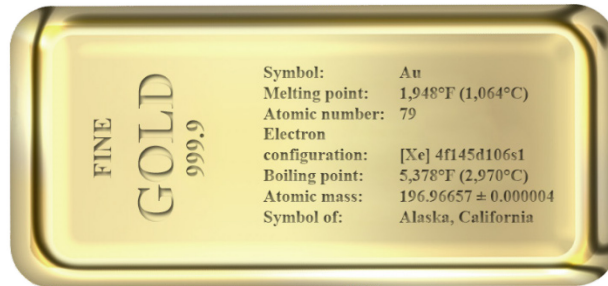


KOPERNIK PERSPECTIVE: GOLD

Gold: a chemical element with symbol Au and atomic number 79. In its purest form, it is a bright, slightly reddish yellow, dense, soft, malleable and ductile metal.¹



In recent years, Kopernik's gold mining exposure has been at our maximum industry portfolio weight, a position that has raised eyebrows and led to many questions from investors. Gold, after all, is a useless and barbarous metal that produces no cashflow, right?

Warren Buffett, one of the best investors of our time, came out publicly against gold in a speech he gave at Harvard in 1998 saying:

"It gets dug out of the ground in Africa or someplace. Then we melt it down, dig another hole, bury it again and pay people to stand around guarding it. It has no utility. Anyone watching from Mars would be scratching their head."

He hadn't changed his opinion 13 years later when he again wrote negatively about gold in his 2011 shareholder letter, calling it an "unproductive asset."

Does an unproductive asset have no value? One question we often pose to our clients is whether the Mona Lisa has value. We think it does – as do the millions of people who visit the Louvre every year. As we have mentioned in some of our other publications, we think that the market today has a parochial view of value, focusing simply on immediate cash flows without paying much attention to scarcity, usefulness and efficacy. Assets that are technically unproductive are not by default without value.

Such is the case with gold. The goal of this paper is to show that gold *does* have utility and that Mr. Buffett's Martians would not be scratching their heads about why we mine for gold, but rather would question why we have let governments around the world fool us into accepting fiat chit as money and the resultant massive transfer of wealth from savers to debtors.

Gold as a Commodity

Gold is one of the most popular commodities in the world. It was first used as currency nearly three thousand years ago in Asia Minor (modern-day Turkey) and has since been used in everything from decorating to jewelry to dentistry. Over time, the discovery of gold deposits has spurred excitement, driven exploration, and encouraged business development. In 1848, the discovery of gold in California meant the beginning of the California gold rush and the rapid settlement of the American West as prospectors packed up their lives and headed out to strike it rich; in the 1890s, the process repeated itself in Alaska. Over time, gold mining became regulated and institutionalized, with major companies taking over the role of the hardened prospector. It remains, though, an occupation with much allure.

According to the World Gold Council, the total stock of "above-ground" gold is about 197,576 metric tonnes as of January 2020.² Of this, 21.6% is private investment, 17.2% is in official holdings, and 47% exists as jewelry. New mine supply is about 3,000 tonnes annually, meaning the above ground supply is more than 65x as large as new supply. Put another way, new mine supply accounts for only 1.5% of the annual supply. As such, gold does not follow the normal supply/demand dynamics of other commodities, as the gold supply is mostly fixed.

¹ Wikipedia

² "Above-ground stocks," World Gold Council, January 30, 2020



However, let's suppose that the price of gold does respond to changes in mine supply. At Kopernik, we often look at the incentive price, defined as the price of a commodity that drives investment in new mines. There are many projects out there today that need a higher gold price to drive a good return on invested capital. While there are numerous smaller projects that may only need a \$1,500-\$1,700/oz gold price to justify their existence, many of the undeveloped world-class mines will cost billions of dollars to develop. We estimate that gold needs to be roughly \$2000/oz for any decent board (of which there are only a few) to greenlight new mine development. This estimate is based on conversations with professionals in the industry and economic analyses from technical reports of large undeveloped deposits. Over the past seven years, we have not seen the large, industry-leading deposits being put into production, which has reinforced our estimate.

The risks of developing new mines are increasing. New discoveries tend to have lower grades than previous projects, which leads to higher operating costs (in gold mining, halving the grade leads to double the costs). Governments around the world want a larger piece of the pie and are increasing taxes, royalties and/or their equity share of the projects. Environmental regulation is becoming more stringent. Additionally, capital cost overruns have been a constant theme in the mining industry over the last 50 years (since 1965, capital cost overruns in the mining sector have averaged between 20%-60%).³ Thus, purely from a commodity perspective, investors *should* demand a large margin of safety before funding new development projects.

While it appears that gold is not a typical commodity, to the extent that it is, **the economics argue for a much higher price**. Sometimes, though, we are told to wait. Hasn't gold outlived its usefulness? Gold jewelry goes in and out of style, dentistry has moved on to newer technologies, and there are cheaper conductors of electricity. These questions help transition to thinking of gold in another way: as a currency.

Gold as Money

Prior to 9000 BCE, there was no such thing as money. Everything was on a barter system. I will trade my corn for your cow. However, there are many problems that arise with a barter system. What if I only had half a cow's worth of corn to sell? How many ears of corn should a healthy cow fetch vs a skinny sickly cow? What if the person who needs the corn is halfway around the world from me?

In his book *Dave Barry's Money Secrets*, comedian Dave Barry describes an ancient Chinese solution to the cow problem: seashells. Seashells had a lot of advantages over cows – they were small, non-perishable, easy to transport. There was a problem, however: they were seashells. All you had to do is go to a beach, get your fill and you were rich! Over time, societies progressed to forms of money that were better than seashells due to better durability or more scarcity. Metals such as copper, bronze, and silver became popular for this purpose. Yet to this day, there is no better form of money than gold. **Gold is homogenous, easy to transport, inert, divisible, attractive, and rare**. Gold is difficult to get out of the ground and is not used industrially – reducing the risk of wild swings in money supply. As such, it has been used as money for millennia.

Gold coins are said to have first been struck in Lydia in 550 B.C.E. by King Croesus. During the middle ages gold and silver were increasingly used in Europe. With the huge inflow of gold from the New World, plus improvements in technology, gold use became more common. European countries adopted gold standards in the 1600s, and the newly established United States adopted a bi-metallic (silver and gold) standard in 1792.

One problem with gold as money is that it is bulky and heavy. Paper IOUs made their way into the system in China around the 6th century and in the West in 1661. Goldsmiths kept gold safe and issued paper receipts to be redeemed at a later point. These goldsmiths eventually evolved into bankers and started lending the gold out at interest. The trustworthiness and reputation of a bank would largely determine whether the gold would be there when you came to redeem. Over time, governments took over for banks as the primary issuers of these receipts/currency.

Early on, these paper receipts were backed by gold. This made a lot of sense, since paper currencies are a much more convenient medium of exchange, while the underlying gold collateral provided a store of value. It is a great system, if governments could be trusted to adhere to it. But, alas, countries began to abandon this practice. In 1914, the British went off a gold standard to print money to pay for World War I. The purchasing power of the British pound declined drastically relative to precious metals when this happened. However, the value of the pound rose dramatically during the 1920s when Winston Churchill put Great Britain back on the gold standard; unfortunately, this was short lived as the Brits were off again in the early 1930s. Ever since then, the pound has continued to fall.

³ Tim J. Swendseid, PE, MBA, CFA, "Cost Overrun Accounts: The Independent Engineering Recommendation," RPMGlobal Perspectives, October 2015, p. 2.



In the U.S., the financial system has broken down twice in the last 100 years. It broke down in 1933 when Franklin Roosevelt forced every American to hand in their gold for \$20.67/ounce and then revalued the price to \$35/ounce, which is equivalent to a 41% hit to the saver's wealth. And it broke down again on August 15, 1971, when President Nixon announced his New Economic Policy and effectively killed the Bretton Woods version of a gold standard, and with it, the obligation for the U.S. to purchase gold at \$35/ounce.

Under the 1944 Bretton Woods system, foreign currencies were pegged to the U.S. dollar, whose value was backed by gold at the set price of \$35/ounce. Countries held dollar reserves instead of trying to balance their budgets every year through gold. The rules of the game allowed countries to convert their dollar reserves into gold at any time. During the 1960s, foreign nations had begun to catch on to the fact that the U.S. hadn't been living up to its side of the bargain, that is, keeping a stable money supply that justified \$35/ounce. Instead, the U.S. had been inflating its money supply (in order to pay for things like President Johnson's "Guns and Butter" policy) and paying for imported goods with an overvalued dollar.

The French were among the first to call the U.S. out on this. French President Charles De Gaulle referred to the U.S. buying European companies with overvalued dollars as "expropriation." In 1965, De Gaulle converted \$150mn (today's value = \$12.1bn) of their dollar reserves into gold and said they planned to convert another \$150mn.⁴ The French government even offered to send the French navy to help ferry the gold back to France. Spain followed France, and other European nations followed Spain. By March 1968, the outflow from the gold pool was running at a peak rate of 30 metric tons per hour.⁵

Realizing that the amount of foreign dollar reserves overwhelmed the amount of gold held by the U.S. Mint (at the \$35/ounce price) President Nixon closed the gold window on August 15, 1971 and announced that the dollar would no longer be convertible into gold. The last semblance of a gold standard was dead.

The gold standard was scrapped in favor of what Jim Grant (of *Grant's Interest Rate Observer*) refers to as "the PhD Standard." He continues, "One can think of the original Federal Reserve note as a kind of derivative. It derived its value chiefly from gold, into which it was lawfully exchangeable. Now that the Federal Reserve note is exchangeable into nothing except small change, it is a derivative without an underlier. Or, at a stretch, one might say it is a derivative that secures its value from the wisdom of Congress and the foresight and judgment of the monetary scholars at the Federal Reserve. Either way, we would seem to be in dangerous, uncharted waters."⁶ Since 1971, the value that society has ascribed to gold has waxed and waned. With the new U.S. government policy of unlimited quantitative easing and the seemingly unfettered printing of fiat currency, this is a perfect time to analyze gold's role. ***Today's government's printing presses are the equivalent to yesterday's Chinese's beaches. Paper money abounds and the supply is growing by the day.***

Under a true gold standard, the number of paper receipts can only be as big as the amount of gold backing it, which creates a problem for governments with unlimited budgets. James Grant states, "An unanchored currency presents a temptation that mortal man finds irresistible." Unrestrained governments throughout history have an impeccable track record of succumbing to the "irresistible" temptation to fund all the spending desires of their citizens by diluting their purchasing power.

Which eventually leads the system to break down...

The Rise of Fiat Currencies

"Paper money eventually returns to its intrinsic value – zero" (Voltaire, 1694-1778)

The lives of fiat currencies are short ones, with an average lifespan of roughly 35 years.⁷ Many of these fail through hyperinflation, but some are destroyed by war (frequently after also experiencing hyperinflation), some fail through acts of independence, and others through voluntary monetary reforms, such as the creation of the Euro in 1999, which eliminated 12 separate fiat currencies, including the German Mark, Dutch Guilder, French Franc, and Greek Drachma.

The British pound, one of the oldest fiat currencies still in existence, was one European currency not to get subsumed by the introduction of the Euro. In fact, it is one of the longest-living fiat currencies, having been around since 1694. What a success! Does this buck the trend that fiat currencies have a short lifespan? Technically yes, economically no. When the Bank of England was established and paper notes

⁴ James Rickards, *Currency Wars: The Making of the Next Global Crisis* (2012), 82.

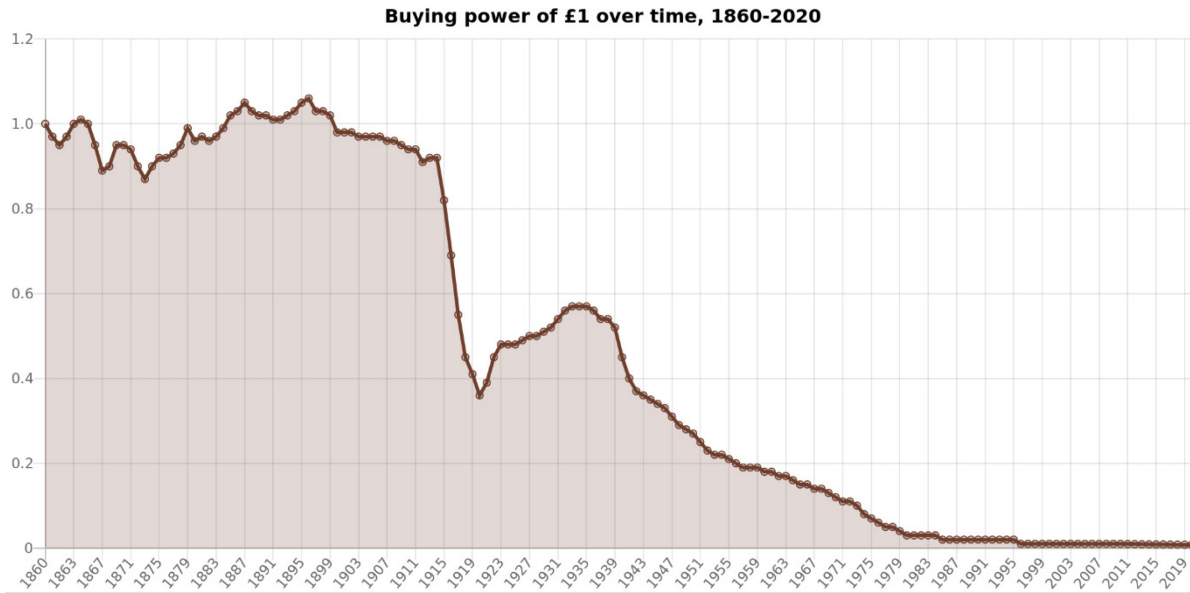
⁵ James Rickards, *Currency Wars*, 84.

⁶ Jim Grant, "A Piece of My Mind," speech given to the New York Federal Reserve, 2012. <https://www.businessinsider.com/we-need-to-return-to-the-gold-standard-2012-4>.

⁷ David Morgan and Chris Marchese, *The Morgan Report: The Silver Manifesto*, p. 124.

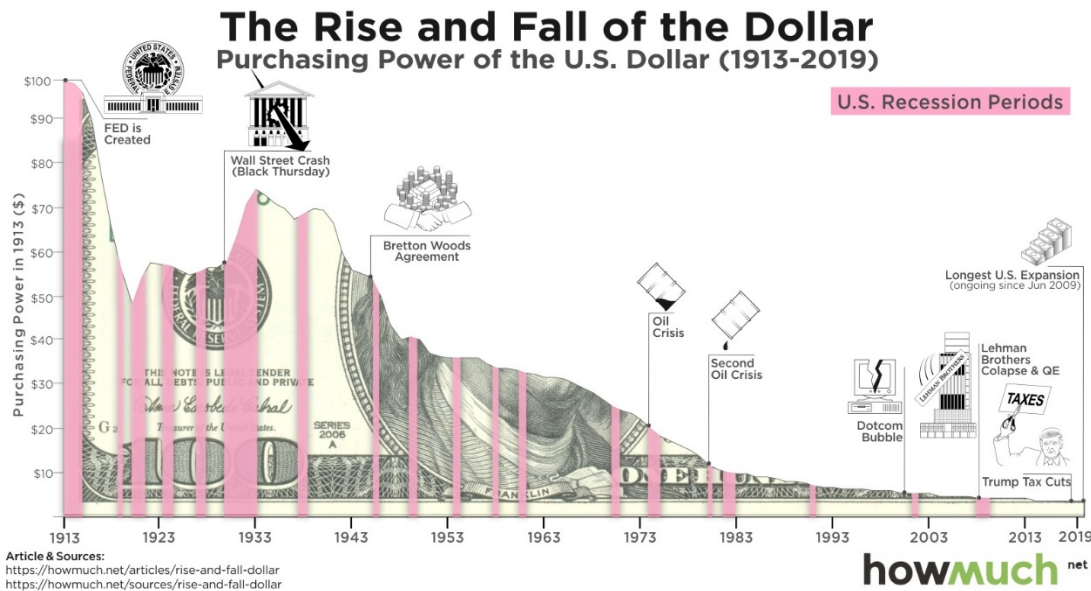


were issued in 1694, the British pound represented one troy pound of sterling silver, or 12 silver ounces. In 2019, it would have taken 196.2 pounds to buy those same 12 ounces. **This is equivalent to a 99.5% loss in purchasing power.**



Source: "Value of £1 from 1750-2020," www.officialdata.org

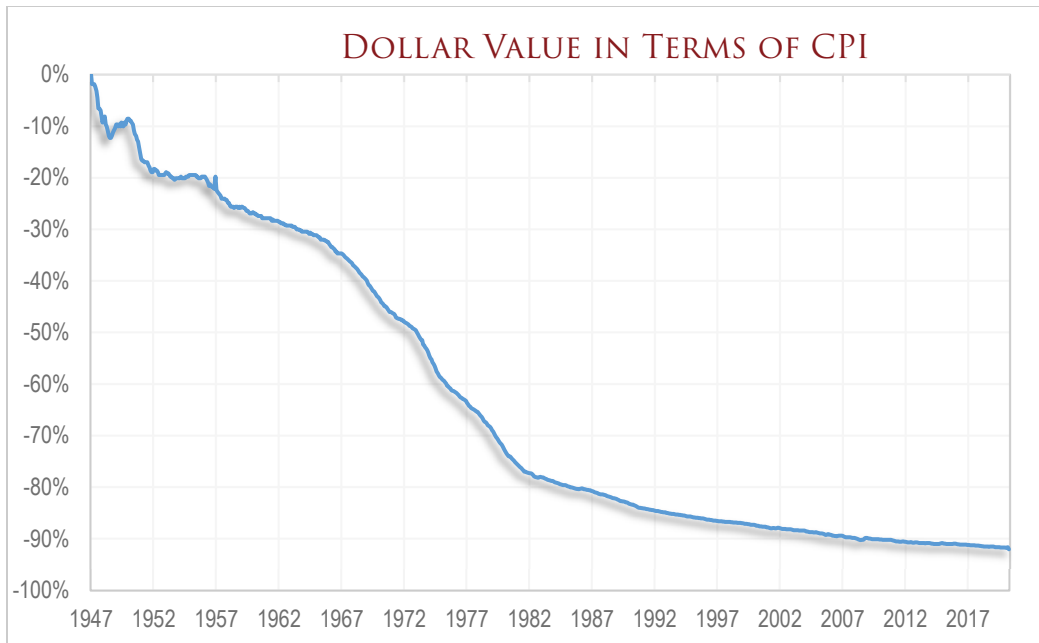
A similar thing has happened in the United States. David Stockman (once the budget director for the Reagan administration) said, "The gold standard wouldn't have allowed forty years of deficits... Nations were compelled to live within their means... The gold standard was an honest regulator of Wall Street greed... nor did we [in upholding a gold standard] punish people who invested in savings accounts."⁸ An untethered currency has allowed the U.S. to compromise its balance sheet, and, as a result, the dollar has lost 97% of its purchasing power since 1971.



⁸ David Pietrusza, "With the Dollar in Turmoil, Two Debates on Gold Captivate Manhattan," *New York Sun*, May 6, 2011.



For those who prefer to measure the dollar's purchasing power in terms of the Consumer Price Index (CPI), the story is the same:



Source: Bloomberg

Since 1947, the dollar has lost 92% of its purchasing power measured against the CPI. Using 1971 as our base, the dollar has lost 85%.

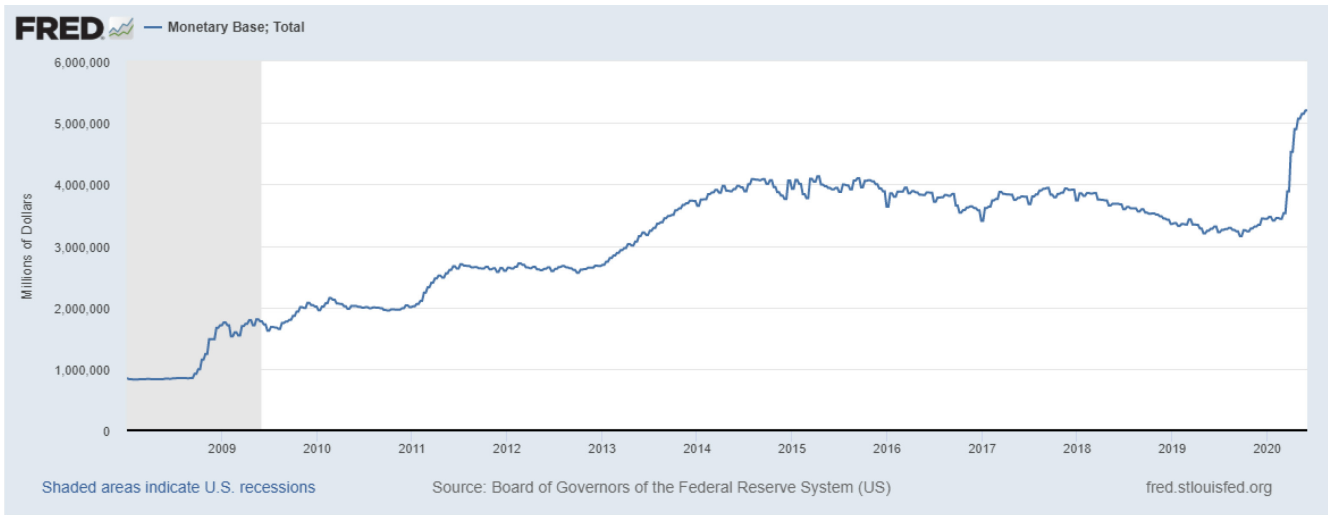
Gold as a Hedge Against Fiat Currencies

America had used gold to value the U.S. dollar successfully for roughly 180 years before Richard Nixon's abandonment of the gold standard. The last 40 years of a fiat money system in America is actually a departure from the norm, and it is becoming more evident that this fiat money experiment has been a failure for everyone except the top few percent who have benefited from inflating asset prices and the U.S. government who can pay back debt with a devalued dollar. Countries worldwide are in a solvency crisis and have currency devaluation as the only option. In a zero-rate environment, savers, earning nothing on their bonds, are standing idly by as governments siphon money from savers' pockets into their own.

One of Warren Buffett's main critiques of gold is that it is unproductive. However, as we made the case above, gold is not a typical commodity, and thus we would argue that Buffett should be comparing gold to currencies rather than industrial metals. As mentioned previously, gold possesses the qualities inherent in a good monetary medium. As a result, people have chosen to use gold as money for thousands of years. Thus, it is important to think about a different supply/demand dynamic; that of gold relative to fiat currency. To value gold as money, we compare the supply of fiat dollars to the gold stock.

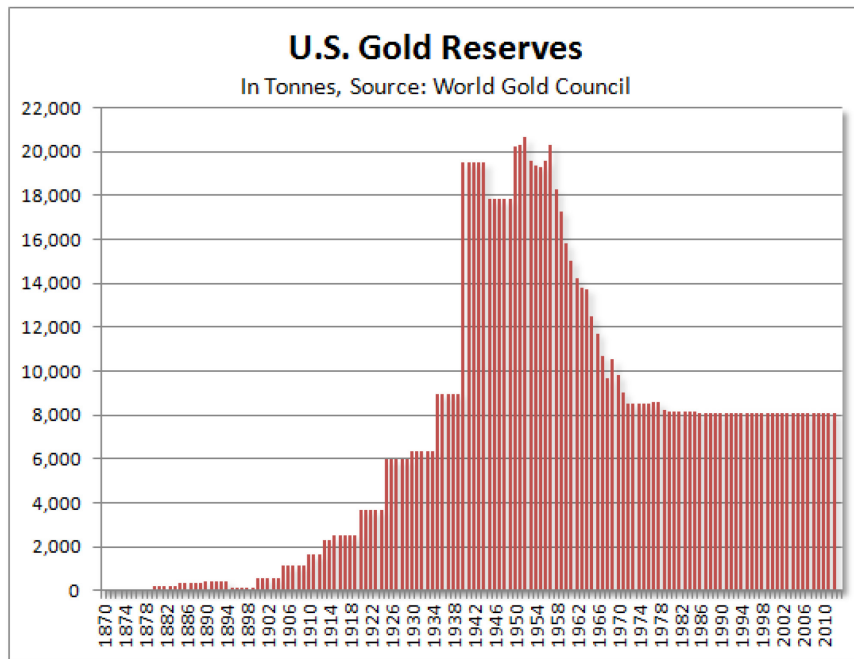
There are several definitions of money: M0, M1, M2, and M3. M0, also known as the monetary base, is the narrowest definition of money and includes only liquid or cash assets held within the central bank. Each larger numbered "M" includes more assets in its definition. M3 is the broadest definition of money and includes everything in M0, M1, M2 as well as assets that are less liquid. To be conservative, let us only consider base money, the federal bank reserves, since other "Ms" are forms of credit. How have reserves changed?

A simple chart says a thousand words...

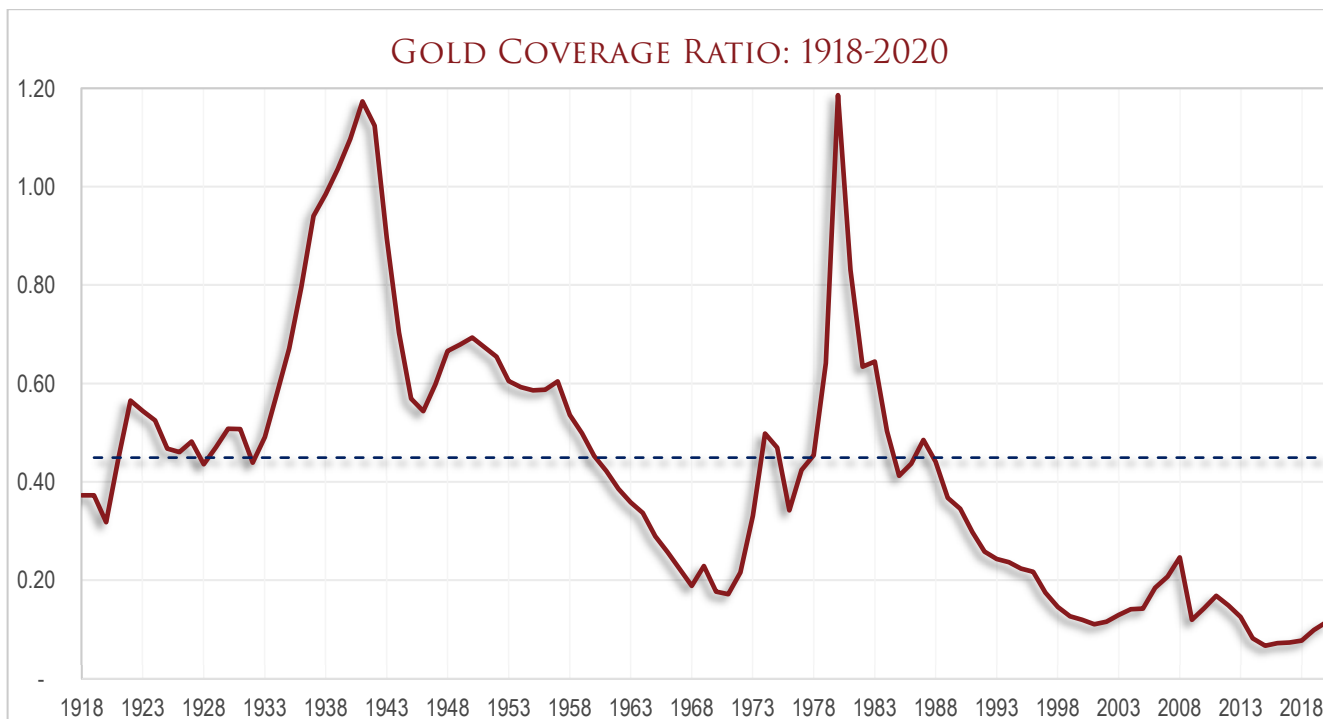


Since 2008, the Fed has increased the U.S. money supply from \$900 billion to \$5.2 trillion (as of the end of May 2020). Today's Fed balance sheet is almost 6 times as large as it was in 2008. This means that money supply has been growing at a 16% cost-adjusted growth rate for the past 12 years.

The amount of gold **in the world** changes by roughly 2% each year. The amount of gold stored at the U.S. Mint has not increased for many years. It has stayed constant at 8,000 tonnes, or 260 million ounces.



The chart below shows the ratio of U.S. gold holdings (in dollar terms) relative to M0. As we can see, the average gold coverage ratio is about 45% versus a 2020 ratio of 12%! For this ratio to revert to more normal levels, either the money supply must drop dramatically (the probability of which is *extremely* low given the amount of debt in the U.S.) or the gold price must rise.



Source: Bloomberg

If we assume that we backed 25% of the \$5.2 trillion USD dollar reserves—the arrangement under the Bretton Woods Agreement - that would imply that gold would be worth \$5,000/oz. One hundred percent backing today would suggest a \$20,000 price.

People have assigned value to gold for thousands of years and in hundreds of currencies. Currently, whether looking at gold's incentive price of around \$2,000/oz or thinking about gold as money and backing into a price of \$5,000/oz, it appears that gold at \$1,800 is underpriced.

How Do We Invest? Gold Miners Offer Opportunity

We believe that it is prudent for everyone to hold some gold bullion as a safety-net/rainy day fund. But additionally, now more than ever, investment in businesses that own gold appear very attractive.

As we have seen over the last 9 years, gold miners have considerable leverage to the gold price – both on the positive side and the negative side.

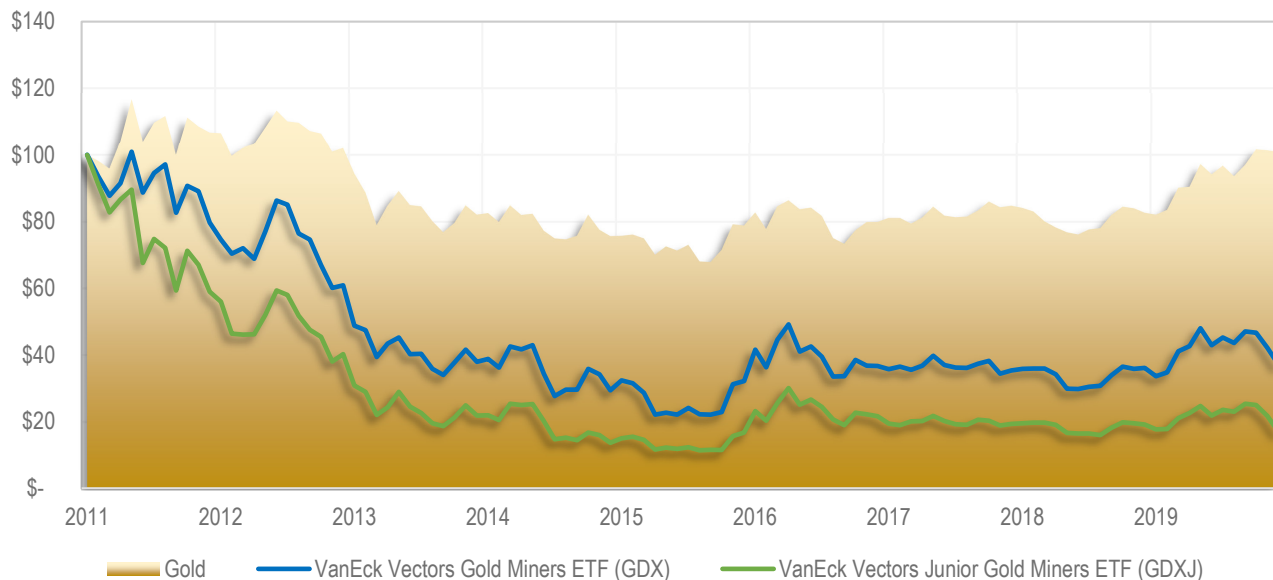
Over the past 9 years, gold has been flat, while the miners remain down. Undoubtedly, some of the selloff is warranted – during the 12-year gold bull run, management teams did a horrible job of allocating capital, incurred massive cost overruns on their development projects, and levered up their balance sheets. However, the valuations today take all of this into consideration...and more. For example, gold is just below 2011 levels, yet gold miners are 60% cheaper, and junior miners are 80% cheaper!

In fact, gold miners relative to the gold price are at historic lows, as the chart below demonstrates:



GOLD VS GOLD MINERS VS JUNIOR GOLD MINERS

April 2011 - April 2020



Source: Bloomberg

The market is extremely negative on gold miners. As we have laid out in this paper, the fundamentals for gold haven't changed and support a higher gold price, and gold miners offer additional leverage to the gold price since a large proportion of their operating costs are fixed. If/when gold does go up, we believe the gold miners should trade at multiples of where they are trading today.

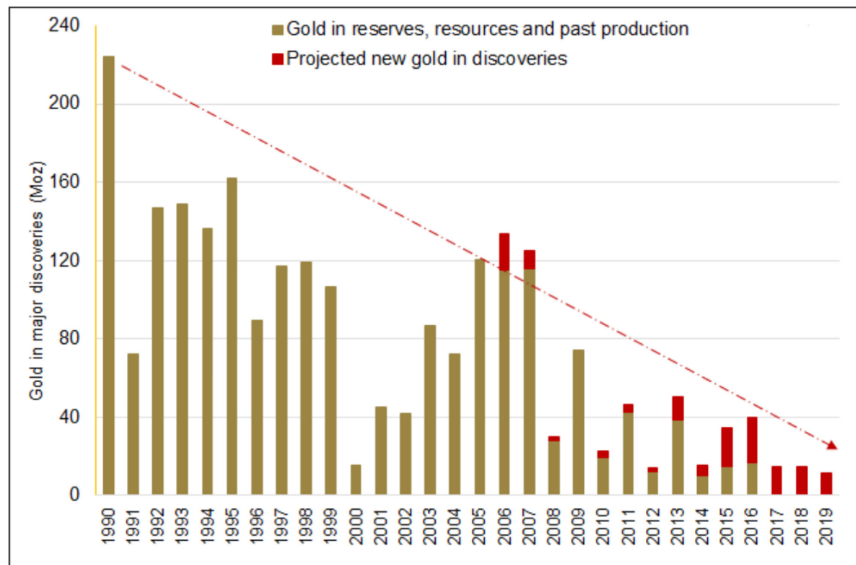
When valuing gold mining businesses, Kopernik Global Investors starts by trying to determine what gold could be worth. As we discussed above, this can be done two ways – by viewing gold as a commodity or by viewing gold as money (at Kopernik, we consider both). Either way, a strong case can be made that the price of gold will appreciate. This is far from a guarantee, but because it is a strong possibility, optionality should be an important part of a valuation model. Many traditional Discounted Cash Flow (“DCF”) models result in a strong preference being given to gold miners selling their gold sooner rather than later (time value of money). However, when dealing with an incredibly underpriced good, time is the investor's friend rather than enemy. The longer the timeframe, the more likely the true economic price will be reflected in the marketplace. **Options-based models capture this. The longer the time until expiry, the higher the value of the option.** Because it is complex, Kopernik treats it as complex, running multiple models. We utilize liquidation models, designed to neither punish nor reward early exchange of true money into dollars. This helps to evaluate our downside protection as well as upside potential. And we use models designed to help us understand the enormous upside potential in massive, long-dated optionality.

Some miners will obviously do better than others. As a bottom-up investment firm, we want to own the companies with the best gold assets. We look at factors such as reserve size, mine life, grade, management, geopolitical risk, and the balance sheet. As with all industries, we demand a higher margin of safety for the less predictable geologies, geographies, managements, etc. Our positions include large miners and small companies who have the good fortune to own massive, world-class resources with tremendous optionality.

While many market participants believe that intrinsic value is derived from cash-flow, one of the key tenets of Kopernik is that it is the inverse: cash-flows are derived from assets that are intrinsically valuable. Data over the last few decades show that these world class deposits are getting harder and harder to find, as the chart below illustrates.



Figure 5. Annual Global Gold Discoveries Drop



Source: © Copyright by S&P Global Market Intelligence. All rights reserved.

Value investors get excited when the price of a stock with valuable assets falls, since it presents a propitious investment. The gold miners are trading at extremely attractive levels given the fundamentals for gold. As the historian William Durant states, “history is inflationary and...money is the last thing a wise man will hoard.” We have certainly seen the loss of purchasing power of the U.S. dollar over the last hundred years, and the last five years of money printing should support a much higher gold price. Leverage to gold’s revaluation through ownership of gold mining companies appears to offer an investment opportunity of a lifetime.

Alissa Corcoran, CFA
Kopernik Global Investors, LLC
April 2015
Updated July 2020



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