1

The Revenge of the Old Economy

In an era defined by financial upheaval, few other markets have undergone as profound a transformation over the past decade as commodity markets. Part of the change, certainly, has been in price levels: Both futures prices and volatility levels have spiked to levels not seen since the 1970s, only for volatility to dip to the placid levels more typical of the mid-1990s, as of the time this book was written. For resource producers, whether nations or companies, such generally heady price environments have marked an era of almost unprecedented bounty, while their consumer counterparts have often languished as the cost of basic materials, including essentials like food and fuel, have soared. But prices are as much symptom as cause. Behind the price swings has been a range of factors spanning trends in economic development (an increasingly wealthy Asian consumer base), demographics (a restless rising generation in the Middle East), economics (declining real interest rates across the West), geology (massive disagreement over the hydrocarbon reserve base, coupled with technological advances that have challenged the Malthusian paradigm), and politics (an OPEC at turns emboldened and in disarray). Beyond these trends, the structure, players, and pricing dynamics that make up the landscape of modern commodity markets have also undergone a sea change, with vast new sources of liquidity and rapid securitization changing the way many of the world's oldest goods change hands.

Perhaps the most remarkable aspect of the mostly erstwhile commodities boom was the unexpectedness, at least for mainstream experts, of its arrival. This was a case of boom not merely following bust, but actually being borne – suddenly – of it. In the latter half of the 1990s, the market for hard assets was as soft as nearly any time in the hundred years prior. The relative geoeconomic stability that defined the second Clinton administration, coupled with its strong dollar policies, had depressed commodity

prices in dollar-denominated terms. When the Asian financial crisis bit into economic growth in the emerging world in 1998, oil prices and commodity complex more broadly tanked. At $1.24, a gallon of retail gasoline in the United States was cheaper in real terms than it had been at any time since the Arab embargo of 1973.[1] Many experts saw cheap oil as the new normal – a long-term status quo that was almost certain to persist over the next several decades, a stable feature of the Great Moderation underpinned by technological improvements along resource supply chains.

Two pieces of popular commentary from 1998 capture the ultra-bearishness prevalent at the time – which for energy consuming countries, like the United States, was wonderfully good news. "In the old days the question was low or high prices, and everything rode on those numbers," wrote one commentator. "Now the question is low or very low prices."[2] A futuristic array of new information technologies, the growing role of natural gas in the energy mix, and the diverse sources of oil around the world meant that the "[oil] industry has changed fundamentally since previous shocks that seemed to portend ever higher prices." There was no need to fear an energy crisis redux. "If you are having haunting visions of long lines and $2.50-per-gal. gasoline, relax."[3] As late as seven years later, market prognosticators were hard-pressed to see how oil prices could rise any higher than $35 per barrel or so in the decade ahead.[4] Yet only three years later, it would be closer to $135 per barrel – not $35 – and analysts would have to come to grips with the risk of a superheated crude market, or Oil.com, as Edward Morse dubbed it.[5] And yet such sharp reversals, difficult to discern ex ante, would come again with the global financial crisis that struck in 2007 and the strong rebound across most of the complex less than half a decade later, which was underpinned by the prevailing dovish rate environment.

The commodity cycle of the past two decades – still underway and hardly uniform in its dynamics across the diverse goods that make up the commodity complex – has proceeded in five stages, broadly speaking. The first

[1] U.S. Energy Information Administration, "Table 5.24 Retail Motor Gasoline and On-Highway Diesel Fuel Prices, 1949–2011 (Dollars per Gallon)," *Annual Energy Review*, September 27, 2012.
[2] David E. Sanger, "Singing the Cartel Blues," *New York Times*, March 29, 1998.
[3] Daniel Yergin and Joseph Stanislaw, "How OPEC Lost Control of Oil," *Time* 151 no. 13 (April 6, 1998), 58.
[4] Doug Leggate et al., "2005 Oil Sector Outlook," Citigroup Equity Research: Oil Companies – Majors, February 18, 2005.
[5] Edward Morse and Michael Waldron, "Oil Dot-com," Lehman Brothers Energy Special Report, May 29, 2008.

phase was stage setting: the lull of the late 1990s, marked by a dearth of capital investment in producing assets and infrastructure as supply-side productivity soared. The value of the dollar-denominated capital stock of oil, coal, iron ore, aluminum, and copper across several major national suppliers (the United States, China, Australia, and Brazil, among others) stagnated between 1990 and 2000. Productivity in base metals production in key producers rose over the course of the decade, rising as high as 10% per year in China and Chile on average. In the U.S. oil and gas patch, the average age of the capital stock rose from roughly six years in 1990 to ten years by the turn of the century, as relatively poor cash returns led to a pullback in upstream capital expenditure. Sector-wide cost and commodity price deflation, coupled with confidence-inspiring productivity increases, made for a market environment in which the prospect of declines in inventories that might have been unsettling in an earlier era were greeted with relative calm, as the pace of investment into productive assets like oil rigs and storage facilities were pressured by low profit margins.[6]

But chronically low rates of investment would bite back. This second phase, the revenge of the so-called Old Economy – those industrial sectors that had been on life support near the end of the twentieth century, left for dead by investors who favored the tech-driven New Economy – stretched from 2001 to 2008. Surging demand challenged the outer limits of productive capacity across most resources, egged on by a collection of macroeconomic and political trends that caused the complex to reignite. The proximate cause of the boom was an industrializing Asia – mainly China – whose capital- and heavy-industry intensive growth phase was compounded by an urbanizing, nascent middle class there and in other major developing economies, who were taking to roadways, buying durable goods, and consuming high-caloric diets in record numbers. A surge in biofuel demand in the European Union and the United States, driven by aggressive government mandates seeking to supplement transportation fuels with biofuel, mainly ethanol, rededicated what was once food-producing farmland to fuel production and exerted upward pressure on the prices of substitutes, like edible oils, to disastrous effect on the affordability of basic foodstuffs among the world's poor, who suffered rampant price inflation. Expansions in production capacity – structurally slow when it comes to supplying natural resources, particularly in the extractive industries – were painfully delayed. This was part economics – the outgrowth of a decade and a half of

[6] Christian Lelong et al., "Investor Returns Will Survive the Productivity Comeback," Goldman Sachs Commodities Research, April 24, 2014.

underinvestment – and part politics, as Riyadh and other sovereign producers reaped a windfall from a tightening market. Supply shortfalls were amplified by geopolitical uncertainties, particularly in oil, across a war-ridden and post-Saddam Iraq, a tumultuous Nigeria, and a Chavista Venezuela, with terrorist violence wreaking havoc in Saudi Arabia and North Africa. Rising oil prices spilled over into the markets for food and minerals, the production of which relies heavily on oil, as the cost of crude saw electricity generators turn to gas, coal, and uranium. All told, food and agricultural product prices reversed their downward trend of the prior two decades, whereas energy and metals prices spiked to levels rarely seen in the preceding century.[7]

The third phase of the cycle was one of collapse – the epic meltdown of 2008 and 2009. In the financial sector, the domino effects of an economic recession in the United States, which precipitated the collapse of the domestic housing sector and metastasized, via derivative linkages, to the financial sector, iterated back into the real economy worldwide. Among hard assets, metals were the bellwether of the downturn, plummeting in the spring of 2008. The S&P GSCI Metals index, which gauges the returns of futures contracts in the sector, fell nearly 60% between March and December 2008, with major industrial metals – such as copper and lead – logging worse performance in the last four months of the year than occurred during the worst years of the Great Depression between 1929 and 1933.[8] Agricultural and energy prices withstood well into the summer, with Brent crude's stunning race to $143 per barrel cresting in July 2008 – in the midst of a U.S. recession, no less, and on the cusp of a global one – on North Sea supply woes and a healthy dose of market exuberance. From July 2008 to their nadir in February 2009, the International Monetary Fund (IMF) Energy Index lost more than two-thirds of its value. As is typical of major sell-offs, the routing was both fundamental – the freezing up of bids on supply chain capacity, the laying up of productive assets, the contango-inducing rush of goods into storage, the drying up of lines of credit on which traders depend – and forward-looking, driven by fear of a second Great Depression in the West and concomitant severe pullback in developing Asian growth. This was boom and bust on a scale that would have been hard to imagine even two years earlier, despite the sector's reputation for jarring whiplash.

[7] Thomas Helbling, Valerie Mercer-Blackman, and Kevin Cheng, "Riding a Wave," *Finance and Development* 45 no. 1 (March 2008): 10–15.

[8] Ambrose Evans-Pritchard, "Metal Prices Fall Further than During Great Depression," *Telegraph*, December 2, 2008.

If the third phase of the cycle was the collapse associated with the Great Recession, the fourth phase, could be termed the Great Divergence. It did not take long after the crash for most commodities' futures prices to snap back to form, though not quite to the exalted levels of 2008. Brent crude priced in U.S. dollars reentered triple digit territory in the early days of 2011; copper had surpassed its boomtime highs, breaching $4 per ton in New York in December 2010. The resurgence had several drivers: the bottoming out of effective interest rates in G10 economies, effectuated by central banks as a means of mitigating deflationary risks and encouraging borrowing rates; an emerging Asia in China, India, and Indonesia that had muscled through the downturn relatively unscathed; and a newly bullish crude market, in which Saudi mentions of a $75 "fair" price of oil, robust non-OECD demand, and still-tepid non-OPEC supply growth led traders to foresee fundamentals improving rapidly.[9] Oil was not the only beneficiary. Many commodities rebounded strongly from 2009 to 2011, buoyed by similarly favorable macroeconomic tailwinds and a developing-market-centric growth paradigm that, while diminished, was far from defeated.

But across the commodity complex, including within families of related goods (i.e., energy, agriculturals, etc.), a great parting of ways was beginning to play out, in a trend that would only amplify over the next half decade. Forecasts of a return to the perfect storm of the 2000s, though superficially compelling, were shallow. In reality, the mobilization of capital and supply responses was having enormously various effects among commodities in price responses and time horizons. Nowhere was this contrast more vivid than in the markets for North American natural gas versus Brent crude oil. The former, thanks to a sustained shale-driven climb in production and a lack of viable export routes, collapsed Henry Hub prices, not to mention regional basis differentials, forcing Henry Hub spot prices below $5 per MMBtu almost without a pause from 2009 onward. The North Sea crude marker, in contrast, has turned structurally short: declining regional production, down from a peak of 8.6 mb/d in 2004 to 2.4 mb/d, has forced European refiners to pull barrels from elsewhere and kept the curve in chronic backwardation.[10] Meanwhile, industrial metals and non-food agricultural goods prices broadly have grinded lower since their 2011 highs in

[9] Bassam Fattouh and Christopher Allsopp, "The Price Band and Oil Price Dynamics," *Oxford Energy Comment*, Oxford Institute for Energy Studies (July 2009); Jeff D. Colgan, "The Emporer Has No Clothes: The Limits of OPEC in the Global Market," *International Organization* 68 no. 3 (2014): 599–632.

[10] Seth M. Kleinman et al., "Energy Weekly: Brent is also a Broken Benchmark," Citi Commodities Research, February 17, 2014.

U.S. dollar terms. Metals market conditions eased thanks to a step change downward in Chinese growth rates and supply-efficiency increases after a decade-long surge in capital expenditure from less than $5 billion in 2000 to roughly $140 billion in 2012. Grains and soft commodities flat price returns, for their part, turned negative on surplus output, acreage growth, and rising inventories. Yet across industrial and precious metals, as elsewhere, the specific dynamics guiding, for example, copper, where returns on capital expenditure surged between 2008 and 2012, symptomatic of a cyclical supply response, have differed greatly from those of gold, which stayed aloft until 2013, supported by concerns over inflation from massive expansion of central bank balance sheets. With the evaporation of those fears and declining European sovereign tail risks, investors abandoned the yellow metal amid the rising opportunity cost of holding gold at a time of soaring equity prices in the United States. The exceptionally synchronized movements of commodities prices in a single direction, typically upward, that had prevailed from 2003 to 2009, gave way to more fragmented trajectories.[11]

The fifth epoch of the cycle – a sudden and severe crash in crude oil prices – played out as this book was going to press. Seaborne crude benchmarks, resistant to the glut that had defined the U.S. natural gas market the half decade prior, succumbed to incessant waves of new, largely North American supply, in the autumn of 2014. Defying the skeptics, the continual surge in the productivity of shale wells combined with a rebound in Libyan production and Saudi production in excess of 9 million barrels per day that refused to taper in the face of an oversupplied market, at the risk of losing market share. Chinese demand growth, the catalyst of the bull market of the preceding decade, had softened, while consumption in the developed world appeared to be in secular decline. A strengthening U.S. dollar, benefitting from an expectation of higher real U.S. interest rates in response to a domestic economy with visible signs of momentum (5% GDP growth in the third quarter of 2014), also weighed on the oil complex. As of the time this book was written, Riyadh has dropped all pretense of maintaining crude prices in or near triple digit territory, intent instead on preserving market share by ferreting out unmitigated North American supply growth and calling on their OPEC brethren, as well as Moscow, to shoulder the load.

Over the course of these five chapters of market history, the changes to commodity markets ran deeper than the ebb and flow of supply, demand,

[11] Edward L. Morse, "Commodities Inflection Point: 2014 Annual Market Outlook," Citi Commodities Research, November 18, 2013.

and price. At least two aspects of these markets underwent structural changes whose effects will likely outlast the current price cycle. The first of these changes is regulatory. The Dodd-Frank Wall Street Reform and Consumer Protection Act (or simply "Dodd-Frank Act"), enacted in July 2010, greatly expanded the power of the Commodity Futures Trading Commission, or CFTC, to conceive and implement rules designed to promote financial stability. In the ensuing years, the CFTC has issued provisions governing which parties can participate in these markets as well as the reporting and position limits to which they must adhere, seeking to mitigate the systemic risks associated with market participants that are too big to fail, whose investments pose a threat to the stability of the broader marketplace, or where ordinary consumers and producers are left at a disadvantage. Although the effects of the Dodd-Frank Act in commodities markets are still taking shape, with new rules being codified every few months since September 2010, certain consequences of the law have already hit, including the retreat of most major Wall Street banks from physical commodity trading and the gradual flow of trading from over-the-counter to exchange-cleared transactions.[12] Critics of the rules argue that, by reducing liquidity in commodity derivative markets and potentially leading to cash-flow risk for physical producers and consumers who have to abide by the stricter collateral requirements on exchanges, the law could backfire, increasing price volatility and counterparty risk.[13]

The second structural change to commodity markets to occur over the past decade has been their so-called financialization, or the increasing popularity of these goods as an investment vehicle in derivatives markets, which has altered both the amount of money flowing into and out of commodity-linked securities, as well as the types of market participants who hold these securities. The magnitude of growth in interest in these markets by institutional investors is astounding, jumping from $15 billion in 2003 to more than $200 billion in 2008.[14] U.S.-listed exchange traded funds (ETFs) and passive index assets under management stood at roughly $275 million as of

[12] An online list of the CFTC's Final Rules, Guidance, Exemptive Orders, and other actions stemming from Dodd Frank is available at http://www.cftc.gov/LawRegulation/DoddFrankAct/Dodd-FrankFinalRules/index.htm.

[13] For a brief overview of these arguments, see Andrew Peaple, "Commodities Firms Fear Dodd-Frank Effects," *Wall Street Journal*, March 12, 2011. For a more scholarly overview, see Craig Pirrong, "Clearing and Collateral Mandates: A New Liquidity Trap?," *Journal of Applied Corporate Finance* 24 no. 1 (Winter 2012): 67–73.

[14] Ing-Haw Cheng and Wei Xiong, "The Financialization of Commodity Markets," Working Paper for the Annual Review of Financial Economics, 1.

the end of 2013.[15] By way of background, a typical commodity index fund takes a long position in a near-term futures contract (or a linked swap), selling the security as the contract nears maturity and assuming a new long position in the next contract, creating an asset that seeks to capture positive spot price movements and the associated roll yield. Because the rising flow of funds into commodity-linked securities between 2003 and 2008 largely mirrored the rising prices of these goods, some analysts have argued that they were the causal force behind the bull market. Although there is little empirical evidence for this view, it remains a popular one among some commentators, making the topic of financialization a contentious one in the popular media and infusing what might otherwise be arcane debates over CFTC rule implementation with a rare degree of public concern, owing to worries over high gasoline prices in the United States and economic welfare in the developing world. A close reading of the evidence suggests that at least two aspects of the way commodity markets function do in fact appear to have changed over the past decade; however, the way in which information is disseminated within the market and the risk-sharing that occurs among producers, consumers, and intermediaries or investors has altered. These changes are discussed later in this chapter.

For many people in the developed world, tremors in commodity markets can seem arcane – gyrations in a market with little direct impact on them, beyond the occasional pain at the pump or a fluctuation in their savings account. In reality, however, these markets matter hugely to the course of world affairs and global markets in at least three ways. First, in terms of human welfare and economic development, these markets are among the most important in the world. Poor people spend a large majority of their income on food, and farmers, who represent a larger share of the population in poor countries than rich ones, depend on it for their livelihood. Whether in Ghana, Guatemala, or Vietnam, the lowest quintile of the population typically spends between 60% and 75% of their household budgets on food.[16] The price of wheat or soybeans – an abstraction for many people in New York or Paris – can tip the scales toward progress or poverty in less privileged parts of the world. Second, fluctuations in commodities prices, particularly oil, the 800-pound gorilla of the commodity complex

[15] Edward L. Morse, "Commodities Inflection Point: 2014 Annual Market Outlook," Citi Commodities Research, November 18, 2013, 7.

[16] "Recent Trends in World Food Commodity Prices: Costs of Benefits," in Food and Agriculture Organization, *The State of Food Insecurity in the World: How Does International Price Volatility Affect Domestic Economies and Food Security?* (Rome, Italy: Food and Agriculture Organization of the United Nations, 2011): 14.

in terms of physical volumes traded, inevitably reverberate throughout the broader economy in an outsized way. What happens in the oil market does not stay in the oil market. A lurch by gasoline and diesel prices in one direction or another, particularly in a moment of economic stress, as in 2007, can speed economic growth or cause it to grind to a halt. Some economists believe that the Great Recession was precipitated, through direct and indirect channels, by the historic spike in oil prices from 2005 onward, just as they feared the resurgence of oil prices in 2010 and 2011 could cause the world economy to contract once again.[17] Finally, the strategic importance of many commodities – whether rare earth elements, uranium, or oil – means these markets often set the stage on which the most vexing problems in international affairs play out. Indeed, some historians argue, not implausibly, that access to oil had a decisive effect on the outcome of the two world wars of the twentieth century, and that the security of the global oil trade has likewise played a leading role in Western strategy in the Middle East from the days of Roosevelt and Churchill in Arabia and Persia to Obama and Cameron in Libya.[18] More recently, natural gas trade linkages have formed the critical context in which Moscow and Ukraine have quarreled over the Crimea and, elsewhere in the world, the acquisition of oil wealth by the Islamic State of Iraq and Syria has catapulted it to prominence as a regional military force.

The epic bull market of the mid-2000s might be the stuff of history – but commodities are still king.

[17] See James D. Hamilton, "Oil and the Macroeconomy," Working Paper (August 24, 2005), Chapter prepared for Steven N. Durlauf and Lawrence E. Blume (eds.), *The New Palgrave Dictionary of Economics*, Second Edition (U.S. and UK: Palgrave Macmillan, 2008), http://dss.ucsd.edu/~jhamilto/JDH_palgrave_oil.pdf (Accessed September 16, 2014); Lutz Killian, "Not All Oil Price Shocks Are Alike: Disentangling Demand and Supply Shocks in the Crude Oil Market," *American Economic Review* 99 no. 3 (2009): 1053–1069; James D. Hamilton, "Historical Oil Shocks," NBER Working Paper 16790, National Bureau of Economic Research (February 2011); International Monetary Fund, World Economic Outlook: *Tensions from the Two-Speed Recovery: Unemployment, Commodities, and Capital Flows* (Washington, DC: International Monetary Fund, April 2011); and James D. Hamilton, "Nonlinearities And The Macroeconomic Effects Of Oil Prices," *Macroeconomic Dynamics* 15 no. S3 (November 2011): 364–378.

[18] Daniel Yergin, *The Prize: The Epic Quest for Oil, Money, and Power* (New York: Simon & Schuster, 1992); Daniel Yergin, *The Quest: Energy, Security, and the Remaking of the Modern World* (New York: Penguin Press, 2011); Amos N. Guiora, "Intervention in Libya, Yes; Intervention in Syria, No: Deciphering the Obama Administration," *Journal of International Law* 44, Case Western Reserve University School of Law (2011): 251–276; Sam Raphael and Doug Stokes, "Globalizing West African Oil: US 'Energy Security' and the Global Economy," *International Affairs* 87 no. 4 (July 2011): 903–921.

WHERE FROM HERE: FOUR FORCES SHAPING THE COMMODITY MARKET LANDSCAPE

Four pairs of opposing forces – four guiding tensions – will determine the landscape on which the major battles of commodities markets will be fought over the coming decade. This book, a collection of essays that are introduced later in this chapter, explores a set of public policy debates at the nexus of these four fault lines. They consist of the inherent tension between (1) net importing and net exporting countries in the search of economic gains; (2) sovereign states (and state-owned enterprises) and private-sector companies vying for competitive advantage; (3) international cooperation and nationalism as opposing means of addressing failures in resource markets; and (4) the physical and financial aspects of the modern commodity trade. Collectively, these tensions underlie a broad range of seemingly disparate debates in the resource sector, ranging from the debate over the causes of and appropriate means of mitigating harmful volatility in global food markets, the rise of Chinese national oil companies in oil production overseas, the legal clash over how to regulate speculation in commodity derivative markets, or the idiosyncratic campaign in the United States for a return to the gold standard.

The structurally opposing interests of net commodity importers and exporters, the first of the four guiding tensions in commodity markets, has economic origins but geopolitical manifestations. Countries that predominately export a good are generally motivated to keep its price high enough to maximize their short-term revenues yet low enough to keep demand for it intact over the long term. For net importers, on the other hand, natural resources, whether crude or processed, are materials whose economic value stems from the fact that they are used as inputs in another product's supply chain (iron ore into steel) or consumed as a means of growing the economy (diesel for cars and trucks). The economic antagonism between the two sets of countries is intrinsic: the price environment that is good for one is typically not preferred by the other. At stake, as trading partners seek to turn the market to their advantage, are the macroeconomic health of the home country (for instance, the impact of trade performance on the volatility of exchange rates, fund flows on interest rates, and exogenous price-level pressures on domestic inflation, for instance) as well as sector-specific economic outcomes (say, the health of an exporter's mining and minerals sectors or an importer's manufacturing and automotive industries). Yes, there is the potential for cooperation between importers and exporters – every seller needs a buyer, and vice versa, so interests overlap in fundamental ways – yet any analysis of the competitive dynamics that shape the commodity trade