The Macro-Metal News

Not Random: The Gold-Silver Ratio

January 31, 2020

METALS

The Gold-Silver Ratio is Indicative of Global Deflation

IS THE GOLD-SILVER RATIO MERELY A charting curio? A commodity gewgaw? Some kind of monetary whatnot? Financial knickknack? A vestigial relationship from a bi-metallic monetary order that winked out of existence generations ago? Or does it continue to serve in its historic role as a reliable indicator of the global monetary condition? And if the latter, then what do last year's (nearly) all-time highs augur about the state of the world economy?

JUST A NUMBERS GAME?

During 2019 the gold-to-silver ratio averaged 86. Utilizing available data back to the year 1687 last year's annual average ranks in the top 1.9 percent 'all-time'. The available data in this case refers to the past 333 years of continuous annual data collated by Lawrence H. Officer and Samuel H. Williamson at MeasuringWorth.com.[1] Ratios for earlier eras have been estimated by other researchers and they showed the ancient relationship varied by civilization. Menes required two-and-a-half units of silver per one unit of gold while Hammurabi wanted six; both were monetary 'doves' in modern terms.[2] Croesus (13.33) and Darius (13) were comparatively 'hawkish' monetarists.[3] Caesar – the ruler, not the salad – and Constantine I were the 'moderates' at 7.5 and 10.5, respectively.[a4] Thus, the 2019 value is – as far as human civilization is concerned – near literally all-time highs.

If you, dear reader, protest that, except for Isaac Newton's publication of *Philosophiæ Naturalis Principia Mathematica*, little from 1687 is applicable to present day, then your author will not protest. But the extraordinary elevation of the ratio survives even if hundreds of years are removed from the observation.

From 1968 onward – once the price of gold had been liberated from its Great Depression peg – only 1991 and 1992 were higher than 2019. A more granular study of monthly averages is consistent with the broadest sweep: the readings from last May through August were each in the top 4 percent of all values since January 1968 (with June in the top 2 percent).

With the ratio at rarified heights last summer researchers took note. In June, UBS, the Swiss multinational bank, authored a piece titled, "Is silver due to catch up?":

> Generally, we have not been receiving many questions on silver for some time now. But if anything, there is always the occasional question especially from those who are watching the gold:silver ratio quite closely. With the ratio continuing to rise in gold's favour, recently touching 90, there have probably been a few more questions largely around whether this signals a buying opportunity for silver in a scenario where gold is looking more positive.[5]

The same month Metals Focus, an independent precious metals consultancy, sent out a report with the ratio as its lead. "What will it take for silver to outperform gold and deliver a far lower ratio?", they asked and then answered:

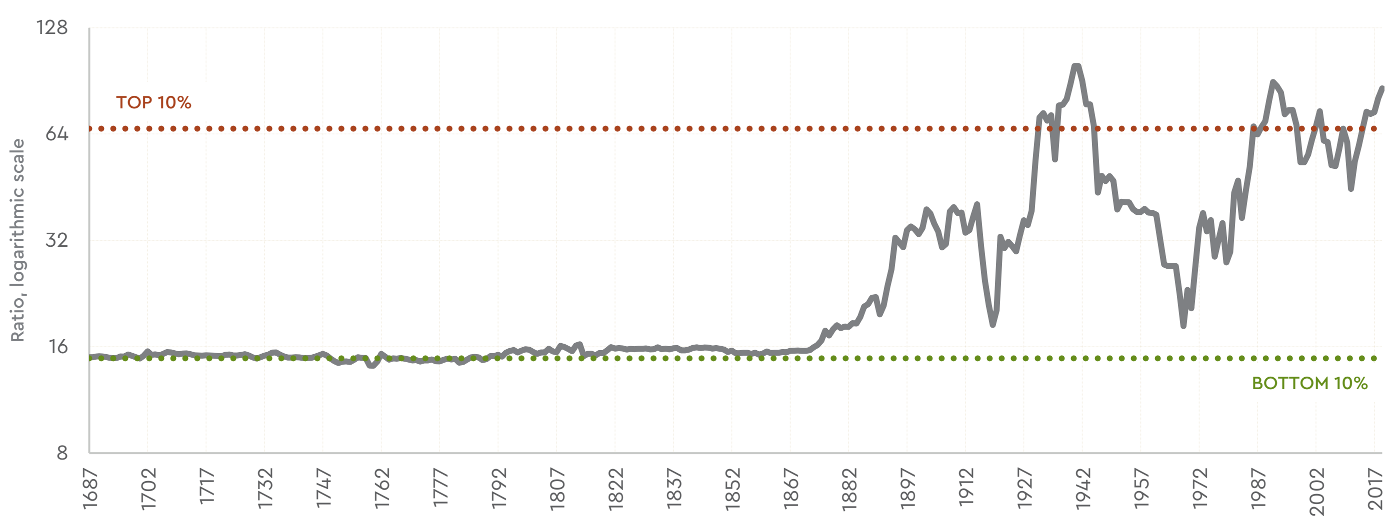
> This week, as the gold price broke through $1,300, silver held below $15. As a result, the ratio between the two metals has briefly climbed above 90:1, a level last seen over 25 years ago, in early 1993. To a large extent, this reflects a lack of investor belief in silver's upside credentials.[6]

Later the same month, Citi Research, from the American multinational bank, offered their thoughts:

> Several factors may be underpinning a higher gold-silver price ratio, but the stickiest theme may be official sector purchases and central bank bullion buying activity. Recent Basel rules

333 YEARS OF THE GOLD-SILVER RATIO

(SILVER OUNCES PER 1 GOLD OUNCE, ANNUAL AVERAGE)



[a] Menes, the fabled first king of Egypt, lived – depending on whom you ask – between 2,900 to 3,400 years before the common era (BCE). Hammurabi, king of Babylon (present day Iraq) and promulgator of law, reigned circa 1792 to 1750 BCE. Croesus, legendary Greek king of the Lydian people (present day Turkey) who, Herodotus wrote, invented gold and silver coin for use as currency, reigned circa 560 and 546 BCE. Darius I, a prolific builder and great King of Persia (present day Iran), was born in 550 and died in 486 BCE. Caesar was birthed in the 1920s by Caesar Cardini, an Italian immigrant living in San Diego and but operating his restaurant across the border in Tijuana. Constantine I, famous for being the first Roman Emperor to profess Christianity, lived from 280 to 337 of the common era.

> improving the mark-to-market treatment of gold reserves, US sanctions policies and the broader scope of de-dollarization, diversification aspects, and reduced credit risk appetite all remain tailwinds for physical gold demand at the official sector level and therefore a higher g-s ratio.[7]

But by early July – perhaps startled by the attention it was receiving – the ratio performed an abrupt U-turn. Silver zipped from $14.92 US dollars per troy ounce on July 5th to $16.55 in just 19 days. The 11 percent appreciation swallowed the 2 percent move by gold over the same time period and brought the ratio down from 94 to 86.

Predictably, press attention waned. For the month of September, the ratio averaged 83 and no other ratio articles crossed this author's desk for the rest of the year. But while everyone's attention was averted the apparently shy, private ratio staged a comeback. For December the ratio was 86.

Is it all a Magic-8 Ball novelty? Your author does not believe so. For at least 150 years the ratio has served as an indicator of the global monetary condition. During periods of inflationary monetary proliferation, the ratio falls. During eras of deflationary monetary destruction, the ratio rises. To put it plainly, these highs are alerting us to a pervasive capital shortage. The financial fuel required to power the machinery of international commerce is not in abundant (enough) supply.

A PROXY FOR MONETARY INFLATION

Inflation is a monetary consequence. This axiom was conceptualized most succinctly by Milton Friedman. In September 1970 the American economist delivered a speech at the University of London, commenting that, "It follows from the propositions I have so far stated that inflation is always and everywhere a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output."[8]

Some three decades later Federal Reserve Chairman Alan Greenspan reconfirmed the truism while speaking at Stanford University saying, "Nonetheless, we recognize that inflation is fundamentally a monetary phenomenon, and ultimately determined by the growth of the stock of money, not by nominal or real interest rates."[9a]

As the graph on the next page shows, when money and its multifarious derivatives – specifically credit – is being destroyed – for example, during periods of economic depression or monetary disorder – the ensuing deflation or disinflation produced a rising ratio. Conversely total wars, globalization and free-floating currencies delivered the opposite: monetary propagation, inflation, and a falling ratio.

It is no mystery then that the 2019 ratio is at such oxygen-depleted heights, after all, the world has been in a monetary depression for a dozen-and-a-half years. Ever since BNP Paribas announced on August 9, 2007 that it was suspending the valuation of three of its funds the monetary landscape has been littered with the plans and promotions of central banks to fix it all.[b]

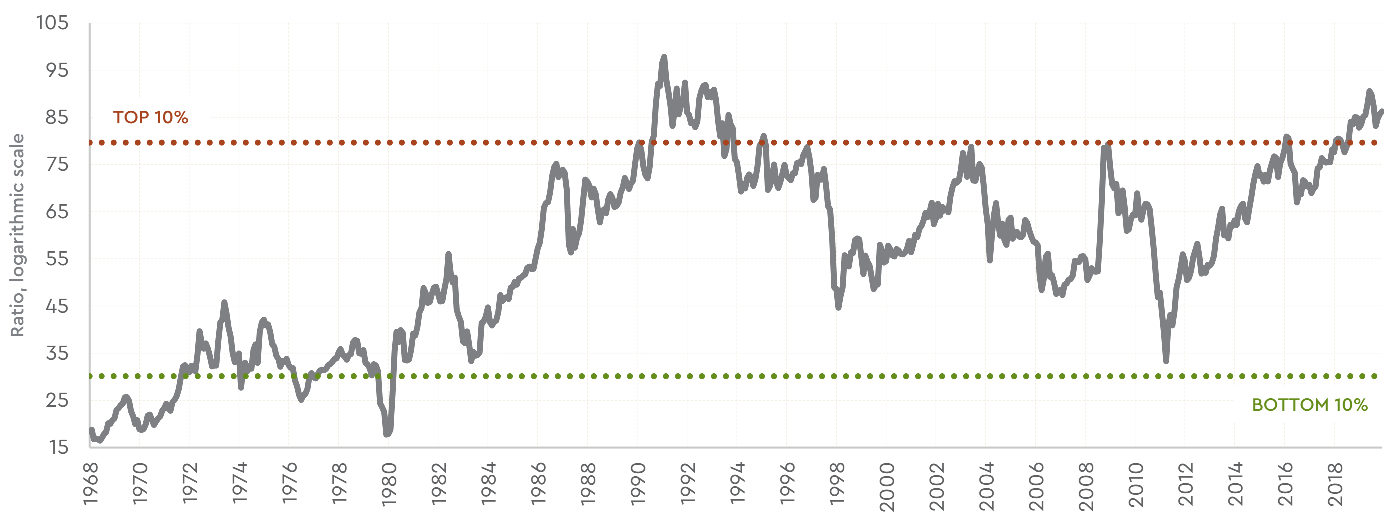
The collective central banking community began 2019 with the expectation that *this* would be the year when all would be attuned properly; globally synchronized growth and all that. The gold-silver ratio did not buy it. And by the autumn of 2019 monetary technocrats the world over were either (re)implementing policies or (re)prescribing them. Today's ratio as indicator of the global monetary condition remains in concert with the last century-and-a-half: disorder and deflation.

WHAT ABOUT 2008?

However, a cursory glance at the graph on this page reveals an anomaly. In 2008-11 – during the worst monetary, financial and economic crisis to strike many developed economies since the 1930s – the ratio was plunging! Money-like financial instruments and credit were being repudiated globally, yet the ratio was signaling that momentous inflation was in progress. Perhaps then the ratio's signal has waned in modern times?

This author believes the ratio was correct in reflecting wild inflation *expectations*. But the marketplace, monetary officials and most economists were wrong. In those years – after what turned out to only be the first monetary shock – the world believed central banks were

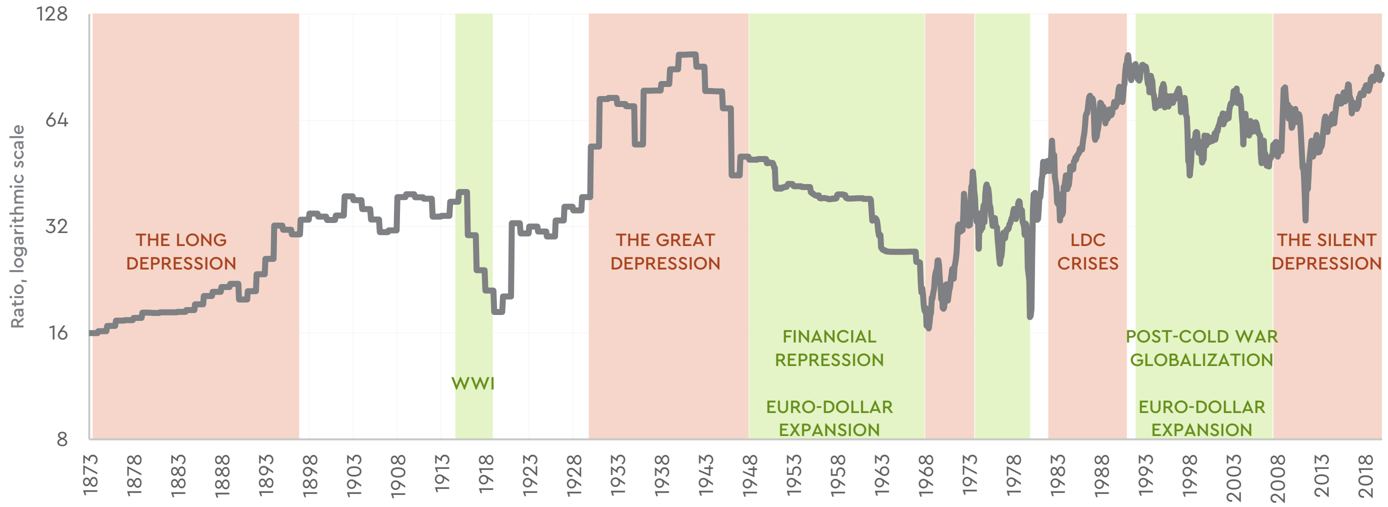
THE GOLD-SILVER RATIO DURING THE MODERN COMMODITY ERA
(SILVER OUNCES PER 1 GOLD OUNCE, MONTHLY AVERAGE)



[a] Perhaps most interesting - to this author at least - was Greenspan's next sentence: "In current circumstances, however, determining which financial data should be aggregated to provide an appropriate empirical proxy for the money stock that tracks income and spending represents a severe challenge for monetary analysts." Translated into English, 'We are at a loss in defining money, let alone measuring it.'

[b] At 1:44 AM EST Reuters reported that Frances' largest bank – and the second biggest in Europe – BNP Paribas had, "froze $1.6 billion euros ($2.2 billion) worth of funds on Thursday, citing the U.S. subprime mortgage sector woes that have rattled financial markets worldwide."

FOR 150 YEARS THE GOLD-SILVER RATIO REFLECTS THE STATE OF THE GLOBAL MONETARY ORDER
(SILVER OUNCES PER 1 GOLD OUNCE, ANNUAL AND MONTHLY AVERAGES)



central to money.[a] Thus, almost everyone believed that their policies of quantitative easing were the functional, modern equivalent of either a printing press run amok or a systemic policy of debasement by the national mint.

It was not until the second monetary shock struck in 2011 (i.e. the European sovereign debt crisis) that the illusion of centrality began to flicker out. How could there be another liquidity crisis if central banks flooded the system with capital? Could it be that quantitative easing wasn't a printing press after all?

Here is Brian P. Sack, then manager of open market operations at the Federal Reserve, on August 9, 2011, during a meeting of the Federal Open Market Committee, drawing attention to this incongruence of a burgeoning global liquidity crisis amidst an (apparent) ocean-like supply of money (emphasis added):

> As I noted on the videoconference, the spike in short-term funding rates left the Desk on alert to the possibility of having to conduct repurchase agreements to keep the federal funds rate within the FOMC's target range. **This was an extraordinary outcome, given that the financial system has about $1.6 trillion in excess reserves.**[10]

After concluding his presentation to the committee and answering several questions Sack felt it necessary to reemphasize how truly "extraordinary" the situation is. If central banks create a hitherto unimagined amount of (a kind of) money but the market is beating down its door for liquidity then it raises all sorts of questions, one of which being the apparently unappreciated scale of the encroaching monetary disorder (emphasis added):

> Can I add a comment? In terms of your question about reserves, as I noted in the briefing, we are seeing funding pressures emerge. We are seeing a lot more discussion about the potential need for liquidity facilities. I mentioned in my briefing that the [foreign exchange] swap lines could be used, but we've seen discussions of [Term Auction Facility]-type facilities in market write-ups. **So the liquidity pressures are pretty substantial. And I think it's worth pointing out that this is all happening with $1.6 trillion of reserves in the system.**[11]

The gold-silver ratio bottomed out in April 2011, which is precisely the month when the second broad bout of global illiquidity began in earnest. The ratio has steadily risen since because capital supply remains broadly strained and, at times, simply unavailable.

LATEST INFLATION READINGS

Actual consumer goods inflation in the world's key monetary centers (e.g. the United States, Europe, United Kingdom and Japan) met central banking targets before 2008 but have repeatedly failed to do so ever since.

Inflation expectations, according to capital markets, suggest that will not change soon. The implied, forward-looking inflation rate has been falling in the world's major money centers ever since 2011, when the scales were lifted from the eyes of world markets. The most recent explorations to the upside are not being driven by expectations of rising economic activity but by oil prices.[12]

The commodity families concur. Raw industrial material inflation has not been seen in the sensitive basic commodities that would be influenced by a positive inflection in business activity.

Leading economic indicators are yet another lens through which the overall disinflationary context is corroborated. While there's a reasonable discussion to be had as to whether the ongoing economic slowdown is in the process of abating, your author has trouble envisioning how international commerce is now ready to take off.

MAGIC 8-BALL SAYS

Two points summarize the overall story. Firstly, the gold-silver ratio has been an indicator of global monetary conditions for well over 150 years. It remains so to this day. Secondly, monetary conditions when viewed from the perspective of capital markets, commodities, and economic indicators are in concert that either deflation or disinflation lies ahead. That remains the case despite actual, or imminent, central bank liquidity programs in Europe, China and the United States.

Citi, in their June report, performed a

[a] And that was not always the case. But the 1970s – the last time when very serious questions were being asked about the efficacy of central banking – were a long time ago by 2008.

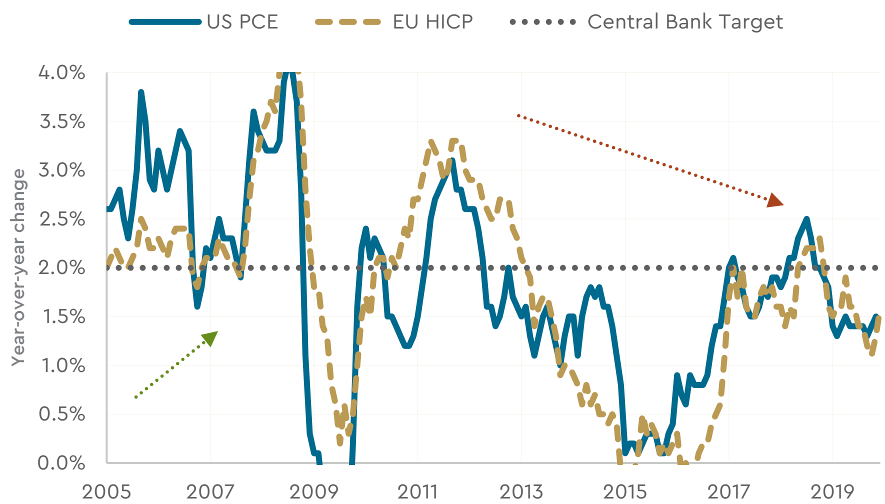
regression analysis on several macroeconomic factors' influence on the ratio. Utilizing data from the first quarter of 2011 through the first quarter of 2019 (perhaps they felt going back to 1687 was a tad much) they made the following observations (emphasis added):

> We looked at the sensitivity of the g-s price ratio to real GDP growth, world trade, excess reserves at the Federal Reserve, the US$, Japanese Yen, equity markets, breakevens and 10-year nominal rates from 1Q'11 through 1Q'19, capturing the long-term equity bull market and a period of aggressive monetary policy actions. Regressing on q/q changes in the aforementioned metrics to minimize trend noise, we found that only changes in the Yen, excess reserves, and inflation expectations had a statistically significant (p = 0.05) impact on the price ratio of gold-silver.
>
> Yet for the ratio more importantly, silver tends to outperform gold (e.g., the g-s ratio is negatively impacted) as US rates breakevens or inflation expectations jump, and prices also are positively influenced by the expansion of Fed excess reserves. But given the co-linearity of these variables (ultimately incorporated in Treasury yields), **the bottom line seems to be that until there is a massive turn in the tepid US and broader G3 inflation cycle, the gold-silver price ratio could stay stronger for longer**.[13]

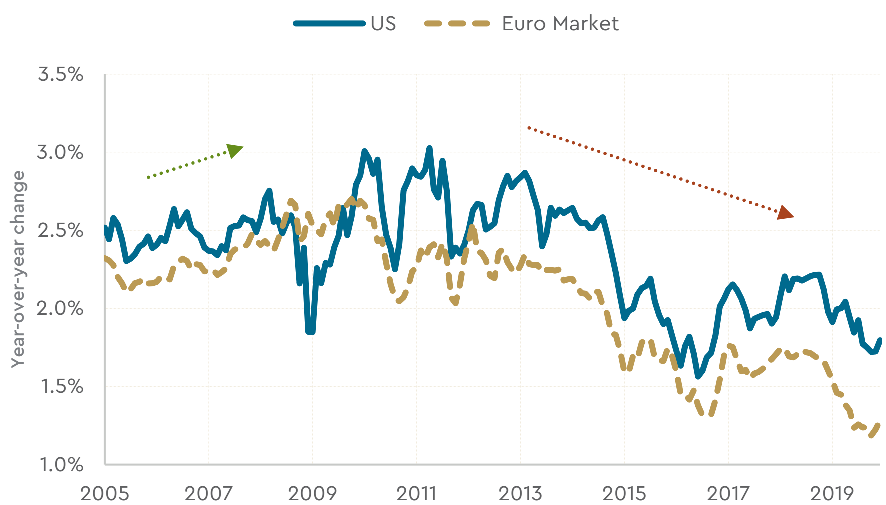
At the time of this writing the ratio is at 86, equal to the average for 2019. Baring a "massive turn" in the inflation cycle it would not surprise this author if the ratio remained at these elevated levels. The monetary order, in other words, is likely to continue malfunctioning.

Nor would your analyst be astonished that following such a surge in inflation the ratio would plunge through the 2011 lows. One day, in other words, radical central bank policies seeking inflation will 'work'.

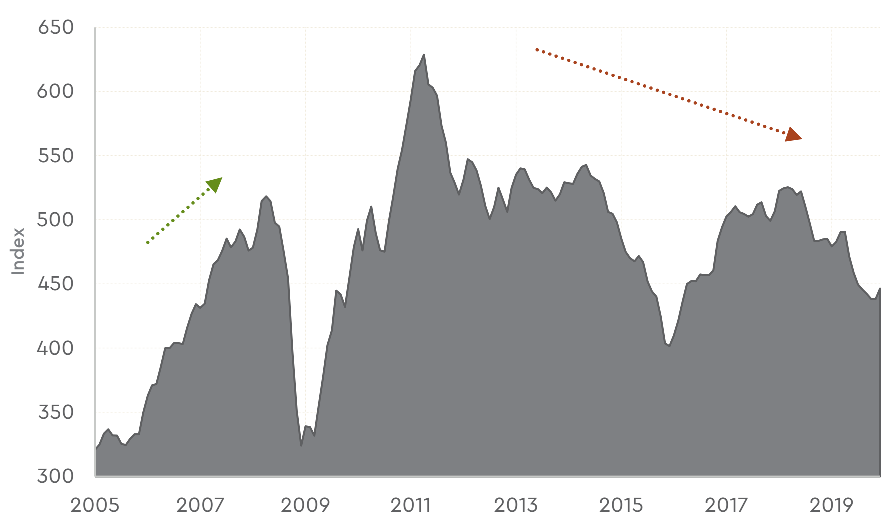
THE US AND EU HAVE BELOW-TARGET INFLATION
(US PERSONAL CONSUMPTION EXPENDITURES, EU HARMONISED CONSUMER PRICES)



CAPITAL MARKETS EXPECTING LESS INFLATION SINCE 2011
(FIVE-YEAR, FIVE-YEAR FORWARD INFLATION EXPECTATION, MONTHLY AVERAGE)



COMMODITIES ARE LIKEWISE NOT INDICATING INFLATION
(CRB RAW INDUSTRIALS INDEX, MONTHLY AVERAGE)



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SOURCES

[1] Officer, L. H. and Williamson, S. H. (2020). "The Price of Gold, 1257 – Present" *MeasuringWorth*.

[2] Blanchard, J. U. (1995). *Silver Bonanza: How to Profit from the Coming Bull Market in Silver*. New York: Simon & Schuster.

[3] Ibid.

[4] Ibid.

[5] Teves, J. (2019, Jun-05). "Is silver due to catch up?" Global Precious Metals Comment, *UBS*.

[6] Staff (2019, Jun-04). "What will it take for silver to outperform gold and deliver a far lower ratio?" Issue 307, Precious Metals Weekly, *Metals Focus*.

[7] Doshi, A., Morse, E. L., Layton, M. J., Nugent, O., and Su, J. (2019, Jun-28). "The gold-silver price ratio: stronger for longer in a QE world?" Global Commodities Focus, *Citi Research*.

[8] Friedman, M. (1970, Sep-16). "The Counter-Revolution in Monetary Theory" 1st Wincott Memorial Lecture, University of London.

[9] Greenspan, A. (1997, Sep-05). "Rules vs. discretionary monetary policy" 15th Anniversary Conference of the Center for Economic Policy Research, Stanford University.

[10] Federal Open Market Committee (2011, Aug-09). "Meeting, August 9, 2011" Federal Open Market Committee Meeting Minutes, Transcripts, and Other Documents, *Federal Reserve*.

[11] Ibid.

[12] Snider, J. P. (2020, Jan-03). "One Part Of The Bond Market Seems To Be Cooperating, But Not The Other" *Alhambra Investments*.

[13] Doshi, A., Morse, E. L., Layton, M. J., Nugent, O., and Su, J. (2019, Jun-28). "The gold-silver price ratio: stronger for longer in a QE world?" Global Commodities Focus, *Citi Research*.