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Alchemist

Editorial

Strengthening Partnerships: Deeper Collaboration Across Asia's Gold Markets

By Ruth Crowell
LBMA CEO

It's almost impossible to overstate how important Asia is for the global gold market. India and China alone account for over 50% of global gold demand, not to mention the significant impact that Asian physical demand has on global gold prices.

A surge in Indian or Chinese demand often leads to upward pressure on global prices, while conversely, import restrictions (like India's import duties) can shift supply chains and drive changes in market premiums.

Asian central banks (like China, India, and Russia) have been recently increasing gold reserves as a hedge against the US dollar and geopolitical risk. Meanwhile, regional exchanges such as the Shanghai Gold Exchange (SGE) the Shanghai Futures Exchange (SFE) and the new kid on the block, the Indian International Bullion Exchange (IIBX) are gaining prominence in shaping price discovery, market liquidity and driving innovation.

Singapore, firmly positioned as a key ASEAN hub, hosted the SBMA Conference in June – where market participants explored regional developments, including the launch of the ABAXX gold futures contract and the progressive liberalisation of Vietnam's gold market. There was also strong interest in the SGE's first offshore gold vault, now operational in Hong Kong and run by Bank of China (Hong Kong).

Clearly, Asia is not just a major consumer but a driving force shaping the future of the global gold ecosystem. Its influence spans pricing, trade flows, investment behaviour, and technological innovation, making it a vital region for strategic engagement.

Asia Working Group: A Platform for Regional Progress

Building on our strategic partnerships with key market players and deepen our engagement with the region, we convened the inaugural meeting of LBMA's Asia Working Group at the SBMA this June.

The conversations were insightful and energising, particularly around how we can better reflect the region's reality – where kilobars are the standard – within our Gold Bar Integrity (GBI) initiative. The GBI ecosystem itself was prompted by the discovery of fraudulent kilobars in Asia, underscoring the urgent need to rebuild trust through greater traceability and integrity. It was encouraging to see strong consensus across refiners, banks, and logistics providers on the need to incorporate kilo bars more fully into our global integrity framework. What emerged was a clear desire for deeper collaboration, and a shared commitment to use technology to strengthen trust in the gold traded around the world.

Turning Member Feedback into Action

I was excited to see such strong interest in deeper regional collaboration – exactly what our Members asked for in last year's survey. It's great to see that feedback turning into action and helping us build even stronger partnerships and in region engagement.

I'm also pleased to report that all of LBMA's Good Delivery Refiners based in China are now onboard with our GBI initiative – an encouraging milestone in our pursuit of transparency and global integrity.

Looking Ahead to Kyoto

We are all looking forward to welcoming our friends from across the globe – and particularly from Japan and the wider Asia region – at our upcoming Conference in Kyoto in October. There we will meet again with the Asia Working Group to continue progress on making fully traceable kilo bars a reality.

I always find my engagement in these key market centres so inspiring and invigorating. In these uncertain times, communication, collaboration and global standards are more important than ever. While virtual tools like Teams/Zoom/Voov can help us stay in touch, nothing can replace the relationships built face to face.

I hope to see many of you in Kyoto.

Issue Highlights

Front Cover: Austrian Mint product image, © Münze Österreich.

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THE STORY OF THE World Famous Münze Österreich

By Eva-Maria Klement
Assistant to the Board,
Austrian Mint

Image courtesy of Münze Österreich.

When in 1194 Richard the Lionheart paid 12 tonnes of silver to Duke Leopold V of Austria, not only did he secure his freedom from a year of incarceration, but he also unwittingly laid the foundations of the Austrian Mint.

As was the rather brutal custom of the day, having been previously insulted by King Richard I, Duke Leopold captured and imprisoned the English monarch near Vienna as he was returning overland to England from the Crusades. Duke Leopold decided to strike coins from his booty and in doing so set in motion more than 800 illustrious years of minting history in Vienna.

In the last 830 years, many different minting methods have been employed there. Up to the 16th century the minting hammer was used for striking coins and the roller press, rocker press and screw press followed. On the other hand, ring striking – which produces an even, round shape – has been in use only since c. 1830. In essence, it is still used today, although up to 750 coins per minute can now be minted by more modern methods.

Engraved and Prestigious Coins

Right from the outset, the expert craftsmanship of the Vienna Mint also played a vital role in the production of prestigious and timeless coins of the very highest standard. In Vienna the engraving academy has been in existence since 1733 and miniature works of art are still today being created by its highly gifted and experienced designers. Indeed, the Austrian Mint is especially proud of the loyalty of its long-serving staff for whom coins are a passion, not merely a means of earning a living.

Over the years, mints were established and coins struck throughout Austria in towns and cities such as Graz, Krems, Salzburg, Innsbruck and Villach. However, with the formation of the Republic of Austria in 1918, the Vienna Principal Mint became the country's one and only mint – and remains so today. In 1989 the mint was privatised, renamed as Münze Österreich AG and became a subsidiary of the Austrian National Bank.

One of Austrian Mint's most internationally recognised coins is the *Maria Theresa Taler.* Originating in 1780, the year Empress Maria Theresa died, today it is not only the most famous silver coin in the world, but also boasts the greatest number minted. Such international successes have made the Mint something of an ambassador for Austria, another prime example of this being the world-famous golden *Vienna Philharmonic* coin. One of the most popular gold bullion coins worldwide, it has played a vital role in the success of the Austrian Mint.

Internationally renowned for its know-how in precious metal processing and coin production, the Austrian Mint is a global player in the international minting industry and ranks among the world's leading mints. Its beautifully crafted coins, which are minted in the very heart of Vienna, are highly sought after by investors and collectors all over the world.

The Austrian Mint in the Modern Day

In addition to striking some of the world's best-selling bullion coins and an impressive range of collector coins and medals, the Austrian Mint supplies coins and blanks to many countries worldwide. However, first and foremost, its duty is to produce the Republic of Austria's Euro circulation coins.

With more than 830 years of coin-making experience, since 1988 the Austrian Mint has operated as a private company and is the sole manufacturer of coinage to the Austrian people.

The majestic building occupies one of the most prestigious locations in the Austrian capital and, historic though it may be, behind its classic façade lies the state-of-the-art production plant. Here, centuries of craftsmanship and tradition combine with some of the world's leading coin-making technology, much of it developed and innovated by its very own numismatic experts.

Owned in its entirety by the Austrian National Bank, the Austrian Mint employs just under 200 people and produces some 350 million coins a year. Indeed, more than 27 million Golden Philharmonic coins have been produced since 1989 and more than 9.24 billion Euro circulation coins since 2002.

Multiple ISO certifications

As a forward-thinking company, Austrian Mint keeps the highest standards in quality, environmental protection, occupational safety and energy efficiency. Four ISO certifications prove the ongoing commitment to sustainable business practices and continuous improvement:

ISO 9001

Quality Management System:
The mint ensures structured processes, high customer satisfaction and the continuous optimization of all services.

ISO 14001

Environmental Management System:
Environmental protection is not an option for us – it's a responsibility. The certified environmental management helps preserve natural resources and minimize environmental impact.

ISO 45001

Occupational Health and Safety Management System:
The safety and well-being of all employees is a top priority. The certified system ensures safe working conditions and a healthy work environment.

ISO 50001

Energy Management System:
By using energy efficiently, the mint not only reduces operating costs, but also lowers our ecological footprint for a sustainable future.

Trust in certified quality for secure processes, responsible action and measurable efficiency.

Austrian Mint: A Milestone Timeline

1780

Maria Theresa Taler
The first *Maria Theresa Taler* is minted in the year of the Empress's death.

1835

Mint in Heumarkt
The construction of the Mint's current home in Heumarkt, which was commissioned by Emperor Francis I, takes place in 1835-1837.

1989

Austrian Mint PLC
Austrian Mint PLC emerges from the Principal Mint as a subsidiary of the Austrian National Bank.

1989

First issue of the Vienna Philharmonic
The very first Vienna Philharmonic gold bullion coin (one ounce fine gold) is issued in October 1989.

2003

Silver Niobium coin
The Austrian Mint becomes the world's first to strike a silver niobium coin.

2008

Vienna Philharmonic in silver
In February 2008, the first ever European silver bullion coin enters the market – the Vienna Philharmonic one ounce fine silver.

2016

Vienna Philharmonic in platinum
In February 2016, the Austrian Mint issues the first Vienna Philharmonic in platinum (fineness 999.5).

All images courtesy of Münze Österreich.

Eva-Maria Klement
Assistant to the Board,
Austrian Mint

Eva-Maria Klement was born in Baden, near Vienna. She studied business administration and began her career as an editor for a tennis magazine, a role she held for four years. She then spent 16 years as Communications Manager and Assistant to the Board at an Austrian building society. Over a decade ago, she joined the Austrian Mint, where she continues to serve as Assistant to the Board.

Spotlight on aXedras

aXedras joins LBMA as an Affiliate Member

aXedras CEO, Urs Röösli.

5 QUESTIONS 5 ANSWERS

What were the reasons for you wanting to join LBMA and what do you see as the key benefits of membership?

Over the years, aXedras has partnered with LBMA and its Members on a variety of initiatives, including the LBMA Gold Bar Integrity (GBI) Database project.

Our ongoing mission to support the industry through driving innovation, building trust and fostering collaboration naturally led us to become an LBMA Affiliate Member.

As an LBMA Affiliate Member, we are more connected to the core of the industry where we can gain first-hand insights to best develop solutions and be better positioned to actively contribute to its future direction.

Tell us about your company's role in the precious metals market?

We empower precious metals organisations to thrive by providing digital solutions that drive real business results.

By leveraging aXedras solutions, precious metals companies unlock cost efficiency and maximise ROI, while accelerating their operational efficiency, competitive edge and adaptability from a technology partner that understands the industry and its challenges.

We contribute to building greater trust both across the industry and for the end customer.

What's the background and history of the company?

aXedras was founded in Switzerland in 2018 by precious metals leaders and technology experts following a public consultation to further strengthen the gold supply chain integrity.

As an independent software company, aXedras is home to some of the most skilled technology professionals, assisting precious metals companies across the supply chain on their digital transformation journey.

Today we are proud to be the trusted partner of 120+ clients worldwide and to represent the supply chain.

What factors do you expect to impact your business in the short to long term?

The industry's momentum towards digitalisation is evident with the Gold Bar Integrity (GBI) initiative – and the GBI Database which went live in January. This work underscores a growing client demand for increased product transparency supported by secure and digitalised data exchange across the entire supply chain.

The rapid development of information technology presents new opportunities to connect our clients' existing solutions with our digital platform ensuring interoperability as well as seamless and secure data exchange.

As we leverage the latest technology such as Distributed Ledger (DLT) in our products, we are proud to be developing an AI-driven solution that traces material based on the unique composition of a mine. This enhances traceability, supply chain integrity from the source, and supports the industry's commitment towards the formalisation and legitimisation of Artisanal & Small-scale Gold Mining (ASGM).

As we look forward, we are committed to partnering closely with the industry to advance the digitalisation of gold ownership.

What are your future plans for the business?

aXedras is focused on tailoring solutions for refiners, producers, vaults and dealers, developing a series of solutions in close collaboration with industry participants to address their unique needs and challenges.

As a collective, through digital transformation, we aim to be a catalyst that can strengthen investor confidence and position gold as a trusted, transparent and future-proof investment for the long term.

TRANSFORMING SMALL-SCALE GOLD MINING FOR A

Sustainable Future in Ghana

By Neil Harby,
Chief Technical Officer, LBMA

LBMA, amongst other organisations, identified Ghana as a prime candidate for developing a successful responsible Artisanal Small-scale Gold Mining (ASGM) industry. It meets the criteria by having, amongst others, a peaceful country, stable governance, a comparatively functional state environmental agency, significant gold reserves, successive governments committed to supporting responsible ASM sourcing, and - most importantly - a viable, legal space for ASGM.

LBMA is fully engaged with key stakeholders and is committed to supporting initiatives that have been established to ensure the best possible results.

Recently, LBMA participated in the Mining in Motion event in Accra which brought together not only the key players in Ghana, but also many delegates that represented countries across the African continent. There is a clear willingness to learn from the real-life experiences of people who are already on the journey.

It was particularly comforting to see LBMA GDL Refiners in attendance, particularly as several of them are actively working on projects to ensure ASGM supplies to the LBMA ecosystem will increase from the current, disturbingly low numbers.

It was also reassuring that the dialogue has noticeably changed since a Responsible ASGM sourcing model was presented at the OECD Conference over ten years ago. Large scale miners, central banks, and law enforcement are definitely more engaged.

At the recent OECD Conference in Paris there were sessions within and without the formal proceedings that demonstrated the sheer number of people and organisations operating in the ASGM space. It also demonstrated that the many initiatives should work together wherever and whenever possible to ensure that efforts are not unnecessarily duplicated and that any mistakes can be shared learning experiences.

ASM Toolkit Adoption Gathers Momentum

On a general, practical level, the use of the LBMA ASM Toolkit is becoming more evident. The Toolkit works as a structured risk assessment in the form of a questionnaire that Refiners can work through with suppliers, incorporating an integrated progressive improvement pathway to guide ASM sites towards best practice. Organisations and Refiners using the Toolkit are providing useful feedback on the practicalities of its implementation especially where regional/ jurisdictional differences need to be taken into account.

LBMA's ASM initiative, which has been running for a couple of years now, is certainly moving things in the right direction after years of declining interest in sourcing ASGM. LBMA's ASM Task Force has been critical in providing impetus as well being a vital information sharing engine. The entire supply chain is represented along with all the major global, and regional, organisations who are committed to the cause.

LBMA's Forecast Survey:

Unearthing the Wisdom in the Crowd

By Dr J. Chris Lamprecht
An Independent Business Analyst

A consensus price forecast strives to assess the wisdom of the crowd. However, LBMA's Annual Precious Metals Forecast Survey seeks the individual analyst who makes the most accurate market price forecast for that given year – identifying the wisdom in the crowd.

How effectively do the surveys serve as consensus metal price forecasts?

Metal	No. of years*	No. of analysts*	No. of forecasts*
Gold	28	157	709
Silver	28	139	633
Platinum	23	111	505
Palladium	23	104	500

*Up to 2024

Consensus Forecasting Accuracy

Examining forecast survey data from 1997 to 2024, the aggregated consensus estimates of analysts' market price forecasts align favourably with the average LBMA market prices for the respective metals.

The difference between the consensus median for all years of the LBMA Forecast Survey and the comparable average market prices for all metals was approximately 1%, an incredibly close match, with similar results for the consensus mean. The respective average market price and the consensus median for all the years were:

Gold
$1,045.74/oz
VS
$1,031.11/oz
(Difference ~1.4%)

Platinum
$1,110.25/oz
VS
$1,127/oz
(Difference ~1.5%)

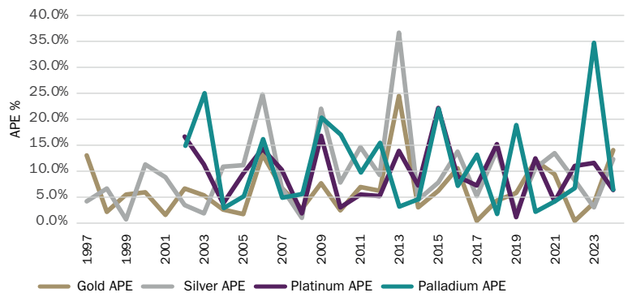
Silver
$15.47/oz
VS
$15.49/oz
(Difference ~0.1%)

Palladium
$836.01/oz
VS
$855.09/oz
(Difference ~2.3%)

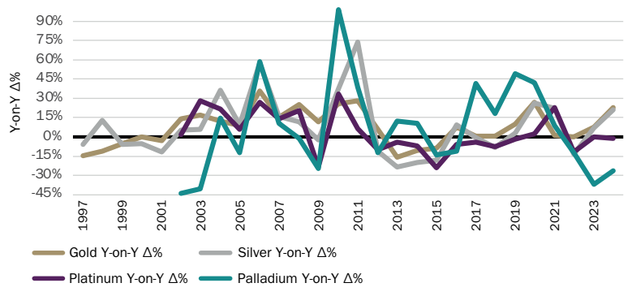
The aggregated comparison would, notionally, support consensus estimates as reliable forecasts of future LBMA market prices.

However, when considering the distribution of forecasting errors over the individual years, the results are less compelling. The following graphs show the Absolute Percentage Error (APE) of the consensus median and the year-on-year market price changes, with the APEs averaging around 9%, emphasising the difficulty in predicting future market prices:

Consensus Median Annual APE



Year-on-Year Market Price Change (Δ)%



Reliability of Consensus Estimates

When we recommend using a central estimate, such as the median or mean, we assume that forecasting errors will be roughly balanced – some predictions will be too high, while others will be too low, but they'll mostly cancel each other out. However, this balanced pattern didn't happen every year. In many cases, the errors were skewed in one direction, either predominantly above or predominantly below the actual market price.

Market prices typically fluctuate, although they occasionally remain relatively stable. To help classify these changes, a simple 3% threshold is used:

Bearish
if the price drops more than
3%

Neutral
if the change is between
−3%
+3%

Bullish
if the price rises more than
3%

Annual % market price Δ	Gold		Silver		Platinum		Palladium		All Metals	
Bearish/Neutral: Less 3% Δ	**12**	**100.0%**	**12**	**100.0%**	**14**	**100.0%**	**11**	**100.0%**	**49**	**100.0%**
Skewed above annual market average	9	75.0%	10	83.3%	10	71.4%	8	72.7%	37	75.5%
Skewed around annual market average	1	8.3%	0	0.0%	0	0.0%	0	0.0%	1	2.0%
Shewed below annual market average	2	16.7%	2	16.7%	4	28.6%	3	27.3%	11	22.5%
Bullish: More 3% Δ	**16**	**100.0%**	**16**	**100.0%**	**9**	**100.0%**	**12**	**100.0%**	**53**	**100.0%**
Skewed above annual market average	2	12.5%	4	25.0%	2	22.2%	3	25.0%	11	20.8%
Skewed around annual market average	1	6.3%	2	12.5%	1	11.1%	3	25.0%	7	13.2%
Shewed below annual market average	13	81.3%	10	62.5%	6	66.7%	6	50.0%	35	66.0%
Total	**28**	**100.0%**	**28**	**100.0%**	**23**	**100.0%**	**23**	**100.0%**	**102**	**100.0%**
Skewed above annual market average	11	39.3%	14	50.0%	12	52.2%	11	47.8%	48	47.1%
Skewed around annual market average	2	7.1%	2	7.1%	1	4.4%	3	13.0%	8	7.8%
Shewed below annual market average	15	53.6%	12	42.9%	10	43.5%	9	39.1%	46	45.1%

The skewed distribution of the analysts' forecasts relative to the market price changes is tabulated below.

The clustering around the market average only accounted for ~8% of the years for which analysts submitted forecasts for LBMA's survey.

Most forecasts were either mostly above or mostly below the actual market average. Generally, when the market price declined during the year, analysts tended to overestimate the change, forecasting prices that were too high. On the other hand, when the market price rose significantly, they tended to underestimate the change, forecasting prices that were too low.

Annual % market price Δ	Gold		Silver		Platinum		Palladium		All Metals	
Bearish/Neutral: Less 3% Δ	**12**	**100.0%**	**12**	**100.0%**	**14**	**100.0%**	**11**	**100.0%**	**49**	**100.0%**
Lower quartile	9	75.0%	9	75.0%	10	71.4%	7	63.6%	35	71.4%
Mean	1	8.3%	0	0.0%	0	0.0%	1	9.1%	2	4.1%
Median	1	8.3%	1	8.3%	1	7.1%	0	0.0%	3	6.1%
Upper quartile	1	8.3%	2	16.7%	3	21.4%	3	27.3%	9	18.4%
Bullish: More 3% Δ	**16**	**100.0%**	**16**	**100.0%**	**9**	**100.0%**	**12**	**100.0%**	**53**	**100.0%**
Lower quartile	2	12.5%	2	12.5%	2	22.2%	2	16.7%	8	15.1%
Mean	1	6.3%	3	18.8%	1	11.1%	2	16.7%	7	13.2%
Median	0	0.0%	1	6.3%	0	0.0%	2	16.7%	3	5.7%
Upper quartile	13	81.3%	10	62.5%	6	66.7%	6	50.0%	35	66.0%
Total	**28**	**100.0%**	**28**	**100.0%**	**23**	**100.0%**	**23**	**100.0%**	**102**	**100.0%**
Lower quartile	11	39.3%	11	39.3%	12	52.2%	9	39.1%	43	42.2%
Mean	2	7.1%	3	10.7%	1	4.4%	3	13.0%	9	8.8%
Median	1	3.6%	2	7.1%	1	4.4%	2	8.7%	6	5.9%
Upper quartile	14	50.0%	12	42.9%	9	39.1%	9	39.1%	44	43.1%

The way analysts' past forecasts have been skewed compared to actual market changes highlights the importance of verifying which type of consensus estimate is most accurate. The table bottom of page 12 shows which consensus estimate has been the most reliable during Bearish/Neutral, and Bullish market conditions.

In years when the market was Bearish or Neutral, the lower quartile provided the most accurate forecast about 71% of the time. In Bullish years, the upper quartile was the most accurate in about 66% of cases. In comparison, the median (approximately 6%) and the average (approximately 9%) were the most accurate, significantly less frequently.

Based on the observed skewness of the analysts' forecasts relative to the subsequent market price changes, a generic rule of thumb for choosing the most reliable consensus estimate is proposed as follows:

- For expected market price increases of less than 3% (Bearish/Neutral), the lower quartile is likely to be the most reliable consensus estimate.
- For expected market price increases above 3% (Bullish): the upper quartile will likely be the most reliable consensus estimate.

The higher accuracy of using the lower or upper quartiles depends on correctly guessing which way the market will move. When most analysts expected a Bullish year, they were right about 89% of the time. For Bearish or Neutral years, their accuracy dropped to about 57%. Overall, about 81% of analysts correctly predicted rising prices and about 69% correctly predicted falling prices.

Conclusion

Overall, about 34% of survey analysts were more accurate than the median forecast. A smaller group, around 18%, were more accurate than the lower or upper quartile forecasts, based on actual market price changes. Participating in more surveys opens up the possibility of outperforming consensus measures.

However, for those analysts who participated for more than ten years, ~17% were, on average, more accurate than the median, and a lesser 11% were more accurate than the lower or upper quartile forecasts, based on actual market price changes.

The research showed that while individual analysts can be accurate, the "wisdom of the crowd" generally provides a more reliable estimate. Arguably, the best consensus isn't always the median or mean – it can be the lower or upper quartile, depending on whether market prices are expected to rise or fall.

Postscript

Based on the 2025 year-to-date (June 2025) average metal prices, the proposed rule of thumb – 2025 LBMA Annual Precious Metals Forecast Survey, most reliable consensus estimate:

Gold
UPPER QUARTILE
$2,825/oz
(YTD average $3,067/oz)

Platinum
LOWER QUARTILE
$982/oz
(YTD average $1,021/oz)

Silver
LOWER QUARTILE
$31.09/oz
(YTD average $32.76/oz)

Palladium
LOWER QUARTILE
$964/oz
(YTD average $976/oz)

Dr J. Chris Lamprecht
An Independent Business Analyst

Over a career spanning three decades in the mining industry, Chris spent approximately a decade in each of the platinum, gold, and copper industries, holding various financial roles.

Having prepared and reviewed numerous budgets and valuation models during this period, a recurring issue was the lack of reliable metal price forecasts.

In April 2023, Chris completed his doctoral thesis, "Evaluating the possibility of using consensus metal price forecasts in the natural resource industry" at the University of Liverpool. For this doctoral research, Chris, among other sources, utilised data from the LBMA Precious Metal Survey's gold forecasts between 2000 and 2020.

Forecast Pulse Check:

Analysts Forecast 15.49% increase in Average Gold Price for 2025

By Simon Rostron
LBMA Consultant

A group of 13 professional analysts, recently polled by LBMA in a mid-year pulse check, have upgraded their forecasts for the average price of gold through 2025 by almost 15.5%.

In LBMA's **Annual Precious Metals Forecast Survey,** published at the end of January, some 29 analysts predicted an average 2025 price for gold of US$2,735.33 with none suggesting an average of above US$3,000. However, the smaller subset has extensively revised this prediction to US$3,159 (a 15.49% increase) with none suggesting a whole-year average of under US$3,000, and the most bullish suggesting US$3,350.

Through the first half of the year, the LBMA London Gold Price recorded an average of US$3,070.86, which divided into US$2,862.56 for Q1, and US$3,279 in Q2 as the import tariffs being proposed, in some cases implemented, by President Trump met the major geopolitical disruptions in Gaza, Iran, and Ukraine.

That said, the majority of responding analysts suggested that while geopolitics is a key driver of the gold market, the markets are likely to pay more attention, in the near term, to US monetary policy in general, and the US budget deficit and dollar weakness, in particular.

Looking ahead through the second half of 2025, the average analyst forecast for the end-year price of gold was US$3,324.40 (some 27.3% above the end-2024 price), while no one suggested a price below that recorded on the first dealing day of this year (US$2,644.60). Opinions were, however, divided as to the gold price high of the year with US$4,000 being the highest and a fraction less than US$3,500 being the lowest (the current record LBMA London gold price is US$3,454.70 achieved at the Tuesday, 22 April a.m. auction). A significant number of analysts thought the price might actually be fading at year end with five from the 13 suggesting a December price of US$3,200 or below.

Echoes of the ’80s?

Gold Prices and Inflation Then and Now

By James Steel
Chief Precious Metals Analyst, HSBC Securities (USA) Inc.

Gold prices have been on an uptrend since the fourth quarter of 2022 with the rally accelerating appreciably from the first quarter of 2024 onwards and making a series of record highs in nominal terms in the process.

Up until recently, price pullbacks, while sometimes sharp, have been short-lived. The rally has been powered by a cocktail of factors including escalating geopolitical and trade risks, economic policy uncertainty, heightened concerns over fiscal profligacy and near unprecedented central bank demand. The dollar’s weakness and a shift in Fed policy further boosted gold prices. The emergence of central bank demand is perhaps one of the most influential drivers of the rally, while geopolitical risks have risen to levels not seen since the Cold War – contributing to gold demand across a wide a number of fronts.

These characteristics are further endorsing gold’s status as a safe haven and quality asset in times of economic and political uncertainty and financial market stress. Just as prices breached US$1,000/oz during the peak of the financial crisis in 2008, then US$2,000/oz during the COVID-19 pandemic 12 years later in 2020, they have mounted US$3,000/oz in the current period of elevated geopolitical and trade risks. Geopolitical risks are further complemented by profound economic and policy uncertainty as well as sticky inflation and lingering low interest rates in many countries. After repeatedly hitting new highs in nominal terms, gold prices reached a record US$3,500/oz on 22 April and remain above US$3,300/oz, as of writing.

Of all the factors propelling gold, geopolitical risks still stand out as a main driver, but the inability of the market to drive to new highs during the recent Israeli and US strikes on Iran gives us pause for thought.

While gold made repeated new highs above US$2,000/oz from Q1 2023 onwards, it is only recently that prices have made highs in real – inflation adjusted – terms. On two occasions gold briefly hit US$850/oz in January of 1980. This proved to be the high watermark for gold prices, in real terms, until April of this year, when bullion moved above US$3,400/oz peaking – so far this year – at US$3,500/oz. According to the Federal Reserve Bank of Minneapolis’ inflation calculator, US$850 in January 1980 is worth about US$3,325 in today’s money. Examined in real terms; therefore, gold realistically did not hit new highs until mid-April of this year.

The rally to record highs invites historical comparison with January 1980. What drove prices to record highs in 1980? Gold thrives on risk and uncertainty, be it political, economic, financial or even social, all of which were elevated in that period. Are the risks that buoyed gold prices in 1980 comparable to those powering the gold market currently? Is the world effectively riskier? Was it less or more economically challenged or fractured then compared to today and what can that tell us about gold prices? High prices were not sustained as the rest of 1980 unfolded and bullion fell almost uninterruptedly for the rest of the decade, ending 1989 at just above US$400/oz. Could the gold market be in for a similar decline or are the new forces at work likely to sustain gold at or near record levels?

1980s All Over Again?

The run up to the then record high of US$850oz in January drew global media attention and was largely in sync with record high silver prices of US$50/oz. The surge in gold was mostly driven by high inflation with prices rising at rates not seen in many countries since before WW2. Price increases were fomented in part by high oil prices and supply interruptions in the wake of the Iranian revolution. The 1979-80 energy crisis, also known as the second oil crisis, also helped destabilise financial markets, notably equities. The global order was further strained by escalating geopolitical risks in the wake of the Soviet invasion of Afghanistan and the US Embassy siege in Tehran. The dual impact of rising prices and escalating geopolitical risks supercharged gold.

The events of 1979-80 were only the latest in a decade long series of destabilising economic and political events leading to higher gold. Inflation was on the rise well before the end of the Bretton Woods system. The system established a fixed exchange rate system with the US dollar as the anchor and pegged gold prices, formally ended in 1973.

Meanwhile, the US effectively ended the dollar's convertibility to gold in 1971. The gold run-up that followed was initially in response to the artificial maintenance and suppression of gold prices under Bretton Woods, which kept gold at US$35/oz for most of the period that the system operated. In real terms, the gold price fell 75% from the time the gold market was regulated by FDR in 1934 to the end of Bretton Woods and the closing of the Gold Window in 1971. When the system ended and gold and the US dollar became freely convertible, prices surged with the bullion market in search of a rational equilibrium.

The demise of Bretton Woods coincided with the first energy crisis 1973-4 which also occurred in the wake of war and turbulence in the Middle East, the 1973 Yom Kippur War and OPEC-engineered oil supply disruptions. The end of the Bretton Woods also triggered a steep depreciation of the US dollar, notably against the D-Mark and Japanese yen, which also buoyed gold.

The period leading up to record high gold prices in January 1980 was marked by inept and harmful economic policies. Most notably inflation, which was fueled by expansionary monetary policies in western and non-western countries alike – triggering demand beyond productive capacity. Widespread commodity price increases, in addition to oil shocks including escalating food prices, were in part the result of poor Soviet harvests and drought.

On the geopolitical front, the NATO alliance was on the defensive in Europe in the face of an unprecedented increase in miliary spending by the Warsaw Pact. The Soviet Union and its allies made progress in winning over post-colonial states in southern Africa and elsewhere. In short, it appeared that the US and its allies were losing the Cold War, that economic malaise had become a fact of life and that western countries were on the defensive. The S&P 500 experienced a substantial decline for much of this period and the Dow Jones Industrial Average saw minimal gains overall in the 1970s. Interest rates rocketed to offset rising inflation as government debt grew notably. This period was a particularly challenging one for equity markets. Stagflation (high inflation and slow economic growth) led to significant stock market downturns, particularly in 1973-4.

Crude oil drilling well in the Middle East

Contrasts to the Modern Day

While there are similarities between now and the 1980 period, we should be careful not to take this analogy too far. Two important drivers of gold in 1980, high inflation and unemployment, both in double digits, are currently modest in comparison to that period. This may be among the most striking differences between the two periods and does not indicate sustained high gold prices. Monetary policy has made significant progress at both controlling inflation and sustaining high employment levels. While labor market concerns have risen recently and inflation has been uncomfortably sticky, they are nowhere near the problem they were in 1980. Similarly, equity and financial markets appear in far better shape now than they were in 1980.

GEOPOLITICAL RISKS HAVE RISEN TO LEVELS NOT SEEN SINCE THE COLD WAR – CONTRIBUTING TO GOLD DEMAND ACROSS A WIDE NUMBER OF FRONTS.

The geopolitical front has a different but nonetheless powerful set of challenges. After moving into a unipolar world with US hegemony largely assured in the wake of the collapse of the Soviet Union followed by its dismantling and end of the Cold War – a period which saw a near constant decline in gold prices as geopolitical risks receded. The US and its allies now face a new set of challenges to the Western order. China has emerged onto the world stage. This is one of the great differences between 1980, and previous gold market, and now.

In addition to assuming the place of a rival to the US in the Asia Pacific region and other areas of the world, China appears locked in a rivalry with the US for economic as well as technological global dominance. While possibly not an ideological rival to the US, as was the case with the USSR, China is a very real economic and political competitor in the emerging world. Moreover, a more truculent Russia has re-emerged.

The invasion of Ukraine and push against an expended NATO brings a fresh set of challenges that directly support gold prices. That being said, it is hard to draw precise comparisons with 1980 and, as volatile as the situation may be currently, the international climate does not look as problematic and dangerous as it was in 1980.

US leadership, however, is being challenged and turbulent times typically rally gold prices. In real purchasing terms, oil and other energy products, agricultural products and food as well as a host of raw materials are cheaper now than in 1980. The most obvious example of this being oil. This also further establishes that gold prices should not be at 1980 levels.

Central Bank Demand

In 1980, central banks were not actively buying gold. To the extent they were active in the market, they were sellers, but not significant ones. Western central banks had come off a period of gold accumulation as the Banque de France and others exchanged US dollars for gold in the waning years of Bretton Woods. After 1991 and the end of the Cold War, these same central banks were notable sellers, but by and large central banks which were not involved in the gold market in 1980. This stands in stark difference from today. The near 50% rise in price in the 2022-4 period was driven primarily (but not exclusively) by central bank demand for gold. After averaging 455t for the previous ten years, central bank demand shot up in 2022 to 1,081t – at the time the most since 1968, when gold operated under the Bretton Woods System and helped to take gold above US$2,000/oz.

Presidential Office, Ukraine War, April 2023.

Soviet armed forces return to Afghanistan in 1979.

Demand remained near historical levels in 2023 when official sector demand totalled 1,051t and inched up to 1,086t in 2024 according to the IFS. When compared to mine production, almost one out of every three ounces that was mined in 2022 and 2024 went into a central bank vault.

The elevated position of gold in central bank reserves is highlighted in recent reports by the World Gold Council, the European Central Bank (ECB) and HSBC. Global holdings of gold by the official sector now stand at more than 36,000t, according to the IFS, approaching the all-time high of 38,000t reached in 1965 during the Bretton Woods era. Based on the sharp increase in prices and continued central bank accumulation, the share of gold in global foreign reserves at market prices has leapt to 20%. A number that surpasses the share of the euro (16%) and comes second only to the US dollar as highlighted in the ECB's annual report on the international role of the euro. The survey data suggest that two-thirds of central banks invested in gold for purposes of diversification, while two-fifths did so as protection against geopolitical risk. ECB surveys used in the report reaffirm drivers of demand as well as a more recent HSBC Reserve Management Trends: Survey Results (15 April 2025). The survey suggest that hedging motivated by economic and geopolitical factors played a role in these historically large purchases of gold, notably in emerging and developing economies and that countries that are geopolitically distant from the West.

These have been the most active diversifiers into gold. A shift away from the US$, or de-dollarisation, is an important element in gold demand. However, the USD is likely to remain the world's reserve currency for the foreseeable future.

China and Emerging Nations

The buying power of the emerging world regarding gold is enormously more substantial now than in 1980. The 1980 period predates the liberalisation of the gold market and other reforms initiated in the 1990s.

China was essentially isolated from the world gold markets. India has also been a part of the global bullion market but limited foreign exchange and other issues kept India's participation to a minimum. Mainland China and India together account for 50% of global physical gold demand, half of which is in jewelry. Despite being the world's largest gold producer, China can attract the equivalent of as much as one-third or more of global mine production in imports in normal years. China imported 1,240t in 2024 up from 818.3t of gold in 2023. India is usually the second-biggest importer of gold in the world after China. Having almost no domestic gold mining industry of its own, all new demand not covered by recycling must be met by imports. In July 2024, in a bid to reduce smuggling, import taxes were reduced to 6% from the previous 15%. After a brief jump; however, 2024 imports still came in 135t below the previous year's levels at 712t. This is still significantly above 1980 levels.

A Comparative Snapshot of Gold Drivers: 1980 vs. 2025

1980	2025
US CPI Inflation Rate: 13.9%	US CPI Inflation Rate: 2.7%
US Unemployment Rate: 6.3%	US Unemployment Rate: 4.1%
US Misery Index: 20.2%	US Misery Index: 6.8%
UK CPI Inflation Rate: 14.7%	UK CPI Inflation Rate: 4.1%
UK Unemployment Rate: 5.7%	UK Unemployment Rate: 4.7%
UK Misery Index: 20.4%	UK Misery Index: 8.8%
US Debt-to-GDP: 31.37%	US Debt-to-GDP: 120.87%
Five Largest Economies: United States, Soviet Union, Japan, West Germany, France	Five Largest Economies: United States, China, Germany, India, Japan
Political Leaders: Carter (US), Brezhnev (USSR), Thatcher (UK)	Political Leaders: Trump (US), Putin (Russia), Xi (China)
World GDP: $11.45 trillion	World GDP: $111.33 trillion
World GDP per capita: $2,580	World GDP per capita: $13,673
Geopolitical Risk: 153.02	Geopolitical Risk: 148.06
USD Index: 107.71	USD Index: 98.636
Federal Funds Effective Rate: 13.82%	Federal Funds Effective Rate: 4.33%
10-Year Treasury Yield: 10.96%	10-Year Treasury Yield: 4.41%
Mine Production (1979): 876 tonnes	Mine Production (2024): 3,673 tonnes
Jewelry Fabrication (1979): 672 tonnes	Jewelry Fabrication (2024): 1,878 tonnes

In Conclusion

The table on page 20 shows some differences between January 1980, which saw gold at a then all-time high of US$850/oz and today. In many respects, the drivers of gold in 1980 are much less virulent than today: inflation and unemployment are far lower, and advances in monetary and economic theory have helped stabilise financial markets. Enormous economic and technological progress has reduced some elements of gold demand. Overall commodity prices – which help determine gold prices – are lower in real terms. This gives pause for concern.

It is much harder to quantify geopolitical risks. While they have clearly risen in recent years, with the challenges of China and a more truculent Russia, it is still likely that the risks of global confrontation are lower now than at that period.

However, US leadership is – as in 1980 – undergoing challenges which help stimulate gold demand.

The sheer level of demand from the official sectors emerging world, particularly China, may very well be the crucial difference. Gold is consumed in vastly greater quantities by investors, retailers and the official sector. Although mining supply has risen, demand appears likely to remain strong. That said, there may still be lessons from 1980. Changes in the political landscape including the election of Ronald Regan in the US and Margaret Thatcher in the UK, followed by wins on the geopolitical fronts by the US and its allies and economic rejuvenation, spelled the end of a very powerful gold bull market in 1980. Changes in the current global climate – be they tackling fiscal debt, tariff dispute resolutions, a reduction in geopolitical risk or reproachment between the US and China – may also have a negative impact on gold.

James Steel
Chief Precious Metals Analyst, HSBC

Jim joined HSBC in May 2006 and previously ran the New York research department for Refco, a large US commodities brokerage house, specialising in energy and metals. He also worked for The Economist in the Economist Intelligence Unit covering commodity producing nations and on the Middle East desk.

His primary duties at HSBC include the production of daily market reports, including long term outlooks for the precious metals markets. These include supply/demand and price forecasts, as well as qualitative analyses. He is a frequent speaker at commodities related conferences. He is often quoted in the financial media and frequently appears on Bloomberg and CNBC.

He is an economist by training and studied economics at undergraduate and graduate levels in London and New York.

LBMA Updates

LBMA'S Independent Governance

The LBMA Board has an independent Chairman, as well as Non-Executive Directors, which ensure the independence and integrity of the governance of LBMA.

The Sub-Board Group, comprising independent Non-Executive Directors, Chief Executive, and Executive Directors, continues to strengthen our governance framework. Market Making Members also sit on the Board and ensure that the market is steering the strategy of LBMA. Beyond that, we have many sub-committees and working groups in which market participants can be engaged.

LBMA AGM Updates

It was announced at LBMA's AGM on Wednesday, 2 July that Martin Fraenkel (former LME NED) has accepted to join LBMA as an Independent Non-Executive Director (iNED) on September 1, 2025. Martin has over 30 years' experience in global commodities, with senior roles at Rothschild & Co, JP Morgan, Dresdner Kleinwort, CME and S&P Global Platts - where he was President and CEO - as well as Chair of Pexapark AG and VAKT Global, and former NED of the LME and CRISIL.

Furthermore, elected Market Making Members were announced at as Raj Kumar (Morgan Stanley), Matt Slater (UBS AG), and Vincent Domien (HSBC). Playback of the AGM is available to watch on the LBMA Members' Portal.

LPMCL Welcomes New iNED: Ian Warman

London Precious Metals Clearing Limited (LPMCL) has announced the appointment of Ian Warman as an iNED to the LPMCL Board.

Ian is an industry veteran with career experience at JP Morgan, Caylon and Standard Chartered with a background in precious metals technologies and operations. Ian is a former Chairman of the LBMA Physical Committee.

LBMA DATES FOR YOUR DIARY 2025

4 SEPTEMBER
LBMA CEO Members' Town Hall

26-28 OCTOBER
LBMA/LPPM Global Precious Metals Conference

2 DECEMBER
Women's Networking Event

3 DECEMBER
LBMA Annual Seminar & Dinner

To find out more about LBMA events, please visit www.lbma.org.uk/events or email events@lbma.org.uk

Fundamental to Modern Life: Exploring the Platinum Group Metals Opportunity

By Margery Ryan
PGM Advocacy and Strategy Manager, Johnson Matthey

Rare and expensive, the platinum group metals (PGMs) are desirable as precious metals for investment and jewellery. But as industrial metals, being rare and expensive reduces their appeal. While this does not lessen their widespread use – in numerous settings, there is simply no workable alternative – it does dampen enthusiasm to find new ways to use PGMs.

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At worst, some researchers may be trying to replace PGMs in a functional technology with an alternative material, typically a base metal – even at the risk of hampering the optimal functioning of the technology in question. It is the position of many research groups that PGMs should be substituted with more 'earth-abundant' metals such as nickel wherever possible, because of the perceived benefits for sustainability and cost, which may even justify some performance trade-off.

In fact, the avoidance of PGMs in innovation is largely based in misperception; there are good reasons why scientists and engineers should feel justified not just in retaining PGMs in current technologies, but also in investigating new PGM-enabled technologies to address unmet needs and unsolved challenges. We call this the PGM opportunity.

The opportunity derives from the special properties of PGMs, coupled to the unique profile of PGM supply and demand. A wider understanding of these is needed to ensure that the PGM opportunity is fully exploited.

The Power of PGMs

The PGMs are potent catalysts, and there are many chemical processes that would not work effectively without them. This is perhaps most obvious in their use as emissions control catalysts in vehicles, where only PGMs can convert pollutants to much less harmful substances quickly and efficiently enough in the short time it takes for exhaust gases to pass through the catalytic converter. In this setting with its stringent requirements, no compromise on performance is possible and PGMs have been the only viable option for over fifty years.

But this unmatched catalytic power also enables processes – far too many to list here – that make numerous fuels, chemicals, fertilisers, and pharmaceuticals.

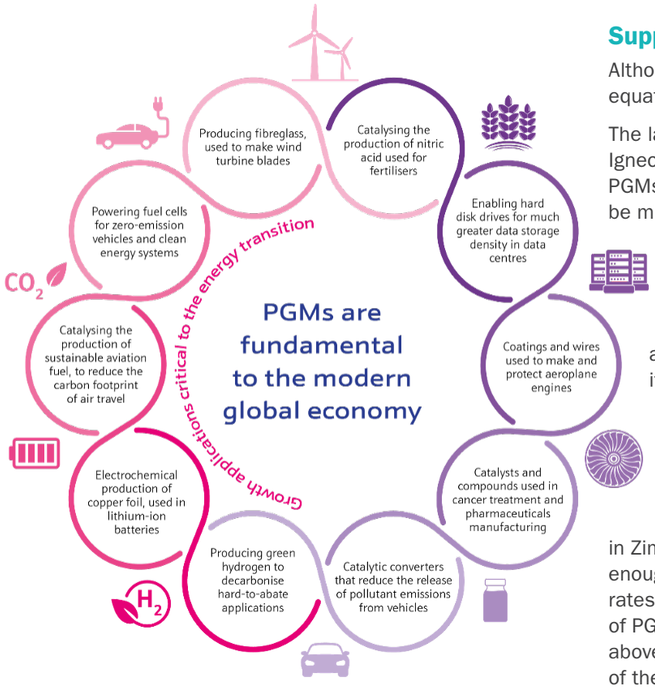
For example, a JM analysis found that just over 80% of the small molecule drugs approved by the FDA in 2023 were likely to contain at least one PGM-catalysed reaction in their synthesis.

As metals, the PGMs are corrosion resistant with high-temperature durability. This set of properties opens up another sphere of application, in everything from aircraft engines to making fibreglass and display screen glass. And then a diverse set of more esoteric properties sees PGMs feature heavily in the electronics world, notably in hard disks for data centre storage and various components for electronic circuits, and in healthcare, within a variety of devices and diagnostics and in core anticancer treatments.

Taken together, it is no exaggeration to say that PGMs are fundamental to modern life. This should challenge the perception that PGMs are too rare to be employed in large-scale applications.

Metal Efficiency

But how is it possible that metals supplied in quantities of just a few hundred tonnes a year can do all this? The answer lies in the high efficiency with which PGMs are used, a combination of low intensity (very little metal is needed to deliver the required impact) and high recyclability (each atom of metal can be reused multiple times, without losing any of its properties). This is the missing part of the equation: the rarity of PGM supply is matched by the thriftiness of PGM consumption.



This thriftiness must be considered when calculating the actual cost of PGM in a technology. Comparing, for example, the cost of a gram of palladium to a gram of nickel and assuming that palladium is the expensive option is far too simplistic. Once lower metal loading, higher metal recycling, and a more effective process are accounted for, palladium may emerge as the cheaper option. As counterintuitive as it seems, this is often why PGMs will not be replaced even in applications where base metals are technically an alternative.

The same applies to carbon footprint, where a comparative lifecycle analysis may reveal the PGM as the more sustainable option. Such an analysis is particularly necessary in applications that tend to retain and reuse their metal through closed-loop recycling: the carbon footprint of recycled PGMs today is about 97% lower than when they are first mined.

Thriftiness tends to increase the longer a PGM is used within a technology. Ongoing technological development and refinement is a feature of many PGM applications – not least to minimise cost. This either results in the amount of PGM within the technology decreasing, or the same amount of metal delivering more output.

An example of the former is platinum and iridium used as catalysts in proton exchange membrane fuel cells and electrolysers in the hydrogen economy, where the quantities required today are an order of magnitude lower than on first invention – with further reductions in the pipeline.

Automotive emissions control catalysts are a good example of the latter: globally, the average amount of PGM used in a catalytic converter today is not much more than the quantity used decades ago. And yet the catalytic converters on modern cars remove an order of magnitude more pollutants from the exhaust stream than was acceptable a couple of decades ago.

Supportive Market Dynamics

Although the PGMs are geologically rare, this does not equate to scarcity.

The largest PGM deposit on Earth is the Bushveld Igneous Complex in South Africa, and that ore contains PGMs at parts per million level. A tonne of rock must be mined and processed to produce just a few grams of PGMs. This compares to copper and nickel ores where ore grades are measured in percentages and a tonne of rock yields kilograms of metal.

Clearly, then, copper and nickel are far more abundant. But regardless of geological abundance, if demand for a metal outstrips supply, scarcity occurs. And this is what is feared for metals such as copper, as demand in the energy transition grows and supplies fail to keep up.

PGMs have an entirely different dynamic. The Bushveld Complex, and other well-known deposits in Zimbabwe, North America, and elsewhere, host enough PGMs to last for decades at current mining rates. Supplementing what sits below ground, decades of PGM use have established large ‘urban mines’ – metal above-ground that is a source of future supply by virtue of the recyclability of PGMs. The most important of these urban mines is the vast numbers of catalytic converters still in use on the world’s roads, which will be a source of low-carbon PGM supply for decades.

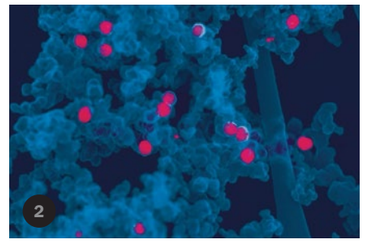
Catalytic converters for new vehicles are still the largest PGM market, accounting for over 60% of PGM demand. The rise of hybrid vehicles and tightening emissions standards worldwide mean that demand remains robust, but it will gradually transition as pure battery vehicles take market share. This opens up space to accommodate new markets for PGMs, and specifically for palladium, platinum and rhodium, the three PGMs used for automotive emissions control. Indeed, replacement markets for these three metals are being actively sought by the PGM industry to fully exploit its supply capabilities.

Mature Infrastructure

Their long history of widespread industrial use and recycling means that PGM-using technologies benefit from mature supply chains, plus well-established processing infrastructure and global recycling networks. These are centred in the UK and wider Europe, US and Japan. While China has a healthy appetite for PGMs, it plays a minimal role in global supply chains, in contrast to many other metals.

Although some new processing steps may be needed to facilitate new PGM applications, these will still benefit from existing infrastructure and assets. This greatly lowers the cost and shortens timelines to implement value chains for new PGM technologies and materials.

A few examples of important PGM applications: these metals are not too rare to enable large-scale applications across numerous technologies and supply chains.



Images:
1. PGMs enable R&D in innovative technologies to tackle global challenges.
2. Advanced techniques maximize the efficiency of every PGM atom (transmission electron microscopy image of a catalyst).
3. PGM chemical production uses existing infrastructure and supply chains (reaction vessel shown).
4. PGM sponge (powder): precious yet primarily used as industrial metals.

New Markets

So the PGMs have much to offer novel and nascent applications. This matters, because there are many areas in which new technologies are sorely needed to address rising challenges.

Applications within the hydrogen economy are a prominent example. PGMs are not limited to catalysts for fuel cells and electrolysers, but also feature in hydrogen storage and transportation, sensing, anti-corrosion plating, and hydrocarbon processing applications.An example of the latter is the use of PGM catalysts in fuel processing for solid oxide fuel cells that are highly efficient power sources for data centres.

The need for hydrogen in the energy transition has been challenged by commentators who cite the superior energy efficiency of direct electricity use and batteries. However, this ignores the intense metal needs of both batteries and electricity infrastructure: simply put, there just is not enough copper, lithium, nickel and other critical metals available to allow electrification to cater to most of our energy use. PGM-based hydrogen technologies make much more efficient use of metal overall and have a crucial role to play in enabling a sensible energy transition within resource limitations.

But there are many other interesting application areas for PGMs emerging beyond hydrogen.

A brief overview of two of these areas explains why focusing on the ‘cost’ of PGMs risks being blind to their true value:

The chemicals industry faces a challenging evolution to more sustainable practices. In the production of fuels and chemicals from renewable feedstocks, PGMs have the tolerance to handle a new spectrum of impurities. The PGMs are also being explored for their catalytic ability to break down ‘forever chemicals’ such as PFAS, chlorinated organic pollutants and volatile organic compounds before these toxic substances can escape into the environment, and to enable more sophisticated plastics recycling processes.

A digital revolution is underway alongside the more widely discussed energy transition, which will create increasing demand for high-performance metals. PGMs are of interest in advanced semiconductor production, in data storage – in ferroelectric capacitors, dynamic random access memory (DRAM) and non-volatile memory – and as contact and resistor materials. In the drive towards microminiaturisation, a wider spectrum of applications is expected in which the unique properties of PGMs are required to deliver high unit performance.

Seizing the Opportunity

There is growing excitement around PGMs and what they have to offer to innovation as the myths around scarcity and expense are examined and dismissed. With efficient infrastructure already in place, PGMs will continue to be supplied and have a long and beneficial lifetime above ground. Small but mighty, they are already intrinsic to every aspect of modern life, and their developing applications will contribute to solving some the world’s most urgent and complex problems.

More information visit:
PGM recent publications | Johnson Matthey

Margery Ryan
PGM Strategy and Advocacy Manager, Johnson Matthey

Marge leads PGM advocacy for Johnson Matthey and is also a member of JM’s PGM Market Research team.

After graduating as an engineer from UCT, she started her working life with Implats, before emigrating to the UK in 2006 and joining Johnson Matthey, where she has held a variety of roles.

Over the past ten years with Market Research her focus has been on analysing the energy transition and its implications for the PGM industry, and she also contributes to JM’s climate scenario modelling.

Marge is an active advocate for PGMs, working to educate stakeholders to ensure the full power of these metals is harnessed to serve the energy transition, health, and environmental sustainability.

In Remembrance
Paul Tustain
(1963 – 2025)

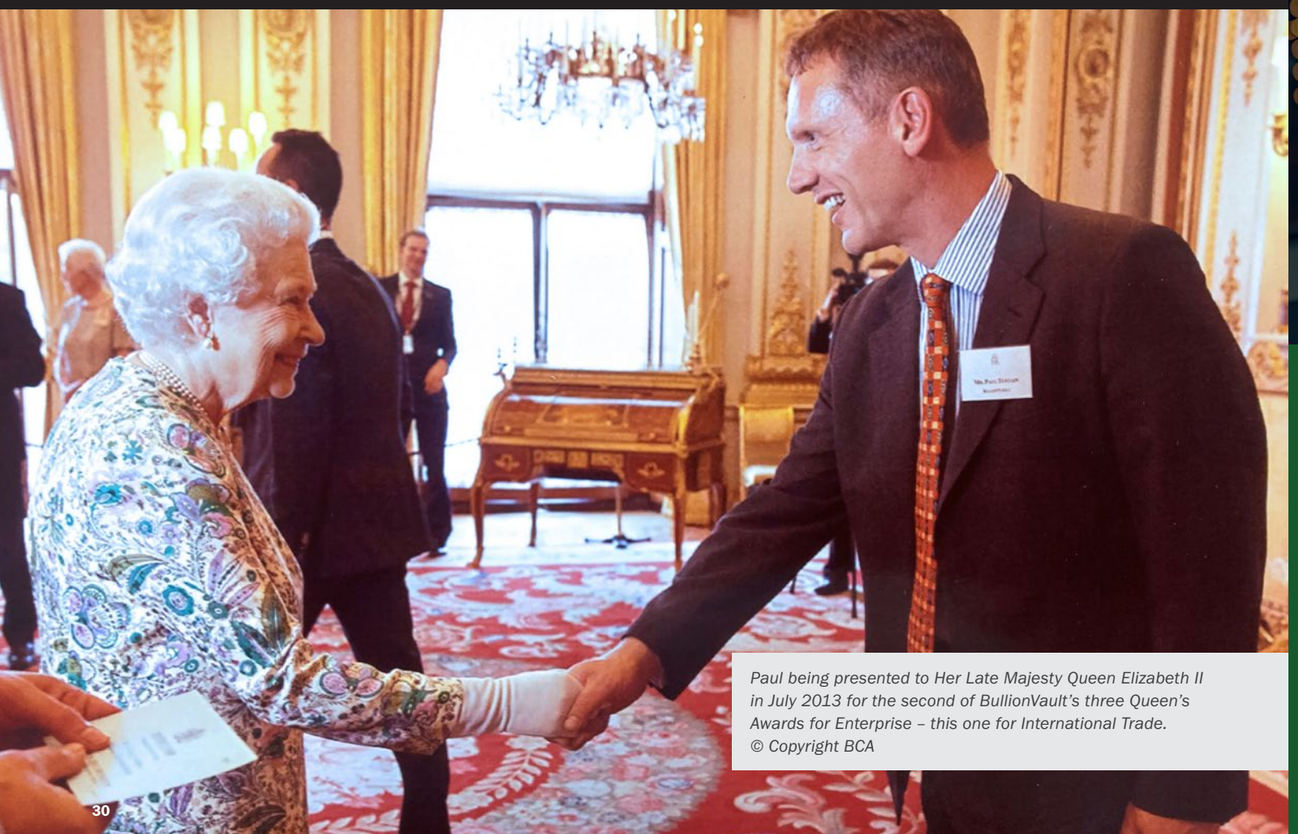
BullionVault wishes to thank everyone who has sent such kind condolences following the tragic loss of Paul Tustain, Founder and Chairman, in a motorbike accident at the age of 62.

Paul took a unique path into our industry, and he leaves it different to how he found it. An entrepreneur in the digital 'plumbing' of City settlement systems, Paul suddenly took an interest in gold when, at the turn of the millennium, the UK Treasury ordered the Bank of England to sell half the nation's reserves at what proved to be rock-bottom prices.

Gold must be undervalued, thought Paul. But he found the dealing spreads in retail bar and coin far too wide, while unallocated accounts carried credit and default risk. So, he set about building a platform to satisfy his own exacting aims as a private investor, while quickly making friends and allies across the industry.

"Paul widened the width of our market," said John Coley, then at Brink's, "enabling the man on the street to access wholesale prices," through BullionVault's 24/7 marketplace. "Paul innovated in legal title," added David Gornall, then at Natixis, "giving private investors ownership of grams of fine gold, 'undivided in bulk' in Good Delivery bars, and proving full allocation each day by publishing the vaults' Bar Lists – a move followed by other services including gold-backed ETFs." Accepted as an LBMA Membership in 2008, BullionVault was the first full member dedicated to private investors.

Although Paul stepped back from managing the business a decade ago, he continued to champion gold and Good Delivery in online articles full of his inimitable wit and insight. A fierce advocate of free markets, Paul loved meeting and encouraging new entrepreneurs in precious metals and became great friends with many competitors. A celebration of Paul's life is being planned for later in the year.



Paul being presented to Her Late Majesty Queen Elizabeth II in July 2013 for the second of BullionVault's three Queen's Awards for Enterprise – this one for International Trade.
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Facing Facts

How Does an Early Monsoon Affect Rural India Gold Consumption?

By Dr Narasimha Rao Nalamasu Meteorologist, Weather and Climate Group, London Stock Exchange Group
By Debajit Saha Research Lead, Metals, London Stock Exchange Group

Abstract

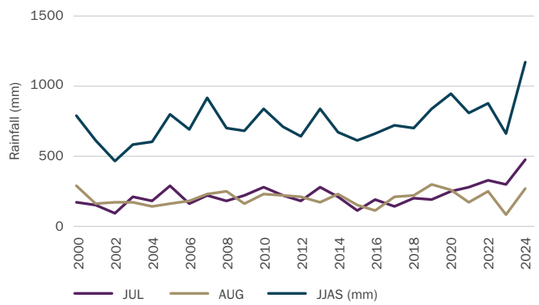
The Indian summer monsoon (ISM) commences in June and continues until September, directly influencing India's agricultural output. The ISM is affected by large-scale oceanic conditions, particularly the El Niño–Southern Oscillation (ENSO) and the Indian Ocean Dipole (IOD). The state of the monsoon – whether normal (above or below average) or deficient – determines the kharif crop yield. According to the Economic Survey 2024–25, published in January, agriculture accounts for 16% of GDP and supports 46.1% of the population, largely due to record kharif production. This article aims to explore the connection between monsoon rainfall and gold demand, as increased rural income often leads to higher savings, which are frequently invested in gold. Gold serves not only as a means of saving but also as a cultural asset used for various social obligations, such as weddings and religious ceremonies.

The ISM vs. Gold Consumption – A Close Affair

We analysed 25 years of data from 2000 to 2024. Given that southern India accounts for approximately 65% of gold demand, we focused our study further on that region. Since most of the sowing occurs in July and early August, we specifically examined rainfall data for July, August and the entire monsoon season (June to September) to gain a comprehensive understanding of how rainfall affects agricultural production.

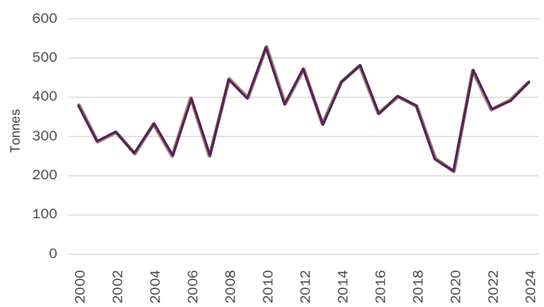
We discovered an increasing rainfall trend in July and a decreasing trend in August, while overall rainfall during the period (June–September) has remained progressive over the past 25 years (Fig. 1a). In the last five years, the Indian monsoon has been robust, influenced by a triple-dip La Niña effect (2020–2023), which has enhanced rainfall across the country. However, the decline in August rainfall has raised concerns about variability in sowing since 2020, which typically has adverse effects on agricultural output.

Fig. 1a: Indian Monsoon Rainfall (mm)



Source: IMD

Fig. 1b: Gold Consumption



Source: LSEG Metals Research

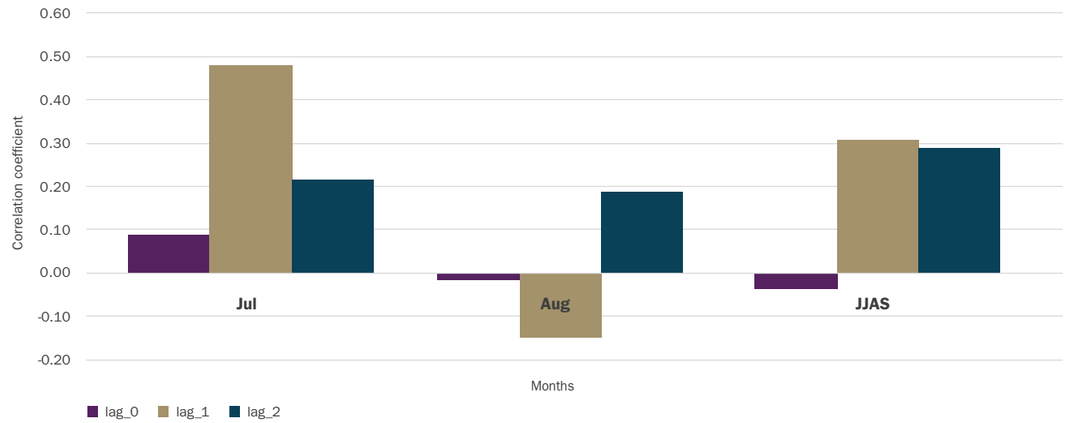
Monsoon rainfall (July, August and June-September (JJAS) vs. gold consumption.

The statistical analysis employed a lag-based method to examine the connection between the ISM and gold consumption over the last twenty years, specifically looking at rainfall in southern India (averaged for July, August and June–September) and gold demand during the third and fourth quarters.

The correlation between rainfall and gold consumption is illustrated across three lag intervals in Fig. 2. The lag_1 (one-year lag) shows the strongest positive correlation in July, reaching around 0.50, indicating that rainfall from the previous year has a significant impact on gold demand. Conversely, August presents a more intricate pattern: lag_2 shows a slight positive correlation (0.15), while lag_1 becomes negative (–0.10), and lag_0 appears insignificant.

For the entire monsoon period (JJAS), both lag_1 and lag_2 exhibit moderate positive correlations (~0.30), suggesting that rainfall with a one to two-year lead time is a better predictor of gold performance than current rainfall. This information is useful for agricultural planning and may influence trends in the gold market.

Fig 2: Rainfall vs. Gold



The Lagged effect of ISM rainfall vs. gold consumption.

ENSO and Monsoon Impacts on India's Gold Economy

Over the past two decades, the relationship between the monsoon and ENSO phases has revealed significant trends (Table 1). The analysis excludes years of global crises (such as the US market crash, COVID-19 and other crisis years such as 2007, 2010, 2014–15, 2019 and 2020) to clarify the relationship between the monsoon and gold consumption. Early monsoon starts are mainly linked to La Niña conditions, occurring in seven out of eight cases. In contrast, El Niño years are associated with delayed monsoon starts, seen in two instances. Neutral ENSO conditions present a more varied pattern, with one case each of early, delayed and on-time starts. Notably, on-time monsoon arrivals are infrequent, occurring only once during La Niña and once under neutral conditions, with no occurrences during El Niño years. These results underscore the significant impact of ENSO states on the timing of the Indian Summer Monsoon.

The arrival of early monsoons is closely linked to a rise in gold consumption, with eight instances indicating an increase and none showing a decrease (see Table 2). In contrast, delayed monsoons have a mixed effect, with two instances of increased demand and one instance of decline, suggesting potential pressure on gold demand. Timely monsoons also contribute to increased gold consumption, albeit to a lesser degree, with two positive outcomes and no declines. Excluding the crisis years, a strong 40% correlation has been observed between monsoon rainfall and gold consumption, highlighting the critical role of timely or early monsoon onset in boosting agricultural productivity and, consequently, gold demand.

Table 1: Monsoon Onsets vs. ENSO States

Monsoon onsets	La niña	El niño	Neutral
Early	7	0	1
Delay	0	2	1
On time	1	0	1

Table 2: Monsoon Arrivals vs. Gold Consumption

Metric	Early	Delay	On time
Increase	8	2	2
Decrease	0	1	0

Women walking with umbrellas during a monsoon in Kerala, India.

Outlook for 2025

The India Meteorological Department (IMD) predicts an above-normal monsoon for 2025, with rainfall expected to reach 105% of the long-term average (LPA). This aligns with our hypothesis of an early monsoon arrival, as it began in the last week of May, which is eight days earlier than usual. The Ministry of Agriculture and Farmers Welfare, Government of India, has reported an increase of 1.3 million hectares of sown area by June 20 compared to the same period last year. Consumer Price Inflation (CPI) has already decreased to below 3.5%, indicating optimism in the economy, as a good kharif harvest could help alleviate food inflation and boost rural incomes.

This year, India's gold jewellery demand has significantly declined due to high prices, with consumers primarily purchasing based on necessity, such as for weddings. India imported an estimated 260 tonnes of gold in the first half of the year, down from 310 tonnes during the same period last year. Jewellery demand has contracted by over 20% as the market adjusts to high prices. Anecdotal evidence suggests that most jewellery purchases are occurring through exchanges of old pieces for new ones. Locally, gold prices have been sharply discounted compared to international prices, at times exceeding $35 per ounce.

While demand remains somewhat indifferent to price, it may take time for consumers to adapt to consistently high price levels. With the monsoon indicating a strong potential for improved agricultural output, we anticipate that demand may begin to rise in the fourth quarter and continue into the second quarter of the following year. We also expect prices to ease around this time, approaching $3,000 per ounce internationally, providing much-needed relief to consumers.

Dr Narasimha Rao Nalamasu
Meteorologist, Weather and Climate Group, London Stock Exchange Group

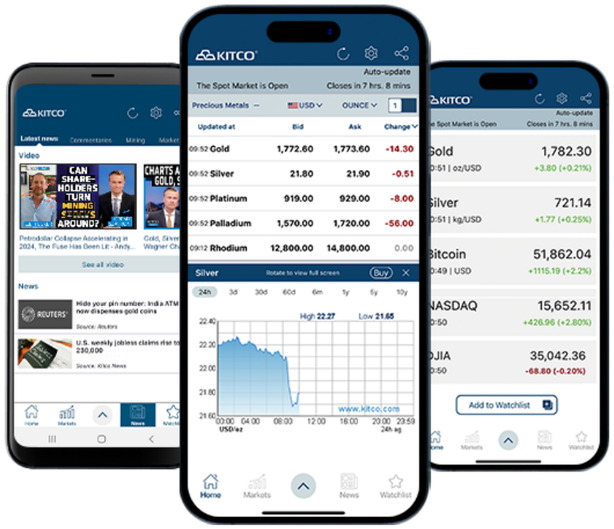
Dr. Narasimha Rao Nalamasu is a climate scientist with over 12 years of experience in atmospheric modeling, weather forecasting, and data assimilation. He holds a Ph.D. in Meteorology and has worked with premier institutions such as The Defence Research and Development Organisation (DRDO), Indian Space Research Organisation (ISRO), and Tamil Nadu Agricultural University (TNAU). He specialises in translating complex weather and climate data into actionable insights to support risk assessment and operational decision-making across sectors.

Debajit Saha
Research Lead, Metals, London Stock Exchange Group

Debajit is a Lead Analyst at LSEG, based in Mumbai. He is responsible for precious metals research in Asia, Middle East. He has a bachelor's degree from the University of North Bengal, India.

Spotlight on Kitco

Kitco joins LBMA as an Affiliate Member



1oz Silver Kitco Round.

5 QUESTIONS 5 ANSWERS

People come to Kitco not only to buy metals, but to make sense of the market itself. From real-time charts to in-depth interviews, we help connect the dots between what's happening in the world and what it means for gold, silver, and beyond.

What were the reasons for you wanting to join LBMA and what do you see as the key benefits of membership?

Joining LBMA reflects Kitco's long-standing commitment to integrity, transparency, and responsible practices in the precious metals space. We've always valued working within a framework that supports high standards across the supply chain, and LBMA sets the tone globally. Membership gives us the opportunity to stay connected with the latest developments, contribute to important industry conversations, and build relationships with others who are equally committed to strengthening the market.

Tell us about your company's role in the precious metals market?

Kitco plays a unique dual role. We are a global retailer of bullion products and digital metals, and we are also one of the most visited sources of news, data, and commentary in the precious metals space.

What's the background and history of the company?

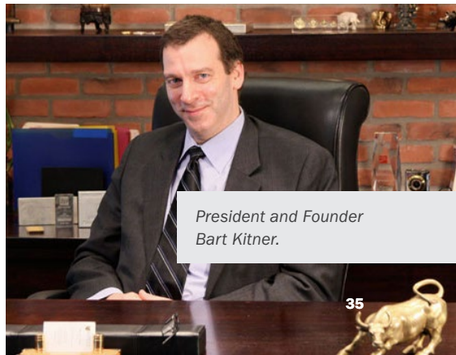
Kitco was founded in 1977 by Bart Kitner, who started the company while still a university student. What began as a small refining business quickly grew into a pioneer in online metals trading and information. We were the first to publish live market prices online, and that spirit of innovation continues to drive us today. Based in Montreal, we now serve customers across North America and around the world.

What factors do you expect to impact your business in the short to long term?

There is a lot happening in the global landscape. Inflation concerns, interest rate shifts, and geopolitical uncertainty continue to influence demand for gold and silver. Looking ahead, technology, regulatory shifts, and a stronger focus on ESG principles will shape how customers engage with precious metals and what they expect from companies like ours.

What are your future plans for the business?

We are focused on making it easier for people to access and understand the precious metals market. That means enhancing our digital platforms, expanding educational content, and building strategic partnerships. As a customer-centric company, we're committed to designing products, services, and experiences that reflect the needs and preferences of the people we serve. We are also exploring new formats for buying and storing metals that align with how customers want to engage with the market. At our core, we will always be about trust, transparency, and accessibility.



President and Founder Bart Kitner.

Your refining partner of choice

The Perth Mint is one of just seven global referees for the LBMA, the leading authority on precious metals markets and standards, reinforcing our status as one of the world's most trusted refiners.

Our significant investments in advanced refining operations, including a flameless casting chamber, automated gold and silver casting lines and advanced granulation systems, are making our processes cleaner, safer and more efficient, keeping us at the forefront of technology among global refiners.

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