STRATEGIC RISK MANAGEMENT [C1] – CHARTERED LEVEL

Marks

Question No. 1

Desirability of Risk Management: 10

- At the broadest level, risk management can benefit society as a whole. The effect on the economy of risk management failures in banking, as shown by the global liquidity crisis, gives a clear illustration of this point.
- It could also be argued that risk management is what boards have been appointed to implement, particularly in the case of non-executive directors.This does not mean that they should remove all risk, but they should aim to meet return targets using as little risk as possible. This is a key part of their role as agents of shareholders. It is in fact in the interests of directors to ensurethat risks are managed properly, since it reduces the risk of them losing their jobs, although there are remuneration structures that can reward undue levels of risk.
- On a practical level, risk management can also reduce the volatility in an organisation’s returns. This could help to increase the value of a firm, by reducing the risk of bankruptcy and perhaps the tax liability. This can also have a positive impact on a firm’s credit rating, and can reduce the risk of regulatory interference. Reduced volatility also avoids large swings in the number of employees required – thus limiting recruitment and redundancy costs – and reduces the amount of risk capital needed. If less risk capital is needed, then returns to shareholders or other providers of capital can be improved or, for insurance companies and banks, lower profit margins can be added to make products more competitive.
- Improved risk management can lead to a better trade-off between risk and return. Firms are more likely to choose the projects with the best risk-adjusted rates of return, and to ensure that the risk taken is consistent with the corporate appetite for risk. Again, this benefits shareholders.
- The above points apply to all types of risk management, but ERM involves an added dimension. It ensures not only that all risks are covered, but also that they are covered consistently in terms of the way they are identified, reported and treated. ERM also involves the recognition of concentrations and diversifications arising from the interactions between risks. ERM therefore offers a better chance of the overall risk level being consistent with an organization’s risk appetite.

Question No. 2

(a) (i) The risk facing Karachi-based importer is that value of £ will rise over the next 30 days and it will require more PKR to buy pounds to make payment. 1

To hedge the risk, a long forward to buy the pounds is required. 1

(ii)

S_O = PKR 139.7249 per £.

$T = \frac{30}{365} = 0.08219$

$r_d = 0.055$

$r_f = 0.045$ 1

$F(0,T) = S_O\left[\frac{(1+rd)^T}{(1+rF)^T}\right]$ 1

$= 139.7249\,\frac{(1.055)^{0.08219}}{(1.045)^{0.08219}} = 139.8343$ 1

Marks

(iii)

S_t = PKR 139.8420 per £.

$T = \frac{30}{365} = 0.08219$

$t = \frac{10}{365} = 0.027397$

$r_d = 0.055$

$r_f = 0.045$ 1

$V_{t(0,T)} = \frac{139.8420}{(1.045)^{0.027397}} - \frac{139.8343}{(1.045)^{0.027397}}$ 1

$V_{t(0,T)} = 139.6735 - 139.6293 = 0.0442$ 1

(b) (i) 6 x 12 FRA expires in 180 days 1

and is based on 180-day KIBOR 1

(ii) h= 180; m= 180; h+m=180+180= 360

$L_{0(h+m)} = 0.0595$ ½

$L_{0(h)} = 0.057$ 1

$FRA_{(0,h,m)} = \{\frac{1+\frac{0.0595\ x360}{360}}{1+\frac{0.0570\ x180}{360}}-1\}\frac{360}{180}$ 1

$= 0.0603 = 6.03\%$ ½

(c) Explanation of Parties to the Forward Contract not Exposed to Credit Risk: 02

Credit risk in forward contract arises when the counterparty that owes greater amount is unable to pay at the expiration or declares bankruptcy prior to expiration.

The market value of the forward at a particular point in time indicates the net amount owing to one party by the other party; hence, only one party faces the credit risk at a time.

However, as the market value of the forward may change from time to time, the other party has potential of facing the credit risk at a later date.

Question No. 3

(a) Components of Credit Risk Evaluation: 04

The four components of credit risk evaluation are as under:

- The borrowers' capacity and willingness to repay the loan.
- The external environment and its effects on borrowers' capacity and willingness to repay the loan.
- Characteristics of credit instruments like maturity, security, covenants of instruments, currency of denomination etc.
- The quality and adequacy of risk mitigants such as collateral, credit enhancement and loan guarantee.

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(b)	Expected Loss [EL]portfolio	=	EL on Bond 'A' + EL on Bond 'B'			½
	$EL_{[Bond\ 'A']}$	=	Probability of default of bond 'A' x Exposure x Loss given default			1
	$EL_{[Bond\ 'A']}$	=	Probability of default of bond 'A' x Exposure x(1 – Recover rate)			1
	$EL_{[Bond\ 'A']}$	=	4% x 1,200,000 x(1– 60%)	=	19,200	½
	$EL_{[Bond\ 'B']}$	=	5% x 800,000 x(1– 35%)	=	26,000	½
	$EL_{[Portfolio]}$	=	19,200 + 26,000	=	45,200	½

(c) Limitations on Payments of Dividend:

Banks/DFIs shall not pay any dividend on their shares unless and until: 04

- They meet the minimum capital requirement (MCR) and capital adequacy ratio requirement (CAR) as laid down by the State Bank of Pakistan from time to time;
- All their classified assets have been fully and duly provided for in accordance with the Prudential;
- All their classified assets have been fully and duly provided for in accordance with the Prudential Regulations and to the satisfaction of the State Bank of Pakistan; and
- All the requirements laid down in Banking Companies Ordinance, 1962 relating to payment of dividend are fully complied.

(d) Pre-operations Steps: 08

Before embarking upon or undertaking consumer financing, the banks/ DFIs shall implement/follow the guidelines given below on an on-going basis:

- Banks/ DFIs shall establish separate Risk Management capacity for the purposeof consumer financing that should be commensurate with the size, scope and complexity of the consumer finance business and suitably staffed by personnel having sufficient expertise and experience in the field of consumer finance/business.
- The banks/ DFIs shall prepare comprehensive consumer credit policy duly approved by their Board of Directors.
- Islamic Banking Institutions (IBIs) offering Shariah compliant consumer financing products shall have their comprehensive consumer credit policy dulyapproved by Shariah Board in addition of their Board of Directors.
- The bank/ DFI shall develop a specific product program, which shall include the objective/ quantitative parameters for the eligibility of the borrower and determining the maximum permissible financing limit per borrower.
- Banks/ DFIs shall put in place an efficient and adequately automated computerbased MIS for the purpose of consumer finance which should be commensuratewith the size, scope, complexity of the consumer finance business.
- The banks/ DFIs shall develop comprehensive recovery procedures for thedelinquent consumer financing facilities. The recovery procedures may varyfrom product to product.
- The banks/ DFIs desirous of undertaking consumer finance will become amember of at least one Consumer Credit Information Bureau. Moreover, thebanks/DFIs may share information/data among themselves or subscribe to otherdatabases as they deem fit and appropriate.
- The banks/DFIs shall prepare standardized set of borrowing and recourse documents (duly cleared by their legal counsels) for each type of consumerfinancing.

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Question No. 4

(a) Key Risk Indicators (KRIs):

KRIs are the measures summarizing the frequency, severity and impact of operational risk events or corporate actions occurred during a reporting period. 2

(b) (i) KRIs for Human Resources (HR) Department: 04

- Turnover of experienced staff
- Number of temporary/short term staff
- Number of employees, attended training courses
- Number of employees, failed to pass mandatory evaluation

(ii) KRIs for Information Technology (IT) Department: 04

- Number of failures related to IT system and other equipment
- Number of calls to help desk on IT system and other equipment
- Average down-time of IT system and other equipment
- Increase in transaction load on systems

Question No. 5

(a) Interest expense = 30 x 3.5% + 70 x 1.5% = 1.05 + 1.05 = Rs.2.10 million 1

Interest income = 50 x 6.5% + 40 x 7.5% + 10 x 0% = 3.25 + 3.00 + 0 = Rs.6.25 million 1

Net interest margin = Interest income – Interest expense = 6.25 – 2.10 = Rs.4.15 million 1

Average invested asset = 50 + 40 + 10 = Rs.100 million 1

NNI in % = 4.15÷100 = 0.0415 =4.15% 1

(b) Duration of assets [D_A] = $\frac{60x2.5+50x3+10x0}{120}$ = 2.50 years 1½

Duration of liabilities [D_L] = $\frac{30x3.3+70x0.5}{100}$ = 1.34 years 1½

k = Leverage-adjusted duration gap = $\frac{30+70}{60+50+10}$ = 0.833 1

Leverage-adjusted duration gap [LADAG] = D_A– kD_L = 2.5 – 0.833 x 1.34 = 1.38 1

(c) The duration is a measure of interest rate risk. 1

LADAG calculated in part **(b)** is a measure that takes into account a bank's overall exposure to interest rate risk. 1

If bank has positive LADAG, its net worth suffer decline due to increase in interest rate. On the other hand, if LADAG is negative, net worth will increase due to interest rate hike. 1

As LADAG is + 1.38, net worth will decrease if interest rates suddenly rises. 1

Impact on bank's net worth = –(1% x LADAG x MV) = –(1% x 1.38 x 120) = –Rs.1.66 million 1

Marks

Question No. 6

(a) **(i)** First, compute risk-free rate, using sharp ratio of Portfolio 'A'

Sharp ratio $= \frac{Return - riskfree\ rate}{Standard\ deviation}$ 1

Risk-free rate = Return – Sharp ratio x Standard deviation= 3% – 0.5 x 4%= 1% 1

Sharp ratio 'C' = $\frac{6\% - 1\%}{11\%}$ = 0.45 1

Sharp ratio 'D' = $\frac{6.6\% - 1\%}{12\%}$ = 0.47 1

(ii) Portfolio 'A' and 'B' don't meet return objective, and are, therefore, excluded. 1

Of Portfolio 'C' and 'D', which meet return objective, Portfolio 'D' offers highest return per unit of risk, thus meeting the risk objective. It is, therefore, recommended. 1

(b) Mean-Variance Optimization (MVO): 04

- Mean-Variance Optimization (MVO) approach is highly sensitive to small changes in input and estimation error.
- The most important inputs into MVO are the expected returns. Unfortunately, mean returns are the most difficult input to estimate.
- With different capital market expectations and risk-free rates, the most appropriate strategic asset allocation may not be optimal.
- Based on the faulty premise that portfolio variance is a complete measure of risk.

(c) Advantages of Passive Investing: 02

- The main advantage of passive investing is its low cost.
- Other advantage is its simplicity. Investors know what are getting e.g. tracking of benchmark.

Disadvantages of Passive Investing: 02

- Benchmark selected may be over-exposed to few stocks or sectors.
- Passive investing is insensitive to fundamental valuations of companies. Money may be invested in known underperformer.

(d) Calculation and Ranking:

	Measures and Ranking	Computation	Managers				
			Adnan	Bilawal	Shumail	Danish	Marks
(i)	Jensen measure	Manager return – {risk-free return + beta x (index return – risk-free return)}	0.01%	–0.94%	0.65%	0.57%	2
	Ranking		3	4	1	2	1
(ii)	Treynormeasure	(Manager return – risk-free rate) ÷ beta	0.031	0.020	0.037	0.035	2
	Ranking		3	4	1	2	1

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Question No. 7		
(i)	Minimum Capital Requirement (MCR).	1
(ii)	Solvency Capital Requirement (SCR).	1
(iii)	Exit value of liabilities: Price at which they can be transferred to knowledgeable, willing party in arm's-length transaction.	2
(iv)	Components of basic solvency capital are as under:	06

- Non-life underwriting risk;
- Life underwriting risk;
- Special health underwriting risk;
- Market risk (including interest rate mismatch);
- Counter-party default risk; and
- Operational risk.

THE END