

LET'S GET PHYSICAL - REVOLUTION OR EVOLUTION?

David Holmes – Heraeus Precious Metals



LET'S GET PHYSICAL – 1 BILLION OUNCES PER YEAR

Unique conductive and chemical properties

- Large Bar – 31 Kg (1,000 Troy oz)
- Grains – 20 / 25 Kg bags (643 / 803 Troy oz)



Image owned by Argor-Heraeus

Industrials care about the “other” elements

Material: our description
87903000 Silver 99.99 % ASTM grains
Result of analysis: **G 6574/18-1** Ag Batch: 658/18

Lot **0001502753**

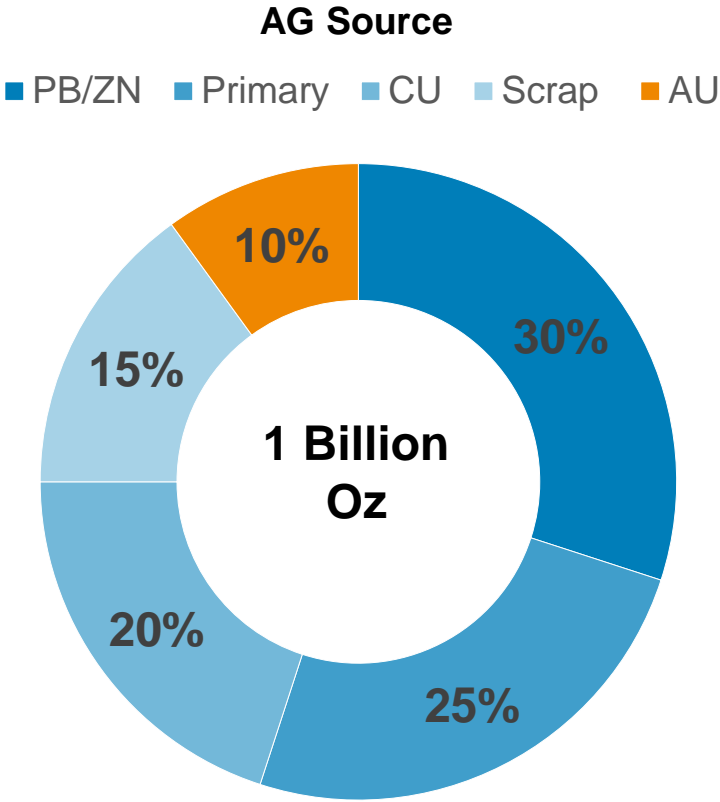
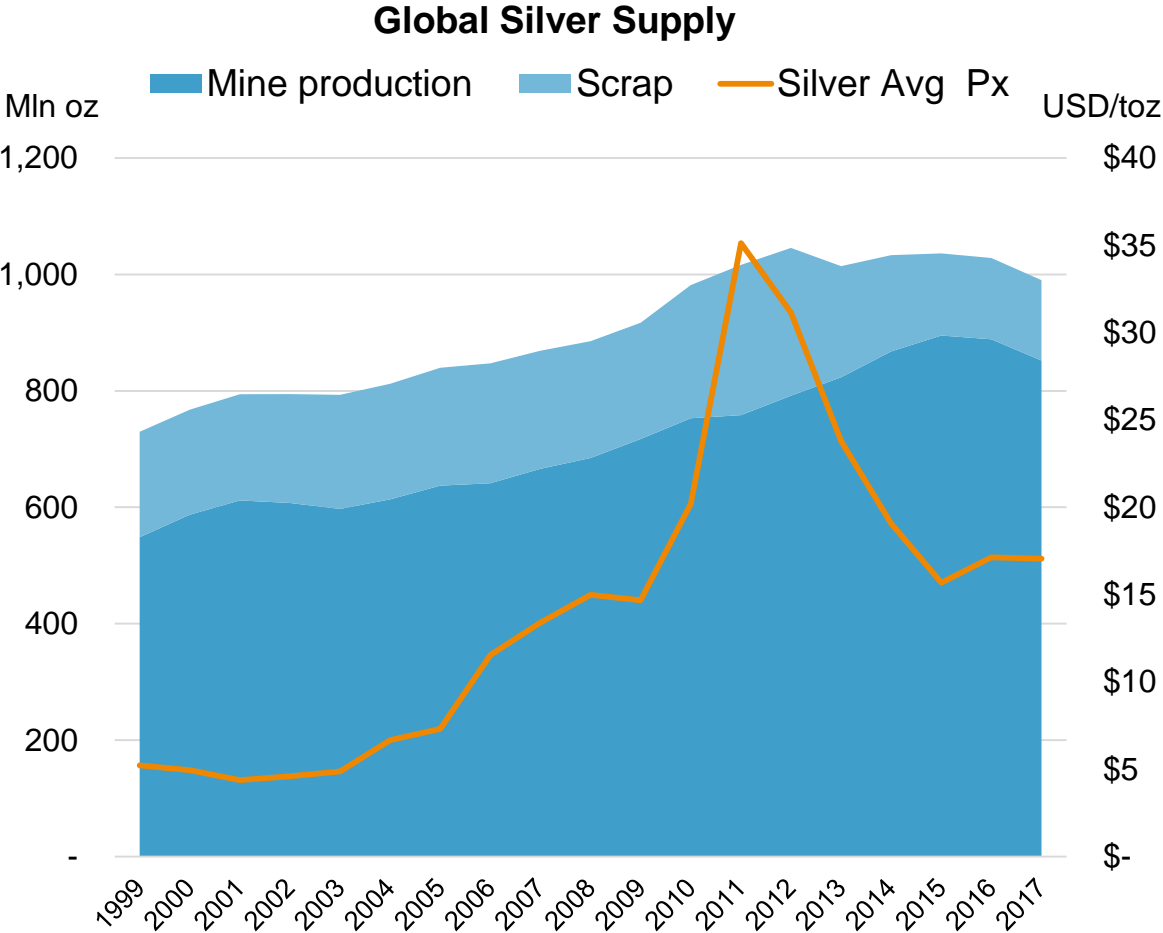
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Pd	<	5	ppm
Al	<	3	ppm
Bi	<	5	ppm
Cd	<	5	ppm
Cr	<	3	ppm
Cu	<	3	ppm
Fe	<	3	ppm
Mg	<	3	ppm
Mn	<	3	ppm
Ni	<	3	ppm
Pb	<	5	ppm
Sb	<	5	ppm
Se	<	5	ppm
Si	<	5	ppm
Sn	<	5	ppm
Te	<	5	ppm
Zn	<	5	ppm

Heraeus Deutschland GmbH & Co.KG

Hanau, 21.09.2018

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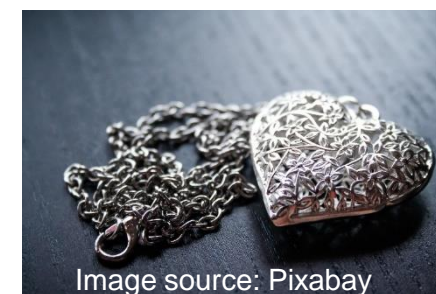
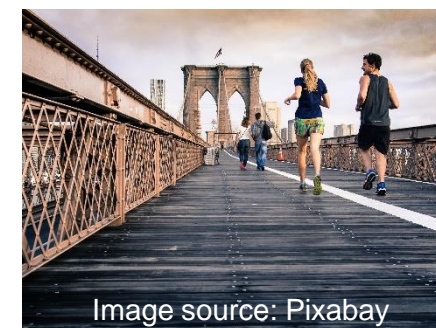
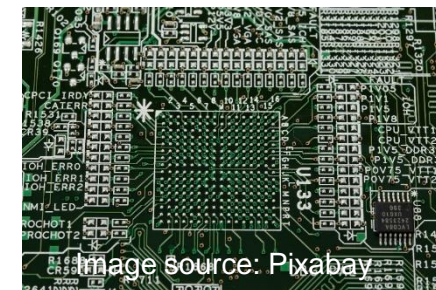
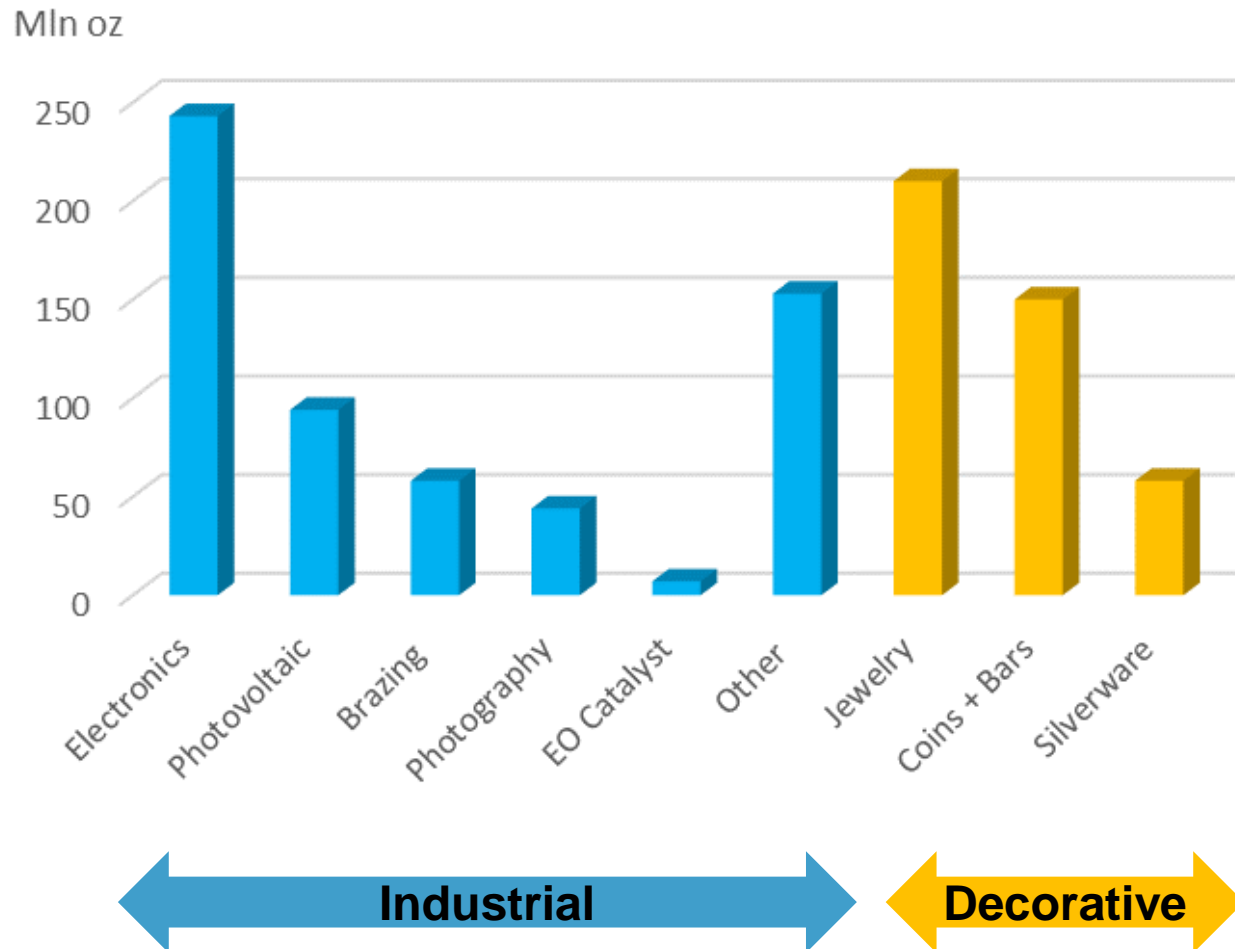
WHERE DID IT COME FROM IN 2017?



Source: © GFMS, Thomson Reuters / The Silver Institute

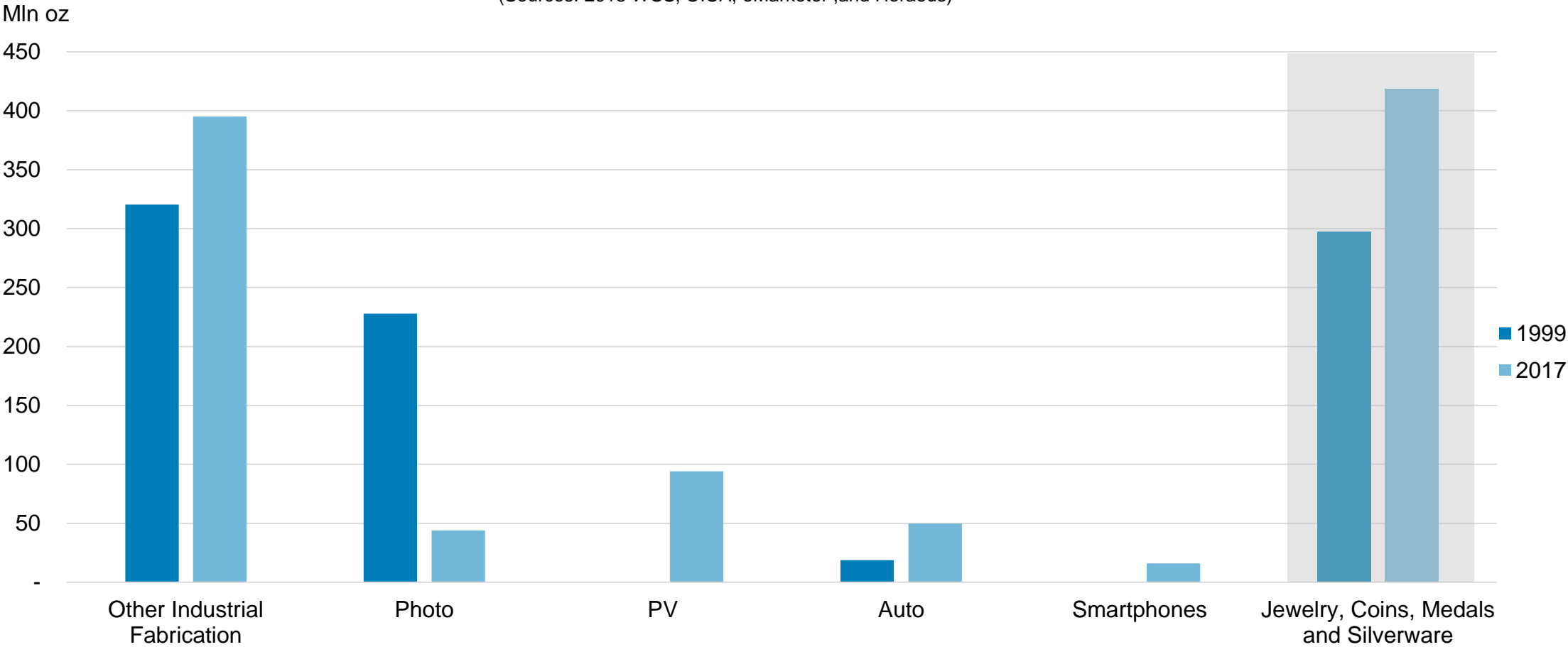
WHERE DID IT GO IN 2017?

Source: © GFMS, Thomson Reuters / The Silver Institute



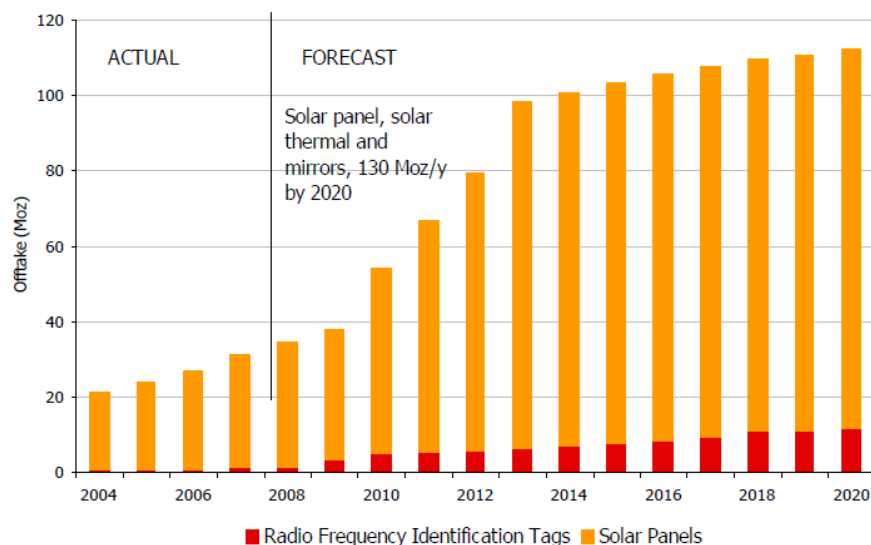
EVOLUTION OF DEMAND SINCE THE MILLENNIUM

Shift in Industrial Silver Demand
(Sources: 2018 WSS, OICA, eMarketer ,and Heraeus)



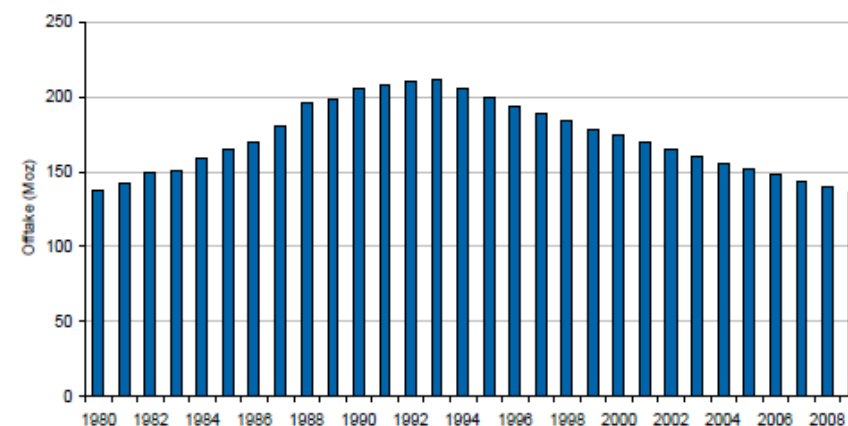
DID THE LBMA FORECAST THIS DEMAND EVOLUTION?

Solar and mirrors



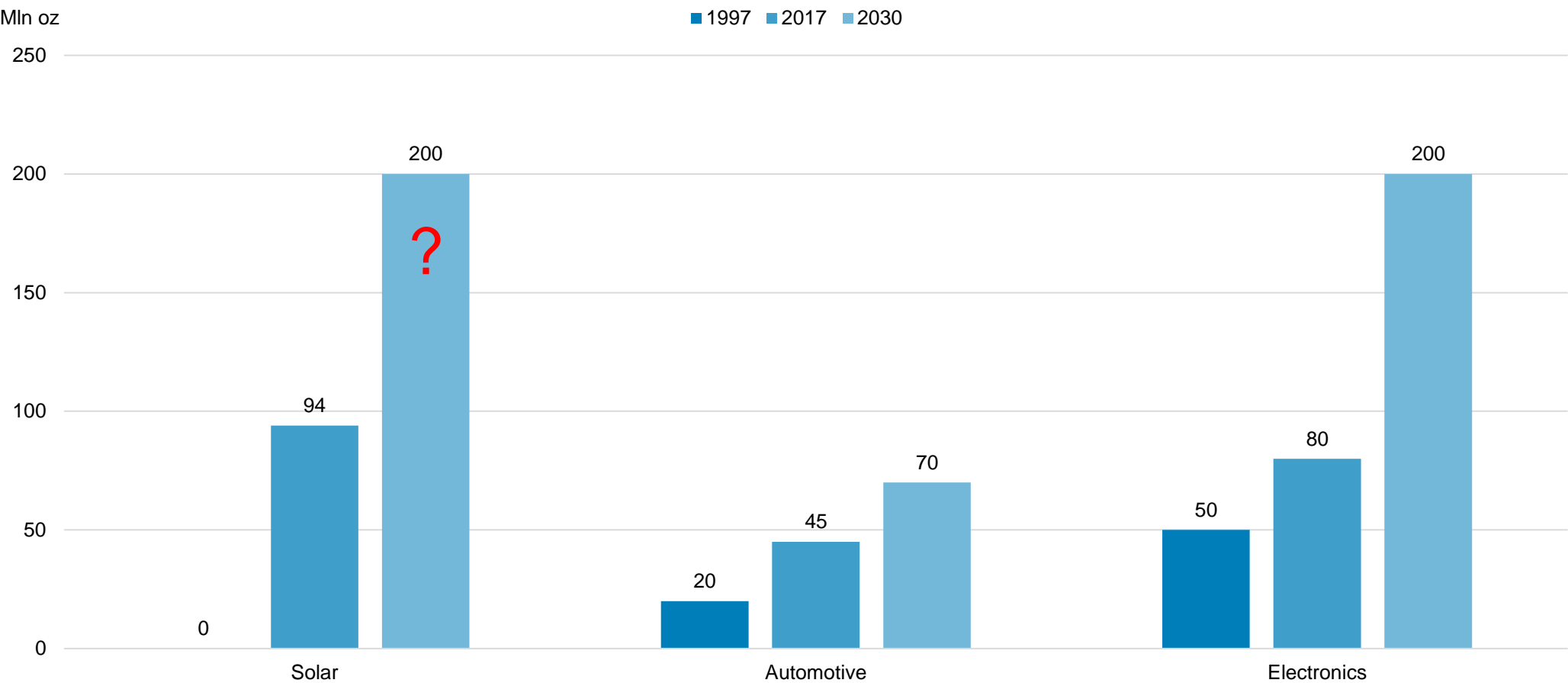
Weakness

- digital photography has greatly reduced the tonnages of silver used in the sector



Source: LBMA Edinburgh 2009 – Overview of the Silver Market by Jessica Cross:
Excellent forecast – 2017 Solar forecast of 100 mln / actual 95 mln

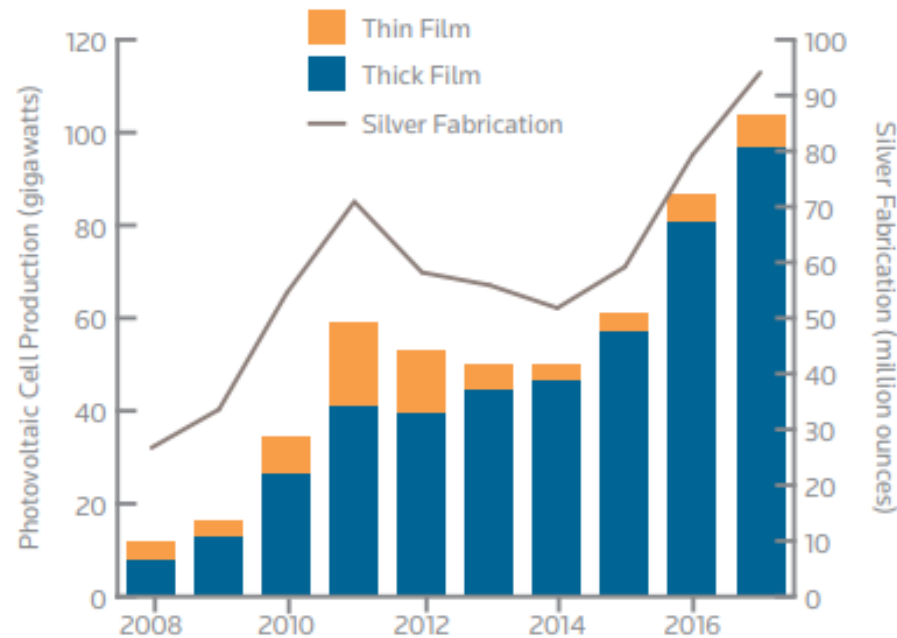
WHAT WILL BE THE GROWTH INDUSTRIES FOR THE NEXT 10 YEARS?



Source: Silver Institute World Survey 2018 / Coeur Mining

SOLAR – COMPETITIVE WITH OTHER SOURCES OF POWER

SILVER PHOTOVOLTAIC FABRICATION



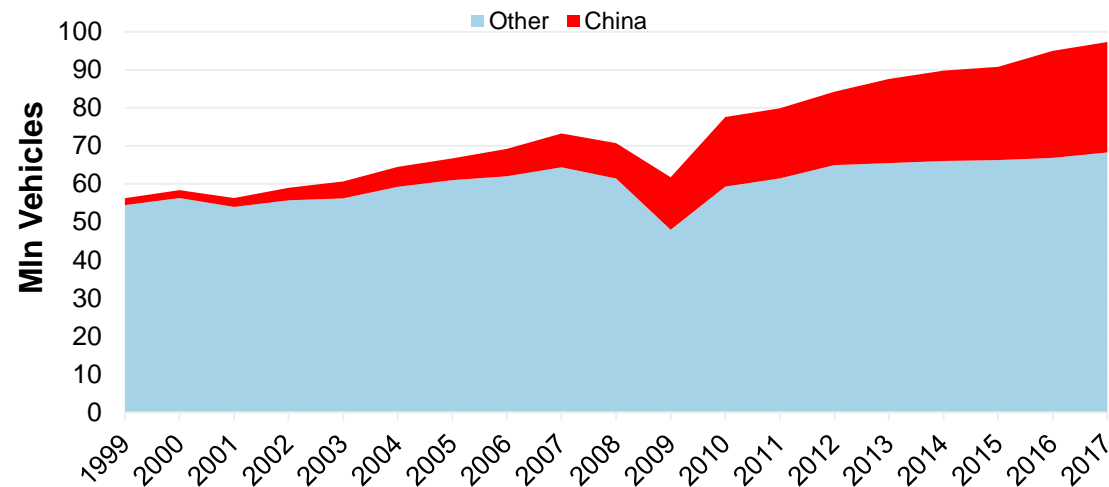
Source: Solarbuzz; Earth Policy Institute; ITRPV; GFMS, Thomson Reuters

- In the decade to 2016, the amount of solar power generated across the world rose 50% to account for 2% of world generation – expected to rise to 7% by 2030
- China and India have seen explosive growth in solar over the past years and are now the biggest and third biggest renewable electricity markets, respectively
- Main drivers of growth have been a collapse in the cost of solar panels and improving technology
- Growth at risk due to global policy changes threaten the current momentum – tariffs / subsidies
- CRU expect silver loadings in solar PV to decline from today's 95 Mln oz to 65 Mln oz in 2030 despite increasing installation due to thrifting.

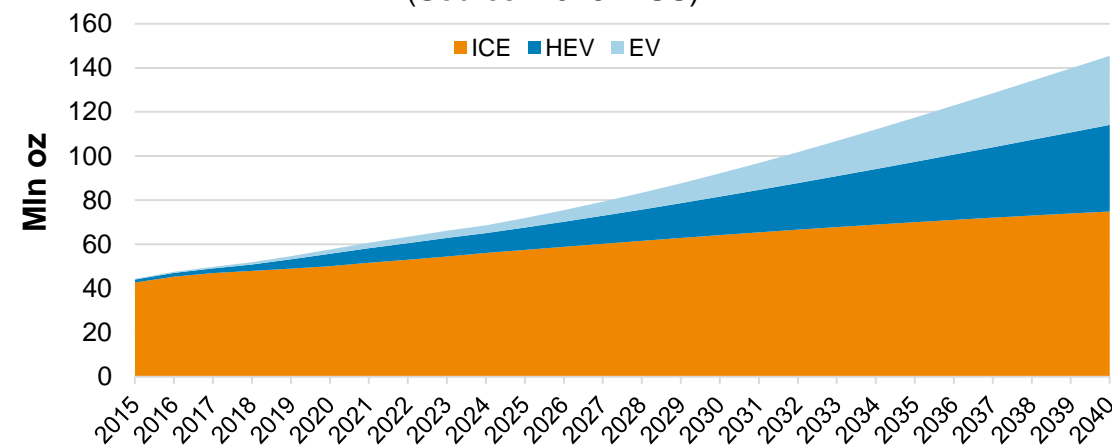
AUTO – EXPLOSIVE GROWTH TO COME

- Global Vehicle Production has grown steadily, driven mostly by China
- The composition of vehicle propulsion has and will continue to change
- Vehicle ownership per capita has increased in EM and is expected to grow with GDP per Capita
- Silver Demand in Automotive is predicted to increase significantly
- Silver loading in ICE is lower than HEV and EV
- Silver holding components in new vehicles is on the rise

Global Vehicle production
(Source: OICA)



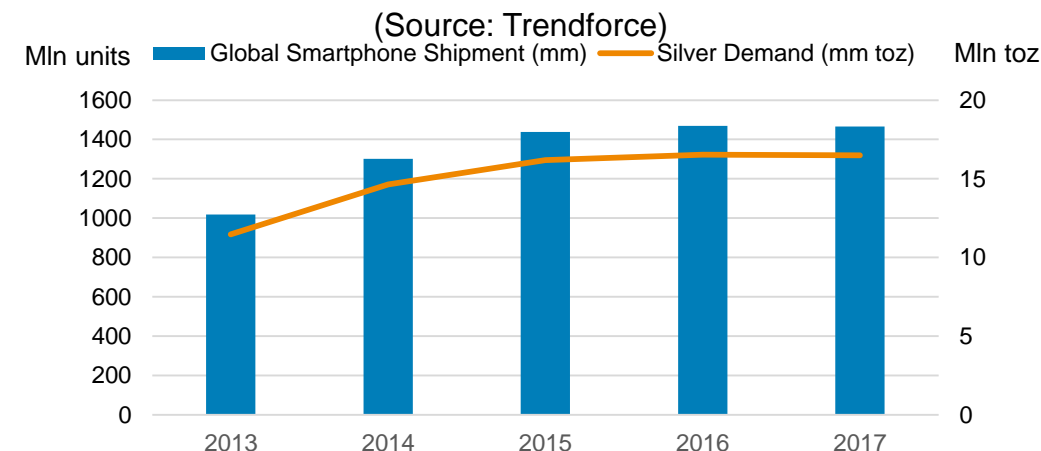
Silver Demand In Automotive
(Source: 2018 WSS)



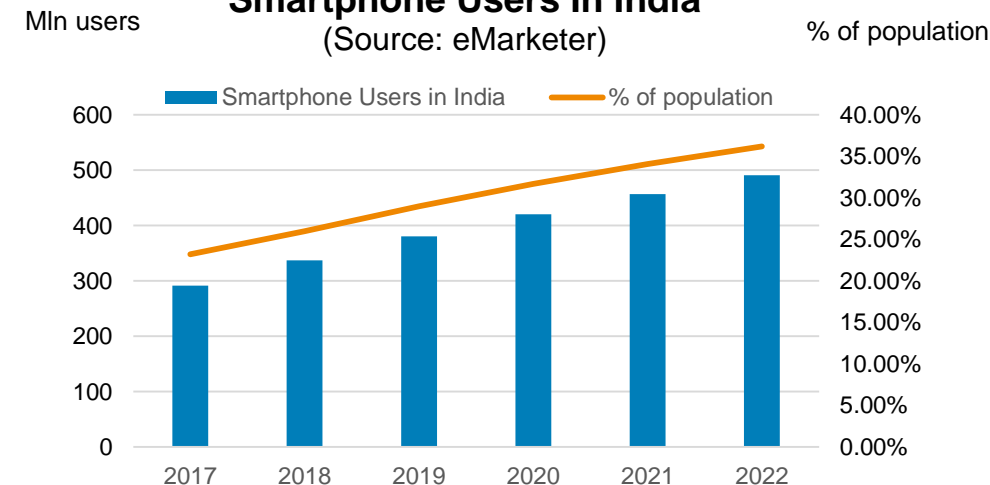
SMARTPHONES – OVERLOOKED BUT NOTEWORTHY

- Global smartphone production is expected to reach 1.5bn in 2018
- Developed markets are saturated, but there is ample potential from emerging economies
- India is now the second largest smartphone market in the world and is expected to grow by 15.6% in 2018
- The Average Ag loading in a smartphone is 0.35g (US EPA), and smartphones have become a noteworthy source of demand
- Apple expected Ag recovery per iPhone is 0.075g (Apple Environmental Responsibility Report 2018)
- Spent Smartphones are a source of precious metal

Global Smartphone Shipments



Smartphone Users In India



FUNDAMENTALS UNDERPIN THE MARKET..... WHAT ABOUT INVESTORS?



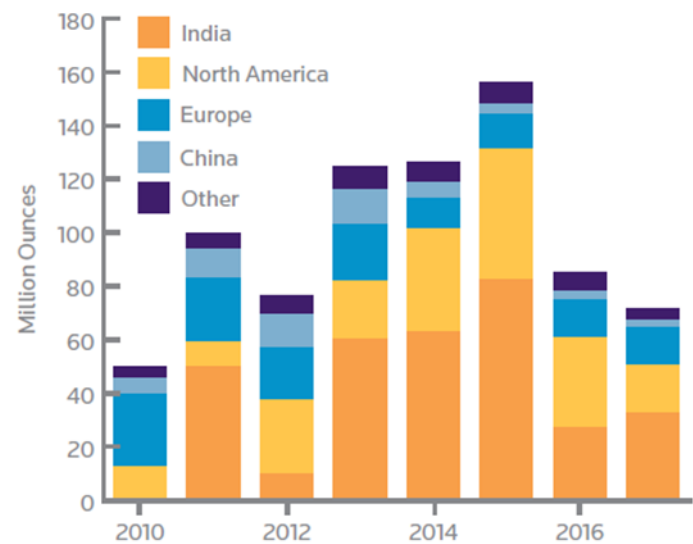
Credit: Pixabay

Investment flows tend to
swamp fundamental activity

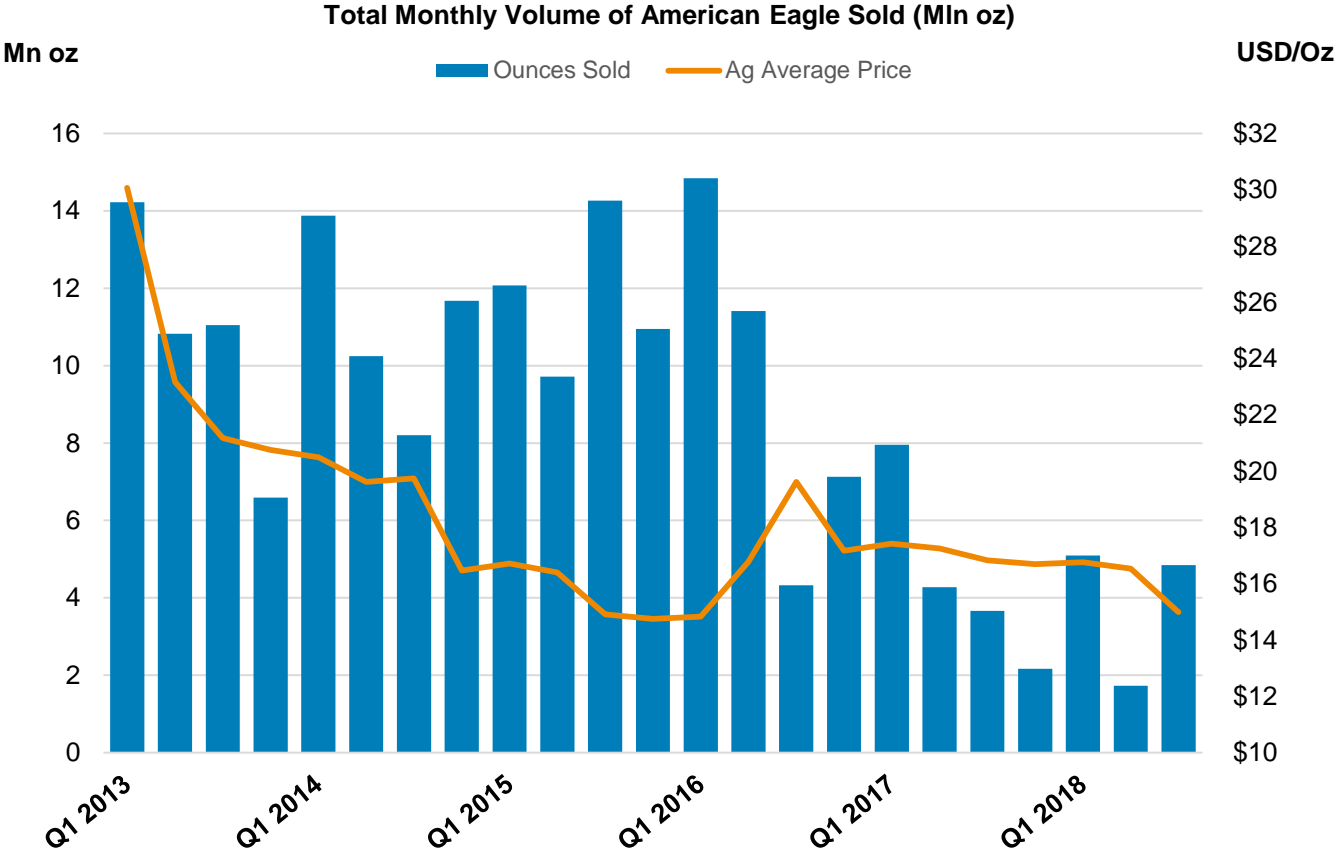
RISE AND FALL OF PHYSICAL INVESTMENT

Rise and fall of physical investment.

PHYSICAL BAR INVESTMENT



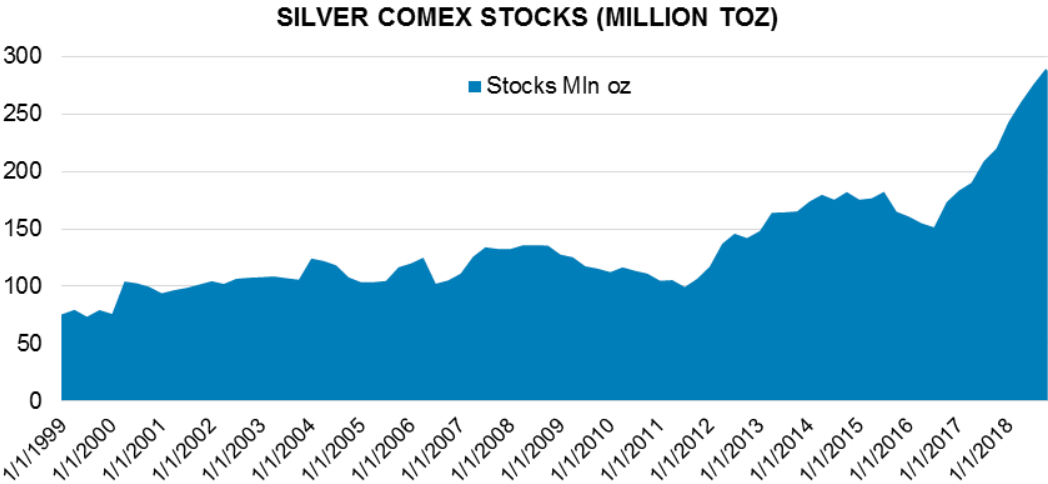
Source: GFMS, Thomson Reuters



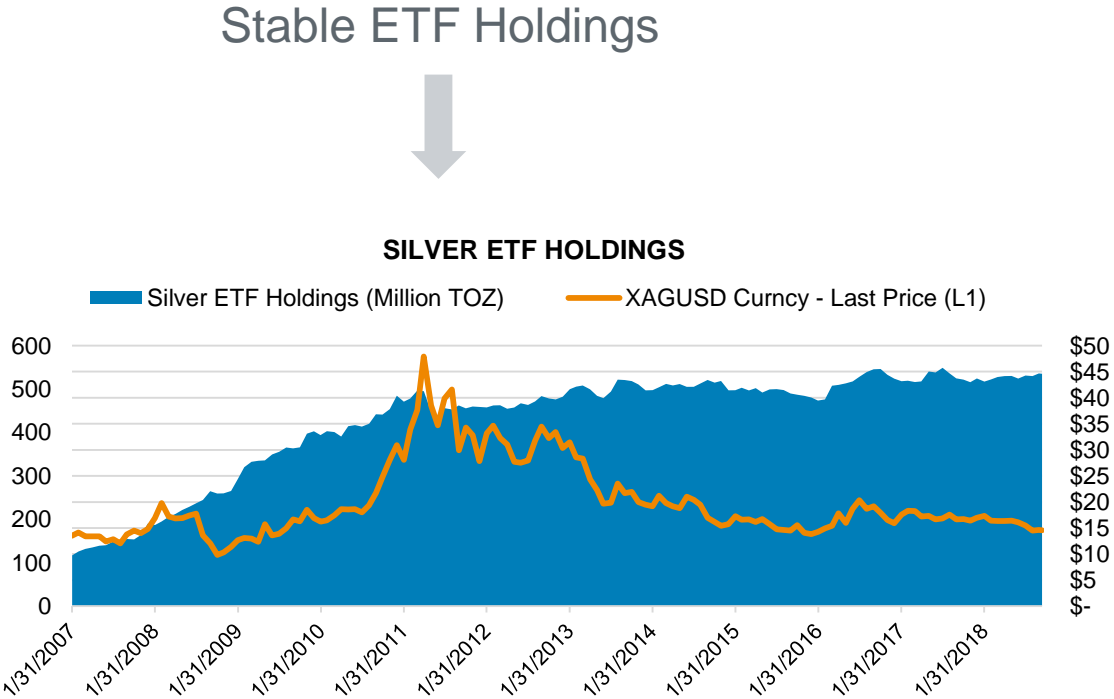
Source: US Mint

PHYSICAL INVESTMENT AND COMEX STOCKS

Total ETF holdings stable in contrast to increasing Comex Stocks

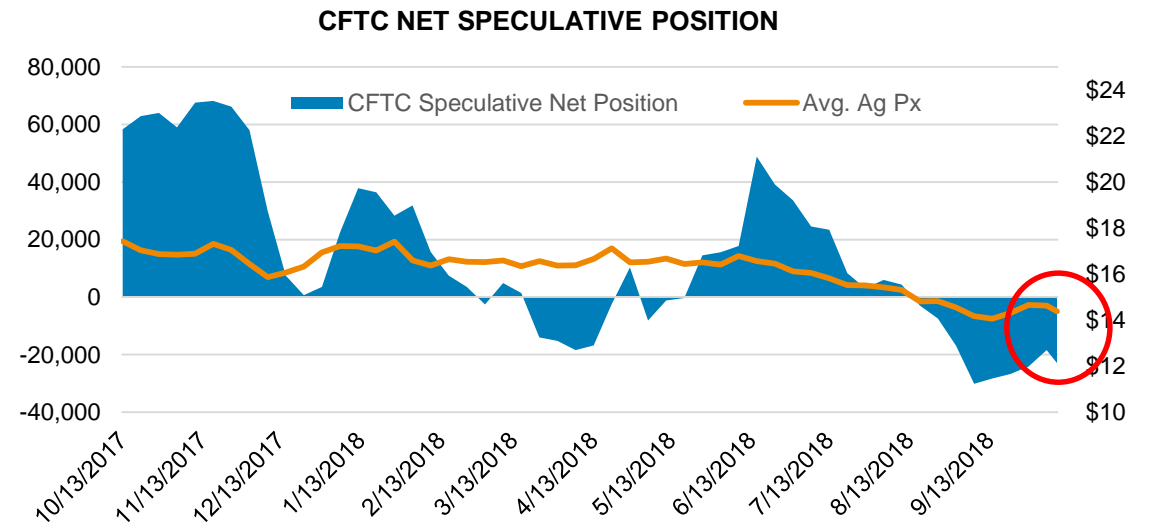
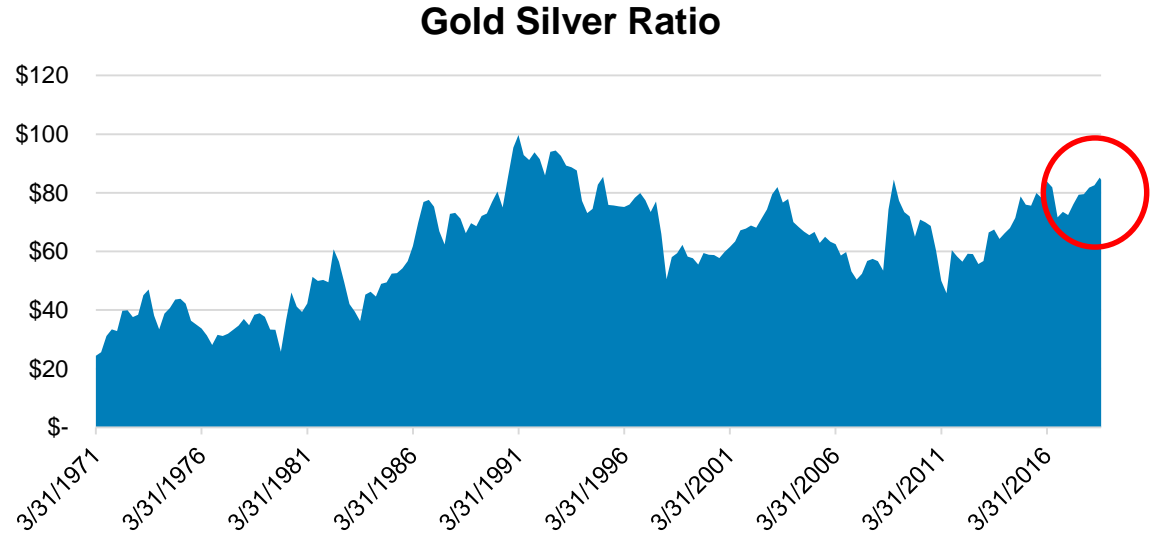
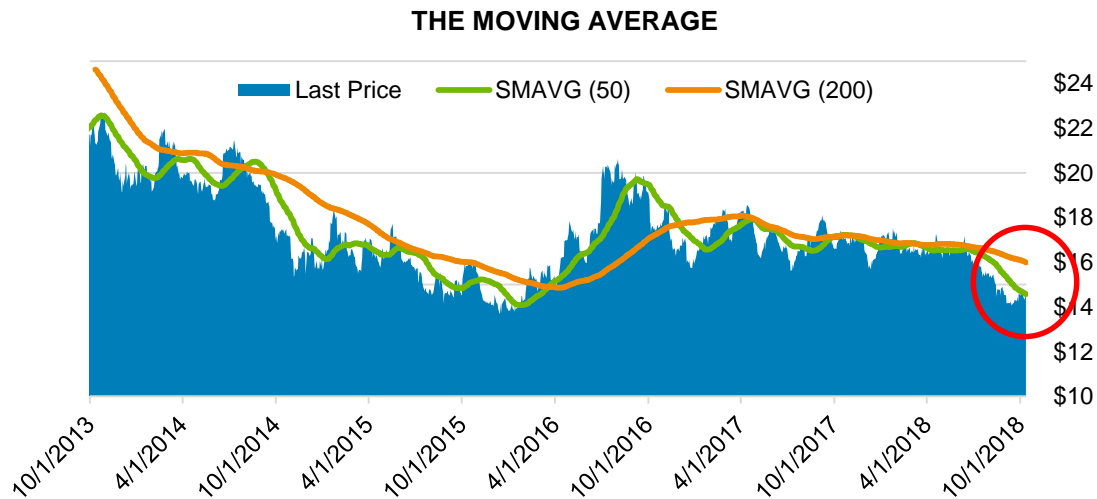


↑
Increasing Warehouse
Stocks

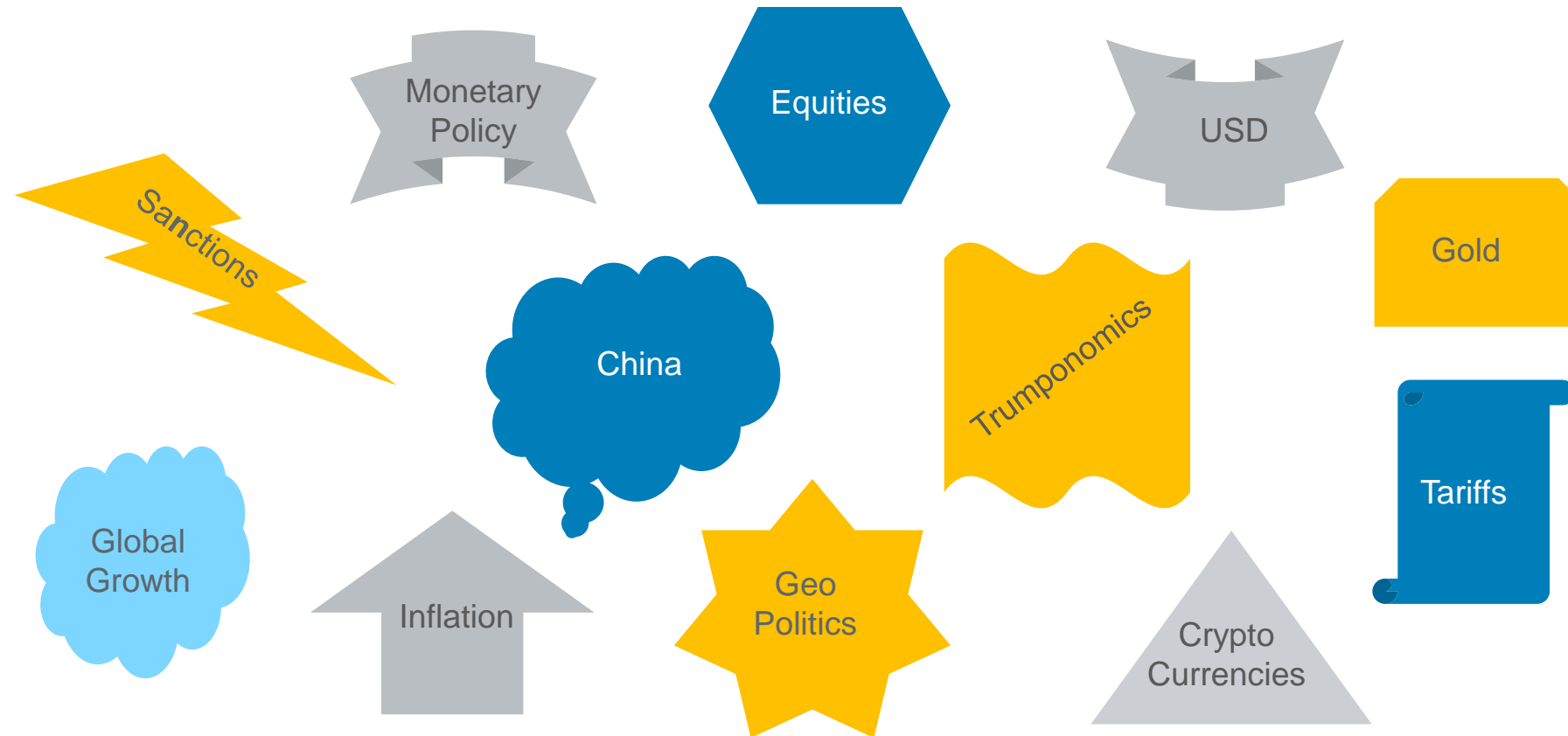


SILVER SPECULATIVE DASHBOARD

- Gold / Silver Ratio - stretched
- Technical Levels – price trending lower
- Net Speculative Position - short



WHAT FACTORS INFLUENCE INVESTOR DEMAND FOR SILVER?



RELATIVE IMPACT OF PHYSICAL AND SPECULATIVE FACTORS ON THE PRICE

- **Speculative investor activity is the primary driver of silver price action**
- **It's not a Revolution but it is an Evolution we can look forward to robust physical demand with strong growth in electronic applications leading to a positive price bias.**



BOSTON TEA PARTY - YES OR NO?

Let's discuss this over a cup of tea – Cheers!



Image source: Pixabay

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