Minutes of the Advisory Board Meeting

February 3rd, 2023

Gold and Silver –

The Insider Perspective

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Key Take Aways:

- **Central bank buying was a standout factor in the gold market in 2022, with the largest purchases since 1967.**

- **Strong bar and coin demand was another significant factor, with a total of 1200 tonnes, much higher than average ETF inflows.**

- **The gold price in US dollars had a record high average for the year, despite the strong US dollar and rising interest rates.**

- **The use of silver in green technologies, particularly in the automotive industry, is expected to increase in the coming years as governments focus on decarbonization and new technologies emerge. The Silver Institute is working to raise awareness of silver as a green metal.**

- **Physical investment in silver jumped 18% to a record 352 million ounces in the past year. This increase is partly due to investor fears of inflation, the Russia-Ukraine war, and recessionary concerns.**

- **Our research shows that gold has traditionally performed very well during recessionary periods.**

Biography of our special guest: John Reade

John Reade joined the World Gold Council in February 2017 as Chief Market Strategist. He is responsible for producing strategy and developing insights on the gold market; leading our global dialogue by engaging with leading economists, academics, policy makers, fund managers and investors on gold; and leading our research team.

John has over 30 years' experience in the gold industry and related fields, most recently as a partner and gold strategist with Paulson & Co for the past seven years. Prior to that, he worked as a precious metals strategist at UBS for 10 years; a gold equity analyst in South Africa for 5 years; and over 8 years held various positions in production and project evaluation in the gold division of Gencor, then a leading South African mining house.

John has a degree in Mining Engineering from the Royal School of Mines, a constituent of Imperial College, London.

Biography of our special guest: Michael DiRienzo

Michael DiRienzo serves as the Executive Director of the Silver Institute, an international association whose membership comprises the major participants in the silver industry. In that capacity, Michael manages the Institute's overall daily activities, budget development and management, implementing the annual plan, public affairs, and government relations activities.

From 1999-2002, Michael served as Vice President of the Gold Institute, managing that association's government and public relations activities. Prior to 1999, Michael served as a government affairs representative for Janus/Merritt Strategies, a political and strategic management firm. Michael also represented a member company of the Toyota Group as Director of Government Relations. Formerly, Michael served as Legislative Assistant and Press Secretary to the Chairman of the House Rules

Committee, US Congressman David Dreier (R-CA). During his tenure with the Chairman, Michael worked on House Banking Committee and Rules Committee issue.

Ronnie Stöferle

Gentlemen, a warm welcome. Happy New Year, although it's already February the third 2023. Welcome to this Advisory Board meeting for our Inflation Protection Fund. We've got two very, very special guests. John Reade. John, welcome. You're a chief Market Strategist of the World Gold Council. Thanks for taking the time.

John Reade

You're welcome, thank you very much for the invitation.

Ronnie Stöferle

And we've got Michael DiRienzo, the head of the Silver Institute.

Michael DiRienzo

Thank you so much, we appreciate the opportunity.

Ronnie Stöferle

Michael, may I ask, is your name from Italian origin?

Michael DiRienzo

It is indeed. Yes. It's from the northern part of Italy. Absolutely.

Ronnie Stöferle

Excellent. Gentlemen, thank you very much for taking the time. Mark, hi.

Mark Valek

Hey there. How's everything?

Everyone

Hi Mark!

Ronnie Stöferle

We will talk about what's going on in the gold world, what's going on in the silver world. What are the most important drivers what's happening on the supply side? What's happening on the demand side, and we truly look forward to this conversation with two experts in the gold and in the silver space. Let me give you a brief introduction, a brief biography of John and Michael first. John is the chief Market Strategist for the World Gold Council. He joined the World Gold Council in February 2017. As a chief Market Strategist and is responsible for producing strategy and developing insights on the gold market, leading the global dialogue by engaging with leading economists, academics, policymakers, fund managers, and investors on gold. And he's also leading the research team at the World Gold Council. John has over 30 years of experience in the gold industry and related fields most recently as a partner and gold strategist, with Paulson & Co for seven years. That was probably after the GFC (Global Financial Crisis), right? (Yes.) Very interesting, and prior to that you worked as a precious metal strategist at UBS for 10 years, and as gold equity analyst in South Africa for five years. And over eight years, in various positions in production project evaluation in the gold division of Gencore, then a leading South African mining house, you've got a degree in mining engineering from the Royal School of Mines, a constituent of Imperial College London. John, thank you very much. Also, I want to sincerely thank you for the support that you're giving us and our whole team. I know when we're writing and researching chapters for our *In Gold We Trust* report, you're always a helping hand when it comes to data and when it comes to helping us. Yeah, we really appreciate it. We also had a fantastic interview with your colleague, Terry Heyman about ESG. Thank you very much for working so closely with the whole industry and with us.

John Reade

It's a pleasure. Thank you very much Ronnie.

Ronnie Stöferle

Then Michael, you're probably not so well known, but therefore, I really look forward to having the opportunity of talking to you. Michael serves as the executive director of the Silver Institute, an international association whose membership comprises the major participants in the silver industry. In that capacity Michael manages the institute's overall daily activities, budget development and management, implementing the annual plan, public affairs and government relations activities. From 1999 to 2002, Michael served as vice president of the gold Institute, managing that association's government and public relations activities. Prior to that, Michael served as government affairs representative For Janus/Merritt Strategies, a political and strategic management firm, Michael also represented a member company of the Toyota Group as Director of Government Relations. Formerly, Michael served as Legislative Assistant and Press Secretary to the Chairman of the House Rules Committee, Congressman David Dreier (R-CA). During his tenure with the Chairman, Michael worked on House Banking Committee and Rules Committee issues. Michael, thank you very much, again, for taking the time.

Michael DiRienzo

Thank you. Again, thank you for this great opportunity.

Ronnie Stöferle

Before we jump into the discussion, just a couple of housekeeping notes, what's going on, on our side. Well, the fourth quarter has been very, very busy for us. We got quite a lot of inflows and lots of awards for our funds, especially for the Inflation Protection Fund, but also for our All-Seasons Fund. Now, we're pretty busy. As always, with managing our funds, we are working on a new fund that will be in the silver mining space. That's something that we truly look forward to. And therefore, it's great having Michael here. We just published our new Monthly Gold Compass today. And then obviously, we're also already working on the 2023 edition of the *In Gold We Trust* report, which will be published on May 24th. We are entering the hot phase of the year, where we'll focus 100% on the *In Gold We Trust* report, crunching the numbers, researching topics that are relevant. And yeah, we kind of look forward to this phase, but also look forward to hitting the send button on May 24th. Because it's always lots of work. Gentlemen, let's jump into the discussion. Mark, do you want to start with the first question?

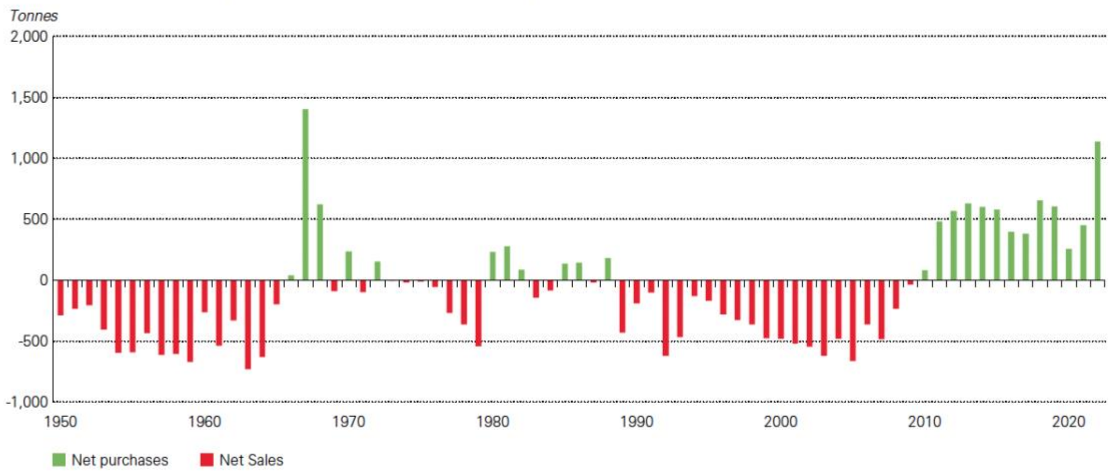
Mark Valek

I'd love to, okay, let's just jump in. Thanks for coming once more. I would like to start with a question for John, if that's okay. John, you just released your full year 2022 Gold Demand Trends research paper this week. I can highly recommend this to the listeners. This is available for free, one has to register, but it's always a great source of good information. Could you give us a rundown of the most important and interesting developments of 2022, which you've been following?

John Reade

Sure, I think the way that one of my colleagues who wrote this section summarize it, is very pertinent. It comes down to colossal gold buying from central banks. That’s the big standout headline from the gold market in 2022. There are some other factors in there as well, which I think are worth acknowledging. One is the extremely strong bar and coin demand, investment bars for gold, one kilogram or less, coins, and the like. That came in at 1,200 tonnes. A total gold market of about 4750 tonnes, we had 1135 tonnes of central bank buying. That‘s the biggest number that we‘ve seen since 1967. I think it is certainly the biggest number of central bank buying that we‘ve seen post the end of Bretton Woods. The market has been quite used to maybe 400, 500, maybe 600 tonnes of central bank net buying each year. So, this is approaching double those numbers. That‘s hugely significant.

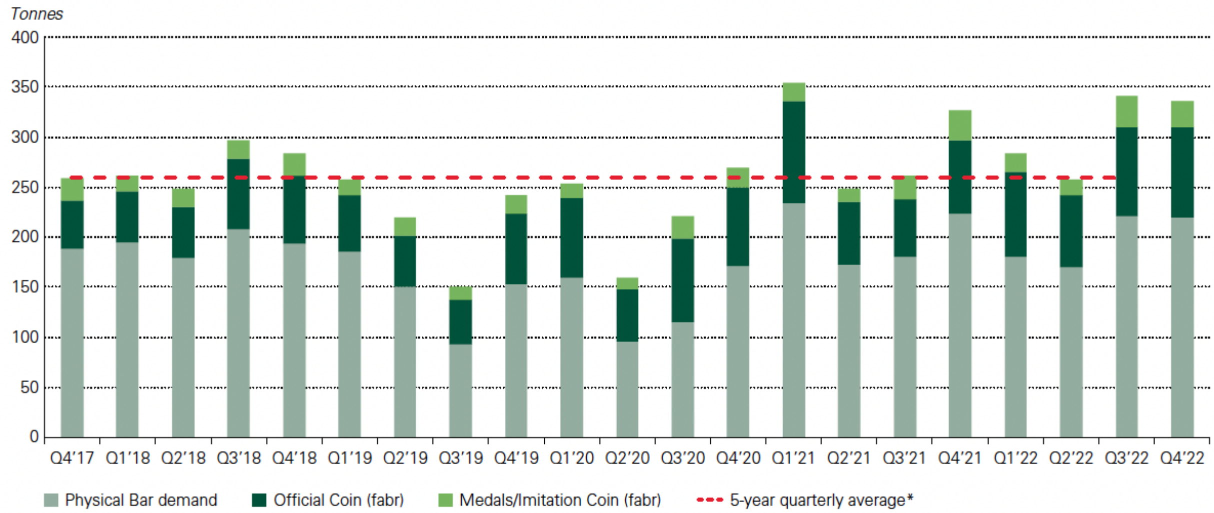
Central bank buying in 2022 was the second highest on record*



*Data to 31 December 2022.
Source: Metals Focus, Refinitiv GFMS, World Gold Council

Bar and coin demand is really important too. It‘s a big number. It‘s much bigger than the average inflows we‘ve seen into exchange traded funds. And it probably gets 5% or 10% of the attention from analysts, from contributors and from the media. Yet, it‘s much more important, very geographically diverse, and saw a step change higher during the global financial crisis and has taken another step change higher still, with COVID and the inflation, plus geopolitical issues that have followed. Those are the real two standout factors for 2022 in the gold market.

Bar and coin retail investment was buoyed in H2 by rising inflation*



* Average annual bar and coin investment Q4 2017-Q3 2022. Data to 31 December 2022.
Source: Metals Focus, World Gold Council

Other things that are obviously important: jewelry demand still on average about 34% of total demand, net demand for gold. That was okay. It was down a little year on year, but only because China ran into big COVID lock downs, if it hadn't been for China, it would have been comfortably up year on year. And now that China is going through its reopening wave, after the disruptions in the first quarter, we should see a strong bounce back from China, and barring a bad global recession, the jewelry market is doing just fine. Technology is a small component of gold demand. Unlike silver, which I'm sure we'll hear from Mike and all the exciting developments there. Technology demand for gold, about 7% of net demand. I'd like to look at it though, for two reasons. First of all, it demonstrates that gold is a relevant 21st century metal, and that we really need it for society, whether that's in electronics, whether it's in medicine, etc. But also, because it gives me sort of an indicator of what's happening with growth in the global economy, so much of it goes into electronics. And technology demand fell sharply in the fourth quarter, it was down 7% year on year, which is a big change for that.

So that gives me some comfort in thinking that the global economy is slow, and I'm sure we'll talk about some macro factors later. Other highlights from gold demand trends 2022. Well, first of all, the gold price in US dollar had a record high average for the year. I don't think many people outside close gold market followers would have thought that's the case. And of course, gold's performance in other currencies was much stronger. So, in a year when the US dollar was rampant for much of it and real interest rates, US interest rates in general went up so much, for gold to end up marginally higher, year on year and then a new all-time high, I think is really important.

On the supply side, we saw supply grow about 2%, with mine production increasing 1%, but still below the record levels that we saw for mine production in 2018. So that's interesting. There's increasing evidence, I think, that the gold mining industry is struggling to grow. There's been COVID disruptions and safety stoppages and other production issues. But, that's now four years since the high in 2018. And finally, another area that probably doesn't get enough attention, and that's the recycling supply of gold to the market. It's about 30% of the total and it varies much more than mine supply on an annual basis. So, it's really the components of price elastic supply to the market, usually. Last year was basically unchanged, I think it was up 1% year on year. But more importantly, you look at the peak year for recycled jewelry and electronics the so-called scrap or recycling component of the market. Recycling was down 30% on that peak year, despite the fact that we're at a higher average price. And that's really interesting, because it's showing a number of things, but not least of which is that even if price goes higher, it seems unlikely we're going to get inundated by this price elastic supply. I guess those are the highlights. Obviously, central banks, the big numbers, but there is more to it than that. And I would highly commend people who follow the gold market closely, if you're not signed up to our website, gold.org, go and have a look there. All of our research and data is free. We got a big team, an experienced team, and we're as objective as we can be. And I would I'd highly recommend gold demand trends plus the other stuff that we write as well.

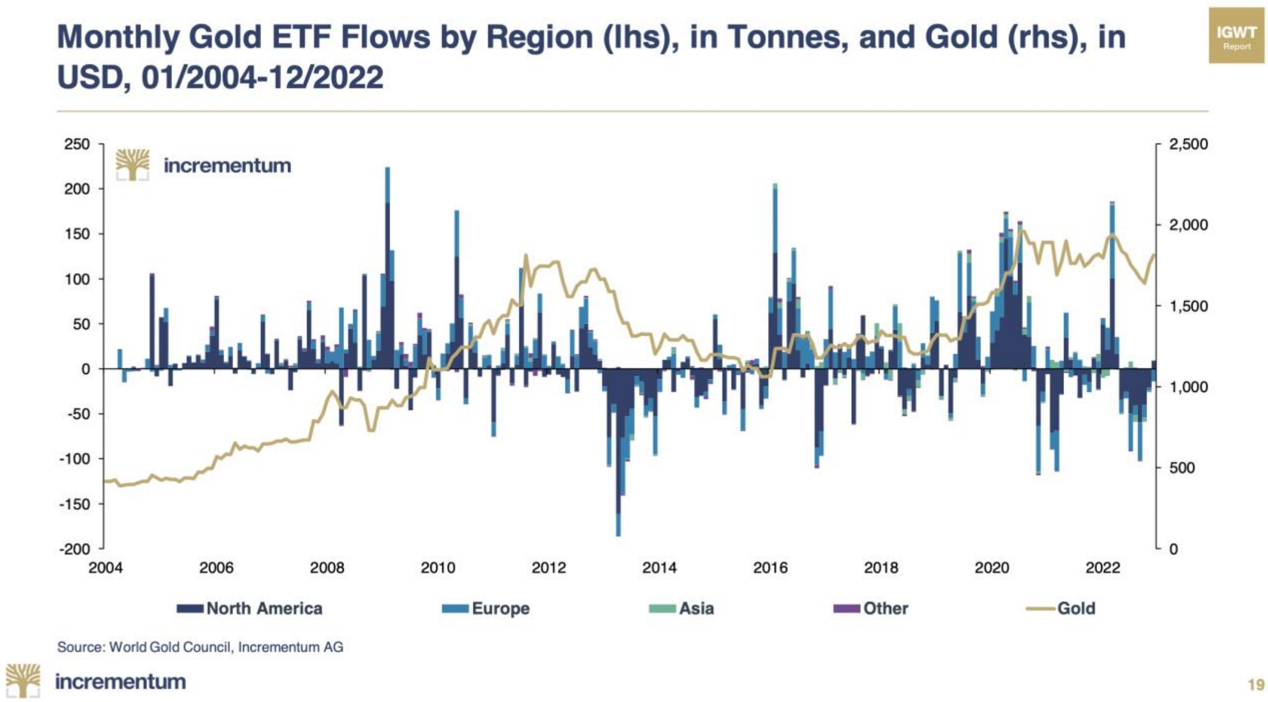
Mark Valek

Fantastic. Thanks so much. Perhaps I can just follow up shortly, you mentioned the elephant in the room, central banks. Actually, we've been postulating our thesis, it's not only us saying that that the marginal buyer was the Anglo-American institutional gold investor just looking at the ETS. And as you also said central bank demand has been a net positive since 2009, each and every year. But one couldn't really derive any price fluctuations from that. The gold price rose and fell during the last 13 years since central banks have been buying again, but this basically could have changed. I don't know if it's too early to say, but if you look at the very recent numbers, January that's something I noted, ETFs actually sold and central banks have been buying, and the price rose. I don't know if we're onto something in that regard, it's probably too early to say but it feels like as if central banks could become more and more important, actually to be driving the price. Am I onto something, you think?

John Reade

I think so, Mark, and in general I have viewed central bank purchases as being contributed to the market balance in gold, and they tend to support prices, rather than drive them higher. Now, that's been the case, I guess, over the last 10 years or so. And yes, you're right, we get annual fluctuations, and it doesn't seem to do much to the gold price in any one year, there are always so many other factors going on. I think in the second half of 2022. The magnitude of central bank purchases that we've reported, has shown up in the gold price. And if it is to continue at anywhere near that rate of the second half of the year, when 800 tons were bought, then I think it does have the potential to change the dynamics of the gold market. Now we'll come on to talk about silver with Mike in a few minutes. One of the things that I look at, is the gold/silver ratio. And typically, you generally see silver outperforming when the gold price is going up. And that tells me when that happens that we're generally in the right sort of environment, the normal sort of environment where investors and speculators are coming into the market lifting the gold price, perhaps with silver, smaller size, having a bigger impact there. The fact that gold's been rallying now since November and outperforming silver tells me something other than the usual is taking place.

The normal investor, fast money, retail money, who takes up gold and silver doesn't seem to be the driving force here. ETFs have sold gold throughout most of 2022 and even in a few first few weeks of 2023. But it wasn't a huge quantity, I think we were down, just checking 110 tons last year. And that's much less than we saw in terms of ETF outflows in 2021.



But it's it is very small compared to other sources of demand. But to me, it's an indication that there are more fundamental factors at work, and if you look at the numbers, the fundamental factors that you can point to are, number one, central banks and number two, bar and coin demand. There's also an argument that outflows from ETFs are a mixture of retail and institutional flows, but buying a bar and coin show a difference, in a way, between Main Street and Wall Street. Main Street is worried. Main Street is worried about inflation and geopolitics. Main Street is worried, potentially about the euro. Wall Street isn't. Wall Street is looking to buy the recovery in equities, when it sees the opportunity. And with a strong US dollar, doesn't see the need to own gold.

Mark Valek

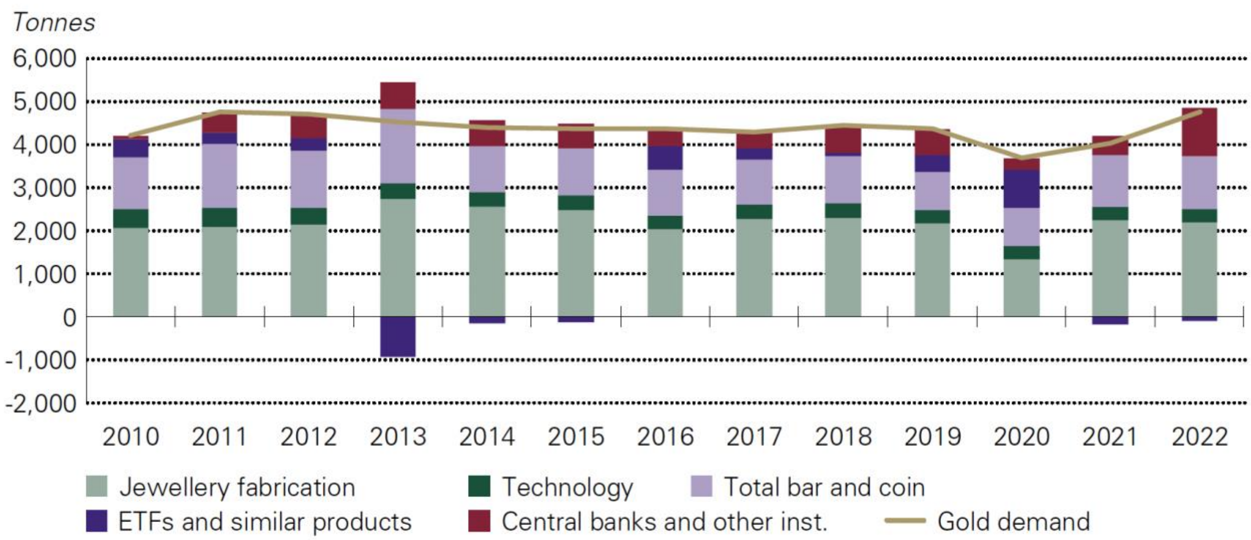
I think that's a brilliant point you make. I think that is also our observation, what we can sense. I would just like to ask a final follow up question before we switch to Mike, also on demand trends. Regional demand, Asia has been playing a more and more important role during the last years. What can you explain to us in that regard, generally, talking about regional demand trends.

John Read

I mean, we've just published the 30th anniversary of gold demand trends. That's how long we've been going at it. I've been involved in the market. My biography is slightly out of date, because I'm actually now at 36 years in the gold market, so slightly predate the World Gold Council and I do predate Gold Demand Trends. When we started off, we as in the World Gold Council, me started off in gold, the shape of the gold market was very different. Investment, net investment was very small. Jewelry demand was by far the largest component of the market, and that was primarily, maybe 70% developed market. So United States, Europe, Japan, some other developed countries. Fast forward to where we are today, the market is much more balanced.

So, I've mentioned some numbers. Jewelry demand is about 34% of net demand. Technology demands about 7% of net demand, investment is at about 42% and central banks about 17%, and these are averages over the last 10 years. I suspect that central bank number will twitch higher.

2022 gold demand almost matched the 2011 record



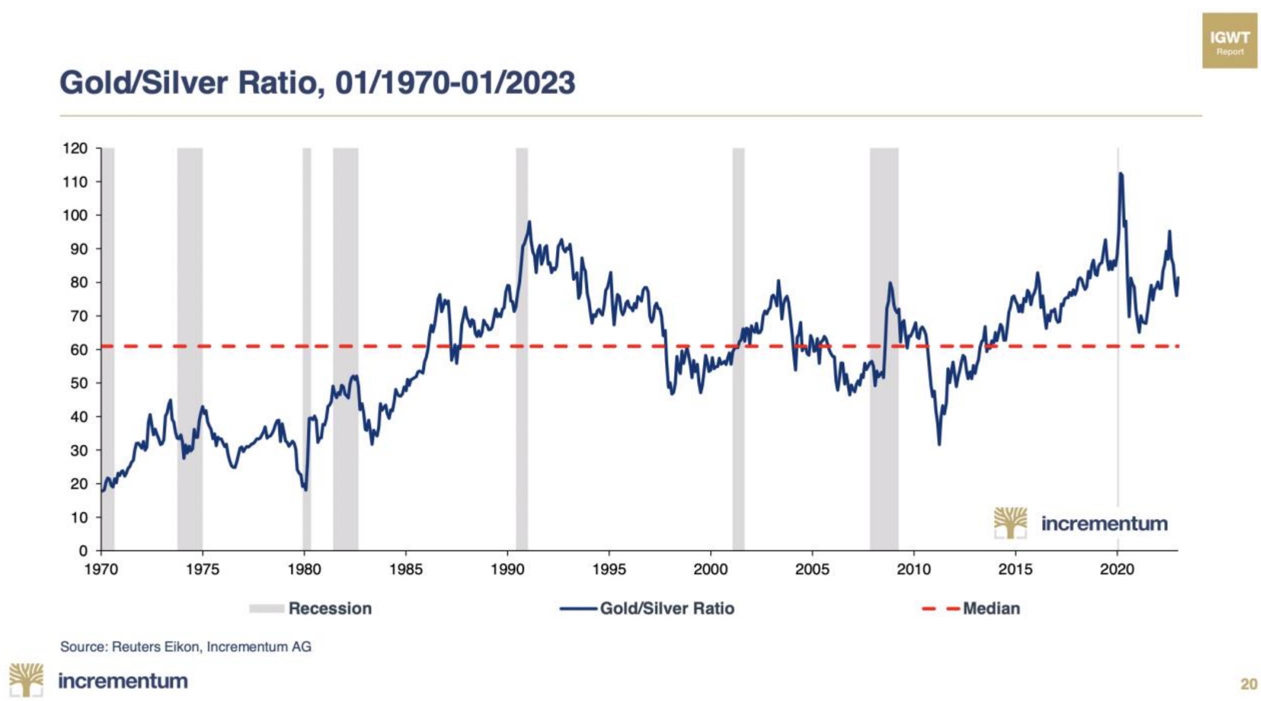
Data to 31 December 2022.

Source: Metals Focus, Refinitiv GFMS, World Gold Council

when we update it for last year, but that's broadly the shape of the market. It's diversified in terms of its sources of demand, which I think is really important. And the geographies of demand have changed. Consumer demand now is about 67% emerging markets with China and India the biggest consumers of gold. What that tells you is that, if you think about what drives consumer demand for gold, so into jewelry and retail investment, a lot of that has to do with wealth, a lot of that has to do with economic growth, or that's to do with prosperity. And with the tremendous growth that we've seen in emerging markets over the last couple of decades, that's why they, Asia and emerging markets generally, have become so much more important. And with aging populations in Europe, and changes in fashion, so people buying smartphones, rather than jewelry. We're seeing in Europe, a much less important jewelry market. And the same in the US, the US used to be, at its peak about a 400t market when gold was below USD 300 an ounce, but it's about 140 - 150 tonnes now. A lot of that's due to price. Lots of dynamics going on there. The center of gravity of demand, certainly for consumer gold, has shifted East. And the balance of demand for gold has moved away from being dominated by jewelry, towards a mix of jewelry, investment, central banks, and a tiny bit of technology.

Ronnie Stöferle

I think James Steel said many years ago that "gold always goes where prosperity is and where real growth is", and their demographics are favorable. But John, I think I would agree that we in the western world, Europe and the United States, we often think that we are the center of the gold world. While I think there is a clear trend that the price action is more and more dominated by Asian markets and by Arabic markets. And I think it's not only the demand side, I think the gold market is also on a much more stable and diversified bases when it comes to the supply side, because China is now the largest producer, as we know, over the last couple of decades, South Africa has always been the dominant player. And I think that 15 years ago, if one would have said that China will take over, people wouldn't have believed that. But I think what's really interesting, and this will be one of the main topics of our *In Gold We Trust* report 2023, is this move of power within the gold world from the west to the east. I think this is clearly demonstrated by not only investor demand, but also especially by central Bank action recently.



I would like to bring Mike into the discussion. Well, last year I thought it was pretty interesting that silver actually outperformed gold. So silver last year in US dollar terms was up 3% While gold was basically flat, I think down 0.3%. Silver actually held up pretty well last year, of course, this changed in the first month of this year. So gold is up 5% In US dollar terms year to date, while silver is down 2.6%. So the Gold/Silver ratio is actually rising, gold is outperforming silver, our interpretation is that that is probably being driven by the recessionary clouds that are getting darker and darker, we don't really buy into the "soft landing" or "mild recession" scenario, we think that this very, very aggressive move on the on the monetary policy side acts with a time lag, but we are already seeing with the ISM with consumption data and so on that the US economy is weakening dramatically and over here in Europe, I would say it doesn't feel like a flourishing economic environment.

However, Mike, let's talk about silver. First of all, I think that I would like you to introduce the Silver Institute because it's not so well known and you're doing a tremendous job. And then I think one thing that's really interesting, and this has clearly changed over the last couple of quarters, I think gold is often being regarded as something very traditional and kind of useless. People forget about the monetary aspect of gold, obviously, while silver has a little bit more of a positive perception, it seems it is more regarded as a green metal. It would be interesting to learn more about the green demand for silver, how those demand trends are developing when it comes to photovoltaics, for example, when it comes to EVs. And from your point of view, if those developments are already mostly priced in or if this is really something where you get very excited about the whole demand supply situation?

Michael DiRienzo

Sure. Well, again, thank you for the opportunity. The silver Institute, and some of your viewers may not be aware of us, we started in 1971. And at the time, it was more of a technical organization. They put out papers on photography and coinage. And over the years, it's grown to be more of a market development association. We're involved in all aspects of the market, we put out reports, we put out the World Silver Survey every year, it is considered to be the top publication on the global silver market. We do market trend reports on various aspects of silver demand. And our members are essentially the leading primary silver mining companies throughout the world, the refiners and users and some big bullion banks as well. And when you look at the world silver survey that membership grows tremendously.

We are the only global organization that advocates for silver, much like the World Gold Council, but at a much smaller scale. We like to tell the story of silver, and its many facets. You lead perfectly to one of the topics that we're really going to be focusing on this year, and that Silver's use in green technologies. I mean, quite frankly, silver is the best conductor of electricity. And as such, it is used extensively in photovoltaics. We think that last year Silver's use in that component was about 123 - 124 million ounces. And that's quite astonishing, because it was only 12, 13, 14 years ago when silver's use in photography essentially disappeared, and at the time was its highest industrial use. Now this new technology had come to the market. Silver and solar installations last year across the globe, hit a peak record in China, they increased by 62%, even while going through what the Chinese economy is facing. And when you couple that with these global installations, we think it's a win-win for silver. But it's not just PV, it's also EV.

Electric vehicles, and the technology that's required in these vehicles, which are growing in consumption and purchases throughout the world quite dramatically. You know, silver is used in the contacts of these vehicles, and as the technology becomes more advanced, not only in the electric vehicle but also in the hybrid vehicle, more and more silver will be consumed. We think that last year there was about 65 million ounces of silver used in the automotive industry on the whole. And we think by 2025, that's going to go to nearly 100 million ounces. The reason why is that as governments throughout the world start focusing on decarbonization, silver is going to play an increased role. And one of our mandates this year is to get silver into the discussion as a green metal, because it is and it's often left out of that discussion when you look at the automotive industry, because it's not used in the battery. But as I mentioned before, it's used extensively throughout the car, and as this infotainment systems and these safety systems become more and more prevalent, as they become more and more technologically advanced, more and more silver will be used. Let's not forget about the fact that autonomous driving is right around the corner, that potentially could call for more silver consumption in these vehicles. So silver is in fact, a green metal. We have written extensively on that. We're going to be doing a lot more work to make sure that silver is included in that conversation.

Ronnie Stöferle

Thank you very much, Michael. Regarding new technologies, well, one counter argument has always been that with increased usage, technology obviously gets better and more efficient. Now, I've read somewhere that there's actually two new technologies coming up for silver, as far as solar panels are concerned, that make them significantly more efficient. But on the other hand, their usage of silver is actually two or three times higher. So, I think it's really fascinating, what's coming up in this segment of silver demand. But if we switch, from the industrial, fast growing, green demand. Let's talk about investment demand. It seems that silver is obviously the small brother of gold, and the silver market is significantly smaller. With gold, we're kind of flirting with new all-time highs, it's consolidating at the previous all-time high at USD 1911. That with that we saw in the in the previous cycle. Do you already see increasing investor demand for silver? Because to me, it seems that in gold, for example, so far people haven't really recognized how well gold is doing, how close we are too new all-time highs, that we've actually made a significant amount of new all-time highs in euro terms in British pound terms, basically in every currency, but silver is still kind of asleep, it seems when it when it comes to investor demand. What do you see on that end, Michael?

Michael DiRienzo

Well, thank you. It's a great question. You know, ironically, last year, physical investment jumped by 18% to over 352 million ounces. And that actually was a new record. So, bars and coins and so forth, were being purchased throughout the world at a much higher rate than we've ever seen before. Now, some of this has come from investor fears of higher inflation, the Russia-Ukraine war and recessionary concerns. There's also the factor of a mistrusting government. And unlike gold, people are buying silver on the price dips. Okay, so we saw a record there. Unfortunately, we saw it for the first time in many years, silver ETPs, exchange traded products, we saw a decline of over 100 million ounces last year. And that was unique. We haven't seen it at that level for many, many years. We think the silver price has a lot more room to grow, I can't give you an exact answer why it's not keeping up to par with some of the other metals. If you look at an average price of last year, at USD 21 and change and the average price this year, were actually based on the London fix a little bit up in the month of January versus year end 2022. We're optimistic for the silver price going forward. We're really hopeful that ETP numbers pick up again, and we'll be putting out our thoughts on the 2023 market next week when we issue a press release on our global supply demand trends.

Mark Valek

I think that's fascinating, also confirming basically what John explained regarding physical bars and coins increase rising on that side and ETP products, lackluster demand. I think John's thesis regarding Main Street and Wall Street is really a great point that seems to be confirmed on the silver side as well, correct?

Ronnie Stöferle

What if we jump over to the supply side? We covered the demand side for gold and silver. John, when it comes to the supply of gold, we talked briefly about China still being by far the largest producer. But what I always find extremely fascinating is the fact that gold is being mined all over the globe, and we all know that it's getting harder to mine gold, it's getting more expensive. I think that "all in" sustaining cash costs were up like 12 or 13% last year. But still, we are producing 3600 tons of gold, currently, and I have been hearing those "peak gold" theories for many, many years already. And still, we’re seeing very slow but stable growth of gold production numbers are almost every year.

Now, John, I would be interested in hearing what you see as interesting developments on the on the production side, on the supply side of gold. I don’t know if you saw that, it was pretty big on Twitter, where there was news that there was a huge gold deposit that was found in in Uganda. 300,000 tons of gold. I couldn’t find any further research about that and no confirmation, but Twitter went furious, and especially the Bitcoin camp said: "You see, there’s plenty of gold around, and bitcoin is scarcer". So far, I haven’t seen any further news from Uganda. But I think what’s really fascinating is this stability of future, let’s say, gold’s inflation, which is roughly 1.5%, we have talked about the stock to flow ratio of gold as one of the most important drivers, at length. But John, perhaps you could give us some insights, what are the most important trends when it comes to gold production? Do you think that now that we’re finally over the COVID crisis, the situation in the mines has normalized again, where do you see technology improving the production? And also, obviously, what are the most important trends that you see? When it comes to ESG?

John Reade

Sure, there’s a lot to unpack there. Let’s take the top-down view and look what’s happening with mine production. We’ve seen steady growth in mine production, up until about 2018. We got to about 3650 odd tonnes. Since then, we dipped because of COVID. We dipped because of some other reasons, and then we’ve seen recoveries, and we’re at about 3612 tons for 2022. So, four years, five years, if you look back to 2017, we have basically a plateau in gold production. That’s pretty much in line with what consultants were saying, four or five years ago, obviously, nobody was expecting COVID, nobody was expecting some of the other technical issues. But broadly speaking, the industry seems to have got it about right. What I was interested in when I was writing the supply section for Gold Demand Trends, because that’s the bit I write. It’s a whole team effort rather than any one individual. But because of my background as a mining engineer, I tend to do the supply side. There’re some quite decent projections for growth over the next two or three years coming from metals focus, who we use as our data provider. I’m not talking about remarkable volumes, but for after basically five years of plateau production, there are a few startups coming, some decent size mines coming.

If you set aside the Russian issues, which I’ll touch upon in a minute, there’s some decent size mines in Russia, which should come on stream over the next few years, which will help along with production expansions in Latin America and in southern North America. It should lift production a little bit. I'm a little bit skeptical personally about whether all of this growth will be achieved. The first part of that is just because of my background as a mining engineer, I know how hard it is to ramp up production, how hard it is to commission things on time, and also know how easy it is to overestimate the production rates from operations, particularly those that have been in operation for many years. So, there could be some downside risk on metals focus forecast, I certainly think there's some risk about Russia's ability to deliver the new projects on time and for them to wrap up as quickly as expected, simply because of the sanctions that are affecting the mining industry in Russia, as they are affecting many other industries. Now, it's really hard to know what's going on over there at the moment, simply because the flow of information is much less free than it was before, and to an extent may not be quite as believable as it was before as well. So, we don't know quite how much Russian production has been affected by sanctions and it's difficult to judge how much it's going to be affected going forward. But if you work on an assumption that even if the war ends this year, pray that it does, there's still going to be interruptions to the flow of material, et cetera, to allow the buildup of mine production. That's another reason why I'm slightly skeptical, potentially of this growth coming through.

The final reason is, and you sort of touched upon this already, is all in sustaining costs have been rising quite rapidly over the last few years. Some of those costs were associated initially with lower volumes because of COVID and because of higher COVID related costs. But volumes are basically recovered now, and the COVID related costs are much less than they were before yet costs are still being driven up by wage inflation, by fuel inflation, by other commodity inflation. And whilst inflation rates may slow, and they seem to be doing that in CPI terms in Europe and America, I know that that means that costs are going to come down quickly at gold mining companies. There are some gold mines, which are now unprofitable on a cash basis and an all-in sustaining cost basis too, so we may see some shutdowns associated with that. Looking beyond what might happen over the next two to three years, I do continue to believe that there is an absence of sufficient major gold projects that have been discovered, or if they have been discovered of getting permitted, or if they are getting permitted, getting financed, and if they are financed, being built. It's not that we haven't found anything, it's just that the capital cost bill for a big mine nowadays could easily stretch to USD 10 billion with a lead time of five to six years. And so far, we haven't seen the trigger pulled on too many of these projects in this bull cycle, unlike in the last cycle, just after the global financial crisis when quite a few new projects were brought into production or were commissioned. That had big implications for medium term supply growth. So, peak gold is a tricky one, because there's too many moving parts, but sustained strong growth in gold production certainly from the reports that we're seeing from the various consultants looks unlikely.

Ronnie Stöferle

I couldn't agree more. I attended a precious metals summit in Beaver Creek and then Denver Gold last year in September, and we thought well, this is actually for the development companies. That's a really, really tough environment with cost of capital rising significantly the price of gold falling, no risk appetite at all, for large mining projects. And the situation has perhaps improved a little bit recently but not to a large degree. So, I agree, I think it's going to be very tough going forward, but obviously this whole capex cycle is not something that is only to be seen in the gold space. We have already seen similar developments in the copper space in many base metals, obviously also in oil and natural gas. So, Mike, I wanted to ask you what do you see on the supply side of silver, perhaps you could give our viewers a brief overview, to explain that there aren't too many pure silver mines, that silver is primarily a byproduct. And then perhaps you could give us a brief overview, what you see on the supply side and how much it is affected by general trends coming from the copper space from the zinc space, and so on, and what's going on at the primary silver producers.

Michael DiRienzo

Sure, and that's a great lead into what I'm about to say here and you hit the nail on the head, quite frankly, we're looking at only about 29% of silver that comes to the market, through mine supply from a primary mine. So, other metal mining activities, whether it be gold, or lead and zinc, or tin and copper are primarily, at roughly 70%, the leading contributors of silver in terms of mine supply. When we look back at last year, at 2022, we're looking at about a 1% increase and that's primarily due to some projects, new projects being ramped up in Mexico and in other parts of the world. In 2023 we think that number is going to increase slightly to maybe 2% or 3% off of 2022's figures. One thing we're keeping a close eye on is some of the geopolitical issues facing Peru, which is at this point the third largest silver mining country. You have Mexico, you have China at number two now and then you have Peru at number three. So, we're keeping a close eye on that. In terms of other metal mining activities, we think that the overall supply is going to increase and if I'm just looking now, going down through the end of 2023, we think that the other metal miming can get to 73% of byproduct metal containing silver coming to the market. It's going to be a challenging year; we do think there will be an increase. Like I said, 1% last year, maybe two to 3% or even more in 2023. But we'll just have to see.

Mark Valek

Perhaps you can just elaborate a little bit generally why that is actually a problem for viewers who are perhaps not so deep into the market? If most of the supply is a byproduct. I mean, it's probably obvious, but can you just go to the basic problem of this? In other words, why is it important that primary producers should come online, if that's even the case?

Michael DiRienzo

Well, we think that will be the case. I mean, there are several new mines coming online, not just in Mexico, but in South America as well. So, look these things were pent up in production, tied up for several years, not only due to permitting and so forth, but also due to COVID lockdowns, and that primarily took place in Latin and South America. So, we think that will again be the driver. Interestingly, according to our world silver survey last year, Russia was the eighth largest silver producer. And I'll be really keen to see where they stand at end of 2022. So that's another factor as well. There are so many issues affecting the silver space. But like I said, we think mine production may increase, even a little bit more beyond the 1% we saw in 2022. Our all-in sustaining costs have dropped quite significantly in silver, by double digit percentages in 2021 over 2020. Our member companies, the silver space as a whole from the mining side, have been quite conservative with their exploration and so forth. It's unlike we saw some 20 years ago or 15 years ago. I think that the leaders at these companies are taking a real prudent look at what is realistic and at what price can you extend these not only existing veins, but also explore other opportunities across the world. Not to say that they won't, but they're just having a very cautious eye, compared to several years back.

Ronnie Stöferle

Thanks, Michael, I would like to jump a little bit into the direction of the macro picture and capital markets. Michael, you're located in Washington. John is currently in London. But you both are probably traveling quite a lot. What is your general view? Regarding the economy? Obviously, couple of weeks ago, the mainstream view was that it's the most anticipated recession ever. We had the FOMC meeting this week and it seems that the market isn't really buying what the Fed is selling. Powell tries to sound hawkish and he seemed a bit frustrated recently, but still, from our point of view, those very, very aggressive rate hikes that we saw last year, and let's not forget, one year ago, interest rates in the United States, were still at zero and now we're heading up to 5% pretty soon. What's your view, Michael, and your view, John, when it comes to the economy? What do you sense? Soft landing or a rather harsh recession, or no recession at all?

Michael DiRienzo

Thank you, Ronnie. It's a great question and I am literally two blocks away from the White House where my office is right here. I don't know if that's good or bad, but nonetheless, we're literally right across the street. My concern is that we're already seeing these interest rate hikes affect the consumer, okay, so if you have any credit card debt at all, you made the great point last year at this time, you're basically paying down principal, depending on if you paid your card in full, if you're carrying a balance. Now, that's much higher, and it's affecting a lot of consumers. I think that's being misunderstood in the discussion with respect to "are we going to go into a recession". Housing prices in the United States have never really been as difficult to sell a house, and it's difficult to buy a house. You really have to make a determination if you're going to sell, where are you going to buy? That's a huge factor throughout the entire United States, we're seeing a little bit of a decrease in the housing prices so far, and we're seeing a little uptick in some of the sales. But I think it's going to be a huge factor. Look, they came out today and said that unemployment at its lowest level of as of the end of January in 53 years, but what jobs are actually available to an educated individual. You can go out and get a gig job today, you can start a Substack job from your home, today, a side hustle and so forth. But on the macro level, which is what we're talking about, I'm very skeptical about where we will be one year from today. So, I think these recession fears are not only valid, I think they add a lot to the argument that one should be involved and invested into precious metals, because we just don't know where this is going and I think it's better to be prudent than aggressive at this point. And one other thing, the stock market, above 30,000, gold, reaching new highs, S&P and so forth. Is that a reality that can sustain itself throughout the end of this year and into next? I don't know. I was skeptical a year and a half ago, but it's still going strong. At what point do we see a market downturn? None of us really know. But these are factors we have to consider and I'm looking forward to hearing what John says.

John Reade

Yeah, thanks Mike. It's interesting times, isn't it? We've just had the non-farm payrolls print today really strongly, much better than expected and of course, strong economic growth has meant equities fall and gold and silver for that matter. In a way the Fed's between a rock and a hard place. The rock is the facts, that inflation is still high and yes, it's slowing, but it's still too high. The hard place is that the mechanism by which much of the correction in inflation will take place is through a slowing economy and higher unemployment. But we're not getting that at the moment. We've had a tremendous amount of rate hikes in the past 12 months and we've got a still strong jobs market. Now, how strong the underlying economy is, and the expectation is that the underlying economy is certainly beginning to rollover, if you look at things like the ISM service, and housing, particularly single-family housing, looks a bit of a trains mash, because of the impact of much higher interest rates on mortgage rates in the States. But at the moment, it's almost like, and I've heard this analogy quite a bit over the last six months, but it's the Wile E. Coyote moment. The Coyote is has followed, the road runs off the edge of the cliff and it's still running, and is yet to realize that gravity sucks, and that bad things are about to happen to the economy. I wonder the extent to which, and there's been quite a lot written about this by policymakers. I wonder how much the strength of the labor market has to do with falling labor supply. A lot of people retired, a lot of people sick, in many markets around the world, not just the United States. So actual unemployment levels are looking pretty low. Partly because there's not as many workers around as you would expect and because of that, companies are hoarding labor, are keen to hire when they have people leave. Because they've been used to, in the last few years, having a shortage of labor having difficulty in recruiting. I'm in two minds here, if I look at how much rates have gone up, and you think about a typical 12-to-18-month policy lag, maybe the fact that we haven't seen the US economy slowed down that much, so far, it should be expected. The jobs numbers make me nervous and the equity market, to be frank, doesn't seem to be factoring in reality. But again, I think that's part of what we've been trained over the last 20 or 30 years, which is that when stocks sell off, you buy the dip. I mean, I can remember the last inflation in the 70s, I was a child, but I can remember the last period of high inflation. But I don't know how many people who are investing in markets were even alive then. I'm cautiously watching what happens with the US economy.

In a way, to be honest, I'm actually even a bit more surprised by how well the European economy is holding up. It's not doing as well as the States, but then again, you wouldn't expect it to do so, because of the conditions. Particularly because the impacts of the Russian invasion of Ukraine, but things aren't doing too badly there and this combination of Europe not doing terribly, and the US economy giving indications of slowing, and in both markets the policymakers talking about interest rate hikes that are nearly over, there's probably a few more 25 basis point hikes to come in the Euro zone and in the US. It actually might see some of the strength of the US dollar unwind and the strength of the US dollar last year until the early part of November was certainly one big headwind for both the gold and silver market. There's a lot of uncertainty around, and I guess that's normal, because we are approaching a turning point in markets. Now, we know that the Fed hikes, the ECB hikes are having an effect on the market, are having an effect on the economy, and it's not really turning up yet, fully, in markets and certainly in employment. But I think if we would have had this call in six months' time, I think we might be talking under quite different current conditions.

Ronnie Stöferle

Thanks for that view, John. My interpretation would kind of be that we analyzed it in the *In Gold We Trust* report 2019 (pp. 143-166), how gold actually performs in various stages of a recession and actually gold does really well in the first couple of stages of recession, because we know that usually when it's officially announced that we are in a recession, the worst is already over. We know what happens in a recession. First of all, we're seeing monetary stimulus but also fiscal stimulus and I think that one of the major trends since the COVID crisis has been much, much more fiscal stimulus and the growing importance of fiscal measures compared to Central Bank actions.

Overview: performance of the S&P 500 and gold, in USD and EUR, in % 1970-2018

		S&P 500				Gold in USD				Gold in EUR			
	Recession duration	Phase 1	Phase 2	Phase 3	Phase 4	Phase 1	Phase 2	Phase 3	Phase 4	Phase 1	Phase 2	Phase 3	Phase 4
1st Recession	Q1/1970 - Q4/1970	-1.8%	-4.6%	-7.0%	7.0%	-8.9%	-6.6%	0.0%	5.9%	N/A	4.6%	11.1%	3.0%
2nd Recession	Q1/1974 - Q1/1975	-8.0%	0.3%	-15.0%	16.6%	-10.9%	58.5%	89.7%	-1.1%	7.2%	51.8%	51.0%	-6.2%
3rd Recession	Q2/1980 - Q3/1980	7.1%	-2.1%	7.7%	10.0%	70.1%	-22.8%	-5.9%	21.8%	27.5%	0.5%	20.2%	-1.6%
4th Recession	Q4/1981 - Q4/1982	-7.4%	2.9%	12.8%	15.9%	-14.6%	0.8%	1.2%	14.2%	2.6%	-4.8%	21.0%	10.4%
5th Recession	Q4/1990 - Q1/1991	-10.7%	-0.1%	13.8%	13.9%	7.1%	-3.3%	-7.9%	-4.7%	4.6%	-9.3%	-12.2%	-3.6%
6th Recession	Q2/2001 - Q4/2001	-5.7%	1.3%	-8.1%	0.5%	-1.5%	3.8%	5.4%	1.3%	-0.8%	8.3%	5.5%	-4.4%
7th Recession	Q1/2008 - Q2/2009	0.5%	-10.2%	-50.4%	-18.0%	21.6%	14.3%	16.3%	24.0%	2.2%	12.2%	31.4%	19.8%
	Average:	**-3.9%**	**-1.9%**	**-10.5%**	6%	6%	4%	20%	8%	7%	8%	23%	2%

Source: Federal Reserve St. Louis, investing.com, World Gold Council, Incrementum AG

I think that perhaps I'm constructing a narrative, but it would kind of fit the price action that gold is now sniffing out the recession that is ahead, which goes hand in hand with lower rates. Then, usually at the later stages of a recession, silver starts outperforming gold, perhaps that's kind of the kind of the game plan going forward.

John Reade

If you look at what happened during the Coronavirus pandemic, gold did really well in 2020 until November, when we had the really strong announcements from Pfizer and Moderna about the efficacy of the vaccines. And then people bought assets that would benefit from the recovery and that was commodities, that was equities, and silver got wrapped up in that as well, as it should because of its industrial uses. So, maybe you're right, maybe this is more gold's time, because of the concerns about how the economy comes along. Perhaps silver, when we start to come out of the other side of the difficulties that may lie ahead. What I would say, though, and Mike knows more about this than me, I'm sure is I think that there are structural demand factors associated with the energy transition, which are probably not too tied to the economic cycle. If anything, the lessons that we've learned in energy availability over the last 12 months or so have probably accelerated those investments in the energy transition. So maybe silver demand is going to be a lot less vulnerable to economic slowdowns than might have been the case in the past.

Michael DiRienzo

Yeah, I do agree with you on that, John, I think there are some challenges on the silver side with respect to some parts of demand. But if you look at last year, for example, we had a record demand in terms of all components, apart from photography, over 1.24 billion ounces, industrial demand was around 540 million ounces. We think that's going to go, on the industrial side, to north of 550 this year and I do believe that the photovoltaics, the other components of the energy transition, including electric vehicles, and the ancillary systems that are required, charging stations and so forth, on a global basis, will assist silver. We're looking forward to see what this year portends. But I'd like to mention the fact that we will be out there at the forefront, talking to thought leaders and those involved in the energy transition, making sure that silver is included in these conversations. Because up to now, it's been ignored to the point that we need it to be elevated to the level where when you're talking about copper, you're talking about silver, I heard a good line the other day, and the line was, "If copper is the superhighway to decarbonization, then silver is the glue". So that's something that we're going to keep pushing throughout this year and beyond.

John Reade

It is really a good line that. What I would say as well is that we don't make a big issue about gold demand benefiting from technology. But it's still 7% of demand and you we wouldn't be able to communicate on the devices that we're doing so at the moment, if you didn't have gold as well. So, it'll do gold no harm. But you have to look at metals that are going to benefit from this energy transition more than gold, and certainly silver is up there as well.

Ronnie Stöferle

I think that actually 2022 was the year when the markets, or rather people realize that commodities are not something bad, something dirty. I think many people realize that it's the basis of our societies, of our industries and we saw a huge shift in sentiment when it comes to that. Just one example, we have a uranium fund that is run by one of our partners, Christian Schärer, and two or three years ago, people would have said: "Uranium? Nuclear energy? That's the very, very worst." Now, due to the energy crisis, I think that people became much more open and more educated about our energy mix and our energy supply and also, when it comes to commodities, I see that more and more offtake agreements, for example, I think it was Ford or General Motors now buying into a lithium company, we're seeing offtake agreements all over the place. I think this is something that really will stay around as a major trend and I think that governments, but also especially companies realized that save supplying of commodities necessary for our industries are just essential and have to be taken into consideration first. But I think we can wrap up. Mark, do you have a final question for John and Mike?

Mark Valek

Yeah, thanks. I would like to wrap up soon. Do you guys have any final remarks before I have a very short and a little bit of a fun final question for both of you?

John Reade

The only thing I would say is, if you're interested in gold, as well as the excellent research that's done from all manner of people, including the *In Gold We Trust* report, you should be signed up to the World Gold Council's Gold Hub to get our research and data. It's free. Its objective, you should follow us on social media, because I've got a great lineup of sarcastic Tweets. So, stay in touch with us. We're happy to help. If you need information, if you need to ask questions, come through to us on the contact details. I encourage you to do so. Thank you.

Michael DiRienzo

Similar to John's comments with respect to information, Silver Institute at silverinstitute.org, please follow us, go to our website, sign up for our free bi-monthly silver news, all of our press releases, you can take a look at all of our publications, which are at no cost as well. You can follow us on Twitter, @SilverInstitute. we've ramped up our game on Twitter over the last few years. We're averaging about two unique posts on various aspects of the silver industry each week, and we also have an active page on LinkedIn. So, please follow us. Like I said, there is no cost anybody and we look forward to seeing you there.

Mark Valek

We can encourage everybody to follow both of your Institute's as well and organizations. So please do so, if you're interested in gold and silver, that's the place to go. I think we can say that with confidence. My final little bit of a fun question. Gold/Silver ratio, starting with John, crystal ball time. Where are we going be, with the Gold/Silver ratio currently at 83. Looking at the long-term chart we've been to, to almost 31, I think in 2011 and peaked at almost 130. As I said, we are at 83. What do you think, what's your best guess for the end of the year?

John Reade

End of the year? Something closer to 70 would be my guess. Well, first of all, I don't follow silver as closely as I used to. I used to follow it very closely. But I don't anymore, not at the World Gold Council. But what I would say is, it could be of the position that we are in the economy, as Ronnie was saying, it could be because of other factors. Perhaps that institutional investors haven't turned to precious metals as much as I would have expected. Either way, I suspect by the end of the year that will have been resolved by an outperformance of gold by silver. That doesn't necessarily change our story and it's a sort of negative story for me in terms of institutional investment, which is what we spend a lot of our time on. It's not just price action, its volatility as well and one thing that I will confidently predict, is that silver will have a higher volatility than gold over the next 12 months.

Michael DiRienzo

I agree on every point you made that the volatile metal some people call it the devil's metal, the near to say white metal. Silver does have obviously much more volatility, but I think your number of 70 is right on target. I mean, I'm looking at 71 or 72. I don't know if it gets much lower than that, or even much higher that and we're talking about year end. The good news is that these are our predictions, quite frankly, we really don't know exactly where it's going to end up. But I think for both gold and silver, I mean two unique separate metals and speaking for silver, we're hoping for a great 2023 and beyond. We're hoping for even stronger demand. We're hoping for a higher silver price, of course, which allows our member companies more flexibility and in their individual businesses. So, we're looking forward to the year.

Mark Valek

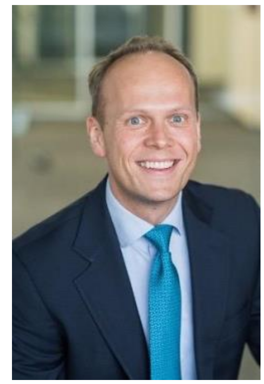
Terrific thanks so much for that, Ronnie final words from your side?

Ronnie Stöferle

Just a big thank you to the both of you for doing such a tremendous job for the community, informing people about gold and silver. Again, have a look at their respective web pages, register, it's totally for free. It's really worth taking the time and exploring both webpages further. You also saw who the real investment professionals are, those two gentlemen wearing a tie, obviously. Thank you very much for taking the time, John, thank you very much for taking the time, Michael. And I think it was a great discussion. And yeah, thank you very much. And thank you for supporting the *In Gold We Trust* report. And thank you for taking the time again. All the best.

Ronald-Peter Stöferle, CMT

Ronni is partner of Incrementum AG and responsible for Research and Portfolio Management.



He studied Business Administration and Finance in the USA and at the *Vienna University of Economics and Business Administration*, and also gained work experience at the trading desk of a bank during his studies. Upon graduation, he joined the Research department of *Erste Group*, where he published his first *In Gold We Trust* report in 2007. Over the years, the *In Gold We Trust* report became one of the benchmark publications on gold, money, and inflation.

Since 2013 he has held the position as reader at *scholarium* in Vienna, and he also speaks at *Wiener Börse Akademie* (i.e. the Vienna Stock Exchange Academy). In 2014, he co-authored the book *Austrian School for Investors* and in 2019 *The Zero Interest Trap*. Moreover, he is a member of the board at *Tudor Gold Corp*. (TUD), a significant explorer in British Columbia's Golden Triangle and a member of the advisory board at *Affinity Metals* (AFF). He is also an advisor to *Matterhorn Asset Management*, a global leader in wealth preservation in the form of physical gold stored outside the banking system.

Mark J. Valek, CAIA

Mark is partner of Incrementum AG and responsible for portfolio management and research.

While working full time, Mark studied Business Administration at the *Vienna University of Business Administration* and has continuously worked in financial markets and asset management since 1999. Prior to the establishment of *Incrementum AG*, he was with *Raiffeisen Capital Management* for ten years, most recently as fund manager in the area of inflation protection and alternative investments. He gained entrepreneurial experience as co-founder of *Philoro Edelmetalle GmbH*.

Since 2013 he has held the position as reader at *scholarium* in Vienna, and he also speaks at *Wiener Börse Akademie* (i.e. the Vienna Stock Exchange Academy). In 2014, he co-authored the book *Austrian School for Investors*.

About Incrementum AG

Incrementum AG is an independent investment and asset management company based in Liechtenstein. Independence and self-reliance are the cornerstones of our philosophy, which is why the four managing partners own 100% of the company. Prior to setting up Incrementum, we all worked in the investment and finance industry for years in places like Hongkong, Frankfurt, Madrid, Toronto, Geneva, Zurich, and Vienna.

We are very concerned about the economic developments in recent years, especially with respect to the global rise in debt and extreme monetary measures taken by central banks. We are reluctant to believe that the basis of today's economy, i.e. the uncovered credit money system, is sustainable. This means that particularly when it comes to investments, acting parties should look beyond the horizon of the current monetary system.

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