ideally the regulation should not be too far out of line with that in other countries. In addition the mechanism for determining whether a cross-border merger represents a monopoly needs to be agreed.

A decision needs to be made as to who will carry out the regulation. Will it be self-regulated, or regulated by the state or a combination of the two

a) The main problems are caused as a result of the possibility of financial distress.

These include in general :

• Choosing high-risk investments and projects that benefit shareholders at the expense of bondholders. This happens because the shareholders run the company, and may want to take on "all or nothing" projects if it looks like they may get nothing out of the company anyway.

• A tendency to exit promising lines of business or liquidate the entire firm when they would otherwise have continued to operate

• A forced "firesale" of assets to generate short-term cashflow

• Pressure to manipulate the accounts, which in turn can lead to a loss of reputation if the activity becomes public knowledge.

• In the concerned case, not giving enough time to recuperate for pilots & cabin crew to save employee costs may result in dangerous accidents

• An incentive to provide a less safe work environment for employees . Aircrafts not getting the requisite maintenance attention to conserve cash thus endangering the safety of passengers

• Difficulty retailing quality staff , especially highly skilled ones like pilots , who might leave to find more secure jobs.

• An incentive to cut back on advertising and promotional expenditure and maintenance of working or human capital.

• Difficulty finding suppliers of fuel , airport facilities who are willing to deal with the company (without having paid cash up front)

• Difficulty finding customers who are willing to buy tickets of a troubled airline as they would not be sure of maintaining the schedules. Similarly travel agents will be reluctant to sell the tickets as it may jeopardize their reputation and business

In addition, variability in corporate earnings can affect a firm's ability to take full advantage of tax credits and write-offs.

b) Short-term measures

Any measures that threaten the company's current business, also threaten the long-term prospects in the future.

If the Company is confident of its business , it may borrow money for a short term. This would help to offset its debt interest against its tax bill in the long-term.

The Airline business runs on trust and confidence the customers have on the ability of the company to operate the flights safely and in time. If the quality of the services is reduced to make cost savings, the company might lose this reputation, which would be very hard to regain.

The Company may share some of the services / facilities with other airlines to save maintenance or running costs

The Company may operate only highly dense sectors which may have more revenues and stop/reduce the operations to sectors which may have been earlier operated to develop the airline business

The Shareholders may pledge their personal shareholdings to raise cash to tide over the problems

The Company may have to cut down the non-essential manpower on a temporary basis to save employee costs

c)

1. Right to recall the loans - May not achieve anything as the company is in cash deficit position
2. May opt to convert debt into equity and try to appoint a new management team
3. Sell off the assets which may not fetch much as it is a distress sale and their loans may not be repaid fully
4. May ask management to come up with a revival plan and reschedule the loans
5. Invoke the guarantee in order to recover the loans. Since it is a token of equity in the parent company it may not completely repay the debt
6. May ask the board to seek infusion of additional equity

7. failure of the existing shareholders to bring in additional equity may prompt the lenders to seek options for merger with another airline or seek a new investor

8. As a last resort seek liquidation of the company

d)

The merger is a horizontal merger as it involves companies that operate at the same stage of the production process.

In general such mergers have one of the following reasons:

- to benefit from economies of scale, particularly using one set of head office staff rather than two, or a single branch network
- to benefit from complementary resources, such as pilots , tied selling agents of both companies or complementary client bases ,
- to eliminate inefficiencies – *ie* underperforming management , rationalization of air routes such as flying one aircraft now instead of two aircrafts of both the airlines
- to benefit from opportunities that might only be available to larger companies –for example utilizing the license for flying on routes which might not have been available to the acquiring company , expanding into new routes /services etc
- might require more time and resources than any one of the two companies possesses.
- There are other reasons that can apply to almost any type of merger or acquisition:
- utilisation of unused tax benefits – if two proprietary life companies have different tax positions, then one may take over the other in order to make sure that any valuable unused tax shields will definitely be used
- utilisation of surplus resources – for example, if a company has surplus aircrafts/pilots then a merger might allow both companies to continue operations into wider areas/routes (it could also be that the acquiring company may have cash surpluses) which it would like to get rid of by making the acquisition for cash.
- protection against threat of takeover – by increasing the size of the business
- enhancement of earnings per share – Indi Airlines may be able to increase its earnings per share by taking over KAL, which may have a lower price earnings ratio. The earnings per share of the merged company will increase if the merger reduces the total number of shares in existence without affecting total earnings.

- exploitation of lower financing costs – often large companies are able to raise debt or equity at lower costs . Again this is likely to be of minor significance in this case.

e)

- The business activities of KAL would be divided into those that will continue to operate after the merger and those that will not
- Those that will not continue (ticketing services, ground services etc.) will either be written off (although there may be costs in closing down certain parts of the operation) or sold on to a third party after the merger.
- If the operation is saleable then an estimate of its realisable value should be made.
- Those operations that are to remain will either be run down over a period of time and used to generate cash and earnings (in which case costs are involved).
- Estimates of future income will involve detailed analysis of estimated net cashflows, starting with past performance in the existing line of activities , net of tax. As usual, trends in past and future performance will need to be considered.
- Where accounts have been prepared under different accounting standards, historical figures will need to be recast on the acquirer's own accounting basis.
- It is important to ascertain whether any "hidden" issues exist, such as hidden liabilities or overvalued assets.
- Similarly, whether the aircrafts are on lease or ownership basis and how these fit into the acquiring company's assets and any cuts in advertising and sales promotion expenditure.
- In assessing likely future profits, consideration must be given to all possible ways in which the aircrafts would be utilized, the rationalization of air routes, the possible benefits that may accrue due to the additional routes that may accrue due to the licenses held by KAL need to be taken into consideration apart from the likely savings in manpower , infrastructure costs etc., and any additional capital expenditure requirements etc.
- The evaluation should be based on the joint incremental net cash flow of the IAL and KAL , i.e. the differential net cash flow which can be attributed to the fact of the takeover alone. Note that it is future cash flows, not accounting profit, that need to be evaluated.

- Contingent liabilities (such as capital commitments) must also be evaluated, as must tax aspects such as tax losses (which can be used to offset tax on the purchaser's profits, capital allowances and other tax "carry forwards").

- It must be decided whether to keep the KAL brand name or whether that should be written off.

(49 Marks)

[Total Marks-100]

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