

12/05/12

Figures and Images: Commodity Risk Management

PART I:

File: Fig1A

Table 1.A.a CFTC Commitment of Traders Report, Wheat Futures and Oil Futures

Source: Commodity Futures Trading Commission

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File: Fig1-B Oilsands

Figure 1.B.a Chicago Mercantile Exchange Website

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Figure 1.B.b Natural Gas and Crude Oil Prices -

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Figure 1.B.c Impact of Events on WTI Crude Oil Prices, 2000-2010

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Figure 1.B.d Oil Pipeline Infrastructure and Proposals

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Figure 1.B.e Composition of Refined Output, Light and Heavy Oil

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Figure 1.B.f Physical Composition of Oil Sands

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Map 1.A Bitumen in Alberta

Source: Alberta Dept. of Energy

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Figure 1.B.g BP Global Oil Reserves, 2009

Source: BP, *Statistical Review of World Energy 2010*

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Table 1.B.h BP proven oil reserves, 2009

Source: BP, *Statistical Review of World Energy 2010*

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Figure 1.B.j Steam Assisted Gravity Drainage (SAGD)

Source: Alberta Dept. of Energy

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Figure 1.B.k Bitumen Recovery Process

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Map 1.B Syncrude Oil Sands Lease Map

Source: Syncrude, Canada website

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Fig1-B Base metals

Figure 1.B.m Price of Copper, 11/2006-11/2011

Source: International Copper Study Group

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Figure 1.B.n World Refined Copper Production

Source: International Copper Study Group

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INSERT Fig. 1.B.n Major Users of Copper

Source: International Copper Study Group

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INSERT Fig. 1.B.o Refined Copper Usage by Region

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INSERT Fig. 1.B.p Refined Copper Production by Country

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INSERT Fig. 1.B.q Copper Mine Production by Country

Source: International Copper Study Group

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Figure 1.B.r Zinc Price

Source: International Lead Zinc Study Group

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Figure 1.B.s Global Zinc Production

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Figure 1.B.t Uses of Zinc

Source: International Lead and Zinc Study Group

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Figure 1.B.u Spot Gold Price, 2008-2011

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Figure 1.B.v 10 year US\$ Spot Gold Price

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Figure 1.B.w Spot US\$ Gold Price, 1974-2011

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Figure 1.B.x Disaggregated Commitments of Traders-All Futures Combined Positions as of December 27, 2011

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Figure 1.B.y Gold Demand by Country

Source: World Gold Council

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Figure 1.B.z Historical Demand for Gold

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Figure 1.B.aa Gold Demand by Category 2009-2011Q1

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Figure 1.B.bb- Market Supply for Gold

Source: World Gold council

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Figure 1.B.cc Gold Production by Country

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Figure 1.B.dd World Gold Production 2009-2010 (metric tonnes)

Source: US Geological Survey

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Figure 1.C.a USDA Webpage for Farm Risk Management

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Figure 1.C.b Business Risk Management Webpage from Canadian Canola Growers Association

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Figure 1.C.c London Metal Exchange, Education Webpage

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Figure 2.a.1 Picture of Sumerian Cuneiform tablet

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Figure 1.2.C.b Variation Margin Payments for Hunt's and Conti Positions, March 1980

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Figure 1.3-b-1 China Aviation Oil Risk Management Structure

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Figure 1.3-c-1 Amaranth's Forward Curve

Source: US Senate (2007) Excessive Speculation in the Natural Gas Market [2007, Appendix V p.38]

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Figure 1.3.C.2 CME Natural Gas Futures Settlement Prices 13/12/2011

Source: Chicago Mercantile Exchange

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PART II:

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Figure 2.1.B.2 Illustration of Value at Risk Calculation

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Figure 2.1.B.1 Canadian Natural Cash Flow Sensitivity

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Figure 1.C bb- Wheat Futures Basis 2000-2009

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Figure 1.C.a Brent-WTI Crude Oil Basis

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Figure 1.c.b CME Soybean Futures Settlement Prices 30/12/11

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Figure 1.C.d COMEX/CME Gold Futures Settlement Prices 25/2/11

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Fig. 1.C.e CME Corn Futures Settlement Prices, Feb. 28, 2011

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Figure 1.C.f Supply of Storage

Source: Poitras (2002)

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Fig. 1.C.g Working Curve from Working (1933) with picture from Carter and Ghia (2007)

Source: Working (1933)

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Figure 1.C.h Conditional versus Unconditional Hedge Ratio for Corn

Source: G.C Moschini, R.J Myers Journal of Empirical Finance 9 (2002) 589-603

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Figure 2.3.m- Price Trends for major field crops 2000-09

Source: Macdonald and Korb (2011)

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Figure 2.3.n Monthly percentage price changes for corn, wheat and soybeans

Source: Macdonald and Korb (2011)

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Figure 2.3.p Characteristics of US Farms and Use of Marketing Contracts

Source: Cole and Kirwan (2009, p.1245), American Journal of Agricultural Economics

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Figure 2.3.q Farmer Usage of Risk Management Products

Source: Pennings et al. (2008, p.35), Agribusiness

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Figure 2.3.r US Agricultural Contracting

Source: Macdonald and Korb (2011, p.8)

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PART III:

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Figure 1.A.a Freeport McMoRan (Ticker Symbol: FCX) Corporate Structure (2009)-

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Figure 1.A.b FCX Operating Mine Locations-

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Figure 1.A.c- FCX Consolidated Mining Data

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Figure 1.A.d FCX Copper Price Chart- LME & Comex Exchange Stocks

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Figure 1.A.e - FCX Summary of Embedded Derivatives

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Figure 1.A.f Capstone Mining Metal Sales (as of Sept. 10, 2010)-

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Figure 1.A.g Capstone Mining Hedges-

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Figure 1.A.h Hedging Results for Capstone Mining

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Figure 1.B.b- Barrick Mines in North America and South America, 2010-

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Figure 1.C.b- Production Volumes for BHP Billiton

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Figure 1.C.c BHP Mine Locations

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Figure 1.C.d BHP Risk Management Methods

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Figure 1.C.f Commodity Derivative Contracts

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Figure 1.C.h BHP Cash from Operating Activities

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Figure 1.C.k BHP, Location of customer revenue

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Figure 1.C.L- Interest rate swaps

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Fig. 2.A.a COS Summary of Quarterly Results, 2009Q4-2011Q3

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Figure 2.A.b COS Highlight 2008-2009

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Figure 2.A.c COS 2008Q1 + 2009Q1 Highlights

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Figure 2.A.d COS Sensitivity 2009

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Figure 2.A.e COS Sensitivity 2011

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Figure 2.B.a Composition of Penn West production, 2010

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Figure 2.B.b Penn West 2011 Capital Expenditure Focus

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Figure 2.B.c Penn West Working Reserves

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Fig. 2.B.d Penn West 2010 Cash Flow Statement

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Figure 2.B.h Penn West Hedge Positions, 2010 Annual Report

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Figure 2.B.j Penn West Detailed Hedge Positions, Q3 2011

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Figure 2.B.k Penn West Sensitivity Analysis

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Figure 2.C.a CNQ 2010 Corporate Highlights

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Figure 2.C.k CNQ Interest Rate and Cross Currency Swaps, Dec. 2010

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Figure 2.C.L CNQ Sensitivity Analysis

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Figure 3.A.a Revenue Passenger Miles, US Carriers

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Figure 3.A.b US Air Carrier Statistics

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Figure 3.A.c Airline Operating Costs, by Region, 2001 and 2008

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Figure 3.A.d Jet Fuel and Crude Oil Prices in US\$, 2007-2011

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Figure 3.A.e Jet Fuel Prices in US\$ and Euros, 2007-2011

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Figure 3.A.f Global Commercial Airline Profitability

Source: IATA (International Air Transport Association)

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Figure 3.A.g EBITDA as a % of Revenues by Region, 2005-2011

Source: IATA (International Air Transport Association)

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Figure 3.A.h Airline Industry Terminology

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Figure 3.A.j Scheduled global passenger traffic, 2001-2011

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Figure 3.B.a List of Major Shareholders in SIA Group

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Figure 3.B.b SIA Group of companies as of March 31, 2010

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Figure 3.B.f Cash Flow From Operations, SIA Group 2010

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Figure 3.B.h Sensitivity Analysis for Jet Fuel, SIA

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Figure 3.B.j Derivatives Financial Instruments, SIA

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Figure 3.C.a Fuel costs for Southwest

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Figure 3.C.b Southwest Airlines, Aircraft in Fleet and On Order

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Figure 3.C.c Southwest Airlines Income Statement 2010

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Figure 3.C.d Southwest Airlines, Cash Flow Statement 2010

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Figure 3.C.e Fuel Hedges, Hedge Ratio and Fuel Pricing Impact of Hedges

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Figure 3.C.f Fuel Hedges, Hedge Ratio and Fuel Pricing Impact of Hedges

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Figure 3.C.g Collateral and Counterparties, LUV 2010

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