

MOCK TEST PAPER
FINAL (NEW) COURSE: GROUP – II
PAPER – 6A: RISK MANAGEMENT

CASE STUDY: 1

1.1 Yes, it is correct SEBI casts a lot of responsibilities on Directors of a listed companies regarding Risk Reporting because as per the SEBI (Listing Obligations and Disclosure Requirements) Regulations 2015: -

- (i) Under responsibility of Directors - Ensuring the integrity of the listed entity's accounting and financial reporting systems, including the independent audit, and that appropriate systems of control are in place, in particular, systems for risk management, financial and operational control, and compliance with the law and relevant standards.
- (ii) The Board of Directors shall ensure that, while rightly encouraging positive thinking, these do not result in over-optimism that either leads to significant risks not being recognised or exposes the listed entity to excessive risk.
- (iii) The Board of Directors shall have ability to "step back" to assist executive management by challenging the assumptions underlying: strategy, strategic initiatives (such as acquisitions), risk appetite, exposures and the key areas of the listed entity's focus.
- (iv) The listed entity shall lay down procedures to inform members of board of directors about risk assessment and minimization procedures.
- (v) The Board of Directors shall be responsible for framing, implementing and monitoring the risk management plan for the listed entity.
- (vi) Risk Management Committee: - The board of directors shall constitute a Risk Management Committee. Majority members of Risk Management Committee shall consist of members of the board of directors. The Chairperson of the Risk management committee shall be a member of the board of directors and senior executives of the listed entity may be members of the committee.

The board of directors shall define the role and responsibility of the Risk Management Committee and may delegate monitoring and reviewing of the risk management plan to the committee and such other functions as it may deem fit. The provisions of this regulation shall be applicable to top 100 listed entities, determined based on market capitalisation, as at the end of the immediately preceding financial year.
- (vii) Under minimum information to be placed before the Board on a quarterly basis- Quarterly details of foreign exchange exposures and the steps taken by management to limit the risks of adverse exchange rate movement, if material.
- (viii) Under disclosures in Annual Reports applicable to all listed entities except banks - Management Discussion and Analysis: This section shall include discussion on the following matters within the limits set by the listed entity's competitive position in respect of various matters. **(5 Marks)**

1.2 In case company plans to acquire any iron ore or coal mining company then what type of this merger will be called Vertical Merger. **(2 Marks)**

1.3 (i) Expected NPV

(₹ in Crore)

Year I			Year II			Year III		
CF	P	CF×P	CF	P	CF×P	CF	P	CF×P
14	0.1	1.4	15	0.1	1.5	18	0.2	3.6
18	0.2	3.6	20	0.3	6.0	25	0.5	12.5
25	0.4	10.0	32	0.4	12.8	35	0.2	7.0
40	0.3	<u>12.0</u>	45	0.2	<u>9</u>	48	0.1	<u>4.8</u>
	$\bar{x}$ or $\overline{CF}$	<u>27.0</u>		$\bar{x}$ or $\overline{CF}$	<u>29.3</u>		$\bar{x}$ or $\overline{CF}$	<u>27.9</u>

NPV	PV factor @ 6%	Total PV
27	0.909	24.543
29.3	0.826	24.202
27.9	0.751	<u>20.953</u>
	PV of cash inflow	69.698
	Less: Cash outflow	<u>50.000</u>
	NPV	<u>19.698</u>

(ii) Possible deviation in the expected value

Year I				
$X - \bar{X}$	$X - \bar{X}$	$(X - \bar{X})^2$	P_1	$(X - \bar{X})^2 P_1$
14 - 27	-13	169	0.1	16.9
18 - 27	-9	81	0.2	16.2
25 - 27	-2	4	0.4	1.6
40 - 27	13	169	0.3	<u>50.7</u>
				<u>85.4</u>

$$\sigma_1 = \sqrt{85.4} = 9.241$$

Year II				
$X - \bar{X}$	$X - \bar{X}$	$(X - \bar{X})^2$	P_2	$(X - \bar{X})^2 \times P_2$
15-29.3	-14.3	204.49	0.1	20.449
20-29.3	-9.3	86.49	0.3	25.947
32-29.3	2.7	7.29	0.4	2.916
45-29.3	15.7	246.49	0.2	<u>49.298</u>
				<u>98.61</u>

$$\sigma_2 = \sqrt{98.61} = 9.930$$

Year III				
$X - \bar{X}$	$X - \bar{X}$	$(X - \bar{X})^2$	P_3	$(X - \bar{X})^2 \times P_3$
18-27.9	-9.9	98.01	0.2	19.602
25-27.9	-2.9	8.41	0.5	4.205
35-27.9	7.1	50.41	0.2	10.082
48-27.9	20.1	404.01	0.1	<u>40.401</u>
				<u>74.29</u>

$$\sigma\sigma_3 = \sqrt{74.29} = 8.619$$

Standard deviation about the expected value:

$$\sqrt{85.40(0.909)^2 + 98.61(0.826)^4 + 74.29(0.751)^6} = 11.25$$

Or

$$9.241 \times 0.909 + 9.930 \times 0.826 + 8.619 \times 0.751 = 23.075$$

(8 Marks)

1.4 (B)

1.5 (A)

1.6 (D)

1.7 (D)

1.8 (C)

(2 x 5 = 10 Marks)

CASE STUDY: 2

2.1 Yes, Business Continuity is now an integral part of Operational Risk Management. Any of the risks we enumerated above, can be triggered as part of an overall disruption that is caused by any or a combination of the following reasons:

- (a) Natural disaster affecting services of either technology solutions and/or the business process itself; to elaborate, a situation to invoke BCP may exist in a case of natural disaster like flood, where staff of a company are unable to go to office; or, it may be a combination of situation where the technology solutions of the company that is required for daily functioning of the organisation is also not working;
- (b) Civic infrastructural failures like essential services of electricity or transport being brought down due to terrorist attacks or natural disasters;
- (c) Keyman risk due to death or incapacitation of key decision makers in a company leading to chaos in management of the company;
- (d) Failure of one department or function to do their assigned tasks in a case of disruption may cause the entire process to delivery of the organisation;
- (e) In current business scenario, several organisations concentrate their operational activities in one major operational hub; these organisations are at a higher BCP risk than the ones with operations in several hubs if they are geared to support each other in a moment of crisis.

(10 Marks)

2.2 Operational Risk originates because of following reasons:

- (a) Inadequately defined products and services which may not be compliant to industry regulations, and/or may be exposed to risk of misspelling;
- (b) Inadequately defined policies and processes which would directly adversely impact quality of controls like checks and balances, segregation of duties as may be required;
- (c) Inadequate technology functionality, or infrastructure that exists in any technology supported environment, which organisations use in respective business operations;
- (d) Internal or external crime that takes advantage of gaps in processes for unlawful gain, i.e. fraud;

- (e) External events like terrorist attacks or natural disasters that disrupt business or cause financial losses;
- (f) Change in the environment of the industry sector (including significant regulatory changes) that impacts the operational risk profile of an organisation. **(5 Marks)**

2.3 (D)

2.4 (D)

2.5 (C)

2.6 (D)

2.7 (C)

(2 x 5 = 10 Marks)

CASE STUDY: 3

3.1 A Risk Management Framework (RMF) sets the foundations and organisational arrangements for designing, implementing, monitoring, reviewing and continually improving risk management capability. Undertaking a periodic review to assess the effectiveness of an entity's risk management framework is necessary to ensure that the framework continues to evolve and meet the needs of the entity. The RMF should define a policy statement on the following matters:-

- (i) Determining when to review the RMF and the frequency for undertaking the review.
- (ii) Deciding who is responsible for the review. The RMF is generally reviewed by the Audit Committee or a team of Directors. Once in few years the RMF can be reviewed with external facilitation this would provide fresh insights and benchmarking information to the Board.
- (iii) Selecting the scope and method for a review. The scope and boundary of the RMF review can be clearly set out along with the most suited method for review.
- (iv) Manner of circulation of results.

The Board requires a periodic independent assessment of the firm's overall risk governance framework and provides direct oversight to the process.

The Board should assess whether the organisation has the required stature, talent, and character needed to provide a reliable independent assessment of the firm's risk governance framework and internal controls and not be unduly influenced by the CEO and other members of management;

Organisations may develop an entity level control framework on the basis of the Sound Risk Governance Principles prescribed by the Financial Stability Board for evaluating Governance Risks. The results and findings from the said entity level control assessment may be submitted to the Board of the company on an annual basis and suitably disclosed as part of its risk disclosures. **(10 Marks)**

3.2 VaR has its drawbacks as a risk measure. VaR estimates can be subject to errors, model risk and implementation risk. However, such problems are common to all risk measurement systems.

- (a) VaR uninformative of tail losses – VaR tells us the most we can lose if a tail event does not occur. It tells us the most we can lose 95% of the time but tells us nothing about what we can lose on the remaining 5% of the occasions. If a tail event (i.e. loss in excess of VaR) does occur, we can expect to lose more than the VaR but VaR itself does not give any indication of how much that might be.
- (b) VaR can create perverse Incentives Structures – It is not feasible to use information about VaR at multiple confidence levels and where it is not, the failure of VaR to take account of losses in excess of itself can create some perverse outcomes. For example, an investor using a VaR risk measure can easily end up with perverse positions because a VaR based risk return analysis

fails to take account of the magnitude of the losses in excess of VaR. If a particular investment has a higher expected return at the expense of the possibility of a higher loss, a VaR based decision will suggest that we should make that investment if the higher loss does not affect the VaR regardless of the size of the higher expected return and the size of higher expected loss. Such acceptance of any investment that increases expected return regardless of the possible loss and the investor who makes decisions in this way is asking for trouble.

- (c) VaR can discourage diversification – Another drawback is that VaR can discourage diversification. The VaR of the diversified portfolio is much larger than the VaR of the undiversified one. So, a VaR measure can discourage diversification of risks because it fails to take into account the magnitude of losses in excess of VaR.
- (d) VaR not sub-additive – Sub-additivity means that aggregating individual risks does not increase overall risk. Sub-additivity matters for a number of reasons. If the risks are sub-additive then adding risks together would give us an overestimate of combined risk. This facilitates decentralised decision making within a firm as we can always use the sum of the risks of the units as a conservative measure. But if the risks are not sub-additive, adding them together gives us an underestimate of combined risks, and this makes the sum of risks effectively useless as a risk measure. In risk management, we want our risk estimates to be biased or unbiased conservatively. **(5 Marks)**

3.3 (A)

3.4 (B)

3.5 (D)

3.6 (B)

3.7 (D)

(2 x 5 = 10 Marks)

CASE STUDY: 4

4.1 To measure random loss, following formula can be used:

$$D \times A \times (1 - r)$$

D = Default %

A = Amount of Exposure

R = Recovery Rate %

This default % can also be computed through probability.

The factors affecting the credit risk of a bank can be divided into following two categories:

- (i) Internal Factors: These factors are internal to the bank, some of these are as follows:
 - (a) Concentration of credit in particular geographical locations or business segments.
 - (b) Excessive lending to particular industry is subject to cyclical fluctuations.
 - (c) Ignoring the purpose for which loan was sought by the customer.
 - (d) Poor Quality or Liberal Credit Appraisal while granting the loan.
 - (e) Absence of efficient recovery mechanism.
- (ii) External Factors: These factors are external to the bank and beyond its controls. These factors not only impact the profitability of borrower but also effects their repayment capability. Some of such external factors are as follows:
 - (a) Fluctuation in Exchange Rate.
 - (b) Change in Govt. Policies.
 - (c) Fluctuation in Interest Rates.

(d) Change in Political Environment of the own country.

(e) In case of Foreign project change in Country Risk profile.

(9 Marks)

4.2 In this section, let's understand what are the ground rules to assess credit risks of the customer.

- (1) Understand the reality: As a lender you need to ensure that you made your customer aware of all the charges and fees associated with the credit which you are planning to extend to the customer. This is critical as customer might be at negotiation stance to have maximum benefit from your line of credit. Longer time he takes to negotiate, there is high possibility that pay off will be late. So communicate the implicit and non-implicit costs that associated with it. Even administrative aspects are also important as they sometime drive the business decision to have line of credit or not.
- (2) Check the credibility: It may be possible that customer externally looks reliable to the organization, but that does not mean that the customer has full ability to pay off appropriately and regularly. You need to understand the credibility that the customer possesses. And for that purpose, lender organization should rely on the reports which are available. Or they can consider going through the credit scoring agencies to ensure the customer has the paying ability. Even asking for the basic information will provide you a rough idea about the credit history of the customer. It always better to take the help of professionals during this step. Engage the professional and rely on their expertise. During this stage, credit evaluation is very critical.
- (3) Ask and Check the references: It's absolutely ok to ask customer for the references, List of creditable clients are much more reliable source than anything else. It's important to ask for the lender organization to understand who all have been given trade credit from in the past and how old are the relationship with such counterparty. This will establish a pattern to understand if the customer has a tendency to maintain the business relation or it's just a pure business. Also, asking reference from the third party proves to be independent source to verify the commitment made by the customers.
- (4) Due Diligence: When a lender is convince to provide a line of credit to the customer, it is his duty to have proper due diligence in place to ensure the line of credit is being placed in safe pair of hands. Irrespective of the professionals involvement in due diligence process, lender still has the moral responsibility to perform the due diligence on its own. This can be achieved by simply visiting the website, assessing the market creditability etc. Basically, publically sourced information is pretty useful in such cases.
- (5) Recovery: Lender organization or its employee must understand that every single rupee invested in the customer has cost involved in it. An effort should be made to ensure that this minimal cost of capital should be recovered from the customer. This can be achieved by simply asking your prospect for a deposit or the collateral.
- (6) Nature of business: Once should not hesitate to ask for the nature of business in which borrower is dealing with. This will give a fair bit item on risk exposure and also provide adequate comfort to the lender.

(6 Marks)

Multiple Choice Questions

Choose the most appropriate answer from the given options:

4.3 (A)

4.4 (B)

4.5 (D)

4.6. (D)

4.7 (A)

(2 x 5 = 10 Marks)

CASE STUDY: 5

- 5.1 Internal Techniques explicitly do not involve transaction costs and can be used to completely or partially offset the exposure.

These techniques can be further classified as follows:

- (i) *Invoicing in Domestic Currency:* Sellers will usually wish to sell in their own currency or the currency in which they incur cost. This avoids foreign exchange exposure but buyers' preferences may be for other currencies. Many markets, such as oil or aluminum, in effect require that sales be made in the same currency as that quoted by major competitors, which may not be the seller's own currency. In a buyer's market, sellers tend increasingly to invoice in the buyer's ideal currency. The closer the seller can approximate the buyer's aims, the greater chance he or she has to make the sale.

Should the seller elect to invoice in foreign currency, perhaps because the prospective customer prefers it that way or because sellers tend to follow market leader, then the seller should choose only a major currency in which there is an active forward market for maturities at least as long as the payment period. Currencies, which are of limited convertibility, chronically weak, or with only a limited forward market, should not be considered.

The seller's ideal currency is either his own, or one which is stable relative to it but often the seller is forced to choose the market leader's currency. Whatever the chosen currency, it should certainly be one with a deep forward market. For the buyer, the ideal currency is usually its own or one that is stable relative to it, or it may be a currency of which the purchaser has reserves.

- (ii) *Leading and Lagging:* Leading and Lagging refer to adjustments at the time of payments in foreign currencies. Leading is the payment before due date while lagging is delaying payment post the due date. These techniques are aimed at taking advantage of expected devaluation and/or revaluation of relevant currencies. Lead and lag payments are of special importance in the event that forward contracts remain inconclusive. For example, Subsidiary b in B country owes money to subsidiary a in country A with payment due in three months' time and with the debt denominated in US dollar. On the other side, country B's currency is expected to devalue within three months against US dollar, vis-à-vis country A's currency. Under these circumstances, if company b leads -pays early - it will have to part with less of country B's currency to buy US dollars to make payment to company A. Therefore, lead is attractive for the company. When we take reverse the example-revaluation expectation- it could be attractive for lagging.
- (iii) *Netting:* Netting involves associated companies, which trade with each other. The technique is simple. Group companies merely settle inter affiliate indebtedness for the net amount owing. Gross intra-group trade, receivables and payables are netted out. The simplest scheme is known as bilateral netting and involves pairs of companies. Each pair of associates nets out their own individual positions with each other and cash flows are reduced by the lower of each company's purchases from or sales to its netting partner. Bilateral netting involves no attempt to bring in the net positions of other group companies.

Netting basically reduces the number of inter company payments and receipts which pass over the foreign exchanges. Fairly straightforward to operate, the main practical problem in bilateral netting is usually the decision about which currency to use for settlement.

Netting reduces banking costs and increases central control of inter company settlements. The reduced number and amount of payments yield savings in terms of buy/sell spreads in the spot and forward markets and reduced bank charges.

- (iv) *Matching:* Although netting and matching are terms which are frequently used interchangeably, there are distinctions. Netting is a term applied to potential flows within a group of companies whereas matching can be applied to both intra-group and to third-party balancing.

Matching is a mechanism whereby a company matches its foreign currency inflows with its foreign currency outflows in respect of amount and approximate timing. Receipts in a particular currency are used to make payments in that currency thereby reducing the need for a group of companies to go through the foreign exchange markets to the unmatched portion of foreign currency cash flows.

The prerequisite for a matching operation is a two-way cash flow in the same foreign currency within a group of companies; this gives rise to a potential for natural matching. This should be distinguished from parallel matching, in which the matching is achieved with receipt and payment in different currencies but these currencies are expected to move closely together, near enough in parallel.

Both Netting and Matching presuppose that there are enabling Exchange Control regulations. For example, an MNC subsidiary in India cannot net its receivable(s) and payable(s) from/to its associated entities. Receivables have to be received separately and payables have to be paid separately.

- (v) *Price Variation:* Price variation involves increasing selling prices to counter the adverse effects of exchange rate change. This tactic raises the question as to why the company has not already raised prices if it is able to do so. In some countries, price increases are the only legally available tactic of exposure management.

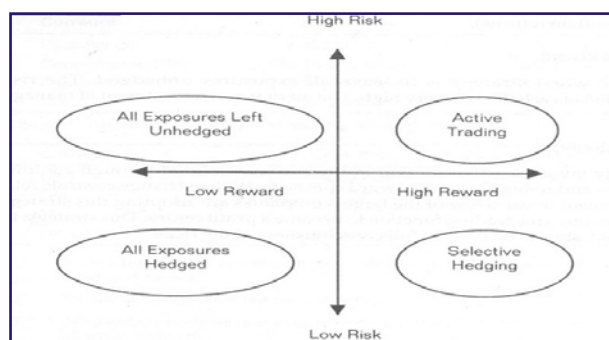
Let us now concentrate to price variation on inter company trade. Transfer pricing is the term used to refer to the pricing of goods and services, which change hands within a group of companies. As an exposure management technique, transfer price variation refers to the arbitrary pricing of inter company sales of goods and services at a higher or lower price than the fair price, arm's length price. This fair price will be the market price if there is an existing market or, if there is not, the price which would be charged to a third party customer. Taxation authorities, customs and excise departments and exchange control regulations in most countries require that the arm's length pricing should be used.

- (vi) *Asset and Liability Management:* This technique can be used to manage balance sheet, income statement or cash flow exposures. Concentration on cash flow exposure makes economic sense but emphasis on pure translation exposure is misplaced. Hence our focus here is on asset liability management as a cash flow exposure management technique.

In essence, asset and liability management can involve aggressive or defensive postures. In the aggressive attitude, the firm simply increases exposed cash inflows denominated in currencies expected to be strong or increases exposed cash outflows denominated in weak currencies. By contrast, the defensive approach involves matching cash inflows and outflows according to their currency of denomination, irrespective of whether they are in strong or weak currencies.

(10 Marks)

- 5.2** There can be no single strategy which is appropriate to all businesses. Four separate strategy options are feasible for exposure management.



Exposure Management Strategies

- (1) *Low Risk - Low Reward*: This option involves automatic hedging of exposures in the forward market as soon as they arise, irrespective of the attractiveness or otherwise of the forward rate. The merits of this approach are that yields and costs of the transaction are known and there is little risk of cash flow destabilization. Again, this option doesn't require any investment of management time or effort. The negative side is that automatic hedging at whatever rates are available is hardly likely to result into optimum costs. At least some management seems to prefer this strategy on the grounds that an active management of exposures is not really their business. In the floating rate era, currencies outside their home countries, in terms of their exchange rate, have assumed the characteristics of commodities. And business whose costs depend significantly on commodity prices can hardly afford not to take views on the price of the commodity. Hence this does not seem to be an optimum strategy.
- (2) *Low Risk - Reasonable Reward*: This strategy requires selective hedging of exposures whenever forward rates are attractive but keeping exposures open whenever they are not. Successful pursuit of this strategy requires quantification of expectations about the future and the rewards would depend upon the accuracy of the prediction. This option is similar to an investment strategy of a combination of bonds and equities with the proportion of the two components depending on the attractiveness of prices. In foreign exchange exposure terms, hedged positions are similar to bonds (known costs or yields) and unhedged ones to equities (uncertain returns).
- (3) *High Risk - Low Reward*: Perhaps the worst strategy is to leave all exposures unhedged. The risk of destabilization of cash flows is very high. The merit is zero investment of managerial time or effort.
- (4) *High Risk - High Reward*: This strategy involves active trading in the currency market through continuous cancellations and re-bookings of forward contracts. With exchange controls relaxed in India in recent times, a few of the larger companies are adopting this strategy. In effect, this requires the trading function to become a profit centre. This strategy, if it has to be adopted, should be done in full consciousness of the risks. **(5 Marks)**

5.3 (A)

5.4 (A)

5.5 (A)

5.6 (C)

5.7 (B)

(2 x 5 = 10 Marks)