

Hochschule Luzern – Wirtschaft
Institut für Finanzdienstleistungen Zug IFZ

Grafenauweg 10
Postfach 7344
CH-6302 Zug

T +41 41 757 67 67
ifz@hslu.ch
www.hslu.ch/ifz

ISBN 978-3-906877-13-6

Verlag IFZ – Hochschule Luzern

Understanding Commodities Volume 2

Martin Spillmann, Thomas Affolter, Giandomenico Dormio,
Jon Walden, Roberto Gagliardi, Rolf Jakobi and Nicolas Bürkler

Lucerne University of
Applied Sciences and Arts

**HOCHSCHULE
LUZERN**

Wirtschaft

Understanding Commodities

Volume 2

**Martin Spillmann, Thomas Affolter, Giandomenico Dormio,
Jon Walden, Roberto Gagliardi, Rolf Jakobi and Nicolas Bürkler**

Schriften aus dem Institut für Finanzdienstleistungen Zug IFZ
Band 45
Verlag IFZ – Hochschule Luzern

FH Zentralschweiz

Understanding Commodities

Volume 2

by

Martin Spillmann, Thomas Affolter, Giandomenico Dormio, Jon Walden,
Roberto Gagliardi, Rolf Jakobi and Nicolas Bürkler

Verlag IFZ – Hochschule Luzern

Published by Verlag IFZ – Hochschule Luzern
Made in Switzerland

Copyright © 2017 by IFZ

ISBN: 978-3-906877-13-6

IFZ Schriftenreihe: Band 45

Institut für Finanzdienstleistungen Zug
www.hslu.ch/ifz
ifz@hslu.ch

Printed by Druckerei Odermatt AG, Dorfplatz 2, 6383 Dallenwil NW

Preface

The aim of this book is to give an introduction and understanding of commodities. The eight chapters approach students and people intrigued by commodity markets. But it shall also provide an interesting lecture to the advanced practitioners in the fields of the commodity industry.

This publication has emanated from a collaboration of experts who have compiled and realized a new instruction course called CAS Commodity Professional. It is offered by the Lucerne University of Applied Sciences and Arts and takes place in Zug and Lugano, and is supported by the commodity industry associations ZCA and LCTA in Zug and in Lugano respectively.

List of contributing authors:

- Chapter I Introduction to Commodities by Martin Spillmann
- Chapter II Understanding Financial Statements of Commodity Trading Firms by Thomas Affolter
- Chapter III Recognition and Measurement of Transactions and Commodity Inventory Positions by Thomas Affolter
- Chapter IV Fair Value Measurement by Thomas Affolter
- Chapter V Shipping & Transport by Giandomenico Dormio
- Chapter VI Incoterms by Jon Walden
- Chapter VII Trade Finance by Roberto Gagliardi
- Chapter VIII Management of Resources – Strategic Sourcing of Commodities by Rolf Jakobi
- Editorial by Nicolas Bürkler

This book would not have been realized without the motivated effort of the team. Special thanks go to Nicolas Bürkler for the editorial work, to Christoph K ung for administrative support, and – finally – to Christoph Lengwiler and Linard Nadig from the Institute for Financial Services Zug (IFZ) for publishing. The authors wish you pleasure reading it.

Table of Contents

Preface	6
Table of Contents	8
List of Figures	14
Introduction to Commodities	20
1 Terms and Concepts	20
1.1 What are Commodities?	20
1.2 2000s Commodities Boom - and hangover	21
1.3 Time is Money	24
2 The Commodity Value Chain	27
2.1 Introduction	27
2.2 Partners in the Commodity Value Chain	29
2.3 Frictions and the Question of Systemic Relevance	34
3 The Players	35
3.1 Leading Commodity Firms	35
3.2 Leading Trading Places	43
4 Global Trends and Changing Market Parameters	46
4.1 Long-term Socio-Demographic and Political Megatrends	47
4.2 Changing Business Conditions	51
4.3 How Firms Respond	54
5 Stakeholders and Society Demands	59
5.1 Commodity Trading in the Public Eye	59
5.2 Who are the Main Stakeholders?	64
5.3 Current Main Initiatives	67
Understanding financial statements of commodity trading companies	74
1 Composition of the balance sheet	74
2 Composition of the income statement	75
3 Composition of gross margin	76
3.1 Outright positions	77
3.2 Time basis risk	78

3.3	Quality basis risk	80
3.4	Location basis risk	81
3.5	Accounting mismatches	82
4	Composition of EBIT	82
5	Conclusion	82
6	Examples on Tail hedging	83
6.1	Example 1: Tail hedging to reduce financing or liquidity risk	83
6.2	Example 2: Tail hedging to reduce delivery risk	84
6.3	Cash and carry game	85
6.4	Realizing profits in a backwardation market	86
6.5	Make or buy?	87
Recognition and measurement of transactions and commodity inventory positions		90
1	Introduction	90
2	IAS 2 - Physical inventories	91
3	IAS 39 - Forward and futures contracts	92
4	Interpreting IAS 39.5 and 6 - "Own-use Exemption"	94
4.1	The Practicalities of Designation - an example	94
4.2	Make-or-buy Decisions - an elaboration	95
4.3	Similar Contracts	95
5	Accounting for Freight Contracts	97
6	Accounting mismatches and hedge accounting	98
6.1	Applying hedge accounting	99
6.2	Example	100
6.3	Fair value versus cash flow hedge accounting	101
6.4	New on the horizon	102
7	Conclusion	103
Fair value measurement		108
1	Introduction	108
2	Preconditions of applying fair value accounting	108
2.1	Observable market inputs	109
2.2	Which factors affect fair value accounting for commodities?	111

2.3	Fair value at initial recognition	112
3	Summary	113
	Shipping & Transport	116
1	Arts, History & Geography	116
1.1	Geography is the factor that mostly influences human activities.	117
1.2	Important difference between the Straits and the Canals	118
1.3	The Cutty Sark: historical example for delivery time and routing	119
1.4	Conclusions: Routing-distances-time of sea passage	119
2	Shipping and transport of dry commodities	119
3	Meaning, Procurement & Orders	126
4	Essentials of cost of transport	127
4.1	Capital Costs	127
4.2	Running Costs	128
4.3	Example - Calculating a Voyage Freight:	130
5	Physical Freight and FFA	136
6	Execution of a trade	137
6.1	Executing a sea transport	137
6.2	Example of a recap of fixture for single time-charter trip	138
	Incoterms	148
1	Introduction	148
1.1	Why use Incoterms	148
1.2	How do Incoterms work?	149
2	The Incoterms (2010 Version)	150
2.1	The Four Groups	151
2.2	Layout of the Rules	153
2.3	Incoterms and Insurance	154
2.4	Incoterms and e-Commerce	155
2.5	Selecting which term to use	155
2.6	Incorporating incoterms into a contract	155
2.7	Topical issues	156
3	Conclusion	157

Trade Finance	160
1 Introduction and Definitions	160
2 Risks in International Trade	161
3 The Documentary Letter of Credit (L/C)	162
3.1 Some Consideration from Importer's Point of View	163
3.2 Some Consideration from Exporter's Point of View	163
3.3 Parties and Participants to the Letter of Credit	164
3.4 Forms of the Letter of Credit	166
3.5 The Confirmed Letter of Credit	167
4 Types of letters of credit	168
4.1 Sight credit	168
4.2 Deferred payment credit	169
4.3 Acceptance credit	170
4.4 Negotiation	170
4.5 Revolving credit	171
4.6 Red Clause credit	172
4.7 Transferable credit	173
4.8 Back to Back Credit	175
4.9 Stand-by L/C	176
5 Assignment of Proceed under a Cocumentary Credit	177
5.1 Rules to which the documentary credits undergo	179
5.2 Documents – Documents of evidence and of title	180
5.3 Presentation of documents	181
5.4 Discrepancies	181
6 The documentary collection	184
7 Bank Guarantees and Stand-by L/C	188
7.1 Accessorial obligations Surety bonds	188
7.2 Abstract Obligations: Guarantees and Stand-by L/Cs	190
8 Main Types of Guarantees in International Trade	192
8.1 Bid bond	192
8.2 Performance bond / Warranty bond	192
8.3 Advance Payment guarantee	193
8.4 Other Guarantees used in International Trade	195
8.5 Direct and Indirect Guarantees	196
8.6 Request of Payment under a Guarantee	196
8.7 The Stand-by L/C	197

8.8 Guarantees according to the Guidelines of the ICC, Paris	197
Management of Resources - Strategic Sourcing of Commodities	200
1 Commodities and Basic Materials for Industry	200
1.1 Water	201
1.2 Sand and limestone	206
1.3 Phosphate	209
1.4 Copper	217
1.5 Aluminum	230
2 The Role of China and Russia in Mineral and Mining	243
3 Political and Economical Considerations	248
Bibliography	254

List of Figures

Figure 1: Traded Commodities	21
Figure 2: Commodity Indices 1983-2016	22
Figure 3: Forward Curves	25
Figure 4: Movements of Forward Prices	26
Figure 5: Dynamic Price Convergences	27
Figure 6: Value Chain processes	33
Figure 7: Leading Trading Companies	36
Figure 8: Leading Mining Companies	38
Figure 9: International Oil Companies (IOCs) - “Supermajors”	40
Figure 10: National Oil Companies (NOCs) - "new seven sisters"	41
Figure 11: International Trading Hubs	43
Figure 12: Influencing Factors and Responses	46
Figure 13: Specific Criticisms per Commodity Type	63
Figure 14: Synopsis on Initiatives	67
Figure 15: Changing Appreciation of Law, soft Law and Ethics	71
Figure 16: Tail hedging reducing financing or liquidity risk	84
Figure 17: Tail hedging reducing delivery risk	84
Figure 18: Forward Sales of Inventory	85
Figure 19: Realizing Profits in Backwardation Market	86
Figure 20: Make or Buy – an Example	88
Figure 21: Commodities	91
Figure 22: IAS 2 Inventories	96
Figure 23: IAS 39 Chart	97
Figure 24: Hedge Accounting	101
Figure 25: Loading a Barge with Cereals	121
Figure 26: Maritime routes satellite	124

Figure 27: A Voyage Estimator	133
Figure 28: Voyage Estimator II	134
Figure 29: Voyage Estimator III	135
Figure 30: Definitions Incoterms	158
Figure 31: Procedure of a Letter of Credit	165
Figure 32: Forms of LC	166
Figure 33: Types of Letters of Credit	168
Figure 34: Types of Letter of Credit II	171
Figure 35: Procedure Transferable Doc. Credit	174
Figure 36: Back to Back Documentary Credit Procedure	175
Figure 37: Standard Bank Application for Letter of Credit Issuance	178
Figure 39: L/C Advantages for the Buyer	183
Figure 38: L/C Advantages for the Seller	183
Figure 40: Procedure for a Doc. Collection	185
Figure 41: Forms of Documentary Collections	186
Figure 42: Procedure of a L/C versus a Doc. Collection	187
Figure 43: Specimen of a Joint and Several Surety Bond	189
Figure 44: Accessorial and Abstract Obligation	191
Figure 45: Specimen of an Advanced Payment Guarantee	194
Figure 46: Contractual Period	195
Figure 47: Map of Access to Drinking Water	202
Figure 48: Model of Public Private Partnership	204
Figure 49: European water prices in €/m ³	205
Figure 50: Leading Cement Exporting Nations	208
Figure 51: Increasing World Population versus Decreasing Arable Land	210
Figure 52: Production of Phosphate Rock	211
Figure 53: Flow Chart of Phosphate Fertilizer Production	212
Figure 54: Dependency in Phosphate Rock from Certain Countries	213

Figure 55: Exports of Phosphate Rock (in million tons) by Country	214
Figure 56: Worlds' ten Largest Fertilizer Companies	215
Figure 57: Top Market Suppliers of Phosphate Fertilizer	216
Figure 58: Prices for Phosphate adjusted for Inflation (in dollar)	217
Figure 59: Copper Bearing Ores suited for Mining	218
Figure 60: The Copper Belt	219
Figure 61: Declining Ore Grades along Time Axis	220
Figure 62: World Copper Mines - Production and Reserves	221
Figure 63: Top Ten Copper Mining Companies	222
Figure 64: The world largest open pit copper mine	223
Figure 65: Flow Chart of Copper Production Steps	224
Figure 67: The Mass Flows of Copper	225
Figure 68: Supply of Copper, World Balance 2014	226
Figure 69: Demand of Copper, World Balance 2014	227
Figure 70: Long-term Price Chart of Copper	228
Figure 71: Strange Price Development on the Copper Market	229
Figure 72: Aluminum Capstone on the Washington Monument	231
Figure 73: Flow Chart of Aluminum Production	232
Figure 74: Historical Bauxite Mine in Les Beaux, France	233
Figure 75: Resources of Bauxite	234
Figure 76: World Bauxite Production	235
Figure 77: World's leading Primary Aluminum Producers	236
Figure 78: World Primary Aluminum Production and Capacity	237
Figure 79: World Demand and Supply of Aluminum	238
Figure 80: Aluminum Demand by Industries	239
Figure 81: World Aluminum Recycling Volumes	240
Figure 82: Long-term Chart of Aluminum Spot Prices	241
Figure 83: Comparison of Volumes traded	242

Figure 84: Production Capacities for Commodities	244
Figure 85: Booming Chinese Mining Industries	245
Figure 86: Top Ten Chinese Industry Branches	245
Figure 87: Dependency of the Russian Economy from Exports	246
Figure 88: Russia's role in world supply with basic commodities	247
Figure 89: Risk Areas for Strategically important Materials	249
Figure 90: Relation of raw material dependency and corruption	250