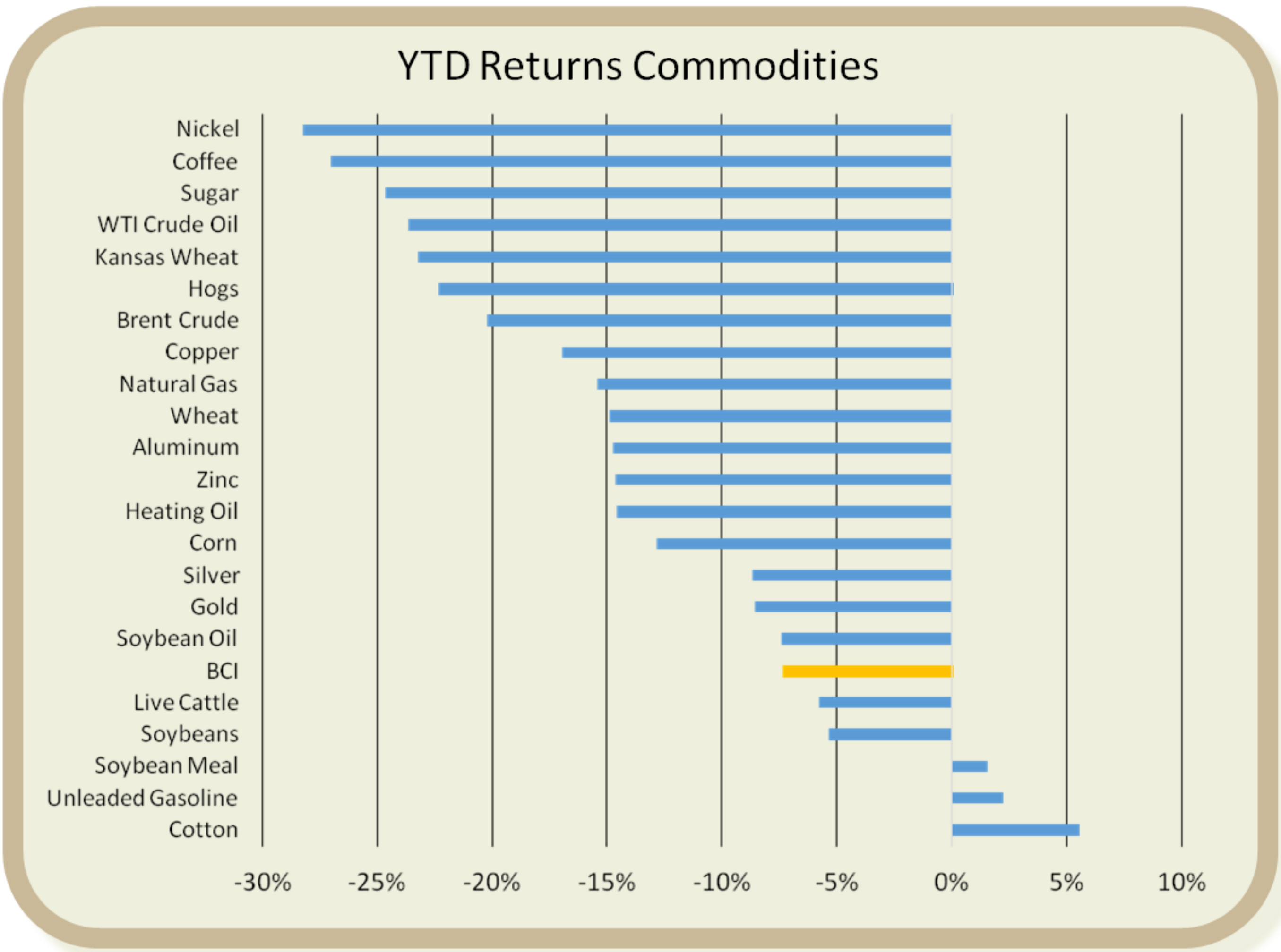
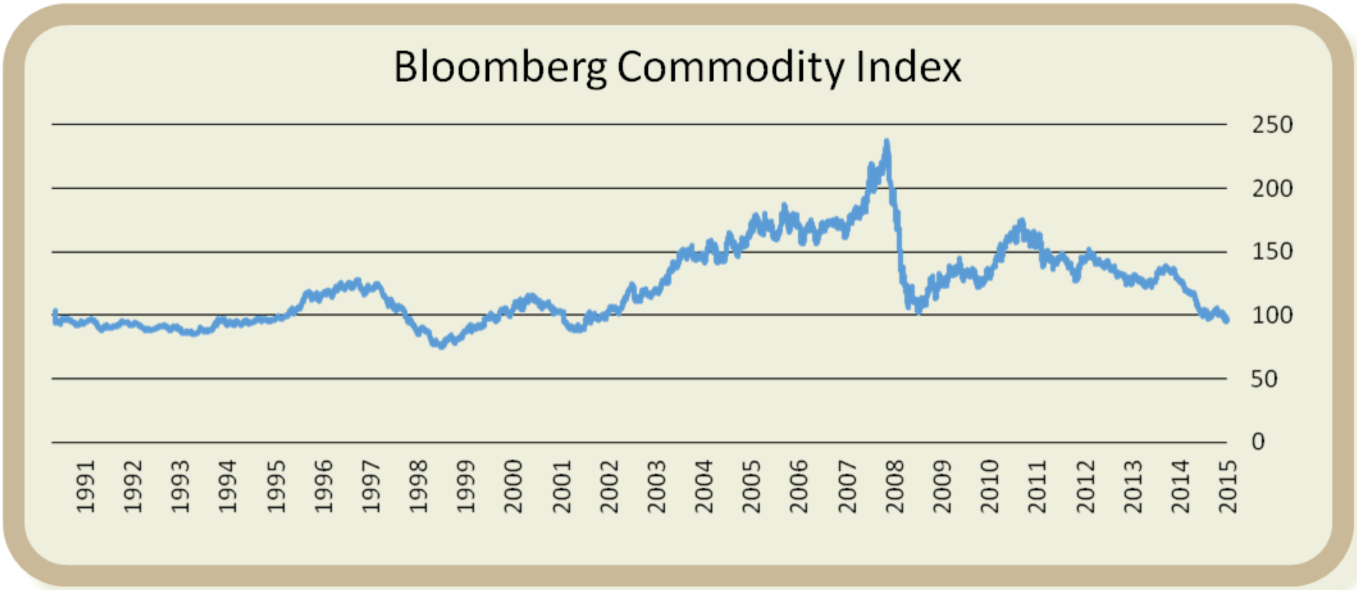
Commodities:
Demystifying their Importance
By Kevin Chambers

Much speculation in the financial media has been made as to why the Federal Reserve has not yet taken action on increasing interest rates. The Fed has claimed that sluggish commodity prices are a reason for their hesitation. The leading index for aggregate commodity prices, the Bloomberg Commodity Index, has lost -1.6% for the first half of 2015. In fact, it has lost every year from 2011 to now, making commodities the lowest performing major asset class over the last 5 years. Of the 37 benchmarks Headwater Investments tracks through our Due Diligence process, the commodities index is the only benchmark to have a negative 5 year and 10 year annualized return at -3.9% and -2.6%, respectively.



Source: Bloomberg



Source: Bloomberg

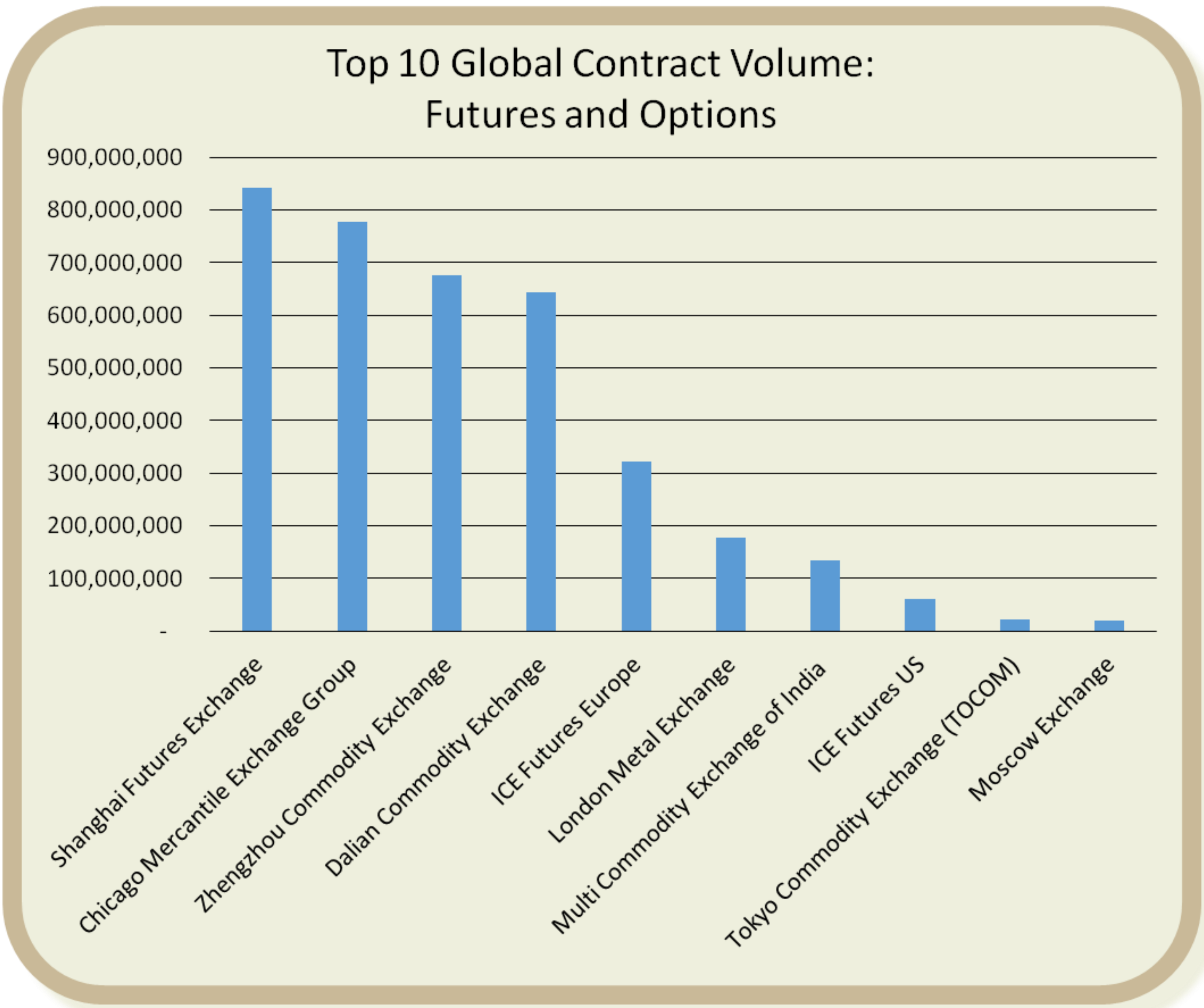
In terms of investments, commodities have obviously been unsuccessful over the last decade. However, commodity prices can have direct impacts on the daily lives of many people. Gasoline, heating oil, cotton, coffee, sugar, and wheat prices impact goods that most people purchase or use every day. To understand the importance of commodity markets, we shed a little bit of light on commodity markets as a whole, explain what the prices mean, and offer some insight on commodity investments.

Commodity Markets

Commodity trading harks back to ancient history when bands and tribes used to barter for goods and raw materials. Commodities have always been an important part of the global economy. It can be said that part of the motivation for European powers to colonize the world was the search for raw materials. Finding sources of food and energy are vital, on a base level.

Today, commodities are not bartered, or sold in a bazaar. Rather, receipts for commodity deliveries are traded on large markets. There are three types of receipts: spots, futures, or options. Spot trades are for immediate delivery, and the buyer takes possession of the real assets, whether it is a gold bar or bushel of wheat. Futures and options are contracts defined to purchase a commodity at a pre-determined date and price. Futures and options can be used for hedging or speculative purposes. For example, an airline can buy jet fuel futures to lock in a price to hedge against fuel price increases. Also, investors can buy commodities for speculative purposes to make money off price fluctuations. The difference between futures and options is pretty simple. Future contracts obligate the owner to buy the quantity specified. Option contracts give the owner the option to buy the quantity at the specified time.

The first receipt system is recorded in the 1600s in Japan. These were written contracts between noblemen who owned large farm tracts and rice merchants. The merchants would pay a portion up front for an agreement of the farmer to deliver rice at a fixed price after harvest. Trading of these "rice bills" was outlawed, but often done in secret. Enforcement of the law was often directly tied to the price of rice: stricter when the price was high, more relaxed when it was low. The Dojima market, the first modern organized commodity market, was established in 1715 as the official legalized market for trading rice futures (Moss & Kintgen, 2010).



Source: World Federation of Exchange

Commodities Exchanges

Commodities markets have become a little more complex and larger since 17th and 18th century Japan. Here is an overview of some of the largest and most important commodity exchanges:

US Exchanges:

Most of the major US commodity exchanges are owned by a single parent company called the CME Group.

The New York Mercantile Exchange (NYMEX) is the largest physical commodity futures exchange in the world. It was founded in 1872 by local dairy merchants as the "The Butter and Cheese Exchange of New York." Having grown substantially since then, the NYMEX now specializes in energy and precious metals contracts. On any given day NYMEX is trading around 2.2 million contracts. Around 80% of those are energy related, including contracts in crude oil, gasoline, and natural gas.

The Chicago Board of Trade (CBOT) is the oldest commodity exchange in the United States, founded in 1848. In contrast to NYMEX, CBOT trades almost exclusively crop agricultural futures and options. CBOT trades about 1.3 million contracts a day. Most of the corn, wheat, and soybean contracts are traded through the CBOT exchange. A portion of ethanol futures are also traded on the CBOT.

The Chicago Mercantile Exchange (CME) is the exchange that gives the conglomerate CME group its name. Like the NYMEX, it was also started by dairy merchants as the Chicago Butter and Egg Board in 1898. It continues to be the leading exchange for livestock options and futures. The CME trades around 3.1 million contracts daily for commodities such as live cattle, lean hogs, milk, and butter.

Other Global Exchanges:

Intercontinental Exchange Futures Europe (ICE-FE) was founded as the International Petroleum Exchange and was the largest energy futures exchanges in the world, creating the Brent Crude Benchmark, which has been a standard for oil prices. The exchange was purchased by the American financial holding company the Intercontinental Exchange (ICE) in 2001. ICE also owns the New York Stock Exchange, as well as other derivative exchanges in Europe, Canada, and the US. THE ICE-FE is important because it is still one of the major oil & gas futures and options exchanges in the world. On average, the ICE-FE processes around 1 million oil and gas contracts daily and has been the traditional trading point for most of the oil coming out of the Middle East and Northern Europe.

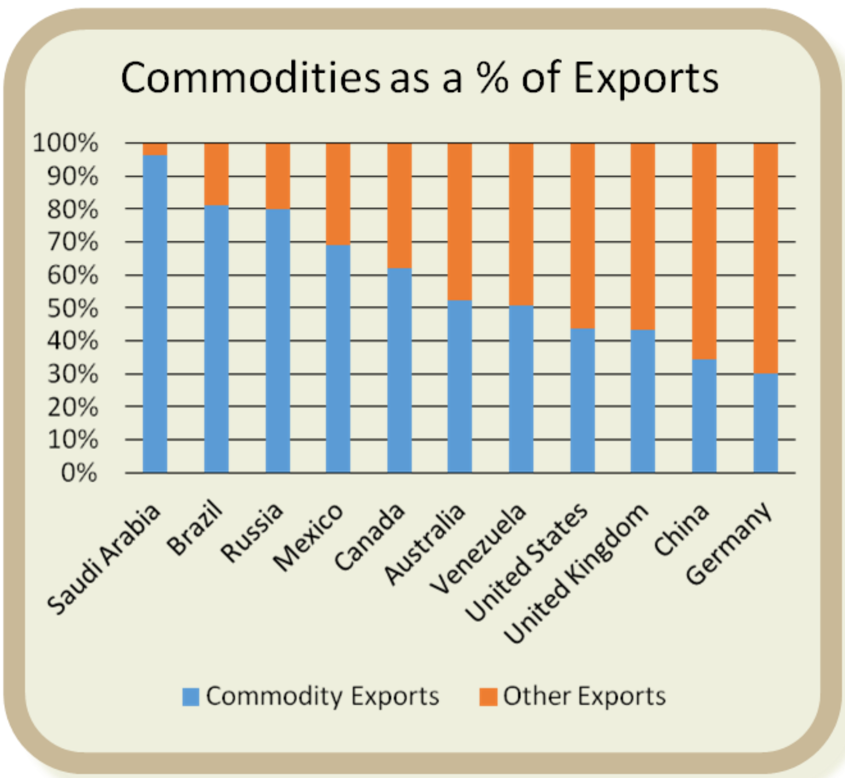
The Shanghai (SFE), Zhengzhou (ZCE), and Dalian (DCE) Exchanges are some of the largest, by volume, commodity exchanges in the world. The SFE processed around 850 billion contracts in 2014, making it the highest volume exchange for that year, beating out the entire CME group. For 2014, the ZCE and DCE were a close 3rd and 4th in volume, both producing around 650 billion contract trades. The SFE specializes in precious metals, and the ZCE and DCE specialize in agricultural goods and chemicals. There is not a marketplace currently for oil and gas contracts in China, although a company is trying to set up an energy exchange in Shanghai.

The London Metal Exchange (LME) was founded in 1877 as a formal trading place for copper. The exchange now offers contracts on a wide variety of metals. More than 80% of all non-ferrous metal future contracts, metals not containing iron such as copper and aluminum, are traded on LME platforms. In 2012, the LME was purchased by Hong Kong Exchanges and Clearing (HKEx). The LME transacts about 180 billion contracts a year, making it the 6th largest exchange in the world.

Commodity Dependence

Commodities, and their prices, play an important role in many industries and countries. For the United States, commodities are actually a very small portion of their total GDP. Direct commodity industries contribute about 4% of the value of GDP in the United States. Oil and Gas extraction make up about 2%, other mining activities about 1%, and agricultural commodities at 1%. That is compared to the financial sector which contributes 20%, real estate for 13%, or manufacturing 12%.

For other countries, the value of commodities is much more important. For example, 9 of the top 10 exports for Russia are commodities. 80% of all Russia's exports are commodity based, dominated by the Oil and Gas sector which makes up over 50% of exports out of Russia. Obviously, the oil rich Middle Eastern countries, rely heavily on the exportation of oil. Almost 100% of their exports are commodity based. Many countries have a commodity export dependence, meaning more than 50% of their exports are from commodities. Although the majority of countries on this list are in the emerging markets, many developed countries are also classified as commodity dependent. Two of the most well-known being Canada and Australia, which both rely heavily on their natural resource exports. In Canada, commodity exports equal 62% of the total, in Australia it is 52%.



Source: UNCTAD

Despite some developed countries relying on this revenue, commodity dependence is a problem that is primarily one for emerging markets. According to the UN, for 95 of the 141 developing markets, commodities make up over 50% of their export earnings (UNDP, 2011). The dependence issue is burgeoning. In 1995, developing economies in Africa relied on commodities for 62% of their export revenue. As of 2014, this has grown to 77% dependence. This surge is also true for the developing countries in the Americas, 53% to 67%, and Asia, 26% to 33% (UNCTAD, 2015).

Commodity dependence is a double-edged sword. As commodity prices increase, commodity exporting companies reap the benefits. There have been extended time periods with rising commodity prices: Around 40% increase from 1991 to 1997 and 170% increase from 2002 to 2008. During these periods, many of the emerging market economies grew on the backs of rising commodity prices. However, in the last 5 years, when prices have fallen by -40%, falling commodity prices have resulted in problems in these same countries (Bloomberg Indexes, 2015).

Because of the commodity price collapse since the end of 2014, many countries have seen their growth outlook downgraded. Every quarter the International Monetary Fund releases their predictions for GDP growth for the next year. From the April 2014 report to the April 2015 report, the 2015 GDP outlook for every single emerging market region was downgraded except Emerging Europe, which stayed static. The Latin America & the Caribbean region was downgraded the most, -2.1%, followed by the Middle East, -1.5%. Some individual countries were downgraded substantially more than their overall regions. Guinea and Sierra Leon were both downgraded -18% in just 12 months. Other commodity dependent economies were also downgraded significantly: Venezuela was downgraded -8%, Russia -6.3%, Brazil -4.5%, and South Africa -3.8% (IMF, 2015) (IMF, 2014).

Not only do the GDPs of commodity dependent countries suffer, their investment returns can also be affected. Russia's stock market is made up of 69% commodity companies. As of July 31, 2015, the Russian stock market has lost 25% over the last year. For 2014, it was down 46%. Brazil's stock market is comprised of 22% commodity companies and has lost -39% over the last year. Stock markets in Canada and Australia are 30% and 20% commodity companies, respectively, and have both lost over -16% in the last year (MSCI, 2015).

Stock Correlation To Commodity Index

USA	0.44
Canada	0.7
Russia	0.9
Australia	0.74
UK	0.01
Germany	0.42
Japan	-0.38
Emerging Markets	0.12

Source: Yahoo, Bloomberg

Net Importers

Most developed countries do not rely on commodities to fund their economies. Most large first world countries are net commodity importers, meaning they do not produce raw materials but need to import commodities. These net importers usually have a balancing effect for global commodity prices. Companies in net importing countries are using some of the commodities to manufacture goods, and can pass some of the increased cost of inputs to the consumer when prices rise. When prices fall, raw material inputs are cheaper, increasing the margins for the companies. Most countries do produce some commodities themselves, but the price fluctuations are balanced out by the commodities they import. By analyzing the correlations of stock market prices to the commodity index, the data shows how important commodity prices are for commodity dependent countries vs. net import countries. Russia's stock market has a 0.9 correlation with commodity prices, Canada and Australia both equal 0.7. In contrast, the United States and Germany have

Stock Correlation by Region

	2014	2015
Commonwealth of Independent States	3.1	2.6
Emerging Asia	6.8	6.6
Emerging Europe	2.9	2.9
Latin America & Caribbean	3	0.9
Middle East and North Africa	4.4	2.9
Sub-Saharan Africa	5.5	4.5

Source: World Bank

a 0.4 correlation, and Japan has a negative -0.4 correlation. The lower the correlation, the less price fluctuations of commodities affect the overall health of the country.

Commodities in Investments

Commodities are traditionally thought of as an inflation protecting asset. As prices as a whole are increasing, commodity prices are expected to increase in line. Commodities are also used as a diversifier in many portfolios because they have low correlations with traditional asset classes like stocks and bonds.

Most investors don't want to buy and sell individual contracts for commodities, because that can be expensive and risky. Therefore, there are mutual funds and ETFs that buy commodities and can give investors the desired exposure while limiting risk.

Types of Commodity Funds

Pure Funds

Pure funds invest in the hard commodities. For example, SPDR Gold Trust ETF (GLD) invests in gold by actually buying and holding physical gold bullion on your behalf.

Futures Funds

Future funds solely buy speculative futures of a specific commodity for their shareholders. PowerShares DB Gold Fund ETF (DGL) invests in gold future contracts.

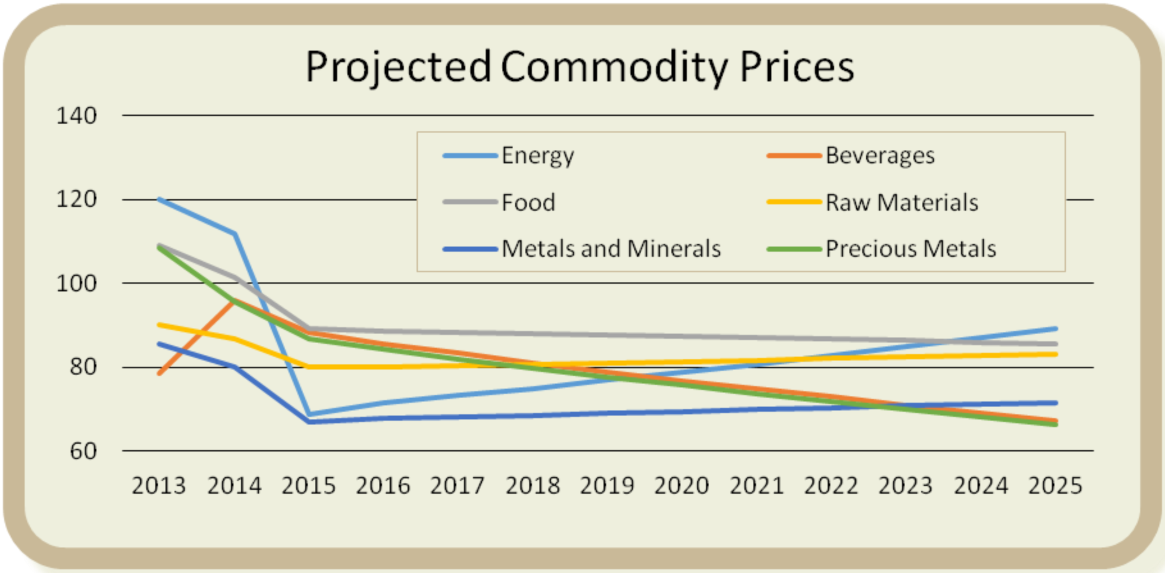
Producer Funds

Producer funds (or natural resource funds) invest in companies that operate in the commodity business. Sticking with the gold example, the iShares MSCI Global Gold Miners ETF (RING) invests in companies in the gold mining business around the world.

Diversified Funds

Diversified funds actively invest in many different commodities and investment vehicles. For example, the PIMCO Commodity Real Return Strategy Fund (PCRIX) offers investors exposure to multiple sectors including energy, precious metals, industrial metals, livestock, and agriculture. They invest in hard commodities, futures, and commodity business equity and fixed income products.

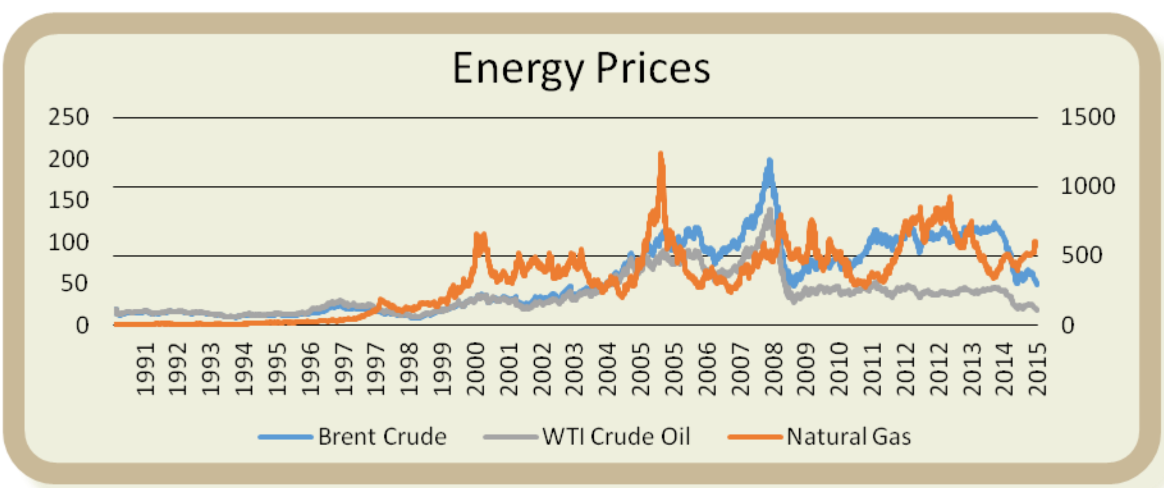
Commodity Outlook



Source: World Bank

Energy

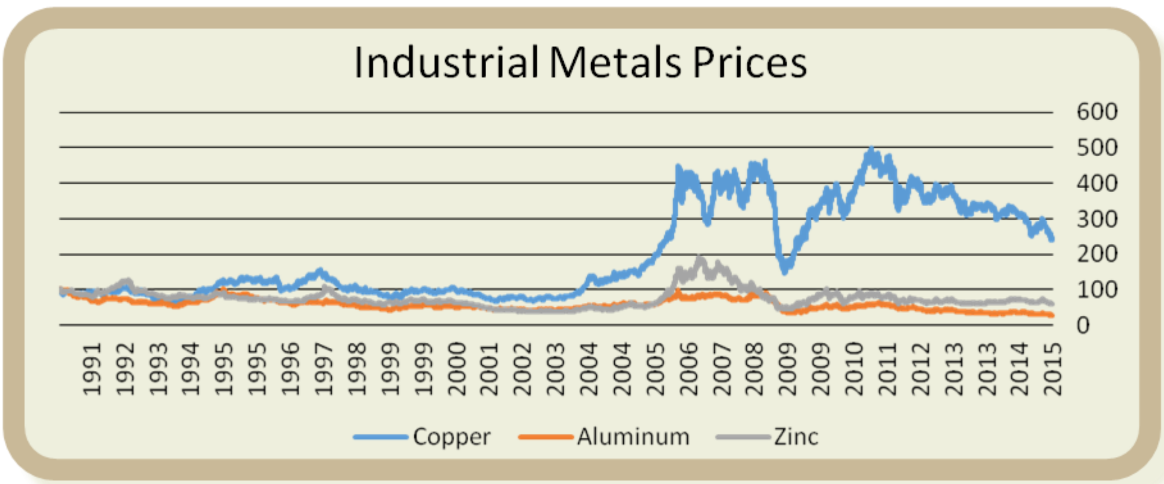
The recent oil supply glut is expected to continue. OPEC seems committed to their denial to cut supply to protect global prices. The recent diplomatic agreement between the UN Security Council and Iran will see exports rise from that country. European crude stocks are also growing. Even with the large supply of oil, demand still seems strong. Europe, India, and China are still importing large amounts of oil. The World Bank is projecting that oil prices will stay low for the near and long term. Likewise, the World Bank is expecting coal and gas prices to remain low (The World Bank, 2015).



Source: Bloomberg

Industrial Metals

Currently, China consumes over 50% of the world's metal supply. With the introduction of new technology and new capital investments spent when prices were high, exporting countries have been able to increase supply. However, supply has traditionally not been able to keep up with Chinese demand, pushing prices higher. Now that China's growth projections are slowing, demand, and thus the price of metal, is dropping. Brazil and Australia have increased their supply capacity the most, and stand to lose if prices continue downward (The World Bank, 2015).



Source: Bloomberg

Precious Metals

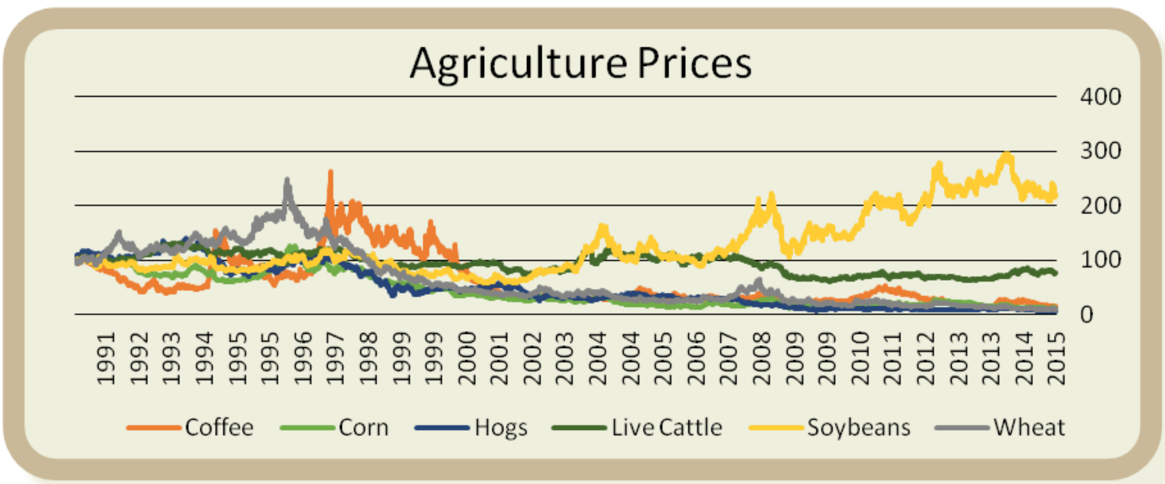
Gold and silver are often bought for speculative investment purchases. Precious metal investments have tended to fare poorly in rising interest rate environments. This is because investors leave gold to buy yield bearing assets. The continued strength of the US dollar also hurt gold and silver demand.

Source: Bloomberg

Going forward, this trend is expected to continue. Gold and silver are still bought for physical purposes such as jewelry and limited industrial uses, but investment demand is much greater. New technology is also increasing mine capacity, and thus supply, further intensifying the downward price trend (The World Bank, 2015).

Agriculture

Global agriculture prices have been down so far this year. Grain prices have led the decline with wheat, rice, and maize prices all down. While global production is expected to stay fairly flat, the decreasing output in some countries is being offset by increased agricultural production out of China. Consumption has stayed strong and is expected to increase slightly. Furthermore, the falling price of oil helps agricultural production, as it is very energy intensive. These all might seem like good news for agriculture prices; however, there are a few risk factors that can impact prices. First is weather. El Nino is expected to last through 2015, and has brought unseasonably dry spells to many important growing zones. Next, demand for biofuel production has waned, and demand for agricultural goods used in that industry is expected to decline. Also investment fund activity, which has been increasing for the last 15 years, is expected to decline. All of these other factors push the World Bank to expect a general continued decline in agricultural commodity prices for the near term (The World Bank, 2015).

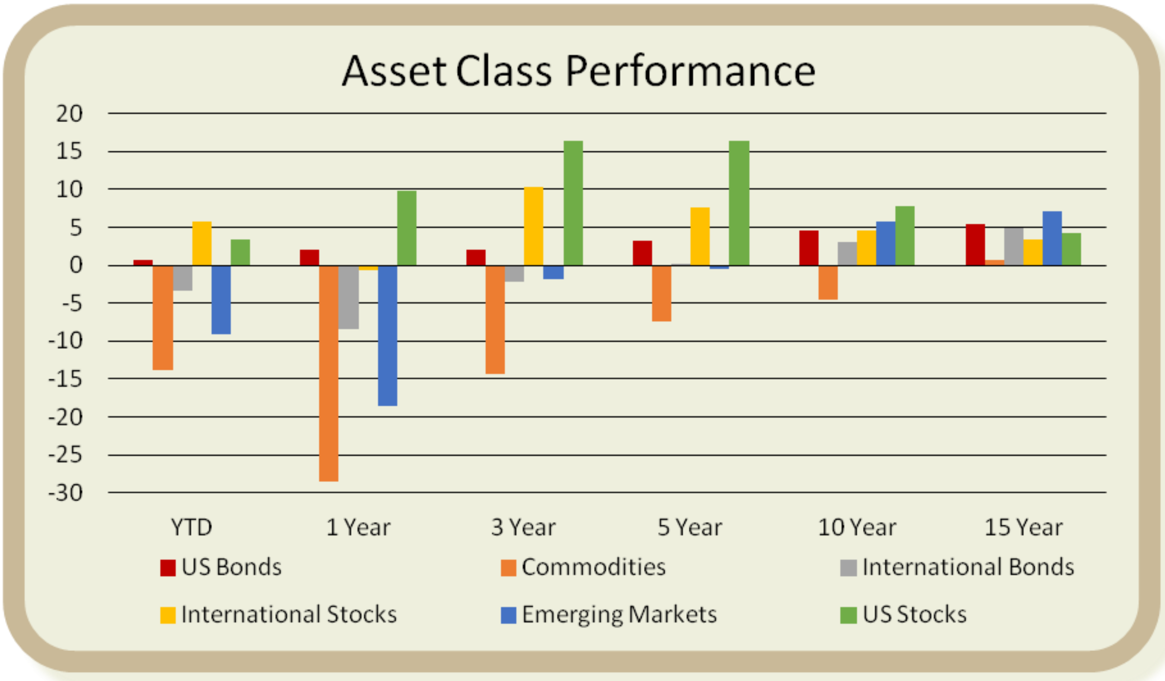


Source: Bloomberg

Headwater Investments Strategy

In general, Headwater Investments has tended to shy away from direct commodity investments. This is mainly due to the purely speculative nature of commodities. Although there is a certain speculative aspect to investing in stocks and bonds, most of the securities give off a regular dividend or interest to the investor. Even if the price of a bond is down, the return is buoyed slightly by the income generated for the investor. Commodities do not offer direct income. A bar of gold, or a bushel of wheat has no way of producing interest, so an investors only makes money if the price goes up.

Many of the mutual funds in which we invest have allocations to commodity-related businesses. For example, the DFA US Core Equity fund, which we use



Source: Morningstar

for some of our client's equity exposure, has 7% energy companies, including Exxon Mobil and Chevron. It also has 4% basic materials companies, or companies in the agriculture business and mining companies.

Part of our investment strategy is to have an inflation protecting allocation in our clients' accounts. One of the funds we use for this allocation is PIMCO All Asset, a mutual fund managed by Research Affiliates. Their goal is to beat inflation by 5% over a full market cycle. To do this, they often buy things, like commodities, that are expected to do well in inflationary periods. Their exposure to commodities changes often, but currently it is at about 5%.

Conclusion

Commodities will continue to be an important part of the global economy. Not only do their prices affect the pocket books of billions of consumers worldwide on a daily basis, many national economies depend on commodities for the bulk of their GDP. Because of this, the price of oil and gold will always be tracked closely by financial analysts. The companies that control the largest markets are some of the largest financial entities in the world, and will have tremendous influence going forward. As an investment, commodities are purely speculative because they give out no income. While it looks like commodity prices are continuing in their depressed state for the near future, commodities can add diversification into portfolios because their low correlation with other major asset classes.

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