## Contents

Preface xvi

PART I INTRODUCTION

1 Credit Basics 3
   1.1 Meaning of Credit 4
   1.2 Role of Credit 6
   1.3 Credit Market 6
   1.4 Credit – Advantages and Disadvantages 7
      1.4.1 Merits of Credit 7
      1.4.2 Demerits of Credit Usage 9
      1.4.3 Is Wealth Creation Through Use of Credit Easy and Simple? 10
   1.5 Suppliers of Credit 11
   1.6 Credit Risk Study 12

   Appendix: Credit Creation 13
   Questions/Exercises 14

2 Essentials of Credit Risk Analysis 15
   2.1 Meaning of Credit Risk 15
   2.2 Causes of Credit Risk 16
   2.3 Credit Risk and Return 17
   2.4 Credit Risk Analysis 17
   2.5 Historical Progress of Credit Risk Analysis 19
   2.6 Need for Credit Risk Analysis 19
   2.7 Challenges of Credit Risk Analysis 22
      2.7.1 The Art and Science of Credit Risk Analysis 22
   2.8 Elements of Credit Risk Analysis 24
      Questions/Exercises 25

3 Credit Risk Management 27
   3.1 Strategic Position of Credit Risk Management 27
   3.2 Credit Risk Management Context 28
   3.3 Credit Risk Management Objectives 28
   3.4 Credit Risk Management Structure 29
# Contents

3.5 Credit Risk Culture 29  
3.6 Credit Risk Appetite 30  
3.7 Credit Risk Management in Non-Financial Firms 31  
3.8 Credit Risk Management in Financial Intermediaries 31  
   3.8.1 Stages of Credit Risk Management in Financial Intermediaries 31  
   3.8.2 Credit Risk Management Process 33  
Questions/Exercises 34  

PART II  FIRM (OR) OBLIGOR CREDIT RISK

4 Fundamental Firm/Obligor-Level Risks 37  
   4.1 Firm (or) Obligor Risk Classification 37  
      4.1.1 Business Risks or Operating Risks (OR) 37  
      4.1.2 Financial Risks (FR) 38  
   4.2 Risk Matrix 39  
   4.3 Different Risk Levels 39  
      4.3.1 Low Operating Risk and Low Financial Risk 39  
      4.3.2 Low Operating Risk and Medium Financial Risk 39  
      4.3.3 Low Operating Risk and High Financial Risk 40  
      4.3.4 Medium Operating Risk and Low Financial Risk 40  
      4.3.5 Medium Operating Risk and Medium Financial Risk 40  
      4.3.6 Medium Operating Risk and High Financial Risk 40  
      4.3.7 High Operating Risk and Low Financial Risk 40  
      4.3.8 High Operating Risk and Medium Financial Risk 41  
      4.3.9 High Operating Risk and High Financial Risk 41  
Questions/Exercises 42  

5 External Risks 43  
   5.1 Business Cycle 43  
      5.1.1 Benefits of Study of Business Cycles 45  
      5.1.2 Credit Risk in the Business Cycle 46  
   5.2 Economic Conditions 46  
      5.2.1 Private Consumption 47  
      5.2.2 Government Spending 47  
      5.2.3 Investment 48  
      5.2.4 Imports and Exports 48  
      5.2.5 How to Link NI Components to the Firm 48  
      5.2.6 Benefits of Study of National Income 49  
   5.3 Inflation and Deflation 50  
   5.4 Balance of Payments and Exchange Rates 51  
   5.5 Political 52  
   5.6 Fiscal Policy 53  
   5.7 Monetary Policy 53  
   5.8 Demographic Factors 54  
   5.9 Regulatory Framework 55  
   5.10 Technology 55  
   5.11 Environment Issues 55
6 Industry Risks

6.1 Understanding Obligor’s Industry or Market
   6.1.1 Sector vs. Industry vs. Market Segment
   6.1.2 Challenges of Industry Classification

6.2 Types of Industry Risks

6.3 Industry Life Cycle

6.4 Permanence of Industry

6.5 Government Support

6.6 Industry and Factors of Production

6.7 Industry and Business Cycles

6.8 Industry Profitability
   6.8.1 Competition Among the Existing Firms Within the Industry
   6.8.2 Threat of New Entrants
   6.8.3 Threat of Substitute Products
   6.8.4 Bargaining Power of Buyers
   6.8.5 Bargaining Power of Suppliers

6.9 Competitor/Peer Group Analysis

7 Entity-Level Risks

7.1 Understanding the Activity

7.2 Risk Context and Management

7.3 Internal Risk Identification Steps
   7.3.1 Interviews and Questioning
   7.3.2 Market Developments and Peer Comparison

7.4 SWOT Analysis

7.5 Business Strategy Analysis
   7.5.1 Cost Leadership
   7.5.2 Differentiation
   7.5.3 Contraction
   7.5.4 Market Penetration
   7.5.5 New Markets
   7.5.6 New Products/Product Synergy Diversification
   7.5.7 Product/Market Diversification
   7.5.8 Consolidation
   7.5.9 Merger/Takeover
   7.5.10 Expansion
   7.5.11 Cost Control
   7.5.12 Focus

7.6 Pitfalls in Strategy

7.7 Management Analysis
   7.7.1 One-Man Rule
   7.7.2 Joint Chairman/CEO/MGD Position
7.7.3 Imbalance in Top Management Team 91
7.7.4 Weak Finance Function 92
7.7.5 Lack of Skilled Managers (or Inability to Attract Skilled Managers in Key Positions) 92
7.7.6 Disharmony in Management 92
7.7.7 Change in Ownership 92
7.7.8 Cultural Rigidity 92
7.7.9 Lack of Internal Controls 93
7.7.10 Low Staff Morale 93
7.7.11 Fraudulent Management 93
7.7.12 Myopic Vision 93
7.7.13 Big Projects 93
7.7.14 Inadequate Response to Change 94
7.7.15 Poor Corporate Governance 94
7.8 Other Internal Risks 94
Questions/Exercises 97

8 Financial Risks 99
8.1 Importance of Financial Statements 99
8.2 Quality and Quantity of Financial Statements 101
  8.2.1 Quality of Financial Statements 101
  8.2.2 Quantity of Financial Statements 102
8.3 Role of Historical Financial Statements 102
8.4 Financial Analysis 103
  8.4.1 Balance Sheet 103
  8.4.2 Income Statement (or) Profit and Loss Account 104
  8.4.3 Cash Flow Statement (CFS) 105
8.5 Analytical Tools 105
  8.5.1 Accounting Analysis 105
  8.5.2 Common Sizing Analysis (CSA) 107
  8.5.3 Indexed Trend Analysis (ITA) 110
  8.5.4 Ratio Analysis 113
8.6 Solvency Ratios 115
  8.6.1 Liquidity Ratios 115
  8.6.2 Long Term Solvency Ratios 117
  8.6.3 External Finance Ratios 120
  8.6.4 Dividend and Equity Ratios 120
  8.6.5 Cash Flow Ratios 121
8.7 Operational Ratios 123
  8.7.1 Performance Ratios 123
  8.7.2 Profitability Ratios 124
  8.7.3 Return on Investment (ROI) Ratios 125
  8.7.4 Asset Management (or Activity) Ratios 126
  8.7.5 Leverage (Operating and Financial) Ratios 128
  8.7.6 Cost-Volume-Profit (CVP) Ratios 133
8.8 Encapsulated Ratios
   8.8.1 Dupont Model
   8.8.2 Predictive Power of Ratios
Questions/Exercises

9 Integrated View of Firm-Level Risks
   9.1 Relevance of an Integrated View
   9.2 Judgement
   9.3 Identifying Significant Credit Risks
   9.4 Risk Mitigants
   9.5 Types of Mitigants
      9.5.1 Qualitative Mitigants
      9.5.2 Quantitative Mitigants
      9.5.3 Difference between Qualitative and Quantitative Mitigants
   9.6 Principles to be Borne in Mind While Selecting Mitigants
   9.7 Monitoring of Credit Risk
Appendix: Credit Risks and Possible Mitigants
Questions/Exercises

10 Credit Rating and Probability of Default
   10.1 Credit Risk Grading
      10.1.1 Linking EIIIF Evaluation to Credit Risk Grades
      10.1.2 Benefits of Credit Risk Grade System
   10.2 Probability of Default
      10.2.1 Benefits of PD Values
      10.2.2 PD Values and Credit Decisions
   10.3 External vs. Internal Rating
      10.3.1 Reliability of External Ratings
      10.3.2 Internal Ratings
   10.4 PD in Credit Structural Models
      10.4.1 The Merton Model (1974)
Questions/Exercises

PART III CREDIT RISKS – PROJECT AND WORKING CAPITAL

11 Credit Risks in Project Finance
   11.1 Distinctive Features of Project Finance
   11.2 Types of Project Finance
   11.3 Reasons for Project Finance
      11.3.1 Scarce Resources
      11.3.2 Risk Sharing
      11.3.3 Off-Balance Sheet Debt
      11.3.4 Avoidance of Restrictive Covenants
      11.3.5 Tax Considerations
      11.3.6 Extended Tenor
Questions/Exercises
11.4 Parties Involved in Project Finance
11.4.1 Sponsors
11.4.2 Project Lenders
11.4.3 Project Contractors/Consultants/Lawyers/Accountants
11.4.4 Governments
11.4.5 Multilateral Agencies

11.5 Phases of Project and Risks
11.5.1 Construction Phase Risks
11.5.2 Start-Up Phase Risks
11.5.3 Operational Phase Risks

11.6 Project Credit Risks
11.6.1 EIIF Risks
11.6.2 Project Specific Risks
11.6.3 Project Financial Viability Risks

11.7 Financial Study
11.7.1 Cash Flow Forecasts
11.7.2 Estimation of the Economic Worth of the Project
11.7.3 Assessing Creditworthiness – Building a Lender’s Case

11.8 Project Credit Risk Mitigants

Questions/Exercises

12 Credit Risks in Working Capital
12.1 Definition of Working Capital
12.1.1 Working Capital Cycle – Finance Manager’s Key Concern
12.1.2 Working Capital Cycle – Lending Bank’s Point of View
12.2 Assessing Working Capital through the Balance Sheet
12.3 Working Capital Ratios
12.4 Working Capital Cycle
12.5 Working Capital vs. Fixed Capital
12.6 Working Capital Behaviour
12.6.1 Availability of Finance
12.6.2 Changes in Trade Terms
12.6.3 Changes in Business Volume
12.6.4 Price Changes
12.6.5 Others
12.7 Working Capital, Profitability and Cash Flows
12.8 Working Capital Risks
12.8.1 Over-trading
12.8.2 Diversion Risk
12.8.3 Inadequate Financial Management
12.8.4 Inflation Risk
12.8.5 Inadequate Provisioning of Working Capital in Original Project Costs
12.8.6 Losses and Reducing Profitability
12.8.7 Inadequate Structuring of Facilities by Banks
12.8.8 Unforeseen Contingencies
12.9 Impact of Working Capital Risks
12.10 Working Capital Risk Mitigants
   12.10.1 Covenants
   12.10.2 Cancellation/Tightening/Temporary Freeze of Facilities
   12.10.3 Increase Pricing
   12.10.4 Liquidation of Non-Core Assets
   12.10.5 Owners’ Injection/Strengthening Net Working Capital
   12.10.6 Improvement of Working Capital Management
   12.10.7 Insure against the Risk from Unforeseen Contingencies

12.11 Working Capital Financing

Questions/Exercises

PART IV CREDIT PORTFOLIO RISKS

13 Credit Portfolio Fundamentals
   13.1 Credit Portfolio vs. Equity Portfolio
   13.2 Criticality of Portfolio Credit Risks
   13.3 Benefits of Credit Portfolio Study
      13.3.1 Active Credit Portfolio Management
      13.3.2 Overall Credit Risk Reduction
      13.3.3 Optimizes Liquidity
      13.3.4 Assists Sales and Marketing
      13.3.5 Insights into Sectoral Risk Exposures
      13.3.6 Solves the Capital Dilemma
      13.3.7 Portfolio Management Strategies
      13.3.8 Credit Quality Issues
   13.4 Portfolio Analysis
   13.5 Credit Portfolio Risk vs. Return
   Appendix: Organizational Conflict in Credit Risk Management

Questions/Exercises

14 Major Portfolio Risks
   14.1 Systematic Risk
      14.1.1 Triggers of Systematic Risk
      14.1.2 Consequences of Systematic Risk
   14.2 Diversifiable Risk
   14.3 Concentration
      14.3.1 Industry or Sector Concentration
      14.3.2 Exposure or Name Concentration
      14.3.3 Region/Location/Country Concentration
      14.3.4 Foreign Currency Concentration
      14.3.5 Collateral Risk
      14.3.6 Maturity Risks
      14.3.7 Funding Risk
      14.3.8 Correlation Risks
   14.4 Credit Portfolio Beta

Questions/Exercises
15 Firm Risks to Portfolio Risks and Capital Adequacy

15.1 Obligor PD and Portfolio PD

15.2 Migration Risk
   15.2.1 Firm Credit Risk Migration
   15.2.2 Portfolio Risk Migration
   15.2.3 Benefits of Migration Risk Study

15.3 Default Risk
   15.3.1 Firm-Level Defaults
   15.3.2 Portfolio-Level Defaults

15.4 Loss Given Default (LGD)

15.5 Expected Loss (EL)
   15.5.1 Obligor EL
   15.5.2 Portfolio EL

15.6 Provisioning
   15.6.1 Provisioning – Firm Level
   15.6.2 Portfolio-Level Provisioning

15.7 Credit Loss Distribution
   15.7.1 Characteristics of Credit Loss Distribution
   15.7.2 Benefits of Developing a Credit Risk (or Loss) Distribution

15.8 Economic Capital
   15.8.1 Regulatory Capital vs. Economic Capital
   15.8.2 Measuring Economic Capital
   15.8.3 Optimizing Economic Capital

Questions/Exercises

16 Credit Risk and The Basel Accords

16.1 Basel Accords

   16.2.1 Criticisms of Basel I

16.3 Basel Accord II (2006)
   16.3.1 Alternative Approaches for Credit Risk in Basel II
   16.3.2 Risk Weighted Assets (RWA) and Capital Adequacy in Basel II

16.3.3 Do Higher LGD and PD Always Translate into Higher RWA under the IRB Approach?
   16.3.4 Criticisms of Basel II

16.4 Basel III
   16.4.1 Credit Risk Measurement in Basel III
   16.4.2 Other Key Features of Basel III
   16.4.3 Can Basel III Prevent Future Financial/Credit Crises?

Questions/Exercises

Appendix

PART V PORTFOLIO RISK MITIGANTS

17 Credit Risk Diversification

17.1 Traditional Diversification
17.1.1 Industry Limit 306
17.1.2 Counterparty Limit 307
17.1.3 Region-Wise Restriction 307
17.1.4 Size 308
17.2 Modern Diversification of Credit Portfolio 309
17.2.1 Portfolio Selection Theory 309
17.2.2 Application of PS in Credit Portfolio 310
17.2.3 More Tools to Study Diversification of Portfolio Risks 314
17.3 Correlations in Credit Risk Models 315
Questions/Exercises 315

18 Trading of Credit Assets 317
18.1 Syndicated Loans/Credit Assets 317
18.2 Securitization 318
18.2.1 Asset Backed Securities (ABS) 319
18.2.2 Collateralized Debt Obligations (CDO) 319
18.2.3 Downfall of CDOs (and Similar Securitized Instruments) 321
18.3 Distressed Debt 321
18.4 Factoring 322
18.5 Distressed Receivables 322
Questions/Exercises 322

19 Credit Derivatives 323
19.1 Meaning of a Credit Derivative 323
19.1.1 Credit Event 324
19.2 Credit Default Swap (CDS) 324
19.2.1 Is CDS an Insurance? 326
19.2.2 CDS and Speculation 327
19.2.3 Uses of CDS 327
19.2.4 Sovereign CDS 329
19.2.5 Criticism of CDS 329
19.3 Total Return Swap 330
19.3.1 Uses of TR Swap 331
19.4 Credit Option (CO) 332
19.5 Credit Spread Options (CSO) 333
19.6 Credit Derivative Linked Structures 333
19.7 Future of Credit Derivatives 334
19.8 Credit Derivatives and Over-the-Counter (OTC) Markets 334
Questions/Exercises 334

PART VI CREDIT RISK PRICING

20 Pricing Basics 337
20.1 Credit Pricing Factors 337
20.1.1 Credit Risk Premium 337
20.1.2 Portfolio Risk 339
20.1.3 Cost of Capital 340
20.1.4 Cost of Leverage 340
20.1.5 Sector Risks 340
20.1.6 Overheads 341
20.1.7 Other Factors 341

20.2 Pricing Structure 342
20.2.1 Interest Rates 342
20.2.2 Commission and Fees 344

20.3 Credit Risk Pricing Model 344

20.4 Prime Lending Rate 345
Questions/Exercises 348

21 Pricing Methods 349
21.1 RORAC (Return on Risk-Adjusted Capital) Based Pricing 349
21.2 Market Determined 351
21.3 Economic Profit Based Pricing 351
21.4 Cost Plus 353
21.5 Structured Pricing 353
21.6 Grid Pricing 354
21.7 Net Present Value (NPV) Pricing 354
21.8 RANPV (Risk-Adjusted NPV) Pricing 355
Questions/Exercises 355

PART VII THE LAST LINE OF DEFENCE – SECURITY

22 Security Basics 359
22.1 Need for Security 359
22.2 Merits and Demerits of a Security 360
22.2.1 Advantages to the Creditor 360
22.2.2 Disadvantages to the Creditor 360
22.2.3 Advantages to the Borrower 361
22.2.4 Disadvantages to the Borrower 361
22.3 Attributes of a Good Security 362
22.4 Security and Pricing 362
22.5 Impact of Systematic Risks on Security 364
22.6 Facility Grades 364
Questions/Exercises 366

23 Collaterals and Covenants 367
23.1 Tangible Security 367
23.1.1 Deposits (with Banks, Financial Institutions, etc.) 367
23.1.2 Stock and Shares 367
23.1.3 Property/Land 367
23.1.4 Goods 368
23.1.5 Gold or Other Precious Metals 368
23.1.6 Bank Guarantees/Letters of Credit 368
23.2 Intangible Security 369
23.2.1 Unregistered Charges 369