Panayiota Koulafetis

## Modern Credit Risk Management

Theory and Practice



## Contents

Chapter 1: Introduction	1
Credit and its Role in Financial Markets	1
Sources of Credit Risk	3
Deposits	3
Accounts Receivable, Prepayment of Goods or Services,	
Contingent Claims	4
Loans	5
Repurchase Agreements (Repos)	6
Leases	6
Bonds	7
Derivatives	8
Credit and its Negative Impact	10
Sound Credit Risk Management	13
Credit Risk Policy and Approval Process	14
Setting Limits and Underwriting Criteria	15
Understanding and Mitigating Model Risk	16
Origination	19
Chapter 2: Quantitative Credit Risk Analysis and Management	21
Default Probability (DP)	21
Risk Neutral and Real World DPs	21
Equity Models: Merton Model, Moody's Analytics	
Expected Default Frequencies (EDFs)	22
Kamakura Risk Information Services (KRIS) DP	27
Internal Methods Based on Financial Ratio Analysis:	28
Altman DP	28

Recovery Rate	30
Credit VAR and Economic Capital	33
Credit Metrics: Credit Migration Approach	33
Credit Risk Plus: Actuarial Approach	33
Credit Exposure	36
Basel I	37
Basel II and Basel 2.5	38
Basel III	39
	41
Liquidity Coverage Ratio (LCR) Net Stable Funding Ratio (NSFR)	43
Leverage Ratio (LR)	43
	44
Capital Conservation Buffer and Countercyclical Buffer	46
Credit Risk Approaches under Basel II (1) The Standardized Approach (SA)	40
<ol> <li>(1) The Standardized Approach (SA)</li> <li>(2) Internal Parings Passed (IDP) Approach</li> </ol>	
(2) Internal Ratings-Based (IRB) Approach Exposure at Default for Counterparty Credit Biole	47
Exposure at Default for Counterparty Credit Risk	48
<ol> <li>Current Exposure Method</li> <li>Standardized Mathod</li> </ol>	49
<ul><li>(2) Standardized Method</li><li>(3) Internal Medals Method (IMM)</li></ul>	51
(3) Internal Models Method (IMM)	53
Standardized Approach for Counterparty Credit Risk (SA-CCR)	56
Basel III—Counterparty Credit Risk (CCR)	56
Advanced CVA Risk Capital Charge-CVA VAR	58
Standardized CVA Risk Capital Charge	59
X-Value Adjustments (XVA)	61
Chapter 3: Credit Ratings: Credit Rating Agencies,	
Rating Process and Surveillance	63
Credit Rating Agencies—Nationally Recognized Statistical	
Rating Organizations	63
Introduction to Credit Ratings	65
The Rating Process	66
Surveillance	68
Rating Outlook	69
Rating Review	70
What Drives Credit Rating Downgrades and Upgrades	70
Rating Confirmation, Affirmation, Withdrawal and	
Suspension	71
Credit Ratings' Usefulness	72
Credit Ratings' Limitations	72
Criticism of Credit Ratings	74

100

Credit Rating Types	76
Moody's Global Long-Term Issue Credit Rating Scale and	70
Definitions	76
Moody's Global Short-Term Issue Credit Rating Scale and	70
Definitions	78
Linkage amongst the Moody's Global Long-Term and	70
Short-Term Rating Scales	78
Moody's Rated Obligations and Issuers on the Global	70
Long-Term and Short-Term Rating Scales	80
Moody's National Scale Long-Term Ratings	81
Moody's National Scale Short-Term Ratings	82
Moody's Credit Estimate	83
Moody's Originator Assessments	84
Moody's Servicer Quality (SQ) Assessments	84
Standard & Poor's Long-Term Issue Credit Rating Scale	01
and Definitions	85
Standard & Poor's Short-Term Issue Credit Rating Scale	0)
and Definitions	86
Standard & Poor's Special-Purpose Ratings	86
Standard & Poor's National and Regional Scale Credit Ratings	89
Standard & Poor's Long-Term National and Regional	
Scale Credit Ratings	89
Standard & Poor's Short-Term National and Regional	
Scale Credit Ratings	89
Standard & Poor's Credit Estimate and Credit Assessment	90
Foreign Currency Ratings and Local Currency Ratings	92
Country Ceilings for Bonds, Bank Deposits and Other	
Foreign Currency Obligations	92
Country Ceiling for Bonds, Bank Deposits and Other	
Local Currency Obligations	92
Rating Migration	93
Chapter 4: Credit Risk Assessment of Sovereigns,	
Banks and Corporates	97
Credit Risk Assessment of Sovereigns	97
Economic Position	97
Institutional Position	98
Fiscal Position	99
Monetary Position	100

,

Event Risk

Moody's Approach for Sovereigns Ratings	102
Moody's Sovereign Rating Factors	104
Standard & Poor's Approach for Sovereign Ratings	104
Standard & Poor's Key Sovereign Rating Indicators	105
Foreign and Local Currency Ratings	105
Sovereign Risk and Credit Default Swap (CDS) Spreads	107
Credit Risk Assessment of Banks	109
Factors Affecting the Independent Financial Strength of Banks	110
Franchise Value, Business Strategy and Management Team	110
Risk Profile and Management	111
Financial Fundamentals	113
Macro-economic, Operating and Regulatory Environment	113
Moody's Approach for Bank Ratings	114
The Banking and Sovereign Linkage	119
Credit Risk Assessment of Corporates	120
Standard & Poor's Key Ratios	123
Moody's Approach for Rating Companies in the Global	
Packaging Industry	124
Corporate Risk, Company Value, Bond Spreads and CDS	130
Chapter 5. Cradit Dick Accomment of Structured Finance Securities	127
Chapter 5: Credit Risk Assessment of Structured Finance Securities	137
Securitization	137
Securitization True Sale Securitization	137 138
Securitization True Sale Securitization Securitization: Key Steps	137 138 138
Securitization True Sale Securitization Securitization: Key Steps Securitization Asset Requirements	137 138 138 139
Securitization True Sale Securitization Securitization: Key Steps Securitization Asset Requirements Securitization Motivation	137 138 138 139 139
Securitization True Sale Securitization Securitization: Key Steps Securitization Asset Requirements Securitization Motivation Credit Enhancement	137 138 138 139 139 140
Securitization True Sale Securitization Securitization: Key Steps Securitization Asset Requirements Securitization Motivation Credit Enhancement Waterfall	137 138 138 139 139 140 140
Securitization True Sale Securitization Securitization: Key Steps Securitization Asset Requirements Securitization Motivation Credit Enhancement Waterfall Repayment Structures	137 138 138 139 139 140 140 141
Securitization True Sale Securitization Securitization: Key Steps Securitization Asset Requirements Securitization Motivation Credit Enhancement Waterfall Repayment Structures Liquidity Facility	137 138 139 139 140 140 141 141
Securitization True Sale Securitization Securitization: Key Steps Securitization Asset Requirements Securitization Motivation Credit Enhancement Waterfall Repayment Structures Liquidity Facility Hedging	137 138 139 139 140 140 141 141 141
Securitization True Sale Securitization Securitization: Key Steps Securitization Asset Requirements Securitization Motivation Credit Enhancement Waterfall Repayment Structures Liquidity Facility Hedging Servicing	137 138 139 139 140 140 141 141 141 141
Securitization True Sale Securitization Securitization: Key Steps Securitization Asset Requirements Securitization Motivation Credit Enhancement Waterfall Repayment Structures Liquidity Facility Hedging Servicing Paying Agent	137 138 139 139 140 140 141 141 141 142 142
Securitization True Sale Securitization Securitization: Key Steps Securitization Asset Requirements Securitization Motivation Credit Enhancement Waterfall Repayment Structures Liquidity Facility Hedging Servicing Paying Agent SPV Insolvency Remoteness	137 138 139 139 140 140 141 141 141 142 142 142
Securitization True Sale Securitization Securitization: Key Steps Securitization Asset Requirements Securitization Motivation Credit Enhancement Waterfall Repayment Structures Liquidity Facility Hedging Servicing Paying Agent SPV Insolvency Remoteness Main Securitization Transaction Document	137 138 139 139 140 140 141 141 141 141 142 142 142 142
SecuritizationTrue Sale SecuritizationSecuritization: Key StepsSecuritization Asset RequirementsSecuritization MotivationCredit EnhancementWaterfallRepayment StructuresLiquidity FacilityHedgingServicingPaying AgentSPV Insolvency RemotenessMain Securitization Transaction DocumentSynthetic Transactions	137 138 139 139 140 140 141 141 141 142 142 142 142 143 143
SecuritizationTrue Sale SecuritizationSecuritization: Key StepsSecuritization Asset RequirementsSecuritization MotivationCredit EnhancementWaterfallRepayment StructuresLiquidity FacilityHedgingServicingPaying AgentSPV Insolvency RemotenessMain Securitization Transaction DocumentSynthetic TransactionsSecuritization Major Sectors	137 138 139 139 140 140 141 141 141 141 142 142 142 142
SecuritizationTrue Sale SecuritizationSecuritization: Key StepsSecuritization Asset RequirementsSecuritization MotivationCredit EnhancementWaterfallRepayment StructuresLiquidity FacilityHedgingServicingPaying AgentSPV Insolvency RemotenessMain Securitization Transaction DocumentSynthetic Transactions	137 138 139 139 140 140 141 141 141 142 142 142 142 143 143

Credit Risk Assessment of Residential Mortgage Backed	
Securities (RMBS)	150
Credit Risk Assessment of Asset Backed Securities (ABS)	155
Credit Risk Assessment of Asset Backed Commercial	
Paper (ABCP)	158
Credit Risk Assessment of Collateralized Loan	
Obligations (CLOs)	161
Chapter 6: Qualitative Credit Risk Analysis and Management	165
Legal Credit Risk Analysis and Management	165
Securitization Documents	166
Offering Circular	166
Securitization Primary and Secondary Key Documents	176
Review of the Offering Circular (OC)	176
The Role of the Trustee	180
Cash Commingling Risk	181
Set-Off Risk	184
True Sale Challenge	186
Chapter 7: Credit Risk Transfer and Mitigation	187
Credit Risk Transfer and Mitigation	187
Letter of Credit (LOC) and Guarantees	187
Netting	188
International Swaps and Derivatives Association (ISDA)	
Master Agreement, Schedule and Credit Support	
Annex (CSA)	189
Centralized Counterparty Clearing and Margin Collateral	190
Collateralization and Over-collateralization	193
Covenants and Event of Default	194
Syndication	195
Excess Spread and Reserve Fund	195
Early Termination and Amortization	195
Subordination	196
Credit Derivatives	196
Total Return Swap (TRS)	
	197
Credit Default Swap (CDS)	197 200
Credit Default Swap (CDS) Credit Linked Note (CLN)	

۲.

Chapter 8: Regulation	207
Regulation	207
Basel Committee	208
European Union (EU) Capital Requirements Regulation and	
Directive (CRR-CRD) IV	210
The Dodd–Frank Wall Street Reform and Consumer	
Protection Act	212
References	217
Index	219