

Contents

Chapter 1

Introduction

Financial Derivatives	2
Characteristics of Financial Derivatives	3
Financial Derivative as an Asset	4
Positions in Financial Derivatives	5
Importance of Financial Derivatives	5
Financial Derivative Markets	8
Role of Derivative Markets	9
Types of Financial Derivatives	10
The Traders in Financial Derivative Markets	11
Concepts in Financial and Derivative Markets	14
Linkages between Spot and Derivative Markets	18
Danger from Derivatives	20
❑ Conclusion	21
❑ Exercises	23

Chapter 2

Mechanics of Forward and Futures Markets

Transaction: Meaning	26
Assumptions	26
Forward Contract	27
Payoffs from Forward Contracts	29
Futures Contracts	31
Futures Contracts versus Forward Contracts	34
Futures Exchanges	35
Specification of a Futures Contract	37
Futures Market Traders	39
Forward Market Traders	41
Types of Futures Contracts	42
Foreign Exchange Quotes	44
The Mechanics of Futures Trading	44

Reading Futures Price Quotation	51
The Clearinghouse and Clearing Margins	53
Taxation of Futures Transactions	53
Closing a Futures Position	54
Types of Orders	55
The Functions of Futures Markets	56
❑ Conclusion	58
❑ Exercise	58

Chapter 3

Forward/Futures Pricing Principles

Price versus Value of Forward/Futures Contract	64
Forward/Futures Price	64
Forward/Futures Price at Expiration	64
Forward/Futures Value	64
The Basis and Convergence	67
Forward and Futures Pricing	69
Futures Prices, Risk Premiums and the Cost of Carry for Genetic Assets	69
The Forward and Futures Pricing Models	70
The Cost of Carry Model	70
Futures Price of Stock Index	78
Index Arbitrage Opportunities	79
Prices of Futures and Forwards Contracts of Different Expiration	80
Foreign Currency Forward and Futures	81
A foreign Currency as an Asset Providing a Known Yield	84
Valuing Foreign Currency Forwards	84
The Expectation Model	85
Are Forward Price and Futures Price Same?	88
❑ Conclusion	94
❑ Exercise	95

Chapter 4

Forward and Futures Hedging Strategies

Introduction to Hedging	102
Fundamental Principles	102
Arguments for and against Hedging	103
Basis	105
Basis Risk	106
Risks of Hedging	108
Margin Requirements and Marking to Market in Futures Hedging	109
Determination of the Hedge Ratio	111
Minimum Variance Hedge Ratio	112
Price Sensitivity Hedge Ratio	115
Hedging Stock Market	116
Foreign Currency Hedge	120
❑ Exercises	121

Chapter 5

Mechanics Option Markets

Option Contracts	124
Types of Options	124
Styles of Options	125
Option Terminologies	125
Naked Options and Covered Options	128
Why Trade Option?	128
Options Exchanges	130
Terms and Conditions Required in Options Trading	131
Option Traders	134
The Mechanics of Trading	137
The Underlying Assets in the Option Contracts	143
Option Quotations	145
❑ Conclusion	145
❑ Exercises	146

Chapter 6

Basic Option Strategies

Concept	152
Terminologies and Notations	152
Stock Transaction: Long and Short Stock	153
Combination of Long and Short Stock	155
Call Option Transactions	155
Covered Call Strategy	163
Put Option Transactions	167
Puts and Stocks = the Protective Put	175
Protective Put as an Insurance Policy	176
Buying Call vs Buying Stock	177
Short-Sell and Call Option	179
Short-Selling Vs Buying a Put	179
❑ Conclusion	181
❑ Exercise	181

Chapter 7

Financial Engineering

Meaning and Concept	190
Benefits of Financial Engineering	190
Portfolio Insurance	193
Fiduciary Call	201
Role of Beta in Portfolio Insurance	205
Synthetic Instruments	209
Option Combination	216
Why Investors Use Option Spreads	228
❑ Conclusion	261
❑ Exercise	262

Chapter 8

Option Pricing Principles

Option Price	276
American Call versus European Call	276
Principle of Call Option Pricing	276

Relationships between Call Option Prices	284
American Put versus European Put	288
Principles of Put Option Pricing	288
Relationship between Put Option Prices	296
Option Price and Interest Rates	299
Option Prices and Stock Price Movements	300
Option Prices and Riskiness of Stocks	300
Option Prices and Dividends	301
Early Exercise of American Calls	301
The Early Exercise of American Calls on Dividend Paying Stocks	301
The Early Exercising of American Puts	302
Put-Call Parity Model	302
Put Call Parity for American Option	305
Arbitrage Opportunities	305
Valuation of Foreign Currency Option	308
❑ Conclusion	309
❑ Exercise	310

Chapter 9

Binomial Option Pricing Model

The Binomial Option Pricing Model	318
One Period Binomial Model	318
Estimation of Probability	322
The Multi-period Binomial Option Pricing Model	323
Put Option Valuation	326
BOPM Based on Riskless Hedge	328
Arbitrage	332
American Options	337
American Put Options and Early Exercise	338
Early Exercising American Call	339
Dividends, European calls, American calls and Early Exercise	341
Dividends, European Puts, American Put& Early Exercise	344
❑ Conclusion	346
❑ Exercise	347

Chapter 10

Black-Scholes-Merton-Option Pricing Model: Nobel Formula

Black-Scholes Option Pricing Model.....	353
Black-Scholes Model	354
Value of Call Option when there is Dividend	359
Value of Call Option when there is Dividend Yield.....	360
Put Option Pricing	361
The Variables in BSOPM.....	363
Measurement of Option Prices.....	367
Estimating Inputs to BSOPM.....	370
BSOPM for a Currency Option.....	374
❑ Conclusion	375
❑ Exercise.....	375

Chapter 11

Mechanics of Swap Markets

Swaps: Meaning.....	382
Motivations for Swaps	383
Swap Facilitators	385
Swap Portfolios.....	386
Interest Rate Swap.....	387
Plain Vanilla Swap	387
The Comparative Advantage Argument	390
Price of Swap vs. Value of Swap	394
Pricing of Plain Vanilla Swap	394
Valuing the Plain Vanilla Interest Rate Swaps	396
Spot Rates.....	399
Determining LIBOR Zero Rates	400
Basis Swap	400
Pricing a Basis Swap	401
Valuing a Basis Swap	403
Interest Rate Swap Strategies.....	404
Beyond Plain Vanilla and Basis Swaps.....	405
Currency Swaps.....	409

Comparative Advantage	410
Pricing Currency Swaps	411
Valuing Currency Swaps.....	412
Currency Swap Strategies	416
Equity Swap.....	420
Pricing of Equity Swap.....	421
Valuing Equity Swap.....	422
Equity Swap Strategies.....	423
Commodity Swap.....	425
Swaptions.....	425
❑ Conclusion.....	427
❑ Exercise.....	429

Chapter 12

Managing Financial Risks

Risk	440
Elements of a Definition of Risk	441
Risk and Uncertainty	442
Risk and Arbitrage	442
Types of Risk	443
Risk Management Process	445
Responsibilities of Senior Management	447
Derivative Tools of Hedging	449
Other Benefits of Derivatives	454
Criticisms of Derivatives	454
❑ Conclusions	455
❑ Exercises	455
 Important Websites.....	457
Glossary	458
Answer Sheet	472
Appendix	483
Bibliography	493