

Serial No.	<b>CHAPTER 9 : OPERATIONAL RISK MANAGEMENT</b>	ICAI Study Material Page No.	Extra Reference In ICAI Material	Past Paper /Mock Paper (Book 1)	Book 2
1.	INTRODUCTION	9.1			
1.1	What is Operational Risk? (According to Basel II)	9.1			
1.2	Why does operational risk originate? Operational Risk Management (ORM)	9.2			
2	RELEVANCE OF OPERATIONAL RISK	9.2			
	The Companies Act 2013 (Sections 134 and 177)	9.2			
	Clause (e) of Sub-section 5 of Section 134	9.3			
	Section 177	9.3			
	Schedule IV	9.3			
	Paragraph 4(c) of the Standard on Auditing (SA) 315	9.3			
	Clause 49 of the Listing Agreement	9.3			
	The ICAI Guidance Note on Audit of Internal Financial Controls	9.3			
	Information Provided by Entity (IPE)	9.4			
	EUC (End Use Computation tool)	9.4			
	Sarbanes Oxley ("SOX")	9.4			
	ISO 31000 (risk management), ISO 9000 (quality),	9.5			
3	OPERATIONAL RISK MANAGEMENT GOVERNANCE	9.5			
3.1	Operational Risk Management Policy	9.5			
	new areas to be covered.	9.5			
	Risk and Control Self Assessment (RCSA)	9.5	9.10, 9.17		
3.2	Operational Risk Management Committee (ORMC)	9.6			
3.3	Lines of Defence	9.7			
	First line of defence	9.7			
	Second line of defence	9.7			
	Third line of defence	9.8			
3.4	Effective policy framework	9.9			
	Entity level policies	9.9			
	• Entity level policies • Line of business / Departmental policies	9.9			
3.5	Process notes / Standard Operating Procedures (SOP)	9.9			
4	RISK IDENTIFICATION AND RISK-TYPES	9.10			
4.1	Definition of RCM and RCSA	9.10			
	Critical constituents: Risk, Control, Risk grading, Control Owner	9.10			
4.2	Description of the Inherent Risk (Major impact and Minor impact)	9.10			

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	risk types	9.11			
	(a) Regulatory risk	9.11	1.20		
	(b) Financial risk	9.11	1.19		
	(c) Financial reporting	9.11			
	(d) Legal risk	9.11	1.20		
	(e) Reputation risk	9.11	1.20		
	(f) Fraud risk	9.11			
	(g) External risk	9.12			
4.3	Risk Grading / Rating	9.12			
	Parameter, High, Medium, Low - (Table)	9.12			
	Impact /Severity	9.14			
	Probability / Frequency	9.14			
	concept of bucketing the risk profile	9.14			
	• High Impact – High Probability • High Impact- Low Probability • Low Impact – High Probability • Low Impact – Low Probability	9.14			
4.4	Residual risk and Rating/Grading	9.14			
5	UNDERSTANDING OF CONTROLS	9.15			
	(a) Verification	9.15			
	(b) Reconciliations	9.15			
	(c) Segregation of duties	9.15			
	(d) Physical control	9.15			
	(e) Supervisory control	9.16			
	(f) Exception triggers	9.16			
	(g) Authorisation/ approval	9.16			
	(i) Preventive controls	9.16			
	(ii) Detective controls	9.16			
	(iii) Manual controls	9.16			
	(iv) Automated controls	9.16			
	hybrid control.	9.17			
6	RISK CONTROL SELF-ASSESSMENT (RCSA)	9.17			
	RCSA: indicative details	9.17			
7	TECHNOLOGY RISK	9.17			

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	(a) Unscheduled system downtime	9.17			
	(b) System failure pertaining to incorrect programming	9.18			
	severe operational risk failures	9.18 (3rd Para)			
	(c) Master maintenance	9.19			
	(d) User access control (most key control in driving controls in an automated controls environment.)	9.19			
	(e) Accounting systems	9.19			
	(f) Change management	9.19			
	Information Technology General Controls (ITGC)	9.19 (point f)			
	result of multiple causes	9.19			
	User Acceptance Testing (UAT)	9.20			
	(g) Migration risk	9.20			
	migration has to cover	9.20			
	(h) Technology outsourcing risk	9.20			
8	Key Risk Indicators (KRI) and Scenario Analysis, RCSA	9.21			
9	BUSINESS CONTINUITY PLAN (BCP)	9.21			
	overall disruption reason	9.21			
	Common examples of critical disruption in business process	9.22			
	Hence a Business Continuity Plan ("BCP") is required to be adopted.	9.22			
	key constituents of a BCP one by one.	9.22			
9.1	Business Impact Analysis (BIA)	9.22	2.24		
	A BIA must ideally cover following aspects	9.23			
9.2	Functional Recovery Plan (FRP)	9.23			
	A FRP is a very detailed document that would list the following at a minimum	9.24			
	Alternate Site	9.24 (1st bullet)			
	indicative list	9.24 (1st bullet)			
	Call Tree.	9.24 (3rd bullet)			

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10	OUTSOURCING RISK	9.25			
	Hiring of an outsourced vendor/service provider must cover the following aspects	9.25			
11	CYBER RISK AND INFORMATION SECURITY CONTROLS	9.25			
	broadly covers scenarios	9.26			
	Trade secret software programs	9.26			
	Confidential data of customers	9.26			
	Malevolent attack	9.26			
	Ransomware	9.26			
	Phishing	9.26 (7th bullet)			
	Mitigation of such risks	9.27			
	key aspects	9.27			
12	OPERATIONAL LOSS DATA MANAGEMENT (Table)	9.28			
12.1	Identification	9.31			
	identify an operational loss event	9.31			
12.2	Quantification (both financial and non financial)	9.31			
12.3	Reporting	9.32			
12.4	Corrective action	9.32			
13	BUSINESS ANALYTICS AND ARTIFICIAL INTELLIGENCE	9.32			
13.1	Machine Learning	9.33			
	machine learning techniques can be divided into two primary groups	9.33			
	• Supervised Learning • Unsupervised Learning Regression and classification method	9.33			
13.2	Analytics – Risk Management Applications	9.34			
13.3	Artificial Intelligence	9.35			
	dominant in many fields - Gaming, Natural Language Processing, Expert Systems, Vision Systems	9.35			
13.4	Distributed Ledger Technology (DLT)	9.35			
	synchronised ledger	9.35			

