

Silver's Critical Role in Electrification May Fuel its Rise

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At Sprott, we remain bullish on silver's investment merits. Like gold, silver is a tangible store of value which acts as an effective portfolio hedge. Despite lackluster performance during the past two years, silver fundamentals remain compelling. We believe silver can play a role distinct from gold in a diversified investment portfolio.

By historical standards, both silver bullion and silver equities appear significantly undervalued. From a contrarian point of view, silver represents an attractive investment opportunity. Sprott's bullish outlook is supported by three key factors which we explore below:

- 1) The current 80x gold/silver ratio is elevated compared to an average of 56x over the past 50 years;
- 2) Silver's fundamental supply/demand outlook has never been more supportive of a strong price: while supply is constrained, demand is underpinned by synchronized global economic growth and an uptick in industrial demand (fueled by the trends of electrification and automation); and
- 3) Silver short positions have reached near all-time highs.

Silver's Recent Lackluster Performance

We acknowledge that investing in silver has not provided much bling to portfolios recently. For the past 18 months, the silver price has hovered between \$16 and \$18/oz. As shown in the chart below, silver reached a 31-year high near \$50/oz in April 2011, on U.S. dollar weakness and fears of inflation (silver's all-time high was reached on January 18, 1980, at \$49.45 per troy ounce). This safety play fizzled and silver fell below \$14/oz by January 2015.

Silver Prices

(2000-2018)



Source: Thomson Reuters Eikon; GFMS, Thomson Reuters. Data as of 5/30/18.

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June 5, 2018

Although silver climbed nearly 15% in 2016 and gained 6.4% in 2017, it underperformed gold which gained 8.6% in 2016 and 13.1% in 2017. Both metals fell short compared to U.S. equities which climbed 12.0% (2016) and 21.8% (2017) as measured by the S&P 500 Index.

Asset	2016	2017	YTD 2018 (May 31)
Silver \$USD	14.9%	6.4%	-3.1%
Gold \$USD	8.6%	13.1%	-0.4%
S&P 500 Index* ¹	12.0%	21.8%	2.0%

*Reflects dividends reinvested.

1) The Gold/Silver Price Ratio is Steep at 80x

As a precious metal, like gold, silver has always attracted investors looking for a store of value, beyond fiat currencies and government control. Silver and gold complement and often move in tandem with each other, where gold historically sells at 56x the price of silver (based on prices from 1970 to 2017). Currently, gold is at about 80x silver's price, which means that silver is significantly cheaper, relative to gold, than historical averages.

At the end of 2017, the gold/silver ratio was at 77x, a high level that perhaps suggests that the market may be expecting another major financial crisis, or at the least that it is time for an equities correction.

On the flip side, to the extent investor anxieties decline – and the gold/silver ratio reverts towards mean – silver inflows and prices will benefit.

The Gold/Silver Ratio Has Averaged 56.5x

(1970-2017)



Source: Thomson Reuters Eikon. Data as of 12/31/17.

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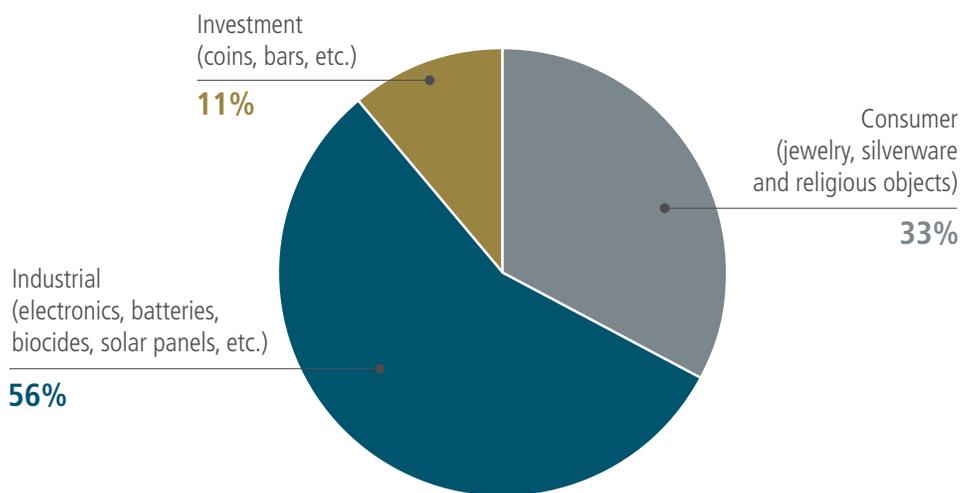
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2) The Uptick in Industrial Demand

While silver supply stagnates, we believe demand is underpinned by synchronized global economic growth and an uptick in industrial demand.

Silver benefits from three strong sources for demand: 1) industrial (electronics, batteries, biocides, solar panels, etc.) 2) investment (coins and bars) and; 3) consumer (jewelry, silverware and religious objects). Of these, industrial demand represents the biggest use.

Silver's Biggest Use is Industrial



Source: CPM Group.

In 2017, coin and bar demand dropped by more than 27%, as investors chased robust equity performance. But this decline was mitigated by increased demand for silver in industrial fabrication, jewelry and silverware (up 4%, 2%, and 12% respectively). At the same time, the world's total silver supply fell by 2% to just under one billion ounces given declines in both mine and scrap supplies.

World Silver Supply and Demand: 2016 vs. 2017

(million oz)	2016	2017	% Change
Silver Supply	1,009.4	991.6	-2%
Physical Demand	1,041.9	1,017.6	-2%
Industrial Fabrication	576.8	599.0	4%
Coins & Bars	207.8	151.1	-27%
Jewelry	205.0	209.1	2%
Silverware	52.4	58.4	12%

Source: World Silver Survey 2018. Produced for The Silver Institute by the GFSM team at Thomson Reuters.

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The Reason for the Industrial Uptick

In part, silver can thank the high-tech auto industry, which both reflects and is driving a global shift toward electrification powered by solar technology. Lithium and cobalt, two key battery metals, are currently in the spotlight but investors should also understand that silver has a key role to play in the shift to electric vehicles (EVs) and the growing demand for fossil-free forms of energy generation to support electrification. A new report out [last week] from the International Energy Agency, *Global EV Outlook 2018*², estimated that over 3 million EVs were on global roads at the end of 2017, potentially growing to 125 million by 2030. As countries make this transition from internal combustion engines to electric and hybrid vehicles, combined with the desire of many countries to move away from coal-fired and nuclear-generated energy, solar energy will continue to grow in importance. As the technology boom fuels a dramatic shift in the vehicles we drive, the trends could give silver a turbocharge. In fact, last year the auto sector's demand for silver grew 5%, while silver demand in photovoltaics increased 19%.

A Road Lined in Silver

To understand how countries are adjusting to electric and self-driving vehicles, look to Asia where a new solar-powered road is being constructed in Jinan, a city in eastern China. What's unique about this 1,080-meter-long (3,540 feet) road is that it's paved with solar panels according to Bloomberg.³ Transparent concrete covers the panels, which will power the highway's lights and nearby homes.

Solar panels, known as photovoltaics (PV), have become a growing source of demand for silver. These panels use silver paste, which contains about 90% silver powder. As the use of these solar panels increase, the need for more silver should follow. The tonnage of silver paste used within PVs is expected to grow 10% by 2020, according to PV silver paste developer Heraeus Photovoltaics. Looking further out, BMO Capital Markets⁴ estimates that silver demand for PVs will double by 2025, accounting for 15% of silver consumption and improving industrial demand.

Electric Vehicles Will Become the Norm

The architects of the Jinan road have a grand vision, eventually charging electric vehicles' (EV) batteries when riding along the stretch of highway, once wireless charging technology becomes practical.

That's not the only opportunity coming from EVs. While China's road is unique, other countries are increasing the amount of electric charging ports to keep up with stricter carbon-reducing policies. Volkswagen⁵ has embraced this trend, announcing in April that it would add EV charging stations to over 100 Walmarts across the U.S. Porsche (a subsidiary of VW) has committed to building 500 such stations as well. Where will the electricity for these ports come from? Solar panels.

Self-Driving Vehicles Add Another Layer of Growth

China estimates that self-driving vehicles will account for about 10% of all cars on the road by 2030. No doubt, the solar-paneled road will provide fine-grained geo-location and traffic data, supplying autonomous vehicles with additional information to cruise without a human driver.

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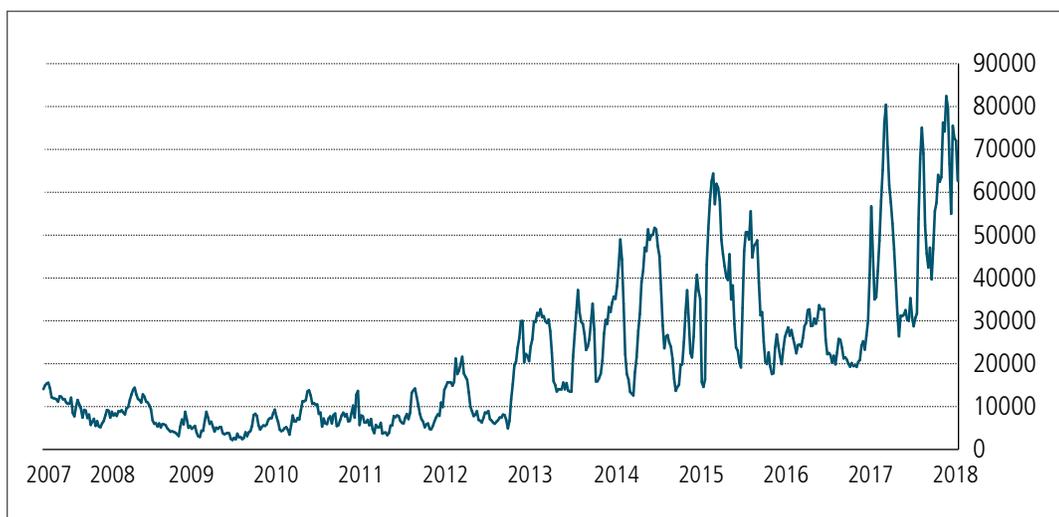
Silver also benefits from this trend, since it is a key component in technology within vehicles. With more technology, the more silver you'll see in the cars, particularly in the tools that protect riders. For example, silver is a component in operating collision avoidance systems, like cameras and sensors. If there's suddenly a mass-market need for these automated features, then automakers will likely require more silver.

3) The Short-Term Short Opportunity

Despite the positive factors impacting the growth of silver demand, silver shorts have reached near all-time highs, according to UBS.⁶ We blame speculators for this imbalance. ETF investors, on the other hand, have embraced the bull scenario as ETF holdings in silver reached an 8-month high in April. This is where the short-term opportunity lies because when short interests are high, there's the possibility of short covering – short investors forced by a rising price to buy silver to cover their positions and cut their losses. This, of course, further drives the price up.

Silver Short Positions Have Reached a High

CMX0SNCS Index (CFTC CEI Silver Non-Commercial Short Contract/Combined)



Source: Bloomberg. Data as of 5/30/18.

The Silver Lining

In summary, we are optimistic that based on these three factors – a historically high gold/silver ratio, a favorable supply/demand outlook and near all-time high short-interest levels – **silver can return near to its multi-year base of \$21, and that some luster will return to the bling.**

There are others who are even more optimistic. Incrementum AG, publishers of the industry bible on gold research, wrote this in its latest report: "The technical picture of silver looks particularly exciting from a contrarian position. The "smart money" hedgers currently hold their lowest short exposure as compared to short interest in recorded history... If our basic assumption of turning inflationary tendencies were to prove accurate, silver would probably be one of the best investments to benefit from rising inflation in the coming years. At a gold price of USD 2,300 and a gold/silver ratio of 40x (which we regard as absolutely realistic amid rising prices), we expect a silver price of USD 57.50."

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More Silver Insights from Sprott:

Sprott Silver Report: An Essential Metal for the 21st Century (Maria Smirnova, 11/1/2017)

Sprott Silver Report: The Case for Investing In Silver (Trey Reik, 6/30/2017)

The Silver Institute: World Silver Survey 2018

¹ The S&P 500[®] Index represents 505 stocks issued by 500 large companies with market capitalizations of at least \$6.1 billion; it is viewed as a leading indicator of U.S. equities and a reflection of the performance of the large-cap universe.

² International Energy Agency: Global EV Outlook 2018.

³ Bloomberg: China's Built a Road So Smart It Will Be Able to Charge Your Car.

⁴ BMO Markets Report: Every Silver Cloud Has a Photovoltaic Lining.

⁵ Engadget: VW's fast EV charging network is headed to Walmart parking lots.

⁶ UBS Neo: Silver Upside Potential.

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