

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

Note: Please note that these solutions are for guidance purpose only.

Answers to Case Study One

(A) Significant portfolio risks exist in the portfolio, as given below:

- Construction sector currently constitutes 20% of the portfolio i.e. concentration is high – it has to be reduced to say 5% of the portfolio. The portfolio is vulnerable to any sectoral downturn, i.e. significant losses are possible if there is a downturn in the construction sector. Since banks are highly leveraged and operate on thin margins such risks carry a potential risk that may put the bank out of business.
- There is also name concentration – two customers account for 30% of the portfolio. Again it is not comforting that the major names are in the construction and building materials sectors. It is well known that the building materials sector is strongly correlated with the construction sector. Whilst ensuring that these names are of top credit quality (AAA category), efforts must be taken to reduce name concentration to, say, 5% of the portfolio. Also credit assets from other non-correlated (if possible, negatively correlated) sectors may be pursued.
- Currency risk is significant because of the liability in the form of non-rupee deposits. Appropriate hedging may be attempted because the entire assets are denominated in local currency, i.e. rupees.
- Maturity risks are evident because 75% of the deposits and inter-bank borrowings are short term, while the short-term credit assets only represent 40% (i.e. long-term credit assets make up 60% of the portfolio). This serious maturity mismatch could spell trouble if there is any trigger on liquidity in the market. Matching of maturities is important.
- The collateral concentration is also not advisable.

The intelligent efforts of the portfolio manager of this bank can mitigate all these diversifiable risks in such a manner that there is no serious threat to the bank's survival. Then the major focus is on systematic risk. Even systematic shock can, to a great extent, be absorbed by the firm with a well-diversified portfolio.

(B) Answer to the Multiple Choice Questions

- (i)** (b)
- (ii)** (c)
- (iii)** (a)
- (iv)** (d)
- (v)** (b)
- (vi)** (b)
- (vii)** (a)
- (viii)** (d)
- (ix)** (b)
- (x)** (a)

Answers to Case Study Two

(A) (i) The various risks faced by the ABC Transportation Networks are discussed as below:

Audit Risk - ABC Transportation Networks is facing audit risks as in its limited review report, the statutory auditor has drawn the company's board of directors attention to the "existence of material uncertainty on the company's ability to continue as a going concern" and the "management plan to raise funds."

Financial and Liquidity Risk – As per the definition provided by NASDAQ, Financial Risk is the risk that the cash flow of an issuer will not be adequate to meet its financial obligations. Liquidity risk is the potential inability to meet commitments as they fall due.

In the case under consideration, the company is facing both the financial and liquidity risks as it has been mentioned in the report submitted by a credit rating agency that liquidity will continue to remain stretched due to sizeable near-term debt repayment obligations, high refinancing risk and high dependence on external funding support to project special purpose vehicles (SPVs).

Reputation Risk – The company is facing reputation risk as the credit rating agency has categorically pointed out the following points:

- Having high debt repayment obligations.
- High refinancing risk.
- High dependence on external funding support to project special SPVs.
- Recent downgrading of credit rating.

(ii) The steps which have been taken by the management of ABC Transportation Networks to counter the risks as mentioned above are given as below:

- Monetization of assets
- Raising of fresh capital through right issue
- Refinance of debt in matured annuity projects
- Other strategic initiatives to address any uncertainty relating to repayment of borrowings in next twelve months
- To create sustainable cash flows

(B) (i) Cybercrimes are difficult to execute in developed countries because such incidents require a large number of accounts to transfer the stolen money. With stringent KYC norms, anti-money laundering measures, multi-level transaction authentication requirements and AI (Artificial Intelligence) based real-time 'unusual' transaction tracking, carrying out such operations is difficult barring gross negligence by the bank/related parties.

(ii) The main threats that a bank faces from cyber-attacks are as follows:

- breach of customer data privacy,
- loss of reputation, business discontinuity,
- loss of assets/business information,
- post-breach information security revamping cost,
- third-party claims and
- penal actions from regulators.

To ward off such threats, strong customer data privacy protection norms and stringent penalties for infringement should be the norm for maintaining robust cyber security arrangements by banks as has been practiced in most OECD countries.

The public sector banks faces less threat of reputation risks due to cyber-attacks because of the predominance of public-sector banks which creates the impression of an implicit sovereign guarantee against the failure of such banks.

- (iii) The regulatory situation in India is also becoming more stringent. In 2016, the RBI has asked banks to put in place board-approved, robust cyber-risk management systems. The regulator has also set norms that put losses due to cyber-attacks almost exclusively on banks. Most importantly, the draft Personal Data Protection Bill, 2018, has proposed that for breach of personal-data protection, banks would face penalties similar to those under the GDPR.

For example, General Data Protection Regulations (GDPR) in the EU imposes a penalty of up to €20 million, or up to 4% of the annual worldwide turnover, for violation of norms.

(C) Answers to Multiple Choice Questions

- (i) (b)
- (ii) (a)
- (iii) (d)
- (iv) (b)
- (v) (d)
- (vi) (d)
- (vii) (b)
- (viii) (a)
- (ix) (b)
- (x) (a)

Answers to Case Study Three

- (A) The type of risks being faced by a Multinational Company (MNC) in country ABC in the following situations:
- (i) **Nationalization or Expropriation Risk:** This is most common form of risk wherein host country takes over the business of MNCs without or with inadequate compensation.
 - (ii) **Exchange Control Risk:** This form of risk prevents the MNCs to get converted their earning from local currency to foreign currency to repatriate the same to home country of MNCs. Due to this restriction even investors in MNCs business also suffer a lot.
 - (iii) **Taxes, Rule and Regulation Risk:** This risk arises mainly due to a sudden or dramatic change in Rule and Regulations governing the host country.
 - (iv) **Inefficient Legal System:** High level of red tapism and corruption at local and higher level pose a serious risk for MNCs operating in the host country as it leads to uncertainty and high cost of operation.

- (v) **Repudiation of Contracts:** This type of risk arises on account revocation of earlier awarded turnkey projects by the Government of host country without adequate consideration and damages. This risk is also called indirect expropriation risk.
- (B) This is one of the simplest techniques for country risk assessment to rank the countries. The methods employed are:
- (i) **Numerical Coding:** In this method, after considering various factors, a number is assigned to a country. While the highest number indicates lesser risk, the lowest number indicates higher risk.
 - (ii) **Colour Coding:** Different colours can be used to indicate the level of country risk. While Red Color indicates higher risk, Green Colour indicates a risk free zone.
 - (iii) **Combination of Numeral and Colour:** A combination of colour and numeral is also used to indicate relative level of country risk.
 - (iv) **Other Methods:** In addition to above, other methods can also be used which are as follows:
 - (a) *Grade Based Rating* – The grade can be assigned such as S & P, Moody's and Fitch assigns rating. For example, while USA been assigned rating of Aaa, AA+ and AAA by these agencies respectively of safer zone, Venezuela has been assigned rating Caa, B- and C indicating riskier zone.
 - (b) *Event Driven* – A very specific negative event such as removal of current government by military or sovereign default etc. assessed with the probability of happening.
For example, for India, due to its democratic system, the possibility of taking over of Government by military is rare and hence 0% probability can be assigned for this happening. On the other hand for same event, 70% probability can be assigned in case of Pakistan.
- (C) In view of the mistakes mentioned in question, the bank can mitigate its credit risk as follows:
- (a) **Risk-based pricing:** Where the lender feels that borrower is more likely to do default, the lender may increase the interest rate. This is called as risk-based –pricing. In the method the probability of default is hedged with the incremental interest rate. This type of method may not provide good worth in today's market considering the competitiveness.
 - (b) **Credit insurance:** The lender may purchase the credit insurance under which the risk is transferred from lender to the issuer on payment of certain amount. The best example is the housing loan insurance. Where the lender asks the borrower to purchase the requisite insurance to ensure the mortgage is secured. This will ensure that, in case, the borrower becomes a default party, lender can re-coupe the loan by way of such insurance.
 - (c) **Tightening:** Under this method, lender may tighten the norms of lending including the amount to be lent. For an example, the lender may mitigate the credit risk by reducing the payment period from 45 to 30 days. Reducing the credit period will provide the early warning indicators to the lender to analyze and act upon the situation.
 - (d) **Diversification:** Lenders may lend to number of small borrowers instead (kinds of borrower) to diversify the lending pool. This approach will help lender to diversify the risk associated with each credit line extended. For example, high credit rating borrower ultimately funds the low credit risks.
 - (e) **Covenants:** The lender may put some covenants like periodic review of financial position; repay the loan in full in case of certain events like debt coverage ratio shows improvement. Sometimes, lender also performs an independent audit on the business operation with the proper consent and according to the contractual agreements.
 - (f) **Consult with professionals:** It is the responsibility of the bank in the interest of it's customers to take the advice of banking experts from time to time and take corrective measure wherever required.

- (g) **Ensuring that collaterals are of required standards:** it is the duty of top banking officials to ensure that the collaterals are not substandard. It may be recalled that one of the leading causes of the Sub-prime crises was granting of loans on the basis of sub-standard collaterals.
- (D) Some of the sound practices which aim to help national authorities and firms to continue to improve their risk governance from the point of view of Board of Directors and Audit Committee are discussed as below:
- (i) **The Board of Directors**
- (a) avoids conflicts of interest arising from the concentration of power at the board (e.g., by having separate persons as board chairman and CEO or having a lead independent director where the board chairman and CEO are the same person);
 - (b) comprises members who collectively bring a balance of expertise (e.g., risk management and financial industry expertise), skills, experience and perspectives;
 - (c) comprises largely independent directors and there is a clear definition of independence that distinguishes between independent directors and non-executive directors;
 - (d) sets out clear terms of references for itself and its sub-committees (including tenure limits for committee members and the chairs), and establishes a regular and transparent communication mechanism to ensure continuous and robust dialogue and information sharing between the board and its sub-committees;
 - (e) conducts periodic reviews of performance of the board and its sub-committees (by the board nomination or governance committee, the board themselves, or an external party); this includes reviewing, at a minimum annually, the qualifications of directors and their collective skills (including financial and risk expertise), their time commitment and capacity to review information and understand the firm's business model, and the specialised training required to identify desired skills for the board or for director recruitment or renewal;
 - (f) sets the tone from the top, and seeks to effectively inculcate an appropriate risk culture throughout the firm;
 - (g) is responsible for overseeing management's effective implementation of a firm-wide risk management framework and policies within the firm;
 - (h) approves the risk appetite framework and ensures it is directly linked to the business strategy, capital plan, financial plan and compensation;
 - (i) has access to any information requested and receives information from its committees at least quarterly;
 - (j) meets with national authorities, at least quarterly, either individually or as a group.
- (ii) **The audit committee**
- (a) is required to be a stand-alone committee, distinct from the risk committee;
 - (b) has a chair who is an independent director and avoids "dual-hatting" with the chair of the board, or any other committee;
 - (c) includes members who are independent;
 - (d) includes members who have experience with regard to audit practices and financial literacy at a financial institution;

- (e) reviews the audits of internal controls over the risk governance framework established by management to confirm that they operate as intended;
- (f) reviews the third party opinion of the design and effectiveness of the overall risk governance framework on an annual basis.

(E) Using Bayes Theorem:

$$\begin{aligned}
 P[\text{Natural}|\text{Constant}] &= \frac{P(\text{Constant}|\text{Neutral}) \cdot P(\text{Neutral})}{P(\text{Constant})} \\
 &= \frac{0.2 \cdot 0.3}{(0.1 \cdot 0.2 + 0.2 \cdot 0.3 + 0.15 \cdot 0.5)} = \frac{0.06}{0.02 + 0.06 + 0.075} = \frac{0.06}{0.155} = 0.387
 \end{aligned}$$

(F) Answers to Multiple Choice Questions

- (i) (b)
- (ii) (d)
- (iii) (d)
- (iv) (b)
- (v) (c)
- (vi) (d)
- (vii) (b)
- (viii) (d)
- (ix) (c)
- (x) (c)