Contents

Preface		xi
CHAPTER	1	
Fundan	nentals of Commodities and Derivatives	1
1.1	Market overview	2
1.2	Market participants	3
1.3	Traded versus non-traded commodities	6
1.4	Forward contracts	8
1.5	Futures	8
1.6	Swaps	10
1.7	Options	11
1.8	Exotic options	14
OUADTED		
CHAPTER		10
Derivat	ive Valuation	18
2.1	Asset characteristics	18
2.2	Commodity prices and the economic cycle	18
2.3	Principles of commodity valuation	19
2.4	Forward price curves	21
2.5	Commodity swap valuation	32
2.6	Principles of option valuation	39
2.7	Measures of option risk management	44
CHAPTER	3	
	anagement Principles	58
3.1	Defining risk	58
3.2	Commodity market participants – the time dimension	60
3.3	Hedging corporate risk exposures	61
3.4	A framework for analysing corporate risk	62
3.5	Hedging customer exposures	63
3.6	Trading risk management	66
CHAPTER	4	
Gold		76
4.1	The market for gold	76
4.2	Gold price drivers	81
	-	vii

CONTENTS
CONTE

	4.3	The gold leasing and deposit market	91
	4.4	Hedging	96
	4.5	Trading gold	106
	4.6	Yield enhancement	111
	4.7	Summary	112
CHAF	PTER :	5	
Ba	se Me	etals	114
	5.1	Overview of base metal production	114
	5.2	The copper lifecycle	115
	5.3	Aluminium	119
	5.4	The Steel market	120
	5.5	The London Metal Exchange	122
	5.6	Base metal price drivers	130
	5.7	Electric Vehicles	133
	5.8	Structure of market prices	134
	5.9	Hedges for aluminium consumers in the automotive sector	139
	5.10	Summary	157
CHAF	PTER	6	
Cr	ude O	il	159
	6.1	Overview of energy markets	159
	6.2	The value of crude oil	159
	6.3	An overview of the physical supply chain	163
	6.4	Refining crude oil	165
	6.5	The demand for and supply of crude oil	172
	6.6	Price drivers	179
	6.7	The price of crude oil	189
	6.8	Trading crude oil and refined products	195
		Notes	209
	6.9	Managing price risk along the supply chain	212
	PTER		
Na	tural	Gas	237
	7.1	Formation of natural gas	237
	7.2	Measuring natural gas	238
	7.3	The physical supply chain	238
	7.4	Deregulation and re-regulation	242
	7.5	The demand for and supply of natural gas	245
	7.6	Natural gas prices	250
	7.7	Natural gas price drivers	257
	7.8	Trading natural gas	260
	7.9	Natural gas derivatives	263

Contents ix

CHAPTER 8 Electricity		
	•	280
8.1	What is electricity?	280
8.2	The physical supply chain Market structure and regulation	283 285
8.3	Market structure and regulation	
8.4	Price drivers of electricity	291
8.5 8.6	Trading electricity – an overview Electricity derivatives	301 313
CHAPTER	9	
Plastics	3	332
9.1	The chemistry of plastic	332
9.2	The production of plastic	333
9.3	Monomer production	334
9.4	Polymerisation	334
9.5	Applications of plastics	335
9.6	Summary of the plastics supply chain	336
9.7	Price determination	336
9.8	Plastic price drivers	337
9.9	Forwards and swaps	338
9.10	Option strategies	340
CHAPTER	10 mmodities	341
10.1	The basics of coal	341
10.2	The demand for and supply of coal	343
10.3 10.4	Coal – the physical supply chain Coal derivatives	346 349
10.4	Iron ore	353
10.5	Freight markets – the fundamentals	355
CHAPTER	11	
Climate	and Weather	368
11.1	The science of climate change	368
11.2	The consequences of climate change	371
11.3	The argument against climate change	372
11.4	History of human action against climate change	373
11.5	Price drivers of emissions markets	376
11.6	EU Emission Trading System	379
11.7	Emission derivatives	384
11.8	Weather derivatives	388

X CONTENTS

CHAPTER Agricult		394
•		
12.1 12.2	Agricultural markets Definitions	394 394
12.2	Agricultural products	394
12.3		403
	Ethanol	409
12.6	Price drivers	412
12.7	Exchange traded agricultural and ethanol derivatives	421
12.8	Over-the-counter agricultural derivatives	426
CHAPTER '	13	
Commod	dity-Linked Financing	433
13.1	The financing need	433
13.2	Project finance	437
13.3	Working capital and the asset conversion cycle	440
13.4	Longer-term debt funding solutions	454
CHAPTER '	14	
Commodity Investing		463
14.1	Commodity investors	463
14.2	Preferred instruments	465
14.3	Market size	465
14.4	Rationale for investing in commodities	466
14.5	Commodity indices	469
14.6	Total Return Swaps	478
14.7	Exchange traded products (ETPs)	481
14.8	Structured products	487
Glossary		499
Bibliography		507
Biography		510
Index		511