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The Silver Price Outlook Update

Review

This month, in addition to our silver price outlook update we provide in depth analysis of the relationship of the silver price with the U.S. dollar.

The silver price set a cyclical high on \$29.6 on February 1, 2021 following a flurry of social media attention after a #silversqueeze campaign started in the Wallstreetbets group on Reddit¹. The price has since declined to around \$25.5. The average price year-to-date is \$26.4.

The boost from Reddit at the beginning of February aside, the silver price has trended somewhat sideways for the last six months. The initial sticker shock of massive government stimulus packages, lingering Covid-19 induced lockdowns, delays in vaccine rollout plans, central banks on hold, and rising real-yields and a US dollar have all, to varying degrees, created headwinds for the silver price.

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Figure 1



1 More on the #silversqueeze in Our [February 2 Silver Monitor](#).

Silver Price Outlook

The headwinds that have kept the silver price on sideways trend since the end of last year are likely to dissipate slowly as the world economy transitions from last year's Covid-19 induced lockdown environment to a normalized post-Covid-19 environment. This transition, unlike the rapid implementation of the lockdowns, will unfold slowly because economies lift restrictions at different times depending on vaccine implementation success. Fifty percent of the adult population has received the vaccine in the UK, while only six percent in Canada, for example.

Figure 2



We present our updated silver price outlook for the next six quarters. The objective of our outlook is to provide the reader with three silver price scenarios that are based on plausible global financial and economic developments measured via statistical analysis. Each scenario is given a subjective probability based on our view of things. We believe our scenarios cover all the bases (i.e. 95% of probable outcomes) – but unforeseen events can always affect the outcome.

Our Scenario B (and probability-weighted) factors in the continued headwinds to the silver price for the next two quarters

Figure 3

		Silver Price Outlook										
		20-1	20-2	20-3	To Date		21-2	21-3	21-4	22-1	22-2	22-3
Actual		16.9	16.4	24.3	24.4	26.4						
Scenario	A						22.0	21.6	21.3	21.1	21.0	20.9
	B						25.4	26.7	29.4	30.5	31.7	33.0
	C						30.5	34.1	45.5	52.0	58.5	65.2
Probability	A						0.20	0.20	0.15	0.15	0.15	0.15
	B						0.60	0.60	0.60	0.60	0.60	0.60
	C						0.20	0.20	0.25	0.25	0.25	0.25
Probability-Weighted							25.8	27.1	32.2	34.5	36.8	39.2

before the silver price resumes rising on increased consumer and industrial demand. This scenario also factors in the possibility that central banks implement some form of yield curve control if longer dated government bond yields continue to rise. Central banks have reiterated over the last several weeks that they expect to keep short-term rates very low for the next couple of years to support economic growth.

Scenario B also factors in a firmer U.S. dollar over the next few quarters, we discuss the relationship between the U.S. dollar and silver below.

The U.S. Dollar and Silver

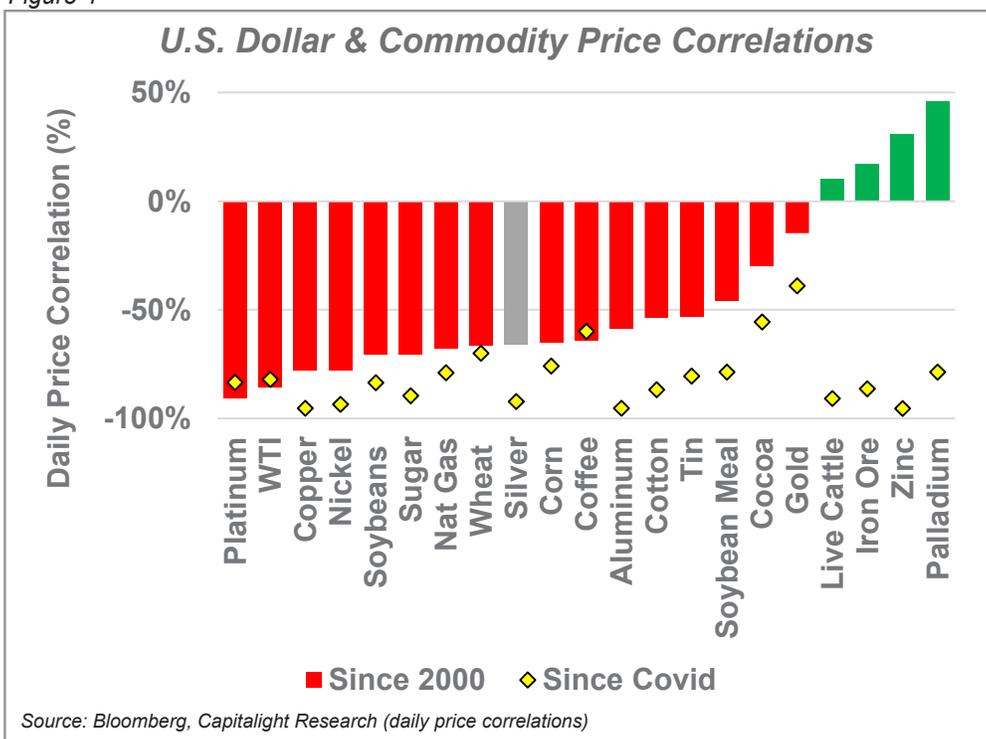
Silver, as with most commodities, is priced in U.S. dollar terms, both within the U.S. and abroad (in other words, the dollar is the benchmark pricing mechanism). The rationale behind the dollar as the benchmark include: 1) the dollar remains the global reserve currency (accounting for over 60 percent of foreign central bank reserves); 2) the dollar is one of the most liquid currencies in the world, meaning it is easy to buy and sell; and 3) the dollar is relatively stable, providing confidence to investors, producers and consumers. In general, when the value of the U.S. dollar appreciates relative to other currencies around the globe, the price of commodities (including silver), measured in other currencies rises. As such, when local

prices climb, demand typically tends to decline². Conversely, during periods of U.S. dollar weakness, commodity prices become cheaper in other currencies and demand rises. Figure 4 displays U.S. dollar correlations with various commodities across the energy, metals and agriculture sectors over the longer-term (from 2000 onward) and more recent (since the Covid-19 Pandemic became widespread).

As shown, aside from cattle, iron ore, zinc and palladium, prices for the selected commodities have

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Figure 4



² Following our Economics 101 classes, in a competitive market, as prices decline, demand increases (ceteris paribus... "others things held constant...", another favorite "adder" economists will widely use!)

negative relationships with the U.S. dollar³. Since 2000, silver prices have a fairly negative relationship with the U.S. dollar (-66 percent). Driven by a general weakening trend with the U.S. dollar since Covid-19, for the majority of commodity prices shown, negative correlations have strengthened (with silver having a -92 percent relationship since last March). It is interesting to note, the relatively weaker negative correlations of gold prices with the dollar. Safe haven investment demand is a driver. During times of economic distress (such as following the Dot-Com Bubble crash and during the Global Financial Crisis and Covid-19 Pandemic), investors will increasingly allocate portfolios to U.S. dollars and to gold (thus the value and prices tend to move in parallel for extended periods of time).

Measuring the Value of the Dollar

Because the dollar has such an important role in influencing commodity prices a further look into its valuation is necessary. Typically, a weighted measure is used to determine the foreign exchange value to the dollar against a basket of foreign currencies. Weights applied to specific foreign currencies are based on the relative importance of the currency in international trade. A very common measure is the DXY (“dixie”) which was first quoted in 1973, soon after the end of Bretton Woods, where the dollar began float with market conditions. In the case of the DXY, the index is currently comprised of just six currencies. The Euro is the most heavily weighted (over 57 percent), followed by the Japanese Yen (slightly under 14 percent), British Pound (approximately 12 percent) and Canadian dollar (approximately 9 percent)⁴. Also, over the nearly 50 years since inception, the currency basket has changed on only one occasion, when the Euro subsumed previously used European currencies in the basket.

Figure 5 displays the DXY Index (blue line) and silver prices (grey line). Note the dollar index line is inverted, meaning as the dollar appreciates, the blue-line trends downward (and vice versa)⁵. This figure segments periods when significant macro-trends with the U.S. dollar and silver prices undergo a regime change.

For example, during the years immediately following the Dot-Com crash in 2000, the U.S. dollar appreciated, climbing nearly 20 percent, while silver prices declined by over 15 percent to under \$4.50 per ounce. The correlation between the dollar and gold over this period was -78 percent (the inverse relationship generally

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³ Iron ore, zinc and cattle prices are heavily influenced by the continued urbanization and wealth trends driving demand in China which appear to more than offset impacts from changes in the U.S. dollar. Palladium is driven very much by specific supply and demand fundamentals. With over 85 percent of palladium used in catalytic converters, demand has outstripped supply as internal combustion vehicle demand has increased steadily since 2000.

⁴ The 2 remaining currencies in the index are the Swedish Kroner (over 4% weighting) and the Swiss Franc (under 4 percent).

⁵ As such, when the 2 lines are moving in the same direction on Figure 5, the inverse relationship is holding.

Figure 5



held)⁶. The inverse relationship also held during the majority of the last “Metals Super Cycle”. From February 2002 through July 2011, the U.S. dollar experienced a long-term downtrend (losing nearly 40 percent of value) while silver prices climbed by over 800 percent (after peaking in April 2011 at just under \$49 per ounce), with the correlation -67 percent. As silver prices declined into 2016 and stabilized through early 2020 again the inverted relationship held (with the correlation -79%). Since Covid-19, while the situation has reversed with silver prices Gaining nearly 90 percent and the dollar depreciating by approximately 10 percent, the negative relationship continues to hold with the daily correlation at over -90 percent.

Table 1 summarizes the previous discussion on silver price and U.S. dollar macro-trends for the segments identified in Figure 5. As shown, over the identified periods since 2000, silver prices

Table 1

Period		DXY	Silver Price	Correlation
Post Dot-Com	Jan 2000 - Feb 2002	19%	-17%	-78%
Dollar Decline Trend	Feb 2002 - July 2011	-38%	810%	-67%
Dollar Appreciation Trend	July 2011 - Mar 2020	38%	-69%	-79%
Covid	Mar 2020 - Present	-10%	92%	-93%
Overall	2000 - Present	-8%	390%	-60%

Source: Capitalight Research

⁶ Correlations based on daily index and prices.

have been inversely related to the U.S. dollar (with an overall correlation of -60 percent), with the dollar declining 9 percent and silver prices up nearly four-fold.

Better Measures of Dollar Value?

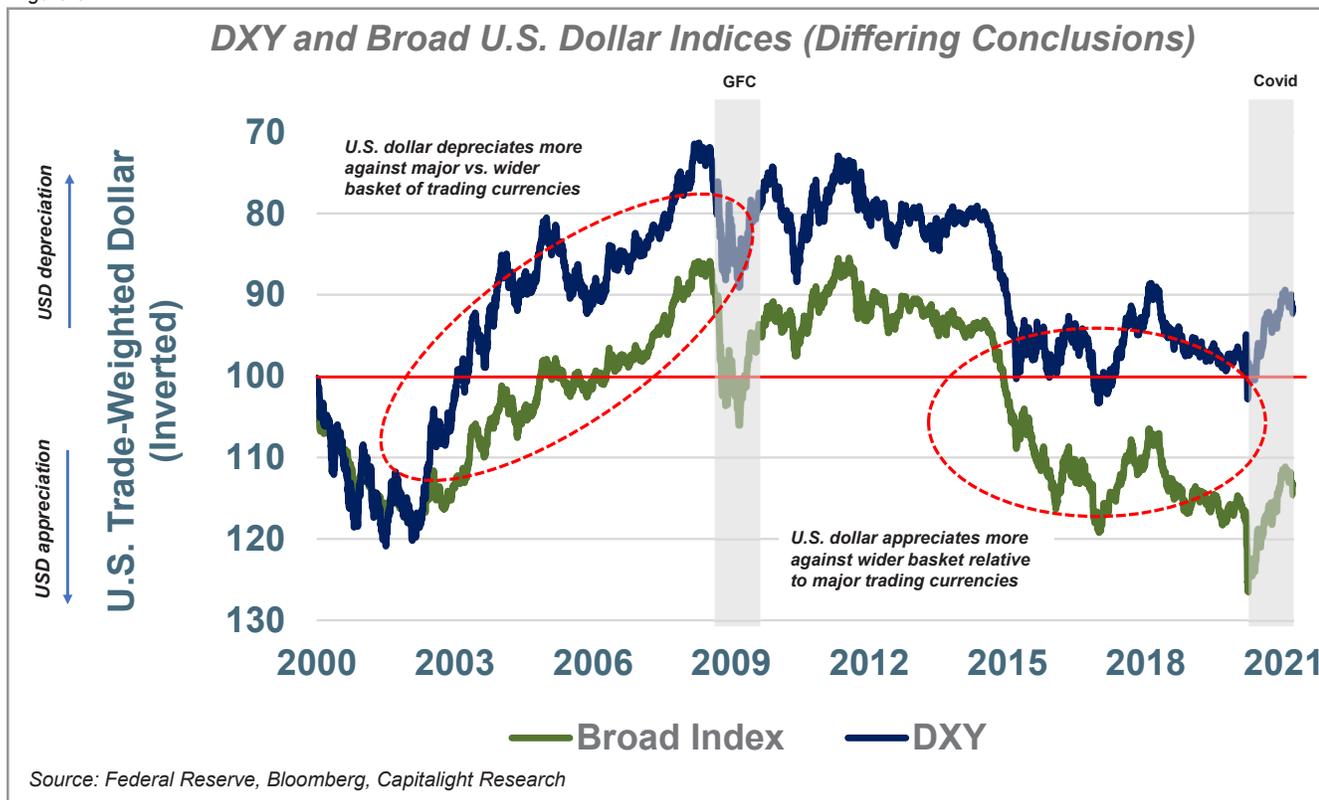
As mentioned previously, the DXY includes the 6 major currencies that trade widely in markets across the globe. The individual weights assigned to each of these currencies remains static. As such, while the weightings may have been relevant nearly 50 years ago in terms of competitiveness of U.S. products and services, criticisms center on the pertinence of the index given the evolution of trade patterns over the years. In the late 1990s the U.S. Fed introduced the Broad Index which also corresponded to the launch of the European Union and Euro currency. The Broad Index expanded the number of underlying currencies to 26 (which at the time represented over 90 percent of the trade value in the U.S.). While the Euro still represents the largest currency weight (approximately 20 percent), it is relatively much lower than the nearly 60 percent weighting with the DXY.

Importantly, this Index adjusts the weightings on each currency on an annual basis to align with recent trade results. As examples of how currency weights may change due to relative trading patterns, in the late 1990's, the weight on the Japanese Yen exceeded 14 percent of the total index weight, this has declined to over 6 percent last year. The weighting decline of the Yen has been offset by the likes of the Chinese Renminbi and Mexican Peso whose individual weightings have generally doubled to now nearly 14 percent each.

Figure 6 displays a comparison of the DXY (blue line) and Broad Indices (green), both on an inverted scale. As shown, movements between the indices are very coordinated. However, this high correlation has broken down on a couple of occasions since the turn of the millennia. During the pre-GFC real estate driven boom, the dollar generally depreciated due to a widening current account balance. During this period, the dollar depreciated further against major traded currencies relative to the broad collection of currencies. This divergence was driven by dollar weakness relative to the Euro (again very heavily weighted in the DXY) that gained approximately 85 percent over this period. A second example where the DXY and Broad diverged occurred from early 2015 through prior to Covid (early March 2020). During the period, the DXY actually shows the dollar depreciating 5 percent while the Broad Index has dollar strengthening (7 percent). Strong economic data and expectations for the ECB to raise rates drove the DXY down which were more than offset by lower productivity in Mexico and widening trade conflicts with China that

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Figure 6



drove the appreciation of the Broad Index. Again, the Chinese Renminbi, Mexican Peso and other emerging country currencies (particularly in Asia) are not included in the DXY and are included in the Broad.

Overall, when comparing the DXY and Broad Indices since 2000, one would conclude that the U.S. dollar has depreciated by approximately 9 percent (when using the DXY), while it appreciated by over 8 percent (based on the Broad).

Due to a wider basket of underlying currencies, whose weights are updated annually, our view is the Broad Index is a better measure for the U.S. dollar, reflecting overall trade competitiveness. However, what about for a specific commodity such as silver, is there a more representative measure of the dollar?

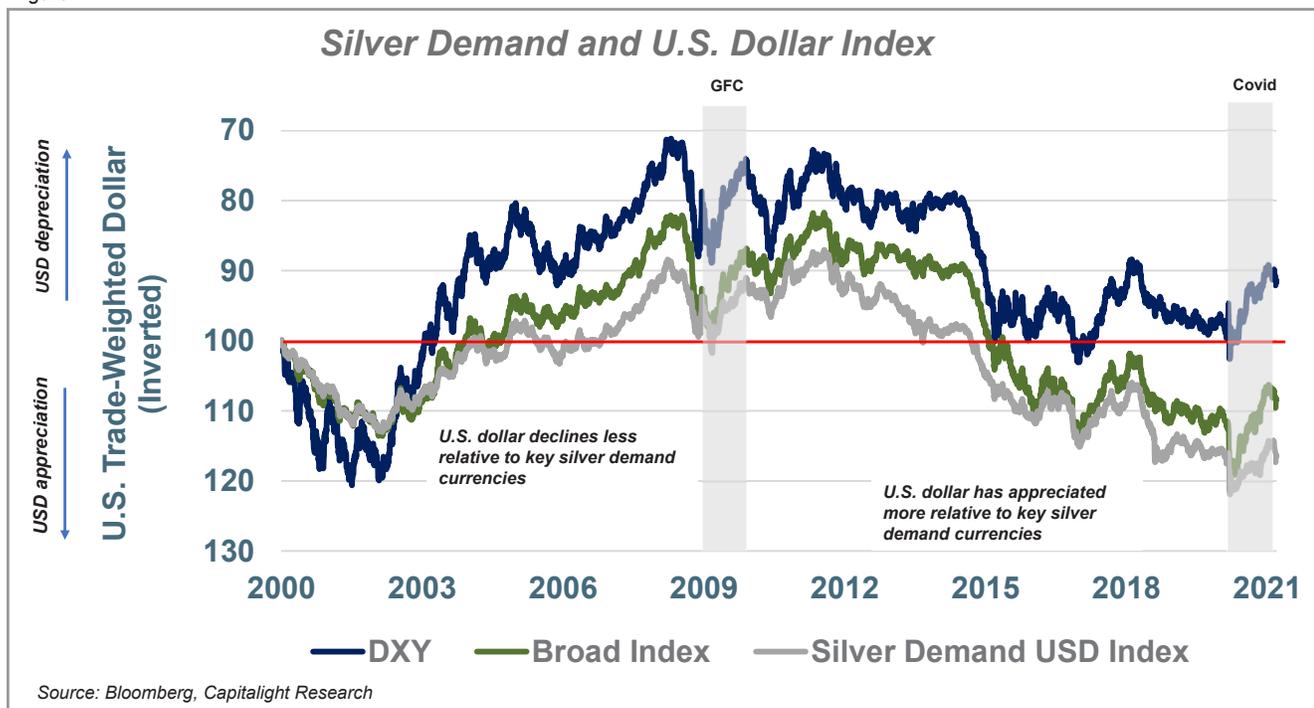
But What About Silver?

We have created a silver demand U.S. dollar index (grey line in Figure 7). Here the value of the U.S. dollar is again based on a basket of underlying currencies, however the currencies included and corresponding weights are based on annual demand for silver (including industrial, jewelry and physical investment). Like the Broad Index, underlying currency weightings are updated annually⁷. As shown, this Silver U.S. Dollar Index is more closely aligned

Overall, when comparing the DXY and Broad Indices since 2000, one would conclude that the U.S. dollar has depreciated by approximately 9 percent (when using the DXY), while it appreciated by over 8 percent (based on the Broad).

⁷ For this initial index, currency weightings are based on demand data reported by the Silver Institute and is sourced from GFMS and Metals Focus.

Figure 7



with Broad Index relative to the DXY. Of note, during the extended period of dollar depreciation (Feb 2002 through July 2011), the Silver U.S. Dollar Index declined less relative to the Broad and DXY. Similarly, during the following period of dollar appreciation (through to the onset of the Pandemic), the Silver U.S. Dollar Index gained relatively less than the two other Indices. As opposed to the DXY, the Silver U.S. Dollar Index (like the Broad Index), has appreciated since 2000, gaining 16 percent compared to the Broad Index which has the dollar up 8 percent.

Table 2 expands on Table 1, including both the Broad and Silver U.S. Dollar Indices. As shown, dollar moves (both up and down) are generally more muted with the new Silver U.S. Dollar Index, followed by the Broad and then the DXY).

As mentioned previously, commodity prices, including silver, are typically negatively correlated with the U.S. dollar. These

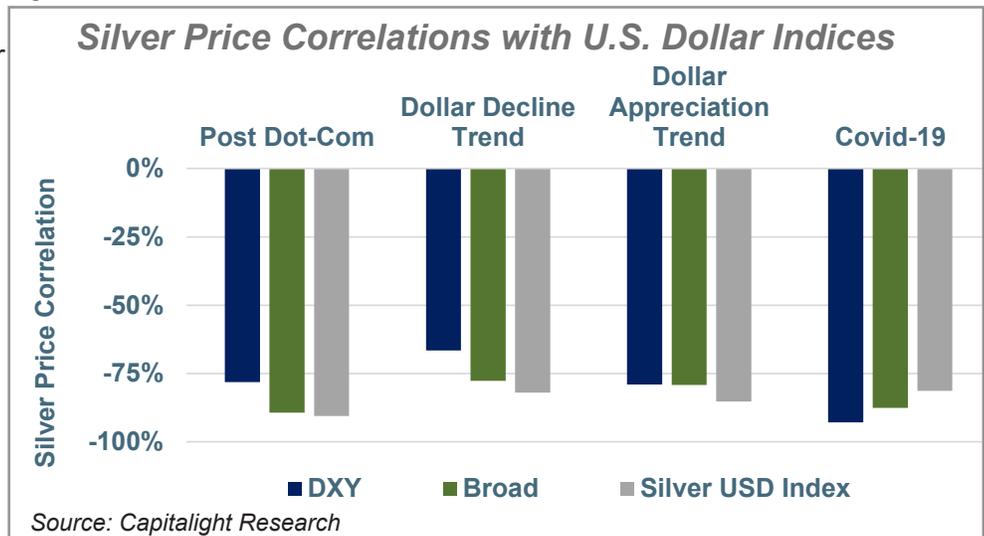
Table 2

U.S. Dollar Indices and Silver Prices Macro Trends (since 2000)					
		US Trade Weighted Indices			
Period		DXY	Broad	Silver USD	Silver Price
Post Dot-Com	Jan 2000 - Feb 2002	19%	14%	13%	-17%
Dollar Decline Trend	Feb 2002 - July 2011	-38%	-28%	-23%	810%
Dollar Appreciation Trend	July 2011 - Mar 2020	38%	48%	40%	-69%
Covid-19	Mar 2020 onward	-10%	-10%	-4%	92%
Overall	Jan 2000 - Present	-8%	8%	16%	390%

Source: Capitalight Research

Figure 8

analyses are generally based on the traditional dollar index (or the DXY). Figure 8 summarizes daily silver price correlations with the DXY, Broad and the Silver U.S. Dollar indices. As shown, aside from the recent Covid-19 period, the Silver U.S. Dollar Index demonstrates stronger negative correlations with silver prices relatively to the Broad and DXY. Given this increased sensitivity, we will be monitoring this new dollar index as well as looking to potentially include in our silver price forecasting models.

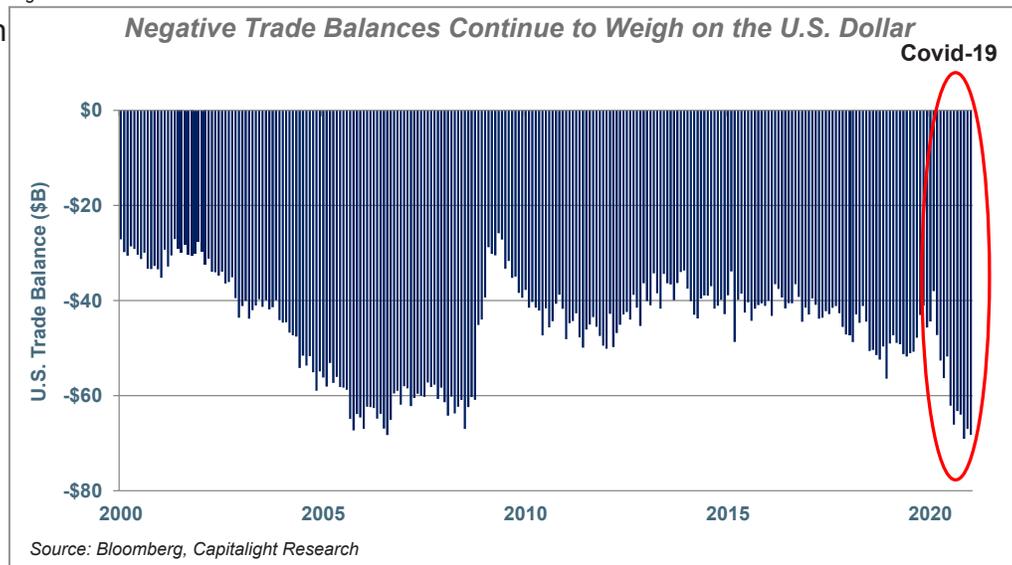


U.S. Dollar Outlook

When examining underlying factors of potential for the U.S. dollar or other currency movements, we consider four factors: trade flows, interest rates, economic growth and investor appetitive for risk.

- 1. Trade Flows** (or the balance of imports relative to exports): This tracks the underlying economic demand for a currency. If a country has a negative trade balance, this can weigh on a currency (such as the U.S. dollar). As shown in Figure 9, the U.S. has continued to have a negative trade balance (the dollar value of imports exceeds that of exports) since 2000. A surge in the demand for household goods has significantly expanded the negative balance during the Pandemic, with January 2021's balance exceeding \$68B. We do not anticipate this strong negative balance to change significantly over coming months.

Figure 9



- 2. Relative Interest Rates:** If interest rates rise in a particular country relative to those in other countries, this will attract foreign speculative investment and thus

supporting a currency. Figure 10 displays bond yield curves (with tenors of notes and bonds from the overnight to the 30 year on the x-axis) and corresponding interest rates (y-axis). As shown, in response to Covid, Fed actions to lower interest rates have pushed near-term interest rates to very near 0 percent. With renewed inflation concerns, however, longer-term yields have climbed particularly over the since the beginning 2021 (current yields on the 10- and 30-year are approximately 1.65 and 2.43 percent, respectively). While these rates are low from a historical perspective, they significantly exceed those in Europe and Japan (Figure 11).

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Figure 10

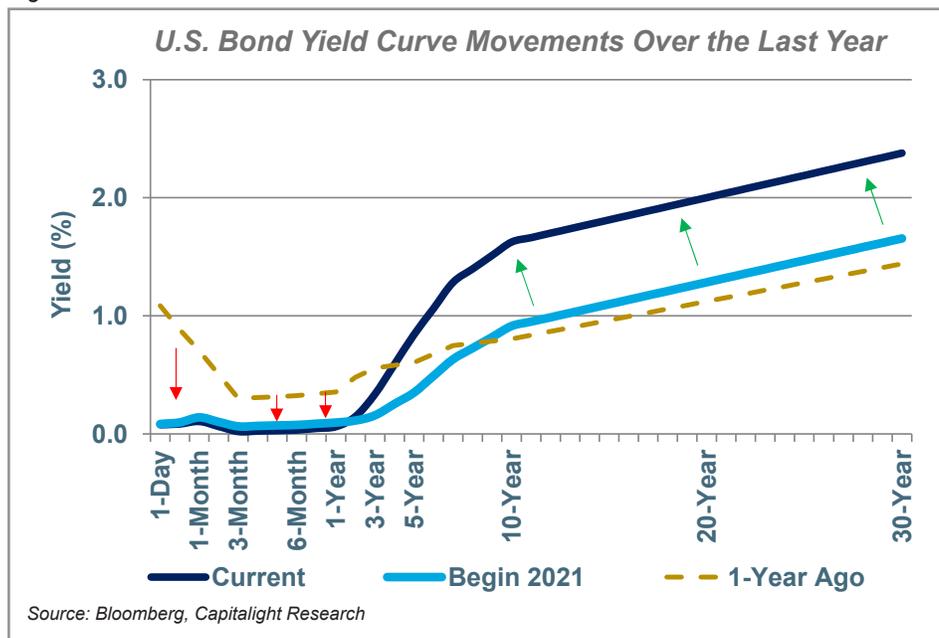
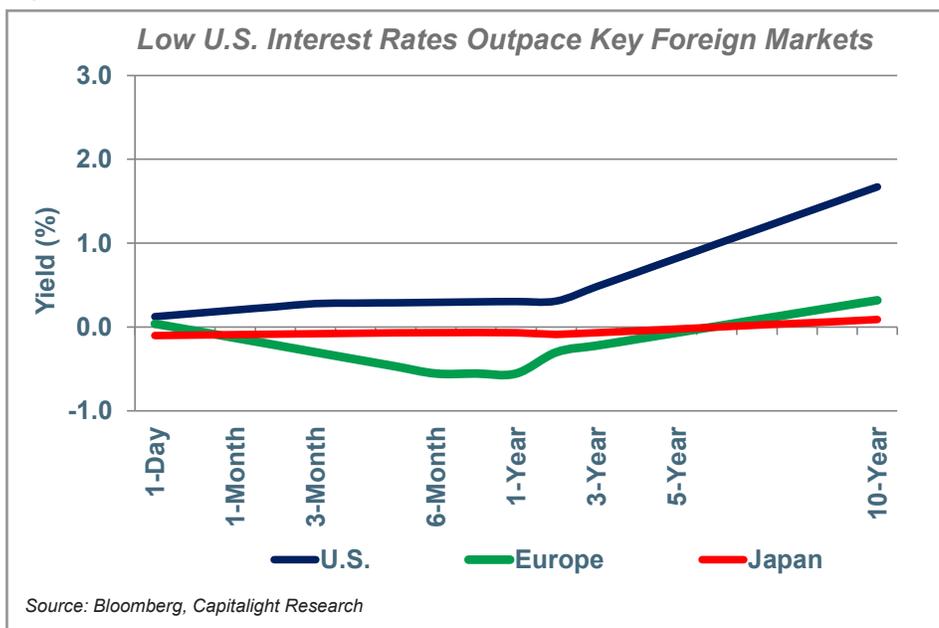


Figure 11



3. Relative Economic Growth Expectations: Higher anticipated economic activity will also spur domestic investment and support a currency. Figure 12 displays economic growth expectations for the U.S., Europe and Japan and for comparison purposes, China. As shown, growth is expected to well exceed 5 percent in the U.S., higher relative to the Europe (slightly over 4 percent), with Japan under 3 percent for this year⁸. Higher relative rates in the U.S. will be supportive of the dollar.

Figure 12



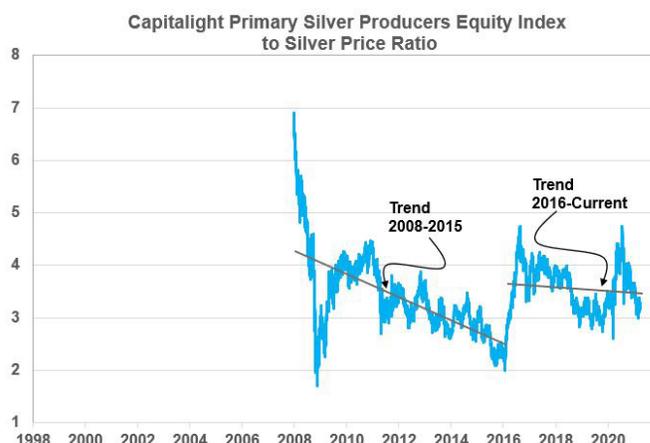
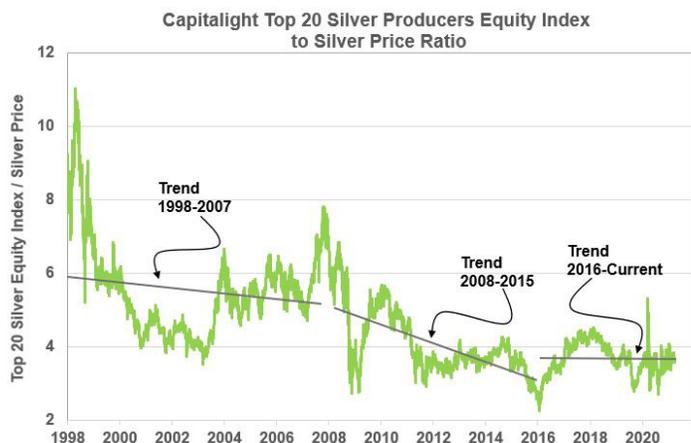
4. Risk Appetite: Shifts in risk appetite can sway the value of a currency radically. During the initial weeks of the Pandemic, the dollar sharply appreciated as investors flocked safe havens. While investors have become less risk adverse over recent months, we anticipate moderate safe haven demand continuing until economies around the globe fully open.

Overall, we expect the U.S. dollar to moderately strengthen over the near-term driven by higher relative interest rates and expectations for economic growth, partially offset by a continuing and high trade deficit. As reviewed in this article, if history provides a guide, dollar strengthening has the potential to weigh on silver prices in the near-term.

⁸ Note, the recent Fed projections have U.S. growth coming in at 6.5 percent for 2021.

Silver Equities

Capitalight Silver Producer Equities Indices



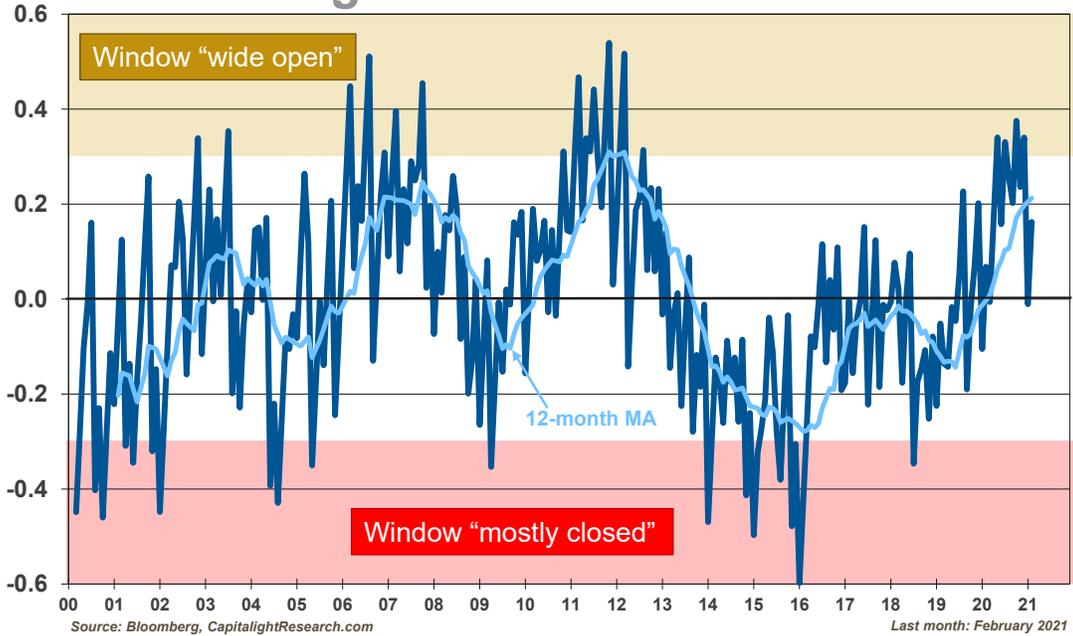
Source: Bloomberg, Capitalight Research

Silver equities have followed broader equity markets and commodity prices higher since March 2020 – the top 20 silver producers have also benefited from the rise in base metals, especially copper prices.

The top 20 equity index underperformed silver prices from 1998 – 2007 and from 2008 – 2015 (as denoted by the negative trends over these periods). Since 2016, the ratio for the Top 20 has trended relatively sideways. Similar trend patterns for the Primary equity index to price ratio, with the index losing significant ground to prices over the 2008 through 2016 period and trending relatively sideways to date. Overall, these negative longer-term trends confirm the inability of silver equities across the mining sector to match gains in underlying silver prices themselves.

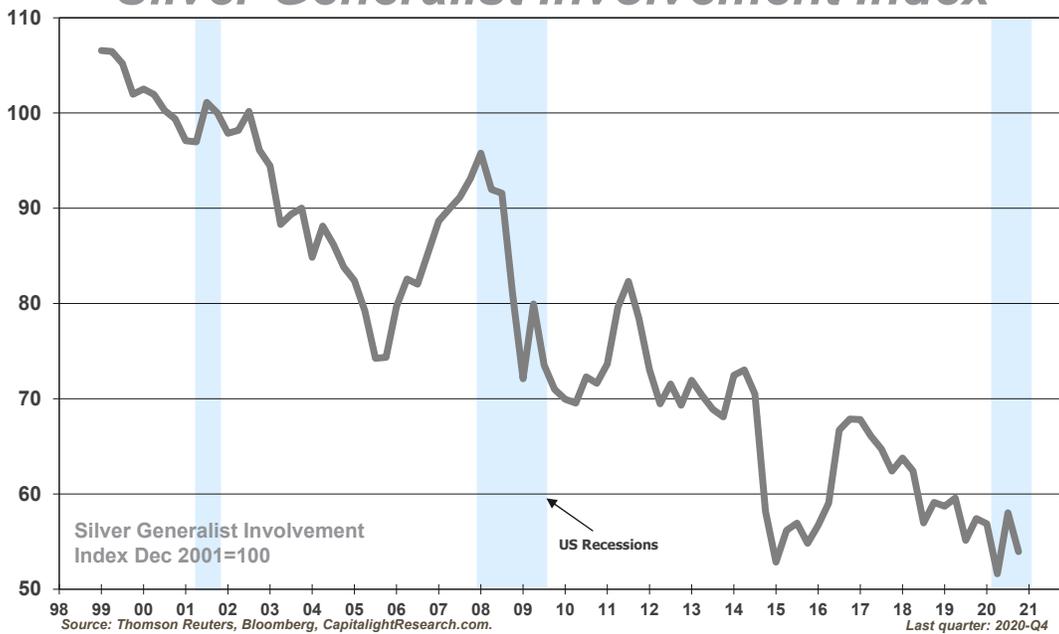
Mining Finance and Generalist Involvement

Mining Finance Window Index



Variables: TSXV Financings, Gold price ratio, Gold companies index

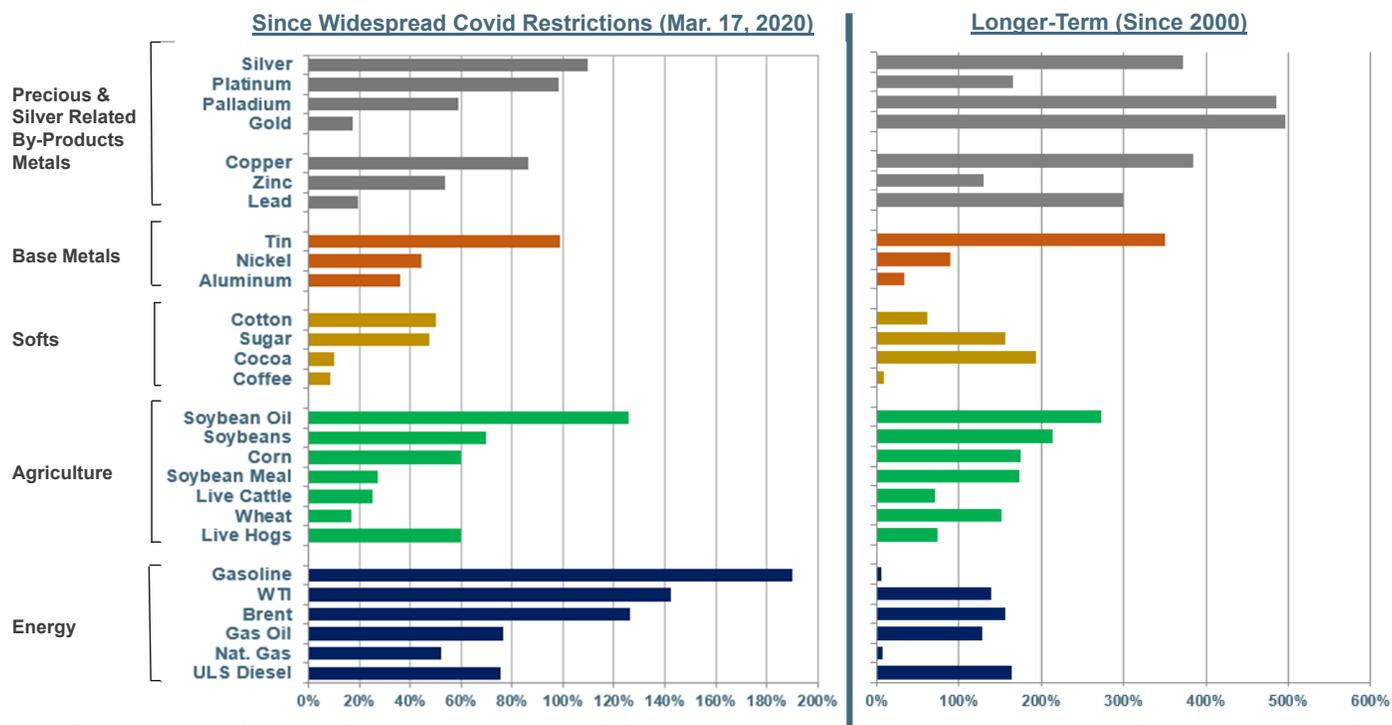
Silver Generalist Involvement Index



Variables: Generalist Senior Silver Company Holders, Average Analysts Rating

Higher commodity prices have driven financing amounts higher since mid-2018. However, the 'generalist investor' hasn't yet been enticed to return to the sector.

Relative Price Performance



Source: Bloomberg, Capitalight Research

Across the wider commodity sector during Covid, the impressive silver price gain of nearly 115% has only been outmatched by soybean oil, gasoline, West Texas Intermediate and Brent crude prices. Initially during the Pandemic, crude prices (as well as the prices for refined products) were severely impacted by both a Covid driven demand shock and from the threat of oversupply due to disagreements between Saudi Arabia and Russia over OPEC output restrictions early on in the Pandemic. Of note, since the U.S. Presidential election, crude oil prices are up nearly 60% due to lower economic uncertainty and improved expectations for global economic activity.

We continue to remain bullish on our outlook for silver prices. Driven by continuing low interest rates, and improved economic growth we expect further gains, with prices averaging over \$32 per ounce during the 4th quarter of 2021.