



M# METALS FOCUS

Global Silver Investment

Prepared for The Silver Institute

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Chapter 1

- Investor demand for silver across a range of investment vehicles, including futures, ETPs and mining equities, has improved noticeably this year.
- This reflects growing macroeconomic and political uncertainty, which have lifted the appeal of safe haven assets.
- Looking ahead, as the backdrop remains supportive of higher silver prices, we expect investment demand to strengthen further.

Introduction & Executive Summary

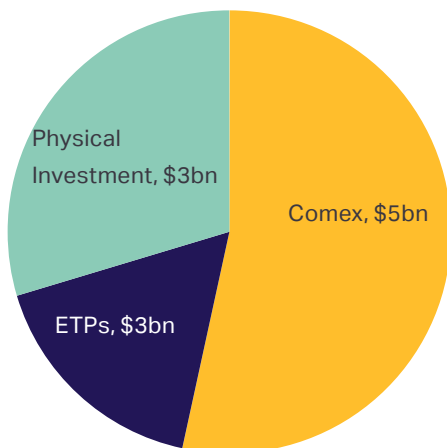
Introduction

The Silver Institute commissioned Metals Focus to undertake a study of global silver investment. The study has two objectives. First, to review current trends within the principal avenues of silver investment and second, to assess the outlook for each of these, highlighting opportunities as well as any headwinds that may be in prospect.

In recent months, investor interest in both silver and gold has risen significantly. The catalyst for this has been growing macroeconomic uncertainty, due to the escalating US-China trade war, which has increased the risk of recession (as suggested by negative bond yields). This in turn has encouraged a move to safe haven assets.

In the case of silver, increased investor exposure has emerged across a range of available instruments. In the futures market, net long positioning on Comex at end-July rose to its highest since November 2017, while exchange traded product (ETP) holdings in mid-August reached a new record high. In terms of physical investment, a useful barometer for activity is the *Metals Focus Bullion Coin Survey*. For the first six months of 2019, this indicates that participating mints' sales rose by over one-third year-on-year. Meanwhile, higher silver prices have helped lift the appeal of mining equities. In early August, the Solactive Global Silver Miners Equity Index was trading at a 12-months high; since May alone it has risen by around 30%.

Value of Silver Investment



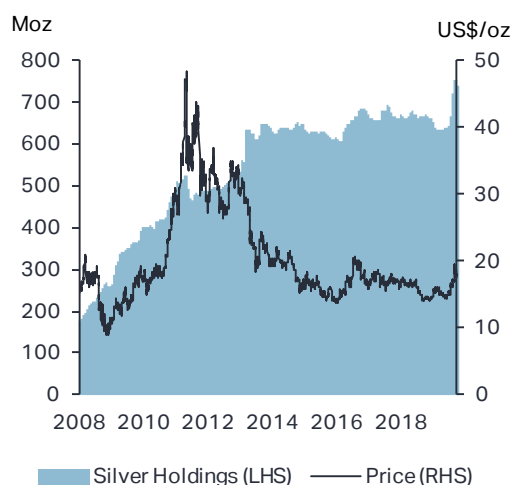
Comex net long at July 31st 2019, ytd ETP holdings to end-July 2019, 2019 physical investment forecast;
Source: Metals Focus

Executive Summary

As highlighted above, investor sentiment has strengthened noticeably towards silver (as well as the wider precious metals complex). This is in sharp contrast to recent years' activity, when many institutional investors had been skeptical towards the metal. This reflected silver's under performance relative to gold over a near uninterrupted eight year period (the gold:silver ratio rose from 30.5 in April 2011 to a multi-decade high of 93.5 in July 2019). Some investors also remember prices surpassing \$50 and the rapid retreat when so many were caught out. That such dramatic events are possible reflects the modest size of global silver investment, where relatively small inflows or liquidations can have a disproportionate affect on the market, leading to heightened price volatility, such as that seen less than a decade ago. Another important challenge facing potential silver investors is the market's depth of liquidity, including the availability of counterparts, to execute significant trades.

A comparison between the size of silver and gold investment across the key asset classes brings this into sharper focus. Looking first at investor exposure on Comex, as of end-July, the value of net long managed money

Global ETP Silver Holdings



Source: Bloomberg

positions in silver stood at \$5.2bn (equivalent to 312.8Moz or 9,729t) compared with \$26.6bn for gold (18.6Moz / 578t), some five times higher. Hypothetically (and assuming all else remains equal), a relatively modest 5% rotation out of gold in favor of silver would see positioning in the latter rise by a dramatic 25%. As a result, while such a move would see the gold price weaken, it could have a massive impact on silver.

When it comes to ETPs and retail investment, the differences between gold and silver investment demand are more pronounced. For the former, total silver holdings at end-July amounted to \$11.5bn (706.2Moz / 21,964t) against \$109.0bn (77.2Moz / 2,400t) for gold, roughly nine times greater in value. However, this pales against the difference for silver and gold physical investment, with the latter 17 times greater than for silver; the value of global silver coin and bar demand in 2018 stood at \$2.6bn (165.7Moz / 5,155t), compared with \$44.0bn (34.7Moz / 1,080t) for gold.

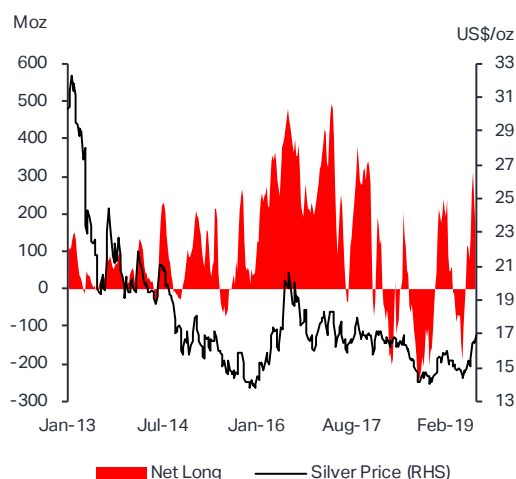
Looking ahead, given that the macro economic environment is becoming increasingly supportive of higher gold prices, the modest value of investor exposure towards silver suggests there is considerable room for this to grow further. That said, we may see each area of silver investment respond in different ways, a theme that is explored below.

In terms of the key areas of silver investment, and starting with the **commodity exchanges** this segment is arguably the most sensitive to changes in sentiment, and the most volatile of any area of silver investment. This has been evident in the US and China, homes to the world's three largest futures markets. On Comex, the lack of conviction towards silver (that characterized much of 2013 through to mid-2019) has recently given way to more optimism. This led to a massive swing in positioning, with investor exposure moving from a net short of 190.0Moz (5,911t; a 6-month low) this May to a net long of 312.8Moz (9,729t; an 18-month high) in July.

Investor sentiment has also remained key to the performance of Chinese futures trading in silver (which ranks second behind Comex). Although authorities tried to boost activity by reducing fees and increasing trading hours (on the Shanghai Gold Exchange, SGE, second to silver trading on the Shanghai Futures Exchange, SHFE), this had little impact. Instead, improved price expectations this year (as silver prices rose) encouraged the return of investors to the Chinese futures market, with this July in particular seeing a massive rise in silver futures trading. As a result, turnover on the SHFE jumped by 44% over the first seven months, compared with a 23% gain on the SGE (for the main T+D contract).

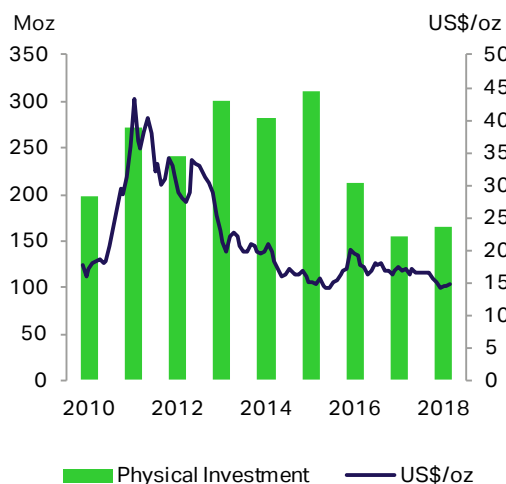
Improved investor sentiment towards silver has also translated into significant gains in **ETP** holdings, which this August have continued to set new highs in volume terms, reaching 736.9Moz (22,920t) on August 16th. However, from a value standpoint, this equates to just \$12.6bn, which is roughly half the record high of \$25.2bn set on April 28th 2011 (when silver traded \$48, with 520Moz / 16,165t under management). As a result, there appears room for holdings to grow further. This, however, will depend on

CFTC Net Managed Money Silver Positions



Source: CFTC

Physical Investment

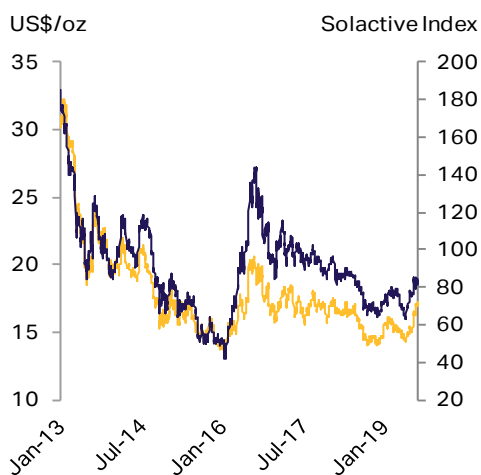


Source: Metals Focus

the behavior of not only institutional, but also retail investors, as the latter account for the majority of overall holdings (this contrasts sharply with gold, where professional investors dominate ETPs). These two groups can operate quite differently. Institutional holdings can be more volatile and so more prone to liquidations, while retail-owned silver ETPs tend to be far stickier. Overall though, we expect the uncertain backdrop to generate new ETP demand from both investor groups. This will see the ETP market set new highs in volume terms, but the 2011 record for the value of ETP holdings is likely to remain unchallenged.

The recent strength in silver futures and ETPs contrasts sharply with **physical investment**. Last year's total of 165.7Moz (5,155t) was the second lowest this decade and pales against the 2015 record high of 310.1Moz (9,644t). Physical investment in silver is dominated by the US and India, both of whom contributed to massive volumes of bar and coin purchases earlier this decade. The third largest market is Germany, but physical investment there is limited because VAT is levied (to varying degrees) on all silver bars and coins. The US market had benefited from significant levels of bargain hunting as the silver price traded lower, but in a volatile fashion. In contrast, recent years have been characterized by range-bound prices, which contrasted with stock markets setting new highs. With regard to India, one of the key drivers has been retail investor price expectations. As a result, rising prices at the start of this decade encouraged significant levels of buying. However, subsequent price weakness acted as a massive deterrent, although there was some offset as the government's clampdown on gold (starting in 2016, the authorities demonetized several high value bank notes) encouraged a shift into silver.

Performance of Silver Mining Equities



Source: Bloomberg

Looking ahead, physical investment in silver is arguably one of the most difficult market segments to call. For example, it was revealing that in the US, when prices started to rise late in the second quarter, the majority of investors remained on the sidelines. In other words, there appeared little belief that the rally would be sustained. However, as the price is forecast to continue strengthening, this should encourage the return of US buying. In terms of the Indian market, bullish price expectations should start to firm, but there is a risk that profit taking will emerge, especially as silver crosses key rupee price points.

Another important area for silver investors is the **mining equities** market. In contrast to the above opportunities, in a bull market mining equities offer the potential to benefit from both stock appreciation and, on occasion, dividend streams. Furthermore, given the complex nature of most orebodies many primary silver miners also earn revenue from other metals, helping to diversify income streams. In recent years, weak silver prices have encouraged the industry to reduce costs. As a result, rising silver prices have led to improved margins, which in turn has fed through into firmer share prices. This has been reflected in sharp gains for key silver miner equity funds. In our view, therefore, as further price upside emerges this should deliver further inflows into silver mining equities.

Turning to activity in the **over-the-counter** (OTC) market, this appears to have remained relatively subdued over the past 12-18 months. While this reflects the broader climate of weaker investment in silver (until very recently), it is also a function of some trading having moved to the commodity exchanges, in part for compliance reasons.

Finally, it might surprise that this report does not include a chapter on the role that **jewelry and silverware** play as investment vehicles, as we see in the gold market. It is worth looking at India to understand why this is the case. Although jewelry demand there has surged (reflecting low silver prices, strong rural demand, rising incomes and a growing penetration of sterling silver), unlike gold jewelry, there is virtually no investment demand for silver, for several reasons. First, silver jewelry is sold at double the mark-up compared to gold jewelry, and so the value lost when selling back has deterred investment.

Coming to silverware, the Indian market consists of silver utensils and articles. The former is driven by gifting and buying for religious occasions. Similarly, silver articles in the form of idols of Indian gods and goddesses that are used for rituals and prayers (which dominate this category) are not bought as an investment. That said, heavier articles (1kg and above) have attracted investment in recent years as the government's clampdown on unaccounted money and gold imports has led many hoarders to move cash into silverware. Going forward, we expect to see modest investment interest in heavy silver articles, which serve decorative as well as investment purposes for affluent sections of Indian society.

Aside from choosing between a wide range of investment instruments, investors also need to recognize which **variables drive the silver price** (analyzed in Chapter 2). This matters in terms of helping investors to make decisions over buying or selling the metal. Most obvious is the gold price, which displays a long-standing and highly positive correlation with silver. As a result, the white metal can behave as a precious metal, benefiting from safe-haven inflows, which in turn are largely a function of macroeconomic news (such as a Fed rate cut or the current US-China trade war).

The importance of silver's industrial fabrication (which accounts for roughly half of global silver demand) means that silver at times also behaves as an industrial metal. As such, it can take its cues from base metal prices, which also means it is often driven by other macroeconomic developments, such as any deceleration in Chinese GDP growth. This means that the relationship between the performance of the global economy and the silver price is far from clear cut - news of slower growth can weigh on silver (as industrial commodities are sold off), but as the macro backdrop deteriorates further (leading to stock market weakness), silver will benefit as investors adjust their portfolios in favor of precious metals.

Chapter 2

- Silver prices chiefly take their cue from macroeconomic factors and investors' reaction to these.
- Key macro data to track includes: US\$ moves, GDP growth and interest rates.
- Silver prices are most strongly correlated with gold, but they also have strong links to base metal prices.
- Silver's fundamentals play a lesser role, although news on industrial demand and physical investment can have an impact.

Investment & Price Determination

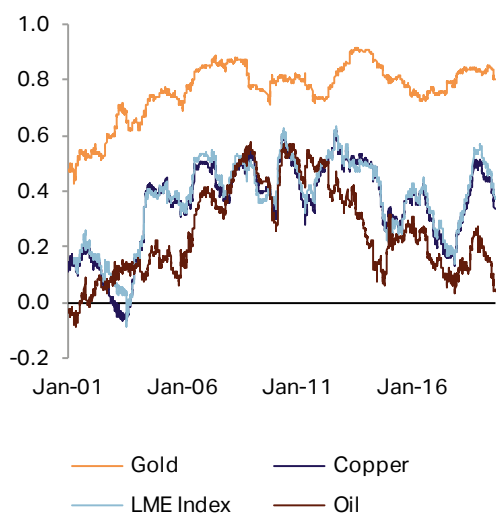
Introduction

For most commodities, it is their supply and demand fundamentals that dominate price behavior. Investors may be important, but they often take their cue from the fundamentals, either longer-term trends that they see as relevant or in response to specific events. This remains the case for the platinum group metals (PGMs), but does not apply to silver or gold because of their quasi-monetary qualities. Instead, it is macroeconomic factors (such as interest rate moves or the outlook for equities) and the reactions of investors to these factors that chiefly determine these metals' prices.

Silver, however, differs from gold in several ways. First, silver prices can be influenced by the industrial metals, in particular copper. This in turn is due to industrial silver fabrication accounting for the majority of silver use (in 2018, it made up 52% of total silver demand). Second, it is a less liquid market: it is hard to see the gold market being squeezed in a manner similar to the Hunt brothers' cornering of the silver market in 1979/80. Third and linked to liquidity, the silver price is typically more volatile than gold's. As a result and even though silver functions perfectly well as a medium of exchange and a store of value, it is gold that is viewed as even closer to true money and is therefore more strongly influenced by macroeconomic data.

The main areas that we assess in detail below are: the extent to which the price of other commodities can drive silver; those macroeconomic factors that are relevant for precious metals in general and for silver specifically, and lastly the way in which silver's fundamentals can influence its price, either directly or through their impact on investor sentiment.

Silver, Gold, Oil and Base Metal Price Correlations - Long Term*



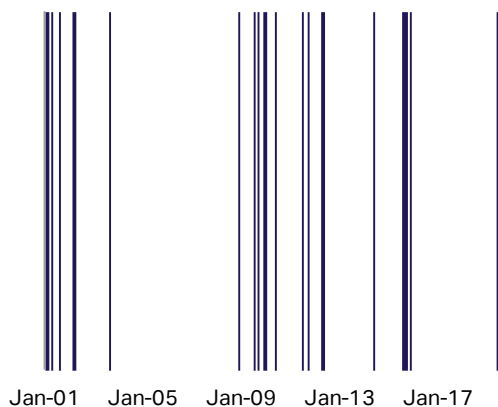
Source: Metals Focus. * basis 250 day log returns.

Silver's Correlation to Other Commodities

As noted above, silver price moves are strongly linked to those of other commodities, in particular gold. Looking at the price correlation between the two metals (as shown in the chart opposite), this has held relatively steady at a high level of around 0.8 since the mid-2000s. That figure, however, tells us little about causality or which metal leads, but it is easy to see why gold is widely held as the dominant partner; the value of all forms of investment in gold in 2018 is estimated by Metals Focus at just over \$45bn, whereas the figure for silver is under \$3bn.

Causality is an important issue for the oil price. This can achieve meaningful correlations over 0.5, but we would argue that the link is indirect. Gold prices can often show a link to oil as both can be influenced by geopolitical events (such as attacks on tankers in the Persian Gulf). In addition, high oil prices can threaten to tip the world economy into recession, which is positive for safe haven investments like gold. In such cases, silver prices can get pulled along by gold, creating the impression of a direct link between the white metal and crude.

Incidence of a Stronger Silver: Copper Correlation than Gold*



Source: Metals Focus. *basis 20 day log returns. Columns above are shown on days when the copper correlation with silver is stronger than silver's price correlation with gold.

The price link to gold tends to overshadow the base metals, although their correlation to silver prices can be good, with levels of 0.5 or higher being fairly common. That link is unsurprising, given that silver's industrial demand accounts for over 50% of the total. Silver is also often analyzed alongside copper, as their end-uses are more likely to overlap than other industrial metals. Copper use in electrical / electronic applications for example is significant, and that overlap is absent for others such as steel or lead. Despite that, there is little evidence to suggest that the correlation with copper is meaningfully stronger over time than to a broader metals basket.

The first correlations chart shows 250-day log returns, as this lengthy period helps to demonstrate the "big picture". On this basis, gold's correlations are without fail higher. However, if we zoom in to a much shorter time frame (in this instance we used a 20-day period), the industrial metals can have a stronger correlation than gold but this, basis our study to the beginning of 2001, only occurred on less than 3% of days. It is also worth highlighting that, even though silver demand has become more industrial in recent years, the correlation with gold has held steady at a high level. In contrast, the link with base metal prices remains volatile and, as recently as 2017, was stuck below 0.2 for much of that year.

Even if the link with base metals is less profound, other drivers of the silver price are needed in order to explain swings in the gold:silver price ratio. This is currently trading near multi-year highs, having been on a broad uptrend since 2011. This is largely due to falling base metal prices and also to the recent weakness in silver coin and bar purchases. Some also feel that gold:silver divergence emerges when the macroeconomic backdrop deteriorates, but a true crisis is needed for silver to at worst track and more probably outperform gold, if only because of its lower liquidity.

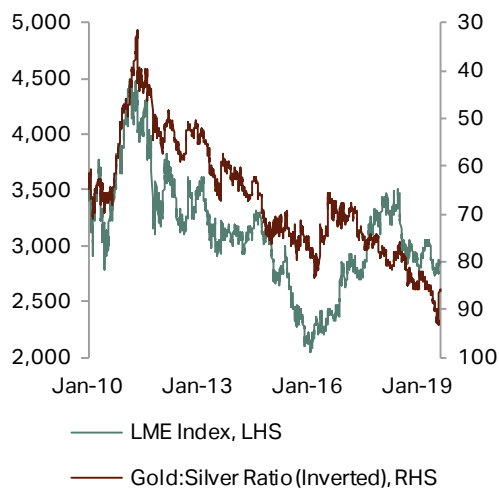
Macroeconomic Variables

As befits the correlations for the silver price described above with gold and the industrial metals, it should not surprise that a number of macroeconomic drivers have an important bearing on the silver price.

The precious metals markets are currently fixated on the escalating US-China trade war, and specifically how this may affect economic growth, not just in the US and China, but also globally. The potential damage from this war has led to a flight to safety, to the benefit of gold and more recently silver. This reflects wider investor interest in the impact of GDP and industrial production prints on the silver market. That link, however, can break down as other macroeconomic variables can lead investors to react to news of weak GDP growth as pro-gold and by extension pro-silver. However, poor news on the global economy could at other times be taken as harmful for the industrial metals and therefore silver too.

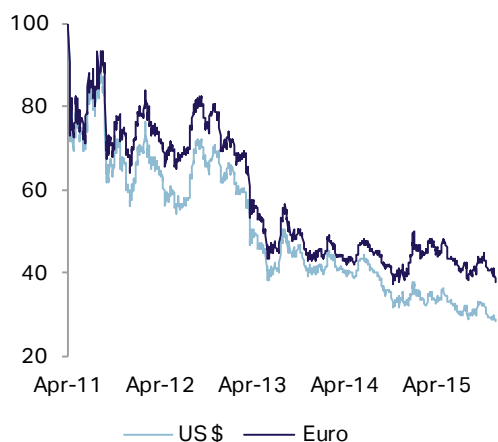
If we look at the factors behind this instability, the value of the US dollar is important, for the simple reason of silver being priced in dollars. News that is specifically supportive of, or detrimental to, the dollar can therefore move exchange rates and the US\$ silver price in such a way that the silver

Base Metals Prices and the Gold:Silver Ratio



Source: Bloomberg

US\$ and Euro Silver Prices (index: April 28th 2011 = 100)



Source: Bloomberg

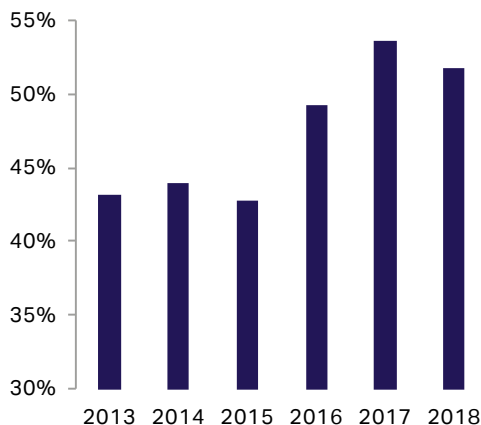
price in other currencies barely moves. As shown in the chart opposite, a fair portion of silver's slide from its 2011 high to the 2015 low in US\$ terms was due to the greenback's recovery. Tied in with both exchange rates and GDP data are interest rates, but it is worth noting that the latter can impact the precious metals directly as rate changes will raise or lower both the opportunity cost of holding what is essentially a zero-yielding asset. Inflation is also important as this will make real interest rates either positive or negative. There is also a direct link - high inflation tends to trigger strong safe haven demand for gold and to an extent silver. Similarly, deflation can also benefit the precious metals as investors fear that deflation can only mean poor economic prospects and so imminent stock market weakness.

It is not just equities that are rivals for investor money - government and corporate bonds, real estate and cash can all act as competitors for silver and gold. As such, changes in their valuations independent of the above macroeconomic variables can have a separate impact on their attractiveness to an investor. New legislation on real estate loans or capital gains tax treatment, for example, could impact all the above financial markets, to the potential benefit or detriment of precious metals.

The last major macroeconomic factor that can impact the precious metals is debt totals, whether corporate, government or household. This can act as an independent factor should investors believe that its scale and/or direction threaten to upset a currently benign environment. For example, the ongoing rise in US Federal debt has created concern for some investors, boosting demand for safe haven assets. Similarly, China's GDP growth rate may still be the envy of industrialized countries, but its pile of non-financial corporate debt is creating interest in safe havens, all to the benefit of precious metals.

Current account balances rarely have a direct impact on precious metals, although one good example exists - those times when India's trade balance has swung to heavy deficits have led to its government raising import duties on gold and silver. This negative for demand and the scale of India's markets mean that investors can take notice of developments on this front.

Industrial Fabrication's Share of Total Silver Demand

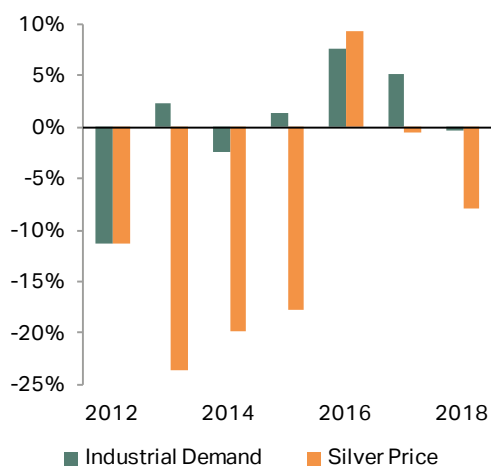


Source: Metals Focus

Silver Prices and the Supply/Demand Balance

As noted above, silver's **industrial** demand now accounts for a majority of the total. This helps explain why prices can respond to positive or negative stories on the world economy. Signs of a slowdown in China's industrial production, for example, would be expected to undermine silver. However, that is often the case as investors choose to incorporate this news into their views on the broader industrial metals complex - it is rare that silver prices would fall in isolation. Another indication of the weakness of industrial demand as a price driver is that its share has risen in recent years (in 2013, its share stood at 43% and in 2018 at 52%) and yet there is no evidence of silver becoming more closely related to the industrial metals' prices. Also, as illustrated in the chart opposite, year-on-year changes in silver's industrial demand bare scant resemblance to price moves.

Annual % Changes in Industrial Demand & the Silver Price



Source: Metals Focus

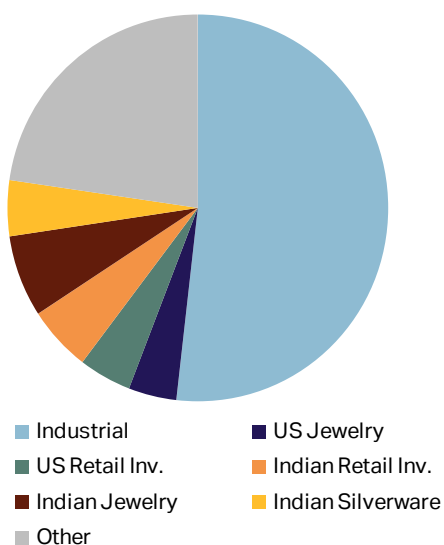
All this said, investors are not immune to silver-specific stories on its industrial demand. This is particularly the case where data is more readily available and the link to silver well known. A good example here is silver use in **photovoltaic (PV)** applications – a story on, for example, the Chinese government boosting its installed capacity could easily get picked up by investors.

New uses of silver can also be noticed by investors. Examples include flexible electronics and “wearables” (silver being used into a vast range of items such as bandages or clothing). These can garner attention as the almost certainly low unit cost of silver in each item and the potentially large number of these items can be extrapolated into a game changer for demand. So far, no such “white knight” has suddenly materialized, but investors seem alive to this possibility.

It might be expected that **jewelry** fabrication would have the second largest impact of the demand side fundamentals, being the second biggest and accounting for 21% of the total last year. It is also quite concentrated – Indian and US jewelry consumption make up just over half the global total. This makes it similar to gold, where India and China account for 57% of the total. However, the latter two countries’ gold jewelry consumption amounts to a noteworthy 30% of total gold demand, whereas that share for US and Indian silver jewelry is only around 10%.

That said, news on Indian silver bullion imports can reach the headlines and that is because these imports also go to serve the country’s sizable **silverware** and **physical investment** segments. Indian offtake in those two sectors plus jewelry accounts for almost a fifth of total global demand. Not only is this more relevant, but all three can be price sensitive. As a result, India’s bullion imports can act as a measure of, for example, how strong price support is.

Key Price Sensitive Segments’ Share of Silver Demand (2018)

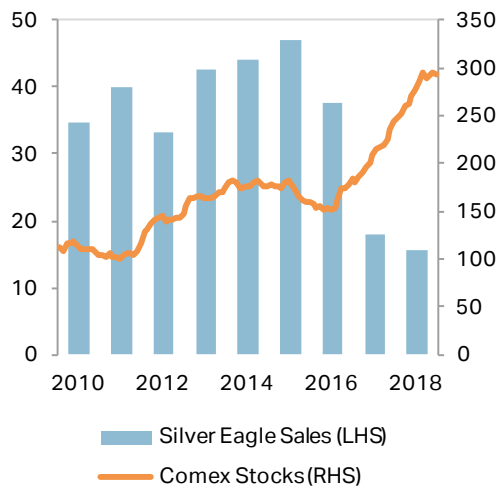


Source: Metals Focus

In some ways, at least in the short-term, the fundamental that looks to have a greater impact on decisions by institutional investors is the strength of coin and bar purchases in the US. This can be sizable - in 2015, this accounted for 12% of global demand, and institutional investors seem all too aware of its recent slump (in 2018, this share had collapsed to just 4%). Seeing one area of demand fall by around 80Moz (~2,500t) in just three years is important in itself, but this sector does seem to punch above its weight for three main reasons. First, statistics on US silver Eagle sales are updated every week, typically gaining widespread attention. Second, these figures are assumed to act as a guide to overall investor sentiment. Third, a slump in physical investment can contribute to a rise in Comex stocks, as we have seen over the last three years. The apparent burden of such visible stocks right under the gaze of New York’s financial community is widely felt to have featured in some hedge funds’ bearish take on silver.

A final point on the demand side is that silver is far less vulnerable to any single category of demand or country. First, its industrial bedrock is spread across many varied sub-groups and, second, those countries critical for one

US Silver Eagle Sales vs Comex Inventories (Moz)



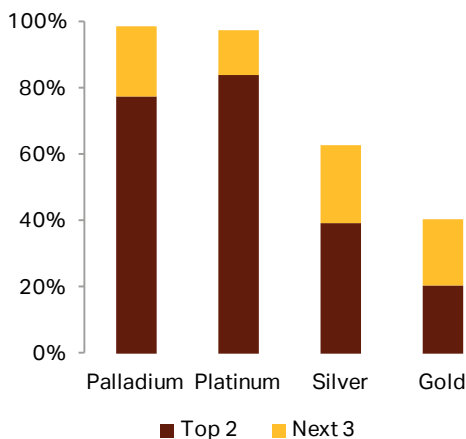
Source: US Mint, Comex

segment (say China's industrial demand) can be of secondary importance for others (such as physical investment in that country). This means breaking news can never quite have the same impact on silver demand and therefore its price as it can for gold and the PGMs.

News that could affect supply also has a limited role in silver. One reason is that, at a country level, **mine production** is not that concentrated – the two biggest (Mexico and Peru) account for around 40% of the global total, as opposed to around 80% for platinum and palladium (which can react strongly to events in their top two, South Africa and Russia). Second, the same is true of concentration at the mine level – silver's top-10 accounted for 23% of total mine output in 2018 versus 69% and 76% respectively for platinum and palladium. On both those counts however, gold is even less concentrated (its top two countries make up around 20% of global output, and the top-10 mines 11% of the global total in 2018). Despite that, news of falling output in China (the largest gold producer) due to environmental restrictions did color investor sentiment. This was largely due to China being the world's largest gold consumer and so any loss of mine output means higher bullion imports. That dynamic is by contrast absent for silver. In addition, less than 30% of silver is from primary mines and so total output is better insulated from silver-specific events in other fields.

Changes in the last main fundamental, **recycling**, register even less with investors. Much of this is down to relative importance - gold scrap's share of total supply this year should reach 25% (having peaked this decade at 36%), whereas the two equivalent figures for silver are 16% and 23% respectively. This in turn is largely due to the various forms of silver scrap being price inelastic within certain limits. Industry feedback on photographic scrap for example is that you would need to see prices below \$10 or above \$20 for a notable slump or boom to occur. That said, investors can take notice of reports of surging volumes when prices near historic highs, especially if this occurs along with a recession as both can trigger waves of distress selling of old silverware by consumers and of unsold jewelry by the supply chain.

Precious Metals' Country-Level Mining Exposure (2018)*



Source: Metals Focus.* Share of global mine output attributable to the top 2 and top 5 countries.

Chapter 3

- Rising silver and gold prices, combined with the industry's long standing focus on cost reduction, have boosted margins for primary silver miners.
- The prospects of further upside for the silver price has also attracted investor inflows into mining equities, generating healthy gains during 2019 to-date for mining equity funds.

Mining Equities

Introduction

Silver mining stocks offer an alternative for investors looking to capture the inherent optionality that producers and developers can provide. The investment characteristics of silver mining stocks are different from those of the metal, but in a rising market they can often outperform the silver price and hence can potentially offer higher returns.

Investment Case

A basic investment thesis for silver stocks is that a rising silver price will boost the revenue line and, all other things (such as the cost of production) being equal, this should lead to a multiple of increased earnings and cash generation, which can be reinvested in the company for growth or returned to shareholders. The attractiveness for these shareholders is therefore the expectation of benefiting from capital appreciation of the stock and/or a dividend stream.

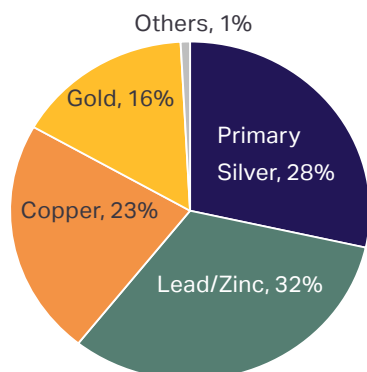
Due to the polymetallic nature of most silver orebodies, it is rare to find a producer of the metal which does not also benefit from output of associated metals. This effectively provides silver miners with a natural hedge, in broad measures reducing the risk posed by adverse price movements in any one of the metals in which they are active. However, it does also complicate the simple investment case, which can at times lead to investors focusing elsewhere.

From the price heights reached during the financial crash in 2011, the silver price has largely traded in a side-ways pattern since 2014 (until very recently). Consequently, this has not been the easiest of environments for silver mining companies, with the emphasis largely on cash generation through controlling cash costs and restricting capital. For investors in the sector too, share prices have tended to move mostly sideways to lower. As a result, some leading silver miner equity funds are down as much as one-third over the last five years while the silver price has fallen by some 20% over the same timeframe.

However, through this period of consolidation, there might be a cyclical opportunity for investors. Since the beginning of this year the silver price has broken through \$19 level compared to only \$14 in November 2018. As a result, so far this year silver miners have enjoyed further margin appreciation, especially those that produce gold as a by-product. The years of austerity have motivated silver mining companies to operate in a very lean manner, leaving them ready to take advantage of higher commodity prices, probably more so now than at any time since the financial crash in 2011. Since November 2018, leading silver miner equity funds are up some 20%.

With improved cash generation, producers may well look to commit to growth through the expansion of existing operations, increased exploration

Silver Mine Production by Source Metal, 2018



Source: Metals Focus

or mergers and acquisitions. In addition, companies may decide to distribute excess cash back to shareholders as dividends or share buy backs.

Risk Characteristics of Silver Stocks

The optionality and leverage that silver mining stocks provide to investors bring a higher level of risk than that associated with owning the metal directly. This derives from the fact that there are considerable technical, management and financial risks in extracting an ounce of silver from its geological setting and delivering this to the market. Miners sometimes face significant technical challenges in accurately quantifying their ore reserves, then mining and processing the ore profitably.

Risk also varies according to where a mine or project sits within its life cycle. While producing companies deal with technical extraction risks, companies with pre-production, exploration and development projects have first to de-risk the project through a lengthy process, which entails confirming the robustness of project parameter assumptions, dealing with permitting issues, construction costs and risks, and putting in place finance to bring the project to fruition. The risk/reward balance for such companies is thus skewed more toward risk than for producers, and it follows that those silver companies who have yet to reach the production stage will usually exhibit greater share price volatility.

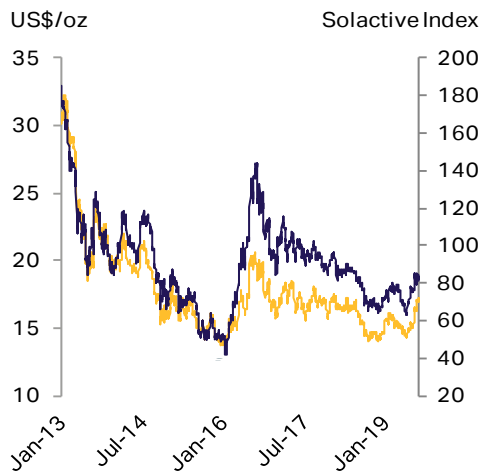
Many of the silver miners operate underground mines which some investors see as inherently more risky than open pit mining. Another challenge that primary silver producers face in comparison to the gold or copper sector is relatively short mine lives (based on proven and probable reserves). A short reserve life is a common feature of silver-rich precious metal epithermal vein deposits. This creates a greater degree of uncertainty or risk for an investor and places an increased exploration cost on a silver miner compared to a gold producer

Investment Criteria

After deciding that silver stocks fit within their risk profile, investors have some decisions to consider regarding which stocks meet their requirements for size and liquidity. While retail investors will generally be able to freely invest in companies across the size spectrum according to their objectives, an institutional fund manager will invariably have different criteria.

When buying in the market, fund managers require that the company has enough shares outstanding (and fully diluted) to allow them to gain entry without necessarily affecting the share price and without acquiring a significant portion of the company, as most want to be investors and not managers. Funds also like to see sufficient liquidity in a stock (volume of shares trading on a daily basis), to allow them to exit without moving the market when they deem the time is right, as they do not wish their actions to have a detrimental impact on the price they receive when selling.

Performance of Silver Mining Equities



Source: Bloomberg

Investment Opportunities

Having established an investment case for silver stocks, investors may face a challenge in identifying a suitable mining company investment with a primary exposure to the silver price.

Primary silver deposits, i.e. those for which silver accounts for over half their revenues when mined, are quite rare. Most of the world's silver occurs alongside base metals or gold, and their value usually outweighs that of silver. In 2018, 74% of the world's silver production originated as the by-product of mining gold or base metals. For these companies, revenues from silver are often offset against the costs for the mine's primary (or source) product. For 2018, output of silver from these mines was largely stable while production from primary silver mines fell by some 7%.

Given that only 26% of annual world silver production is derived from primary silver producers, it is of little surprise to learn that the market features a modest number of primary silver companies. Even for these companies, while silver might represent the most significant revenue generator, the polymetallic nature of the orebodies means that by-product revenue can be a significant proportion, with the ratio of silver to by-product production often changing over time, as the mine matures.

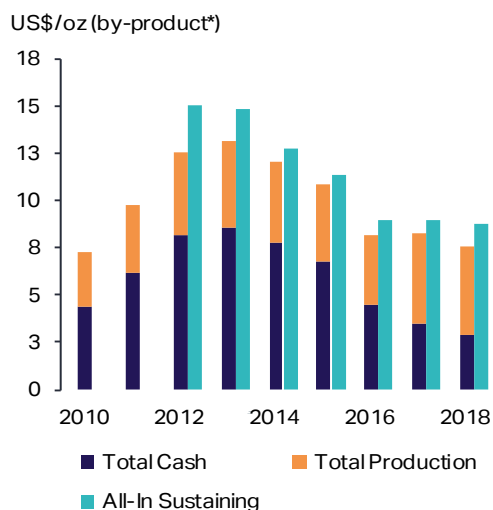
With by-product revenue forming such a large percentage of total revenue, this can distort silver-based production cost metrics, with by-product revenue used to offset cost of production, making direct mine-to-mine comparisons difficult. A better gauge of costs and the overall robustness of a company is the cash operating margins, which are directly comparable.

In recent years, one very large gold and silver mining company has emerged, Fresnillo plc, which listed on the London Stock Exchange in May 2008 as a spin-off from Industrias Peñoles' other Mexican silver assets. Fresnillo was the world's largest silver producer in 2018, with output of 58.1Moz or 1,800t (6.8% of global output) and is now, after the recent delisting of Randgold Resources, the only pure precious metal producer in the prestigious FTSE 100 index. Over the past five years, the stock has experienced a roller coaster ride, peaking at £19.82/share in August 2016, but recently (as of early August 2019) trading at nearly a 10-year low of just under £6.00. The company has recently come under heavy selling pressure due to labor issues at its mines in Mexico.

Otherwise, would-be silver investors wanting the relative peace of mind of investing in large cap mining companies might consider exchange traded products (ETPs) which invest in a broad spread of top tier silver-focused miners. The largest of these ETPs is the Global X Silver Miners ETF. The size of this fund is currently \$422m, which is relatively small compared to the largest gold mining ETF, the VanEck Vectors Gold Miners ETF, which is about \$10.9bn.

The Global X Silver Miners ETF contains 24 silver producers and its largest holding is Polymetal International. However, even some of these companies

Global Silver Production Costs*



*Costs shown on a by-product accounting basis

Source: Metals Focus Silver Mine Cost Service

in this ETF cannot be strictly classed as primary silver producers because they produce significant quantities of gold or base metals, as is the case with Polymetal.

If a "purer" primary silver miner is sought, investors may choose to look to the smaller producers, in some cases with lower market capitalization. Many of these companies are relatively new entrants to this market, but can often offer increased growth opportunities.

These companies, many with a geographic focus in Mexico, the world's largest silver producing country in 2018, include Endeavour Silver, First Majestic Silver Corp., Fortuna Silver Mines, Great Panther Silver, Silvercorp and Silver Standard Resources.

The largest silver producer among the international diversified miners in 2018 was Glencore, with output of 34.9Moz, or 1,080t (4.1% of global output). That said, revenue from silver is a relatively insignificant contributor to Glencore's income statement, accounting for less than 2% of revenue. Other large silver producers include KGHM Polska Miedź, Polymetal International, Goldcorp (now Newmont Mining), BHP Billiton, South 32 and Hindustan Zinc. Like Glencore, these companies are in principal less clear-cut choices for investors seeking to maximize their exposure to silver, as silver is essentially a by-product for these companies.

Finally, aside from conventional mining stocks, there are streaming companies, such as Wheaton Precious Metals, which has a market capitalization of \$11bn. This company derives about half its income from silver, yet is not a mine operator, acting rather as a financier for mining companies. Income is generated through the purchase of silver and other precious metals from miners at a relatively low fixed price via long term contracts, which is agreed along with an upfront cash payment. Shareholders can then benefit from exposure to silver's price upside yet remain shielded from any cost pressures as these streaming companies carry zero exposure to mining cost inflation.

In terms of the ability to assess the performance of silver mining companies, this is far from straightforward. The most commonly used financial rating used by market analysts is the EV/EBITDA ratio, with lower numbers presenting better value). The world's largest silver producer Fresnillo trades on a ratio of 5.2 and a smaller peer Hochschild on a ratio of 5.1; compared to Barrick Gold and Newmont Mining on ratios of 12.4 and 12.8 respectively. All these companies have similar gross percentage margins. This discrepancy in ratings can perhaps best be explained by the silver producers' shorter mine-life and more complicated, multi-commodity investment case, but nonetheless this may be a frustration for primary silver producers.

There are only a handful of silver equities that pay a dividend – Fresnillo and Wheaton Precious Metals account for the bulk of these dividends paid. Fresnillo's dividend yield is currently 2.5% and Wheaton Precious Metals is 1.8%, which compares to 1.2% for Barrick Gold. Generally, investors are

less interested in the yield of precious metal stocks and more focused in the gearing of earnings to metal price movements.

With reference to volatility, the silver price exhibited low volatility in 2018, which can make the timing of investment decisions crucial. The range from low to high compared with the annual average price was 23%. By comparison, the largest silver mining ETF, the Global X Silver Miners ETF traded over a range of 40%. Since the beginning of this year to end-July, the silver price has strengthened by 6%. Over the same period, the silver mining ETF has risen 8%. As a rule, smaller markets tend to exhibit higher volatility.

When determining which silver stocks they wish to invest in, investors will often rely on recommendations from professional (sell-side) mining analysts. These analysts utilize a full spectrum of technical inputs (for example, reserves and resources, ore grades, mining methods, and rates, and processing parameters), plus metal price forecasts, to devise a financial model of a company's mining projects.

Conclusions

For investors wishing to invest in primary silver producers there is a relatively small number of potential targets, certainly compared with the gold space. The suite of mining companies that investors can choose from ranges from the more established, major producers to higher risk development companies. Many may conclude that the easier, lower cost option is to invest in the range of silver mining ETFs which offer a wide exposure to silver mining companies with the additional security of good liquidity.

Typically, it will be, in part, the investor's individual risk appetite that governs their investment decisions, with the juniors, which usually display a much higher volatility in their share price movements, representing the more speculative plays in the sector.

Chapter 4

- Trading on Comex has fallen this year, but this is against 2018's record high volume; activity remains historically high.
- Futures activity has recovered on China's two exchanges where silver is traded, helped by improved local silver price expectations.
- We expect to see investor participation on commodity exchanges rise, due to firming investor sentiment and, at the margin, the ongoing shift away from OTC markets.

Commodity Exchanges

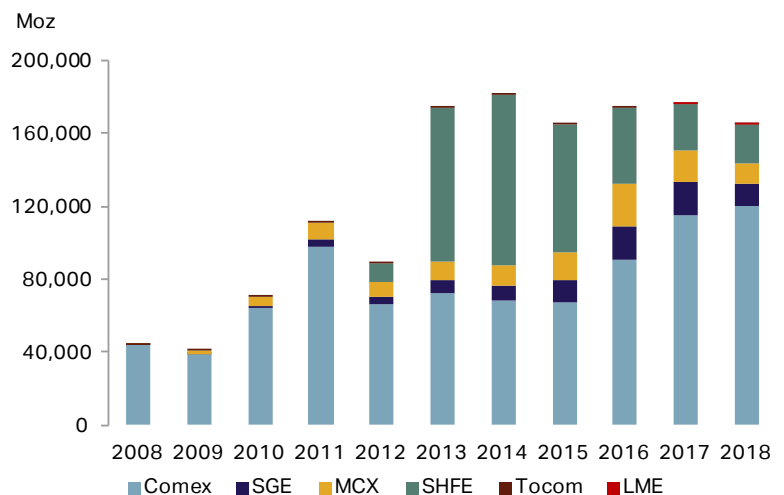
Introduction

Commodity exchanges are platforms where standardized commodity derivatives are traded. Among these, futures are contracts to buy or sell a specific quantity of the commodity in question, in a set form and at a specified time and location. Options give the right, rather than obligation, to buy or sell the commodity at a specified price. A key advantage of trading via commodity exchanges is the ability to enter a position by putting up a cash margin, rather than committing the full amount, thus allowing for leveraged investments. Transactions are typically centrally cleared, which eliminates counterparty risk. The relatively high entry level for trading on the key Western commodity exchanges means they tend to be used by institutions and high-net-worth individual investors rather than smaller retail players.

The largest and most liquid market in silver futures is the CME Group's Comex exchange in New York (founded in 1933). Market participants on the Comex include mining companies, refineries, banks and hedge funds (including Commodity Trading Advisors or CTAs). One key point worth stressing regarding the Comex, as well as for other exchanges, is that speculative activity accounts for a significant share of total turnover.

The early part of this decade also witnessed a sharp rise in silver derivatives trading in emerging markets, notably China and India. For a brief period of time, over 2013-15, trading activity on the Shanghai Futures Exchange actually overtook Comex. To a large extent, this reflected a general increase in interest in precious metals among the general public during the previous bull market. The relatively limited range of investable assets for retail investors, compared to those available in western markets, has also made the trading of precious metals attractive.

Annual Trading Volumes on Major Exchanges



Source: Bloomberg, respective exchanges

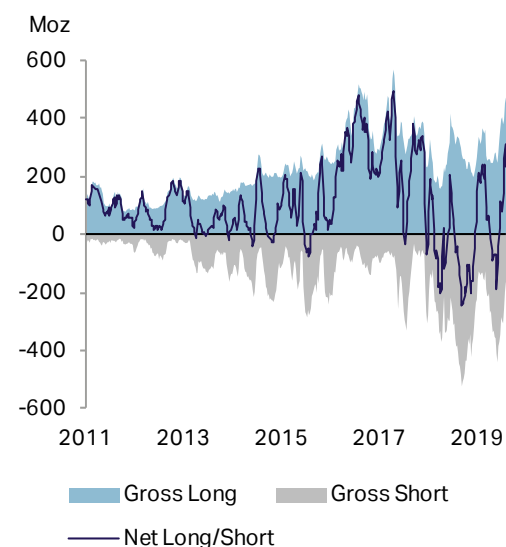
Silver Turnover on Major Commodity Exchanges

Moz	2018		Y/Y
	Jan-Jul	Jan-Jul	
Comex	72,907	64,316	-12%
SHFE*	12,345	17,784	44%
SGE T+D*	7,330	9,010	23%
MCX	2,167	2,623	21%
LME	493	256	-48%
Tocom	4	3	-21%
SGE Spot*	1	1	-3%

1. Both the SGE and SHFE record each transaction twice, from the point of view of the buyer and also the seller. However, to compare these volumes with other exchanges, such as the Comex, the figures in the table have been halved (as shown above).

Source: Bloomberg, respective exchanges

Investor Positions* in Silver Futures on Comex



*Managed money positions; Source: CFTC

2019-to-date has seen mixed performances among key exchanges. Volumes on Comex dropped from the all-time high seen in 2018, although the exchange comfortably retained its leading position as the largest platform for silver futures trading. In China, both exchanges have recorded a healthy recovery after a heavy reduction in investor activity in 2018.

Comex

The Comex division of the CME Group, which first began trading a 5,000oz silver futures contract in June 1963, is the world's foremost exchange for silver derivatives trading, with the highest level of activity in terms of turnover and open interest. Smaller sized futures contracts, namely E-mini (2,500oz) and Emicro (1,000oz), gold/silver ratio as well as 5,000oz options, are also available.

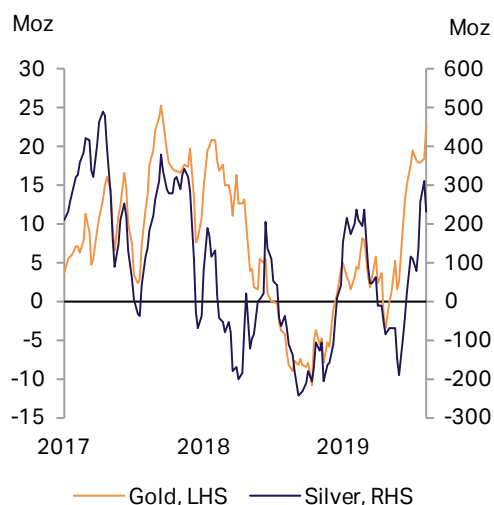
Turnover on Comex posted a general rise this decade, with average daily volume hitting an all-time high of 475.9Moz (14,800t) in 2018. A number of factors contributed to this rise. These include the ongoing shift of trading from the OTC market to Comex among institutional players following the 2008 financial crisis. Trading on an exchange offers advantages of increased transparency, both in terms of price discovery and regulatory oversight. This, along with central clearing minimizes counterparty risk. The rise of algorithmic trading too has boosted commodity trading. Meanwhile, anecdotal information also points to a growing participation on Comex by institutional and high-net-worth investors from developing countries.

During 2019-to-date, average daily turnover for the 5,000oz futures contract stands at 400.5Moz (12,457t) on Comex, down by 12% y/y. That said, it is worth noting that this decline came from a record level in 2018, with the 2019 daily figure still the third highest on record.

Weekly reports issued by the CFTC, on the breakdown of open interest in silver futures, provide a useful insight into commercial, swap and speculative investor activity. Managed money positions are used as a guide to the level of investors' positions. However, this can only ever be a rough proxy, as there may often also be a degree of investment activity included in commercial and swap positions. During 2019-to-date, gross investor longs, as a percentage of total open interest, amounted to 31%, while the share for gross investor shorts stood at 24%.

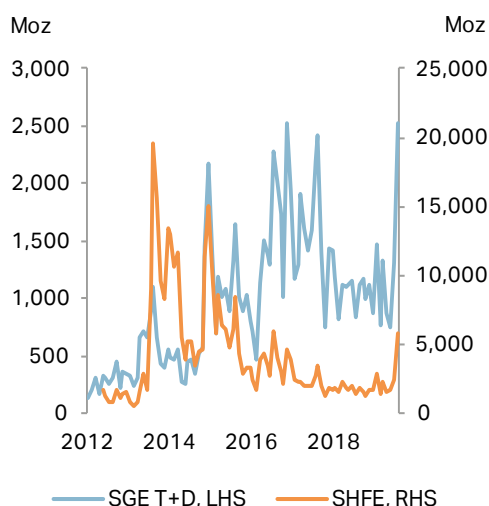
Looking at intra-year developments for investor positions, after spending much of 2018 in net short territory, investors returned to net longs in the final weeks of that year. Early 2019 saw this recovery in net longs continue before they rose to 238.8Moz (7,428t), a level last visited in November 2017. This recovery owed much to improving sentiment towards precious metals, gold in particular, itself a result of fading expectations of US rate hikes. While the initial improvement in net longs was largely driven by short covering, some fresh long positions were also added.

Investor Net Positions* in Gold & Silver on Comex



*Managed money positions; Source: CFTC

SGE & SHFE Silver: Monthly Turnover



Silver futures contracts launched on SHFE in May 2012.
Source: Shanghai Gold Exchange, Shanghai Futures Exchange

This recovery, however, soon lost momentum in late February, after the improved risk-on tone and ongoing strength in US equities reduced the appeal of precious metals. While both gold and silver suffered liquidations over March-May, the scale of the sell-off was more pronounced for the latter, owing much to the white metal's somewhat lackluster fundamentals. This was highlighted by a return to net shorts on Comex for silver by April, with these net shorts rising to 190.0Moz (5,911t) by late May. (By contrast, the dip into net short territory only lasted for two weeks for gold).

Thereafter, investor interest in silver received a fresh boost from rising prospects of a fresh cycle of monetary easing by some of the major central banks and a further escalation of US-China trade dispute. Moreover, as key price thresholds were broken, some investors became more comfortable trading the metal from the long short side. By late June, investor positions switched back to net longs, and these longs then rose to a fresh 2019-to-date high of 312.8Moz (9,729t) by end-July (the highest level since late 2017).

China

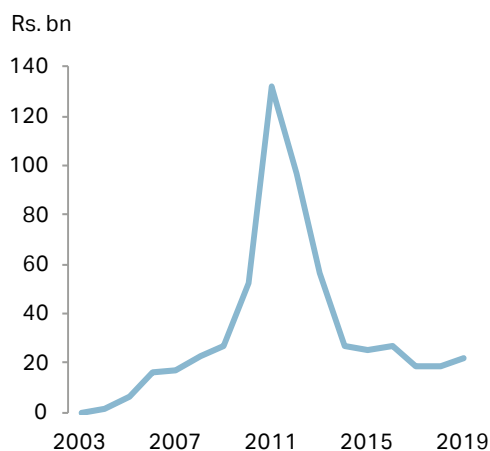
In China, silver trading is available on the **Shanghai Gold Exchange (SGE)** and the **Shanghai Futures Exchange (SHFE)**. However, in contrast to gold which is VAT-exempt on both exchanges, all silver transactions are subject to 13% VAT (16% prior to April 1st 2019), including those on commodity exchanges. This provides little incentive for end-users to source physical silver on exchanges, which explains the subdued level of spot silver trading on the SGE. In other words, silver trading on both exchanges has been dominated by those who favor more leveraged investment products, such as deferred (on the SGE) or futures (on the SHFE) contracts.

The first leveraged silver contract in China was launched by the SGE in October 2006, namely Ag(T+D) deferred contracts, with a standard trading unit of 1kg. Trading activities on the SGE remained subdued until mid-2010 when the remarkable silver rally fueled investor interest. Given silver's close correlation to gold yet greater volatility, the white metal is often regarded as a more leveraged alternative to gold, especially for small ticket investors.

The SHFE launched a silver contract in May 2012, with a standard trading unit of 15kg. The introduction of a night trading session in July 2013 led to a surge in arbitrage activities between the SHFE and western markets. As a result, the SHFE witnessed an exponential rise in trading volumes in 2013, which saw it overtake Comex to become the world's largest exchange for silver futures trading. This growth then continued into 2014, as silver's innately high volatility attracted speculative inflows.

The performances of the two exchanges then diverged over 2015-17. While annual turnover of Ag(T+D) recorded successive all-time highs over the period, volumes on the SHFE in 2017 were down by 72% from the 2014 peak. That said, the SHFE retained its leading position within the country (the second largest in the world) in terms of silver trading due to the extensive future investors base in China, lower trading fees, and easier trading policies compared to the SGE (such as there being no concerns of deferred costs).

Average Silver Daily Turnover on MCX



Source: MCX

A number of other factors also explain this divergence on the two exchanges. In part, this was driven by a growing number of financial institutions that started to offer SGE brokerage services, recommending silver to their clients. Second, small retail investors tend to prefer the T+D contract to the SHFE contract, due to the former's smaller contract size and hence lower entry point. Meanwhile, end-users decided to shift hedging activities from the SHFE to the SGE, as for most of the period, short holders of the T+D contract enjoyed cost advantages due to the deferred fees they received.

Last year, however, both exchanges witnessed significantly weaker investor interest, largely owing to silver's disappointing price performance. In order to stimulate trading, the SGE announced a cut in transaction fees for the T+D contract from 0.02% to 0.0175% from the start of 2019. As the new rate is still higher than the 0.005% set by the SHFE, the impact of this policy so far seems limited. More recently, the SGE also extended its day-time trading hours (adding 11:30am-13:30pm) from June 10th onwards, although this is unlikely to provide a strong boost to trading activities in the short-term, as market liquidity tends to be low during the newly added trading periods.

On a more positive note, July 2019 saw a turnaround in investor sentiment towards silver, with trading volumes jumping four times and three times y/y on the SHFE and SGE respectively. In essence, this reflects rising demand for safe haven assets. As the silver price broke out to the upside, this also provided another strong boost to investor confidence. Looking ahead, with the silver price expected to continue strengthening, a further recovery in trading volumes on both exchanges is likely.

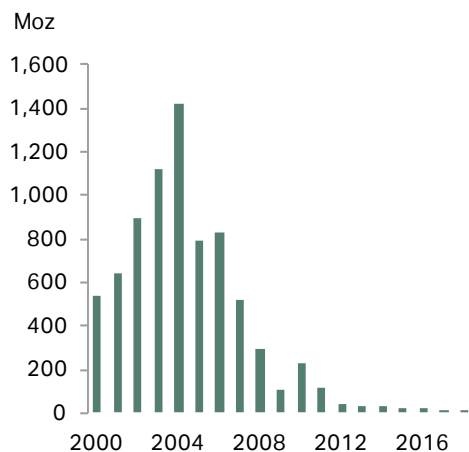
India

India has a well organized financial structure for commodity derivatives trading. Annual turnover of commodity derivatives trading on all official exchanges amounted to around Rs.73 trillion (US\$1.0 trillion) in the financial year 2018/19, of which 8% was accounted for by silver.

The first silver futures contract was launched in 2003 on the **Multi Commodity Exchange (MCX)**, which remains the most active contract for silver trading in India. Since its inception, volumes grew rapidly, with turnover peaking at ~23,570Moz (~733,100t) in 2011. Thereafter, however, turnover on the MCX suffered a sustained decline, falling to a low of ~3,780Moz (117,570t) in 2017.

To some extent, the fall can be attributed to a largely range-bound silver price, but was also exacerbated by silver's heightened volatility during 2011, when many investors suffered heavy losses. It is interesting to note that while investor interest in silver futures was notably weaker, physical investment in fact posted sizable gains over the period. This partly reflects the fact that investors in futures tend to be short-term players. Range-bound prices and a lack of volatility therefore dampened their appetite. By contrast, as we discuss in Chapter 7 (Physical Investment), a fair portion of investors in physical silver tend to adopt a buy and hold strategy. This helps

Annual Silver Turnover on Tocom



Source: Tocom

explain several bouts of heavy bargain hunting from such players on major price dips in recent years. Demand for physical silver also benefited from an attractive arbitrage opportunity between the spot and futures market. In buying physical and selling futures, this allowed investors to earn returns ranging from 8-15%.

Leaving aside silver specific factors, volumes also took another hit in 2013 following two significant events that year; the introduction of the Commodity Transaction Tax (CTT) and the National Spot Exchange Ltd (NSEL) incident. Taking each in turn, the Indian government imposed a CTT of 0.01% on trading of non-agricultural commodities on the futures exchanges in July 2013. This raised the cost of trading, particularly for high frequency transactions. In the same year, investors trading on the NSEL suffered as the exchange defaulted on payments of Rs.55bn (a little less than US\$1bn at the time). This undermined investor confidence towards trading commodity derivatives in India, which led to a collapse in volumes on exchanges across the board, including silver.

Exchange activity has improved over the last couple of years. From the lows in 2017, volumes have grown to an average daily turnover of Rs.21.7bn in 2019-to-date. Overall, if price volatility continues to rise and the domestic price breaches Rs.45,000/kg, we expect more investors and traders to return to the market on the back of positive price expectations. Finally, the introduction of options contracts in 2018 and the entry of two new exchanges may well also attract fresh investment inflows.

Other Exchanges

The **London Metal Exchange (LME)** launched its first ever silver futures contract in July 2017 in an attempt to draw investors from OTC trading that still dominates the London silver market. Average daily turnover of LME silver futures totaled 265.5Moz (8,258t) over January-July 2019, down by 48% y/y.

Historically, the **Tokyo Commodity Exchange (Tocom)** was another major commodity exchange to offer silver trading. However, after reaching a peak in 2004, interest in silver trading suffered a dramatic decline and now stands at a fraction of its all-time highs. Key to this sizable fall was a change in regulations in the early 2000s, which has since resulted in a significant reduction in investor appetite in commodity trading across the board on the Tocom (this included restricting the way that brokers were able to market Tocom products to investors).

The **Dubai Gold & Commodities Exchange (DGCX)** started trading in November 2005 as the region's first commodity derivatives exchange and has become the leading derivatives exchange in the Middle East. At present, both spot and futures contracts are traded on the DGCX.

Chapter 5

- Institutional investment in OTC markets has so far been relatively subdued in 2019, carrying on the trend seen in recent years.
- In large part, this reflects scepticism towards silver, but also, at the margin, investor preferences for more “transparent” investment vehicles, such as commodity exchanges and ETPs.

Over-the-Counter Markets

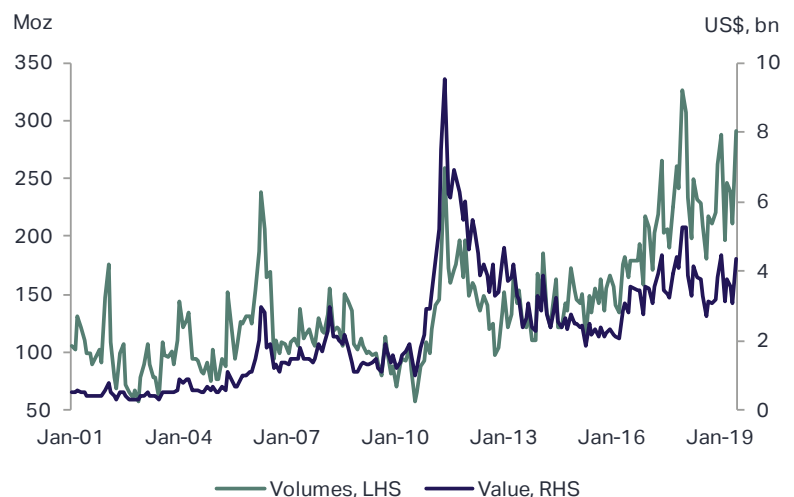
Introduction

The Over-The-Counter (OTC) silver market, for which London is the global hub, is an important arena for silver investment. OTC silver investment is by definition “off-exchange” and conducted between two parties, namely the investor or its representative and the dealer/broker on the other side of the transaction. Such OTC activity can take place in the spot and forward silver markets, in derivatives and in allocated or unallocated metal accounts.

Trading on the OTC market is less transparent than on futures exchanges and provides for greater flexibility in terms of contract specifications. For larger trades, it may also be more efficient and less costly than dealing through exchanges or purchasing and holding metal on an exchange-trade product (ETP) basis. This does mean, though, that OTC investment is the preserve of the professional investor, be that institutional investors or family offices/private wealth management catering to very high-net-worth clients.

Investment in the OTC market has at times been a major factor influencing silver prices. This can be seen from a detailed analysis of the annual supply/demand data, especially its residual investment components, although such figures do need to be interpreted with caution (due to the potential inclusion of changes in other non-investor related market stocks or positions that can also be quite sizable). Notwithstanding such caveats, it is clear from both the available data and anecdotal evidence, that during 2010-13 investors’ OTC purchases contributed to silver’s remarkable bull run to nearly \$50/oz and their sales to its subsequent slide to below \$20. In particular, there was substantial buying in 2011 and then selling in 2012 via the OTC market.

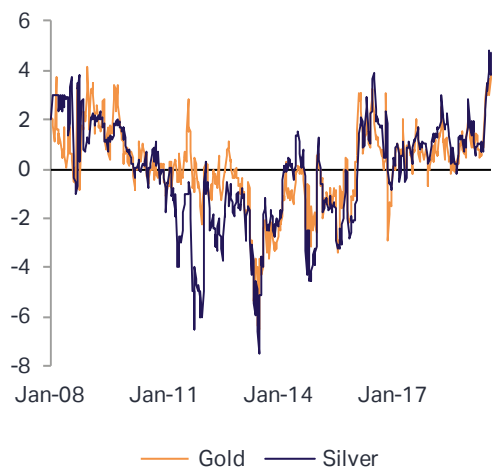
London Bullion Market Clearing - Average Daily Transfers



Source: London Bullion Market Association

Gold & Silver 25-Delta 1-Month Risk Reversals

Difference in Implied Volatility (%)



Source: Bloomberg

Silver Implied 3-Month Volatility



Source: Bloomberg

And, while investor activity in this arena has generally been very subdued since then, our supply/demand data implies that in 2016 and 2017 there were substantial investor-driven flows in the OTC market, consisting in these two years of net sales and net purchases, respectively. In contrast, 2018 saw far lower overall net investor flows via the OTC market, a theme that has persisted over the first half of 2019.

Investors have lately deserted the OTC silver market for much the same reasons that have more generally resulted in waning institutional investor interest in the white precious metal. First, the price trend in silver has been (until quite recently) disappointing. This is especially so when measured against gold, with the ratio between the two metals rising to well above the 80-mark and, furthermore, silver only responding modestly to periodic rallies in gold prices.

Second, many investors have increasingly viewed silver as an “industrial metal” and have therefore marked down its prospects as the outlook for the global economy has waned, particularly against the backdrop of escalating trade wars.

Third, as investors have treated silver more like a commodity, as opposed to a financial asset, its supply/demand fundamentals have come under greater scrutiny. A series of market surpluses, coupled with identifiable stocks that exceed 1.5 billion ounces (~47,000t), have been regarded as a handicap in terms of its price outlook.

Fourth, and especially for speculative investors, the collapse in silver price volatility has severely reduced the opportunity to generate trading profits. Fifth, its low volatility and the perception that price gains will be more limited in future has resulted in many professional investors, particularly hedge funds and CTAs, focusing on other markets.

Sixth, family offices and private wealth managers, with a few salient exceptions, have for many years not seen silver in the same light as gold as a safe haven investment. Finally, some OTC investment activity has migrated to Comex as liquidity on that exchange has improved outside New York trading hours, for compliance and counterparty risk reasons.

Chapter 6

- ETP holdings have risen to new peaks in 2019 in weight terms (of 737Moz / 22,920t).
- Strengthening investor sentiment towards silver (and gold) is expected to see additional inflows into ETPs, resulting in new records.

Exchange Traded Products

Introduction

Silver exchange traded products (ETPs) are securities listed on stock exchanges that provide exposure to silver prices through holding physical, futures or OTC positions. They are often also referred to as silver exchange traded funds (ETFs). It should be noted, however, that strictly speaking ETPs are not ETFs, as they normally fail to meet ETFs' diversification requirements.

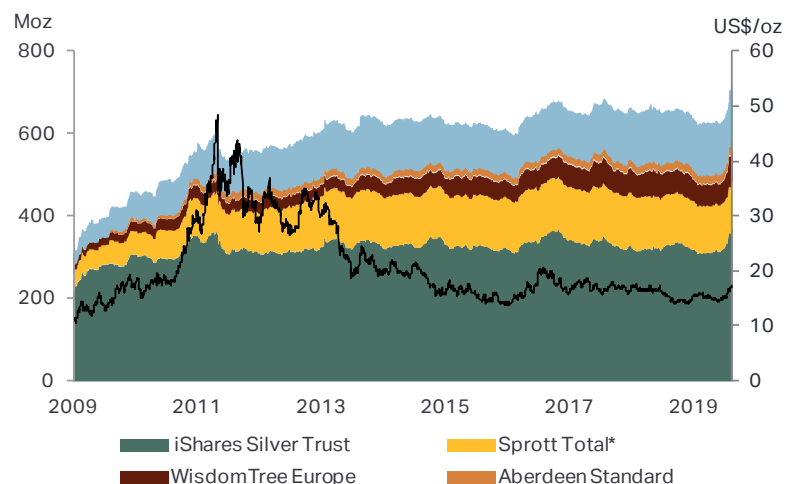
Of all ETPs, those backed by physical silver are by far the most popular and liquid. Physically backed ETPs are normally backed by allocated positions stored in a recognized vault. These are segregated from other holdings and so cannot be leased out. Storage and administrative costs are passed on to investors through fees which vary across products. Finally, ETP owners can often request physical delivery, subject to certain restrictions.

Key advantages of ETPs include security, transparency, liquidity and ease of access. In addition, ETPs enable institutional investors whose mandate precludes them from directly holding futures or physical commodities to gain exposure to precious metals. Finally, as ETP shares are normally equivalent to a fraction of one ounce, they also offer a cost effective, low entry threshold avenue to silver for retail investors.

Historical Performance

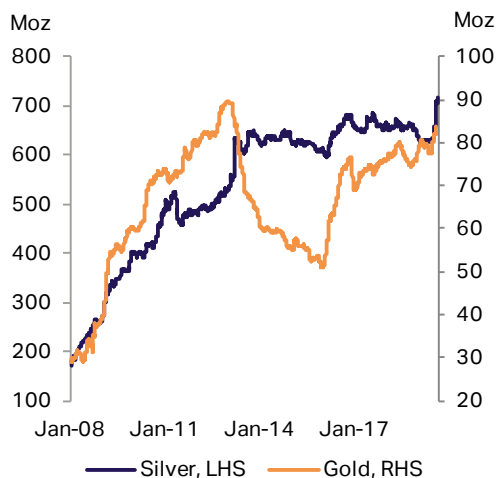
Following the launch of the first silver ETP in 2006, demand for silver ETPs enjoyed healthy growth on the back of the previous bull market in silver. Although silver's run-up to \$50/oz led to some profit taking in 2011, the scale of investor redemptions was restrained and short-lived.

Global Silver ETP & Other Physically Backed Product Holdings



Source: Bloomberg

Silver & Gold ETP Holdings



Source: Bloomberg, World Gold Council

More importantly, despite a major fall in silver prices from 2011, ETP holdings continued to rise over 2012-13 before this growth stalled. This left global holdings largely fluctuating between 600Moz and 680Moz (~18,700t to ~21,100t) over much of 2014-18. A comparison between gold and silver ETP holdings makes the latter's performance even more impressive. As illustrated in the chart, while gold ETPs suffered heavy outflows during 2013-15, silver holdings remained broadly stable.

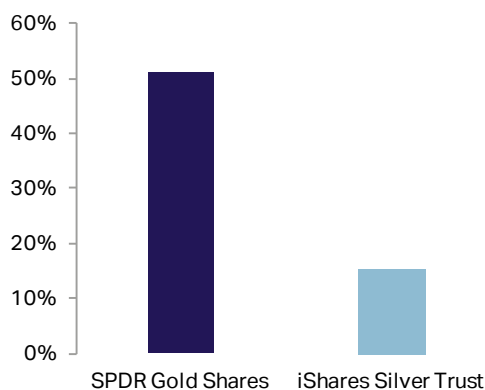
2019-to-date Developments

2019-to-date has seen inflows into silver ETPs pick up. Total holdings surpassed the previous peak of 686.6Moz (21,356t; on 18th July 2017) during July and have since reached successive all-time highs. As we write, the global total stands at 736.9Moz (22,920t), up by 16% or 99.0Moz (3,080t) from end-2018.

The vast majority of these year-to-date gains occurred over June-August. Prior to June, small-scale liquidations were in fact the norm. This turnaround in investor sentiment since June can be attributed to dovish messages from key central banks and growing concerns about the global economy, which boosted demand for precious metals. While gold clearly benefited more from investors' flight to quality, silver's appeal as a more affordable alternative to the yellow metal also made it attractive to investors. This has also seen silver manage to escape from the wider sell-off in industrial metals in early August, when an escalating US-China trade war encouraged fears about a global economic slowdown.

Moreover, these inflows were assisted by bargain hunting. This followed a sharp rise in the gold:silver ratio to above 90:1, a level last seen in 1993. While futures activity was also instrumental, recent ETP inflows following the ratio spike contributed to the reversal of the ratio trend and its recent return to levels below 90:1.

Percentage of Outstanding Shares Held by Institutions with Reporting Requirements*



*end-June 2019

Source: Bloomberg

Key Holders

Silver ETPs' resilient holdings and the disparity in gold and silver's performances can be explained by the different composition of investor interest within them. Specifically, professional investors account for a large portion of gold ETP holdings, but only a modest share of silver. This leaves retail investors accounting for a far larger portion of silver ETP positions, something that in turn makes them stickier.

As can be seen in the chart, at end-June 2019, institutional holdings with reporting requirements accounted for around 51% of SPDR Gold Share's outstanding shares, which is the world's biggest gold ETP and accounts for 31% of global ETP holdings. This compares to 15% for the iShare Silver Trust, the biggest silver ETP with a market share of 50%. It is worth noting that retail investors often see falling prices as an opportunity to buy metal. Meanwhile, profit taking from such players at higher prices can be restrained and the process is likely to be gradual. These factors help to explain the

Silver ETP Holdings by Value



Source: Bloomberg

resilience of silver ETP holdings during 2013-15. This also means that they have not benefited as much from the improving sentiment towards precious metals among institutional investors over 2016-18.

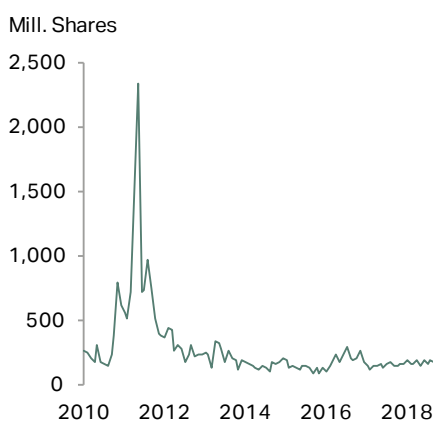
Regional Performances

The silver ETP universe is dominated by products listed on US exchanges. By far the biggest among these is the iShares Silver Trust, which alone accounts for more than 50% of global silver ETP holdings. When other US and Canadian listed funds are added, combined holdings have consistently exceeded two-thirds of the global total over the past decade.

Leaving aside North America, the bulk of the balance of global silver ETP holdings are held by products issued by Zurcher Kantonalbank (ZKB) and WisdomTree. ZKB's ETPs are listed in Switzerland, while those of WisdomTree, previously managed by ETF Securities, are listed across a number of European exchanges. Together, these two issuers' products account for over 20% of global holdings.

The first silver ETF in China was launched in August 2015 through a collaboration of the State Development and Investment Corporation and United Bank of Switzerland. The fund aims to track the silver futures contracts on the SHFE, before deducting relevant expenses and transaction fees. Looking at the investor portfolio, according to their latest half year report, retail investors accounted for around 97% at end-2018.

iShare Silver Trust Monthly Turnover



Source: Bloomberg

Outlook

Although silver ETP holdings have hit all-time highs in volume terms, we believe further inflows are likely for several reasons. First, as highlighted above, the high involvement of retail players in silver ETPs means that these holdings tend to be resilient, with net liquidations seen infrequently, and then often for short periods of time. Second, in value terms, at roughly \$12bn in mid-August, combined ETP holdings were less than half the historical peak of \$25bn seen in 2011. Finally, the above ownership analysis, of the leading products in both North America and Europe, suggest that investor involvement in them has been lower than was previously the case; as shown in the chart opposite, turnover on the US-listed iShares Silver Trust saw a major decline after peaking in 2011. This all leaves considerable room for further investment inflows from both institutional and retail investors.

Going forward, loose US monetary policy and the impact of trade wars on the global economy will continue to raise gold's appeal to investors, which will spill over into silver. With US equities near record levels, the argument for a modest diversification into gold and silver remains relevant. Elsewhere, defensive assets will also benefit from lackluster growth across much of the Eurozone and other tail risks. Against this backdrop, we expect net inflows into silver ETPs are likely to continue over the rest of this year.

Chapter 7

- Silver physical investment, covering retail coin and bar purchases, is one of the most volatile components of global silver demand.
- Dominated by the US and India, it achieved a record high in 2015 of 310.1Moz (9,644t) before falling sharply.
- Looking ahead, rising silver prices should attract retail investors, although there may be some offset as profit taking emerges.

Physical Investment: Coin and Bar Demand

Introduction

This chapter addresses end-user demand for silver bars and coins and so focuses on the key markets where these products are purchased by retail investors. This treatment can therefore differ from looking at the main silver coin and bar fabricators. This explains why, for example, there is no mention in this Chapter of Canada, one of the world's largest fabricators of silver bullion coins, but itself is a relatively small physical investment market.

A cursory glance at the trend for physical silver investment this decade reveals how volatile this area of silver demand is. In 2010, global coin and bar demand stood at 197.0Moz (6,128t), before surging to a record high of 310.1Moz (9,644t) in 2015. It then halved in the space of just two years to a decade low of 155.6Moz (4,839t) in 2017, before partially recovering this year to a forecast total of 176.6Moz (5,493t). The dramatic growth and subsequent retreat reveal the extent to which physical investment can vary in a short space of time, making this the most volatile component of global silver demand. (Physical investment has registered double-digit year-on-year changes in six out of the past nine years, including 2019.)

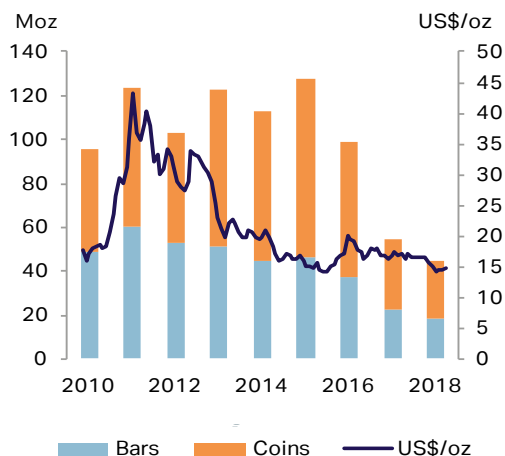
Such marked variations, however, do not diminish its importance to the supply/demand balance. This year, physical investment is expected to account for 19% of global silver demand. Although this looks modest against the 29% share it achieved in 2015, we expect physical investment's contribution to total demand to edge higher in the coming years (even though overall global silver demand is also forecast to grow).

From a country standpoint, the market is dominated by India, the US and Germany, with a combined market share in 2018 of 80%. No other country crosses even a 5% threshold. This contrasts starkly with physical investment in gold, where 80% of demand is accounted for by a total of nine countries, with the top three (China, India and Iran) being responsible for 49% of demand. Interestingly, the US was also a large retail gold market, but between 2016-18 the market collapsed by almost 70% (ranking in 10th place in 2018). With regard to China, the world's largest gold bar and coin market, there is an active retail market in silver but this almost entirely focused on futures trading, with silver physical coin and bar demand having fallen to negligible levels. Later on in this piece, we will examine the Chinese market to try and understand why silver and gold have experienced such contrasting fortunes.

US

The US has traditionally been the world's largest silver physical investment market, a position which in 2018 it ceded to India. This was a remarkable change for the US, which only two years before had eclipsed Indian demand (the second largest in 2016) by a massive 64.0Moz (~2,000t). In sharp

US Silver Physical Investment



Source: Metals Focus, Bloomberg

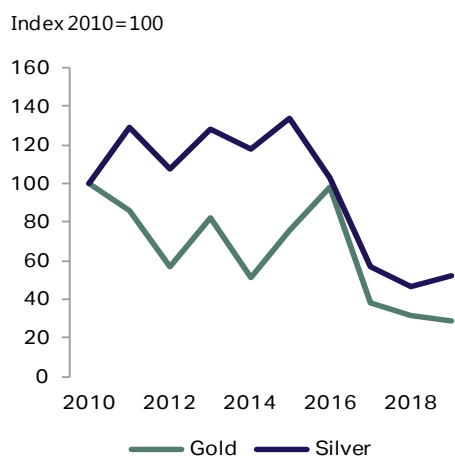
contrast, last year Indian physical investment surpassed the US by around 10Moz (~300t). Although this was partly due to an improved Indian market (which achieved a three-year high), it was more a reflection of pronounced weakness in the US.

Before looking at the recent downturn in the US, it is worth remembering the highs. During 2010-16, the US accounted for at least 40% of global physical investment. In 2015, although it achieved a record high of 124.3Moz (3,867t), there were two other occasions when US demand exceeded 120Moz (in 2011 and 2013). Key to the earlier strength and subsequent weakness in US coin and bar demand was the performance of the silver price and the degree of price volatility it displayed.

In particular, from mid-2011 onwards, as prices weakened and volatility rose, there was a pronounced impact on silver bar and coin demand. Although few investors expected to see a return to the dramatic price highs of 2011-12 (when silver initially broke through \$50 and then subsequently made several attempts at \$45), sharply weaker prices led to frequent bouts of retail bargain hunting. (It was quite common for product shortages to emerge, especially of the US Mint's silver Eagle bullion coin.)

Fast forward to 2017, the downturn in coin and bar purchases reflected the impact of the price trend as silver traded in an increasingly tight range. The perception that the silver price was unexciting (this also applied to gold), was compounded by the dramatic gains by US equities.

US Gold & Silver Physical Investment



Source: Metals Focus

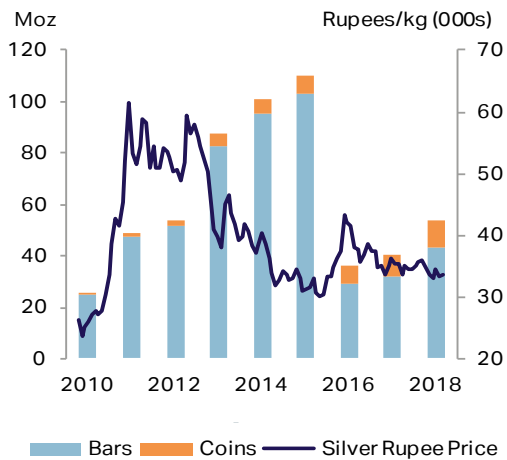
Over the past 12 months, however, there have been tentative signs of an improvement in the US. In particular, the third quarter of last year saw retail purchases surge as the silver price weakened. The upturn caught many dealers by surprise resulting in product shortages and extended delivery times, which carried over into early 2019. (This was one reason why January Eagle sales were so strong.) Since then, however, as the silver price has strengthened interest in the US market has fallen back and at times quite significantly.

Looking head, this presents a challenge for US demand on two counts. First, periods of increased retail purchases have most frequently occurred when the silver price has fallen to a level that has been viewed as offering good value; there has been little sign of buying in a rising market. This may help explain why investors have been discouraged from buying at around the \$17 level (the spot price at the time of writing). That said, investor expectations can quickly adjust. In other words, if the price strengthens and is accompanied by increased volatility, the resultant price dips should generate considerable buying opportunities.

India

Silver, along with gold, have traditionally been a preferred investment asset for a large section of the Indian population. Given a low penetration of banking and other financial products, individuals (especially in rural areas)

Indian Silver Physical Investment



Source: Metals Focus, MCX

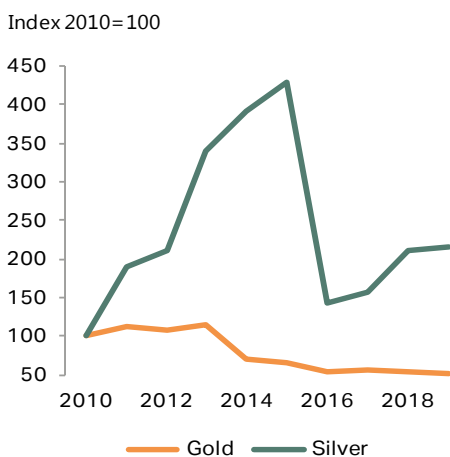
preferred to direct a portion of their savings towards silver. Not surprisingly, silver's physical investment demand has trended higher over the years. During this decade, Indian silver bar and coin demand increased from 25.7Moz (800t) in 2010 to a noteworthy 54.0Moz (1,680t) in 2018. During this time, investors accumulated in excess of 547Moz (17,000t) of silver. This performance reflected strong economic growth in India, rising incomes and expectations of higher silver prices.

More recently, following demonetization of high value banknotes (which occurred in late-2016) and the government's clampdown on unaccounted incomes, vigilance grew on cash purchases of gold investment products. This is because it was relatively straightforward to convert large amounts of cash into precious metals, which could then be conveniently stored. Against this backdrop, silver's relatively low profile attracted some of this cash, which benefited physical investment. Furthermore, the arbitrage between the spot and futures markets (which ranged between 8-15% on an annualized basis) made silver attractive as a means of investment.

That said, the growth in silver investment has at times been quite volatile. Between 2010-15, the rapid rise in rupee silver prices to record levels led to a doubling of physical investment demand in one year, from 25.7Moz (800t) in 2010 to 48.8Moz (1,517t) in 2011. Thereafter, even as prices fell, bullish future expectations led to significant levels of bargain hunting in India until 2015, when investment demand peaked at 110.4Moz (3,435t).

In 2016, as the price weakened and Indian equities started to outperform, we saw a collapse in demand, of almost 70%. While the drop was undoubtedly large, it was also a reflection of both the stock overhang and normalization of demand from earlier high levels. Since 2016, demand has improved, with the 2018 total of 54.0Moz (1,680t) representing a three-year high.

Indian Gold & Silver Physical Investment

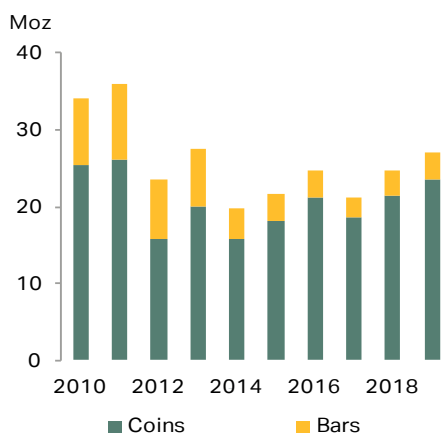


Source: Metals Focus

Going forward, the key risk facing Indian physical investment is profit taking, by investors who bought silver before 2015, when the price was much higher. As such, if the price now exceeds Rs.50,000/kg (currently at around Rs.43,500, equivalent to \$17.10) we could see liquidations emerge. That said, compared to bars (which account for 80% of total physical investment), coin demand has been far less volatile, given it is driven by buying for religious occasions. As such, more than 90% of coins sold are with images of deities, which actively discourages the public from selling these back.

A potential boost to silver investment may, however, come if digital silver products are introduced. So far, only gold is sold via such platforms (where customers can accumulate gold in incredibly small quantities starting from as little as Rs.1, store it for free with an option to convert into physical form if holdings reach 1g). Given the challenges of storage for individual investors, a similar platform could benefit silver demand.

German Silver Physical Investment



Source: Metals Focus

Germany

Germany is by far the largest market for both gold and silver physical investment in Europe. While demand for silver bars and coins has remained significant, German physical investment in precious metals has for long been dominated by gold, due to a deep historical affinity among the public. This originated in the hyperinflation and currency debasement of the 1920s, compounded by the destruction during World War II and the ensuing collapse of its economy. As a result, modern Germany has developed a firm commitment to strong currencies and high rates of personal savings.

However, one challenge that silver physical investment must contend with is VAT. Unlike gold, which is exempt from VAT, purchases of silver bars and coins are subject to this tax, with rates depending on the type of product. Specifically, for non-EU manufactured silver coins, 7% VAT is applied to the full value of the coin, with a further 19% levied on the labor charge (or premium). Meanwhile, silver bars and EU manufactured silver coins are subject to a higher rate, namely 17% VAT on the full value of the product. This differential helps explain why silver coins have secured a significantly higher share of physical investment in Germany compared with bars. (By contrast, gold investment in the country is skewed to bars, due to their lower premium against coins.)

A VAT free option is available if silver is imported and stored in bonded warehouses in Germany. Anecdotal evidence suggests that demand for such purchases has been healthy. However, it is worth stressing that the bulk of these purchases seem to have been made by high-net-worth investors or family offices, while retail investors in many cases prefer to take delivery of physical silver in spite of the VAT imposition.

In 2018, German physical investment in silver rose by 17% to a four-year high. 2019-to-date has seen this growth continue. In large part, this reflects the ongoing macroeconomic and political uncertainty in the Eurozone. In particular, negative nominal and real interest rates and the prospects of additional monetary loosening by the ECB have continued to raise the appeal of hard assets. The introduction of the first ever silver Krugerrand bullion coin in 2018 also provided an additional lift to sales, thanks to German retail investors' historical affinity for gold Krugerrand coins.

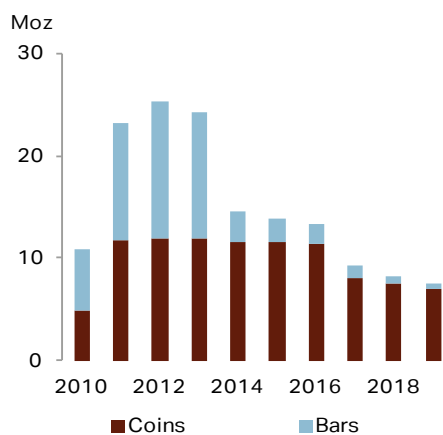
China

In this section, we invest some time in looking at China. It is comfortably the world's largest gold retail investment market, yet Chinese silver bar demand is almost non-existent. We therefore try to understand why the markets for gold and silver have experienced such dramatically different fortunes.

Liberalization of the Chinese Market

In 2000, China ended its 50-year state monopoly on silver trading and began to liberalize the market. The Shanghai Huatong Nonferrous Metal Wholesale Market (superseded by the Shanghai White Platinum and Silver Exchange in 2003) was designated as the only official trading platform for silver in China.

Chinese Silver Physical Investment



Source: Metals Focus

Physical Investment

The People's Bank of China (PBOC) is the issuing authority for precious metal coins in China and first issued these in 1979. Then, in 1987 China Gold Coin Incorporation (CGCI) became the exclusive distributor for these coins. Meanwhile, restrictions on private silver bar ownership remained in place and were not lifted until 2009. This partly explains why China's retail silver investment market has been dominated by silver coins, with a market share of around 90%.

The Panda coin, which is a legal tender in China, is comfortably the most popular silver coin domestically. This is only available in 30g, with a maximum annual mintage of 10m pieces. The proof coin is available in 150g and 1kg, with a maximum annual mintage of 60,000 and 20,000 pieces. All Panda coins are struck in 999s purity silver. Smaller sizes are available in other types of silver coins, including 8g and 15g. These are sold through a number of authorized retailers and international dealers, while some are sold on a commission basis through commercial banks or online channels.

Silver coins in China are commemorative in nature and therefore attract a high premium. For example, the market price for the 30g silver Panda bullion coin was at Rmb156 in early August 2019, which suggested a 24% premium based on a local price of Rmb3.94/g. Demand is therefore strongly driven by the less price-sensitive local collectors and small gifting market, rather than genuine investors. Due to market saturation and weakening investor interest in the metal, silver coin demand has fallen, from 12.0Moz (373t) in 2013 to 7.5Moz (233t) last year. Even so, because of a still healthy collector market, coin sales fared considerably better than bars, sales of which have collapsed.

As mentioned above, the country first allowed the general public to buy/sell silver bullion bars in 2009. Given its low unit price compared with gold, these initially resonated, especially with those on limited budgets. By 2012, bar sales had peaked at 13.3Moz (415t), driven by inflationary concerns and robust price expectations. This also reflected a growing number of commercial banks and jewelry retailers adding silver bars to their product assortment. However, demand plunged to 3.0Moz (92t) in 2014, fueled by reduced interest as a result of its poor price performance, the unfavorable silver price outlook, the strength of equity markets and anti-corruption activity. As a result, silver bar sales have all but disappeared in China, falling to 0.8Moz (24t) in 2018.

The decline also reflects the VAT treatment (lowered from 17% to 13% on April 1st 2019), which is levied on the full value of silver bars. When the Shanghai Huatong Nonferrous Metal Wholesale Market was launched in 2000, members of the exchange argued for zero rating, but no agreement was reached. By contrast, on the Shanghai Gold Exchange (SGE) an agreement of "immediate levy and refund" was reached. As such, retail investors can achieve a more favorable selling back price for gold bars compared with silver. Investors have also been discouraged by the lack of a scrap buyback service (as a result of the VAT system).

Furthermore, speculator demand for silver bars has shifted to paper trading since the Shanghai Future Exchange (SHFE) launched its silver contract in 2012. In addition to avoiding losses when selling back, the advantages of trading futures are much deeper market liquidity, leverage, and convenient trading processes.

Looking ahead, the VAT treatment of silver bars is unlikely to change in the foreseeable future. As a result, Chinese banks have tried to develop new commemorative and inheritance bars (the latter are marketed to be handed down between generations). An increasing variety of bar sizes have also been introduced, ranging from 5g through to 10kg, with some pieces also made in the shape of “Yuanbao” (the currency used in ancient China). As a result, high premium, commemorative products now dominate the silver bar market, while more traditional pieces have almost disappeared.

Overall though, the silver bar market has remained lackluster. As a result, we have seen most jewelry stores exit the market, while commercial banks only accept online orders. This in turn has seen fewer promotional activities and less silver bar products made available locally. As a result, there seems little opportunity to develop the Chinese silver bar market beyond the niche commemorative segment.

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