Chinese Economic Growth and Commodity Performance

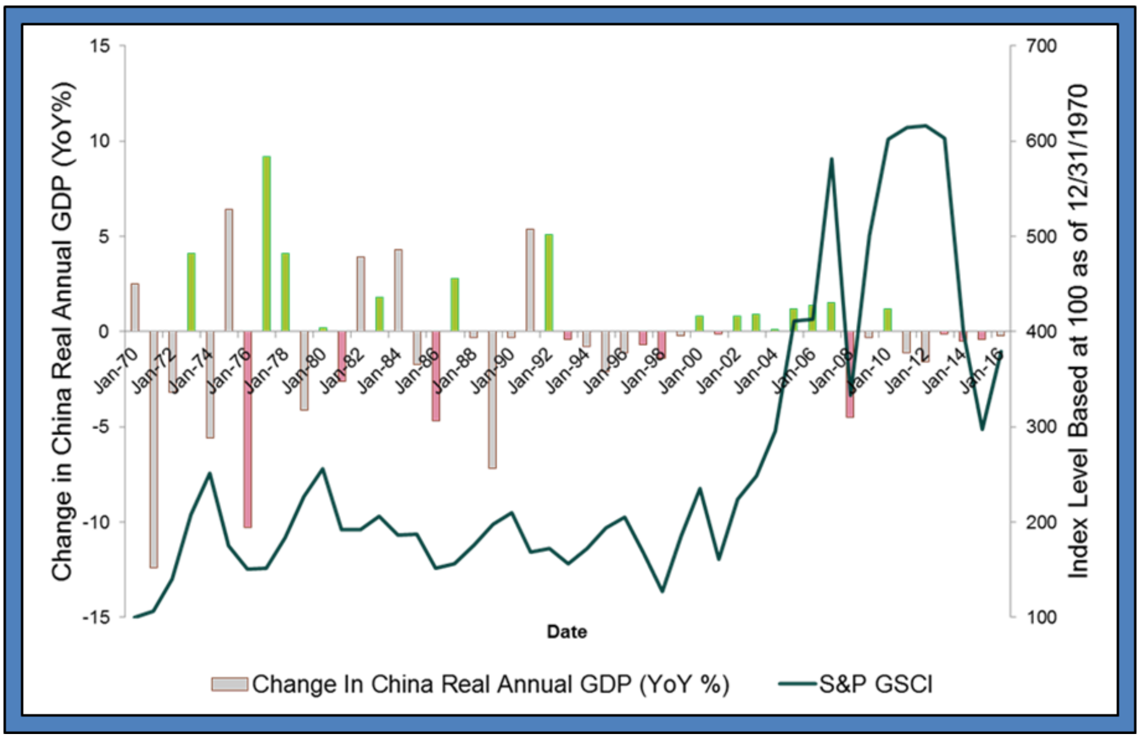
Jodie Gunzberg, CFA
Managing Director, Head of U.S. Equities, S&P Dow Jones Indices; and Editorial Advisory Board Member, *Global Commodities Applied Research Digest*

Ms. Jodie Gunzberg, CFA (standing), Managing Director, Head of U.S. Equities at S&P Dow Jones Indices, presented at the *GCARD*'s panel on Chinese commodity demand during the J.P. Morgan Center for Commodities' international commodities symposium, which was held at the University of Colorado Denver Business School from August 10, 2017 through August 11, 2017. The session's other panelists were Dr. Keith Black, Ph.D., CFA, CAIA (left), Managing Director, Chartered Alternative Investment Analyst (CAIA) Association; and Dr. Kevin (Kaifeng) Chen, Ph.D., Chief Strategist, Hywin Capital Management. The panelists are founding Editorial Advisory Board members of the *GCARD*. In addition, CAIA was a co-sponsor of the symposium.

Many news headlines point to rising or falling Chinese economic growth as a main influence of commodity performance. However, there are many other factors like the U.S. dollar[1] and interest rates[2] that can drive commodities. Even in the Chinese market, there are forces besides industrial demand growth to analyze like demand for storage[3] and demand for metals to be used as financial collateral.[4] In this digest article, we look beyond the headlines to examine what the actual impact of the fluctuating fortunes of the Chinese economy appears to have been on the price performance of commodities overall, as well as on commodity sectors and individual commodities, using year-over-year data.

Overall the S&P Goldman Sachs Commodity Index (GSCI)[5] only moves in the same direction as Chinese Gross Domestic Product (GDP) in about 57% of the past 46 years. However, *when Chinese GDP is split into rising and falling periods, commodity returns seem to be more influenced by rising growth than slowing growth*, as shown on Figure 1. Of the past 46 years, Chinese economic growth rose 19 times with 15 of those years exhibiting positive annual commodity returns. The slowing growth years seem much less influential, occurring simultaneously with commodity performance declines in only 11 of 27 years. That said, years with notably negative economic growth such as in 1976, 1981, 1986, 2008, and times with consecutive years of falling growth such as in 1997-98 and in 2013-15, may have contributed to negative commodity performance during those years.

Figure 1
Changes in Chinese GDP versus Commodity Performance

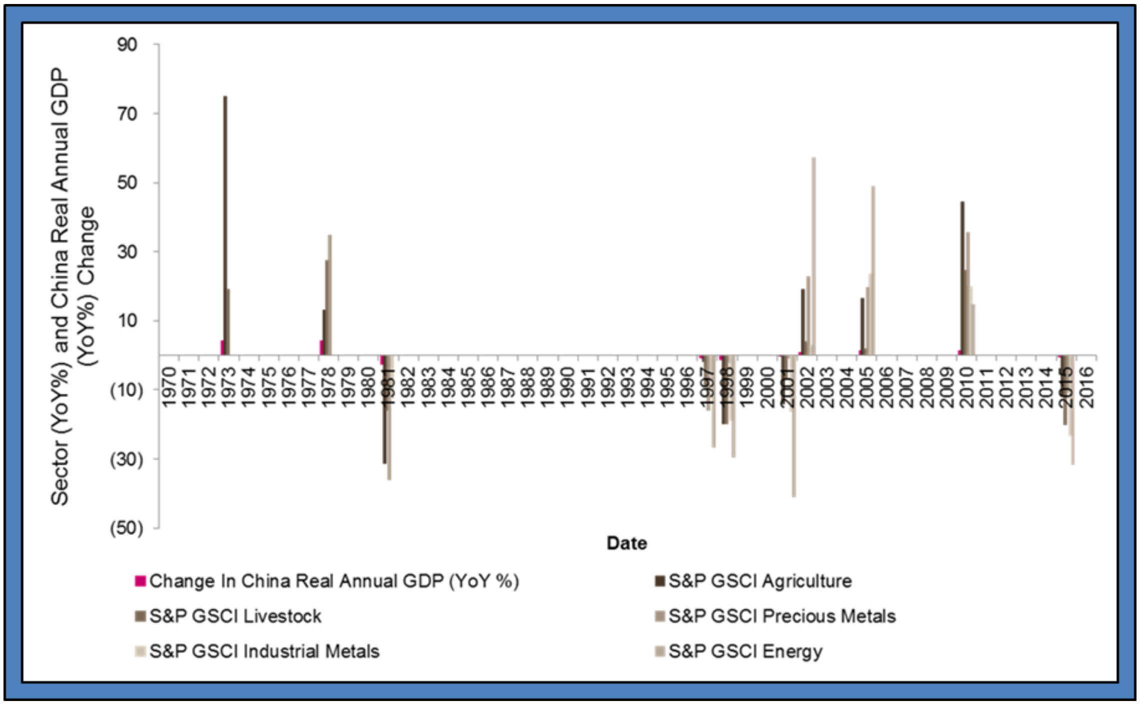


Sources: S&P Dow Jones Indices and Bloomberg Chinese GDP growth data. Green bars show simultaneous positive Chinese GDP changes and positive commodity returns. Pink bars show simultaneous negative Chinese GDP changes and negative commodity returns.

Additionally*, it is infrequent to see all five commodity sectors move together in the same direction with Chinese GDP changes*, but again they appear to be more influenced by rising growth, as shown on Figure 2 on the next page. All sectors moved in the same direction as Chinese GDP changes 22% of the time.

However, all sectors simultaneously gained in 26% of the rising growth years, while all sectors simultaneously lost in just 19% of the declining growth years.

Figure 2
All Five Commodity Sectors Have Rarely Moved Together in the Same Direction with Chinese GDP Changes



Sources: Bloomberg and S&P Dow Jones Indices.

The evidence suggests commodity sector diversification may protect the S&P GSCI from declining Chinese growth and may help with rising growth, as documented in Table 1 on the next page. The composite index loses in just 41% of falling growth periods, which is less frequently than any single sector loses with falling growth. It is interesting that the industrial metal sector, which has an over 40% weighting to copper, has been the least sensitive sector to rising Chinese GDP, rising in just 53% of years together. It is also interesting that energy has been the least sensitive to falling growth, dropping together in just 43% of years. The seemingly least sensitive sectors to macro factors, *agriculture and livestock, may have been the most influenced by moves in Chinese GDP growth.*

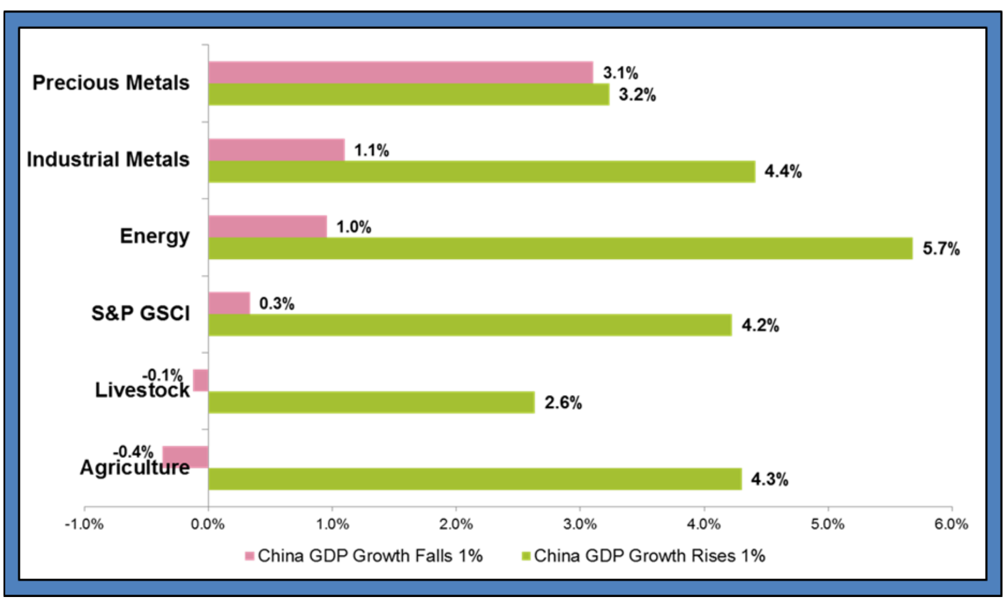
Table 1
Fraction of Time that Commodities and Their Constituent Sectors Have Moved in the Same Direction as Chinese Economic Growth

		S&P GSCI Sectors				
Chinese GDP Growth Changes () / Commodity Returns ()	**S&P GSCI**	**Agriculture**	**Livestock**	**Energy**	**Industrial Metals**	**Precious Metals**
Moving Together (+)/(+) or (-)/(-)	**56.5%**	63.0%	67.4%	51.5%	57.9%	53.5%
Rising Together (+)/(+)	**78.9%**	68.4%	84.2%	66.7%	53.3%	61.1%
Falling Together (-)/(-)	**40.7%**	59.3%	55.6%	42.9%	60.9%	48.0%
Ratio Rising Together/ Falling Together	**1.9**	1.2	1.5	1.6	0.9	1.3

Source: S&P Dow Jones Indices.

Agriculture and livestock have also been the only sectors that have declined on average for every 1% drop in Chinese GDP, as shown on Figure 3. While a 1% rise in Chinese GDP has been associated with positive performance in every sector, a 1% drop in Chinese GDP has only been associated with a reduction in positive returns overall and for metals and energy. For precious metals, although its returns and Chinese growth have moved together more frequently when Chinese growth has been up rather than down, the average returns during a change of Chinese GDP growth by 1% has been about the same, regardless of whether the growth change was positive or negative.

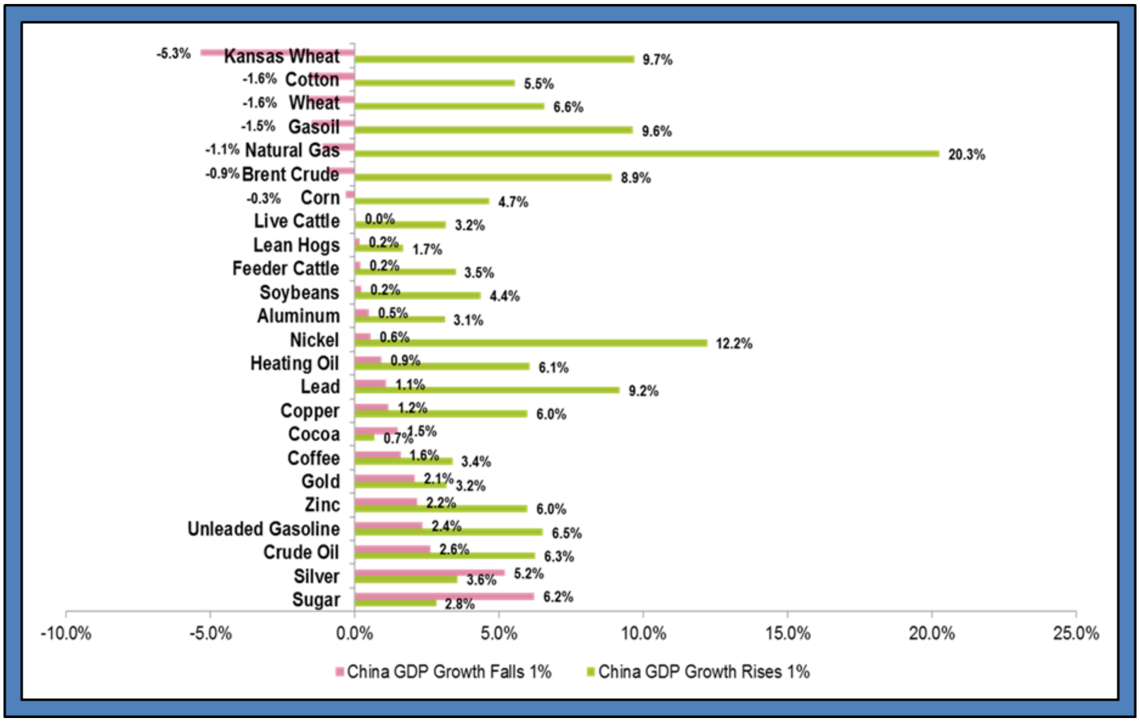
Figure 3
All S&P GSCI Sectors Have Had Positive Performance on Average with Rising Chinese Growth;
Only Agriculture and Livestock Have Fallen on Average with Declining Chinese Growth



Source: S&P Dow Jones Indices.

Lastly, *every single commodity in the S&P GSCI has risen with rising Chinese GDP*, while only wheat, cotton, gasoil, Brent crude and natural gas have fallen on average with a 1% drop in Chinese GDP, as shown in Figure 4.

Figure 4
All Commodities Have Had Positive Performance during Rising Chinese Economic Growth



Source: S&P Dow Jones Indices.

Conclusion

The results in this brief article suggest that the impact of changes in Chinese economic growth may have been different across the five commodity sectors in the S&P GSCI. This article documented the degree to which this may have been the case in the past. Most surprisingly, despite the press attention to seemingly more economically sensitive commodities, this article shows that it may be the agricultural and livestock sectors that have responded the most consistently to changes in Chinese economic growth.

Endnotes

1 http://www.indexologyblog.com/2016/04/04/every-commodity-benefits-from-a-falling-dollar/

2 http://www.indexologyblog.com/2013/11/26/the-exponential-power-of-interest-rates-on-commodities/

3 https://oilprice.com/Energy/Energy-General/Is-Chinas-Oil-Demand-Growth-About-To-Plummet.html

4 See Black (2016).

5 http://us.spindices.com/performance-overview/commodities/sp-gsci

This article is excerpted from Ms. Gunzberg's August 10, 2017 presentation at the J.P. Morgan Center for Commodities' international commodity symposium, which was held at the University of Colorado Denver Business School. The original version of this article can be accessed here:
https://www.indexologyblog.com/2017/08/21/chinese-demand-growth-lifts-every-commodity/.

Reference

Black, K., 2016, Research Digest Article on "China: Credit, Collateral, and Commodity Prices," *Global Commodities Applied Research Digest*, Fall, pp. 52-55.

Author Biography

JODIE GUNZBERG, CFA
Managing Director, Head of U.S. Equities, S&P Dow Jones Indices; and Editorial Advisory Board Member, *Global Commodities Applied Research Digest*

Jodie M. Gunzberg is Head of U.S. Equities at S&P Dow Jones Indices (S&P DJI). She is responsible for the product management of S&P DJI's U.S. Equity indices, including the S&P 500® and The Dow®, the most followed equity indices in the world. Ms. Gunzberg is the chief spokesperson and product strategist for these indices, educating the market about their benefits and risks, and she sources market feedback to manage continued product development for growth opportunities. She also oversees certain indices relevant to retirees, including the S&P Target Date and S&P STRIDE index series.

Ms. Gunzberg joined S&P DJI in 2010 as Director of Commodities product management. Prior to that, she spent several years in investment consulting at Ibbotson and Morningstar, and was the chief investment strategist for Marco Consulting, where she advised roughly 350 Taft-Hartley plans with USD 85 billion in assets. Ms. Gunzberg started her career as an actuarial associate at New York Life Insurance Company and subsequently worked as a quantitative analyst and portfolio manager on the buy-side. She managed real estate at Equity Office Properties, fixed income at ABN AMRO Asset Management, and equities and hedge funds at Driehaus Capital Management and Aragon Global.

Ms. Gunzberg is a CFA charterholder, as well as a member and curriculum consultant of the CFA Institute. She is also a former member of the Board of Directors for NYSSA and CFA Chicago. Ms. Gunzberg currently serves on the Advisory Board for the Department of Finance of Hofstra University and on the Editorial Advisory Board for the *Global Commodities Applied Research Digest* at the University of Colorado Denver Business School's J.P. Morgan Center for Commodities. In addition, Ms. Gunzberg co-authored the chapter, "The Long and Short of Commodity Futures Index Investing," for the Risk Book (London), Intelligent Commodity Investing. She received her MBA from the University of Chicago, Booth School of Business, and earned a B.S. in Mathematics from Emory University.