## Contents

Preface ................................................................. xi

List of Figures .................................................. xiii

List of Tables .................................................. xvii

Acronyms ............................................................. xxv

**PART I  COMMODITY MARKET DYNAMICS** ........................................ 1

1 Individual Dynamics: From Trends to Risks ........................................ 3
   1.1 Backwardation, Contango and Commodity Risk Premium ............... 9
   1.2 Understanding Commodities’ Momenta ................................... 13
      1.2.1 Persistence of Shocks in Commodities ......................... 18
      1.2.2 The Nature of Momentum in Commodity Markets .......... 20
      1.2.3 Time Series Momentum and the Number and Nature of Regimes 32
   1.3 Volatility to Returns Spillovers and Tail Events in Commodities .... 43
      1.3.1 Spillover Effects in Commodity Markets .................... 43
      1.3.2 Twenty Years of Jumps in Commodity Markets ............. 51
   References ................................................................ 61

2 Cross-Asset Linkages .................................................................. 69
   2.1 Common Risk Factors in Commodities .................................. 77
      2.1.1 Literature Review .................................................. 78
      2.1.2 PCA and the Estimation of the Number of Common Components 80
      2.1.3 Empirical Findings .............................................. 82
   2.2 Volatility Spillovers in Commodity Markets .......................... 90
      2.2.1 The Volatility Spillover Index .................................. 96
      2.2.2 Four Empirical Applications ................................... 98
   References ................................................................ 110
Contents

PART II COMMODITIES AND THE BUSINESS CYCLE 115

3 The Reaction of Commodity Markets to Economic News 117
  3.1 Measuring the Impact of Price Discovery on Asset Prices 117
  3.2 Key Insights from the Academic Literature 118
  3.3 Database of News 119
  3.4 An Example: S&P 500, 10Y and USD 121
  3.5 Commodity Indices 122
  3.6 Dependence on the Business Cycle: NBER Recessions/Expansion Phases 123
  3.7 Rolling Analysis 125
  3.8 Preliminary Findings 128
  3.9 Market-by-Market Analysis 129
    3.9.1 Database for Commodity Prices 129
    3.9.2 Precious Metals 130
    3.9.3 Industrial Metals 132
    3.9.4 Energy 135
    3.9.5 Agricultural Commodities 138
  3.10 Concluding Remarks 143
  References 143

4 Economic Regimes and Commodity Markets as an Asset Class 145
  4.1 Index Performances, the Fed and the NBER Crises 145
  4.2 Measuring the Business Cycle 147
  4.3 To Which Business Cycle are the Commodity Markets Related? 148
  4.4 Commodity Performances Depending on the Nature of Each Economic Regime 155
  4.5 Performance Analysis 160
  4.6 Concluding Remarks 167
  References 167

PART III COMMODITIES AND FUNDAMENTAL VALUE 169

5 Cross-Commodity Linkages 177
  5.1 A Primer on Granger Causality Testing and Cointegration 177
    5.1.1 Granger Causality Testing 177
    5.1.2 Cointegration without Structural Breaks 177
    5.1.3 Cointegration with Structural Breaks 179
  5.2 Dataset and Unit Root Test Results 181
  5.3 Cointegration in Agricultural Markets 183
    5.3.1 Literature Review 184
    5.3.2 Results of Granger Causality Tests for Agricultural Products 188
    5.3.3 Cointegration Analyses for Agricultural Products 189
    5.3.4 Grains and Soft Commodities 190
    5.3.5 Agriculture–Energy Linkage 196

References
<table>
<thead>
<tr>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.3.2 Results of Granger Causality Tests Between the GSCI Sub-Indices,</td>
</tr>
<tr>
<td>Inflation and Monetary Indices</td>
</tr>
<tr>
<td>7.3.3 Cointegration Analyses for Commodities, Inflation and</td>
</tr>
<tr>
<td>Monetary Indices</td>
</tr>
<tr>
<td>7.4 Concluding Remarks</td>
</tr>
<tr>
<td>References</td>
</tr>
<tr>
<td>Index</td>
</tr>
<tr>
<td>302</td>
</tr>
<tr>
<td>306</td>
</tr>
<tr>
<td>320</td>
</tr>
<tr>
<td>321</td>
</tr>
<tr>
<td>323</td>
</tr>
</tbody>
</table>