



Capital
Markets

August 18, 2020

Gold Strategy: Relationships Matter

Global Commodity Strategy

After reaching its highest levels ever, gold experienced a pullback and has yet to return to all-time highs, but has that changed our outlook? In short, no. Investors' attitude toward gold is still overwhelmingly positive, as its role as a perceived safe haven and store of value continues to make it appealing amid the COVID-19 crisis and deep economic uncertainty. Volatility and pullbacks are natural parts of any rally, even one that has occurred in a bit of a perfect storm. Gold does not exist in a vacuum, and in this note, we tackle the relationships that matter, force rank the more obvious quantifiable ones, reassess the muddier relationships, define the most underappreciated upside risk, highlight the most sustainable supportive factor, and remind investors of the biggest downside risk to gold prices.

- **The obvious "big three" quantifiable macro factors are rates (real and nominal), the dollar, and equities—in that order.** Rates have long unseated the dollar as king given the current macro environment and will remain in charge even as the dollar continues to reassert itself. With regard to equities, we still believe in our call from [a prior note](#), where we said the rolling correlation and equities would remain decoupled, at least absent a COVID-19 vaccine. While these factors will continue to receive the lion's share of attention as the most quantifiable and accessible drivers, they are not the only ones that matter.
- **The factors driving the sticky, ongoing allocations to gold-backed ETPs are far broader, some a bit muddier, and some simply more difficult to quantify.** We think that the inflation factor is far muddier for gold than some believe, but it will still drive some allocations to gold, even if those traders are left waiting like last time around. More generally, though, it is the broad-based investor interest that has been reignited by this perfect storm for gold. This is linked not only to the aforementioned macro-economic trends, but also to the less tickerized themes of politics, geopolitics, and economic uncertainty.
- **That is part of what makes gold so uniquely relevant in the current environment, and difficult to replace with alternatives.** When it comes to perceived safe havens and stores of value, it is difficult to displace gold's appeal with alternatives. For example, silver still has some room to run from a relative value perspective, but the runway has narrowed significantly, and we still think there needs to be a larger fundamental justification.
- **Some of the most difficult to quantify factors are the most important in any and all directions, in our view at least.** Rising geopolitical tensions and a slow economic recovery should keep gold elevated, but it is both political and geopolitical risks that we think represent the most underappreciated upside drivers (or at least sources of volatility) in the coming quarters, particularly around the US election cycle and US-China tensions. Meanwhile, economic uncertainty remains the most sustainable supportive factor in our view, particularly in our base case, where it, along with other macro factors, lends sustainability to recent prices. Lastly of course, we cannot forget that the biggest swing factor toward our low scenario would be a COVID-19 vaccine and a path to unwind both the health and economic crises that have played an integral role in [gold's record rally](#) so far in 2020.

Figure 1: Forecasts Unchanged: Middle/base case (50% probability), high (40%), low (10%)

Quarterly	Q1 20	Q2 20	Q3 20 F	Q4 20 F	2020 F	Q1 21 F	Q2 21 F	Q3 21 F	Q4 21 F	2021 F
Price (\$/oz)	1,582	1,714	1,859	1,942	1,774	2,012	1,911	1,848	1,801	1,893
Low scenario	-	-	1,644	1,726	1,666	1,739	1,624	1,561	1,586	1,628
High scenario	-	-	2,086	2,440	1,956	3,060	2,612	2,500	2,259	2,608

Note: All are period averages. Source: Bloomberg (historical averages Global Commodity Strategy and MENA Research (forecasts), RBC Capital Markets

RBC Capital Markets, LLC
Christopher Louney
Commodity Strategist
(212) 437-1925
christopher.louney@rbccm.com

Helima Croft
Head of Global Commodity
Strategy and MENA Research
(212) 618-7798
helima.croft@rbccm.com

Michael Tran
Commodity Strategist
(212) 266-4020
michael.tran@rbccm.com

Megan Schippmann
Senior Associate
(212) 301-1531
megan.schippmann@rbccm.com

Akash Gupta
Associate
(202) 428-5491
akash.gupta@rbccm.com

All values in USD unless otherwise noted.

Priced as of prior trading day's market
close, ET (unless otherwise stated).

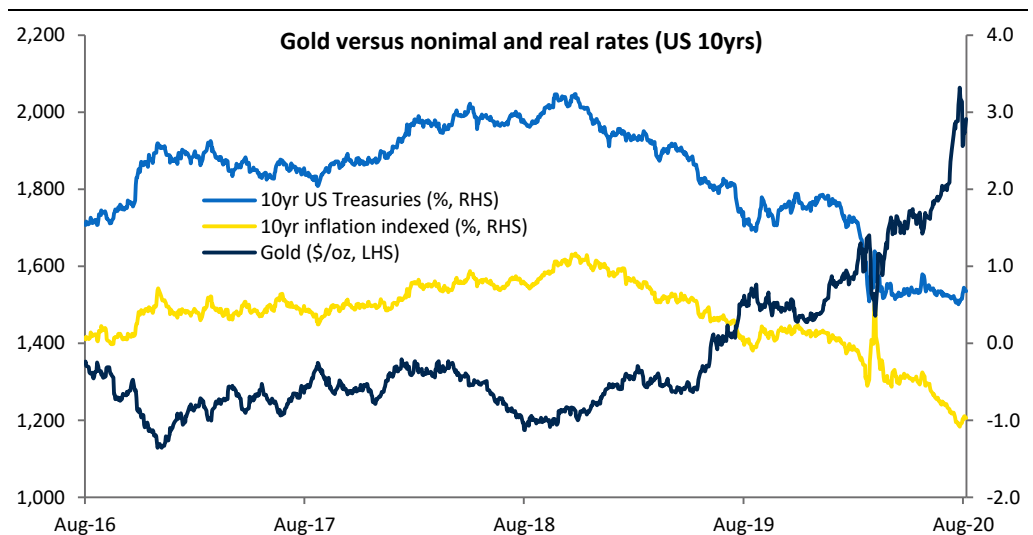
**For Required Conflicts
Disclosures, please
see page 9.**

Firstly, let's get the most accessible factors out of the way

First, let us get the obvious out of the way. The macro winds at gold's back continue, even if some have stumbled recently, and should continue to keep gold elevated. These are easy to chart but still relevant themes to track and digest, most of which have played an important role in getting gold to where it is today. Gold does not exist in a vacuum, and in many ways, that is its appeal. Its perception as a safe haven and store of value in many ways stems as much from its long history and innate nature as from its role as a macro asset and its global acceptance. In our view, these are the characteristics that make gold a relevant asset today for many portfolios. Now, let us first review the clearer and more obviously accessible, yet still very important, macro factors driving gold.

Nominal and Real Rates. Rates clearly continue to lead the pack when it comes to gold's macro influences, with the rolling three-month correlation being the strongest one for gold, and a mostly consistent one at that. An uptick in nominal yields (we watch 10yr US Treasuries) certainly played a role in gold's recent consolidation, and arguably the move back up since. Likewise, real yields did as well—these relationships collectively are the ones that have exerted the most influence on gold's direction amid this record rally and the COVID-19-related economic turbulence, broader themes of easy monetary policy, quantitative easing, lower-for-longer rates globally, and other measures, which all grant enduring relevance. Rates are one of the main reasons that gold has reached its recent peak (as one would expect) and why we remain confident in our base case (50% probability) and our high scenario as well (40% probability) on a go-forward basis. With little reason to expect any significant policy change toward gold's detriment, we see little reason to change our view based on rates.

Figure 2: Rates lead the pack with the strongest rolling 3-month correlation we track; importantly, both nominal and real rates are playing a role for gold

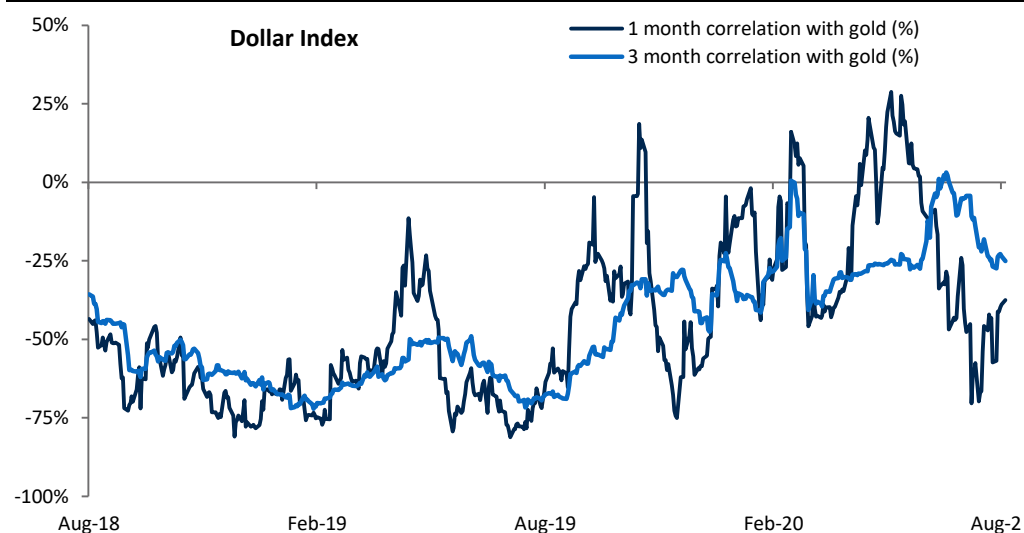


Source: Bloomberg, RBC Capital Markets

US Dollar. Turning toward another well-known classical macro driver for gold, the US dollar has served the role of “king” for the yellow metal in the past and it remains an important driver. While the relationship has diminished over the last 12 months on the back of recent moves in both it and gold, we have seen signs of the dollar reasserting itself. The interplay between gold's dollar-denominated nature and its competing role as a perceived safe haven makes the dollar an important but uneven driver for gold in the current macro landscape—a landscape in which the dollar still falls short of rates' influence on gold.

It is clear, however, that the grind lower in the dollar since Q1 has aided gold's USD-denominated rise, after earlier dollar strength helped gold to hit record highs in most other currencies months earlier. Going forward, it is prudent to maintain a nuanced view of USD and its relationship with gold. This is particularly important, as the inverse relationship, which does show signs of re-strengthening, unfolds. Even if gold is still far from being primarily USD-driven, the dollar will likely play a more important role in the coming 12 months than it did in the last 12 months.

Figure 3: There have been signs of a re-strengthening in the relationship, which had broken down over the last year, implying the dollar may be more important in the months to come



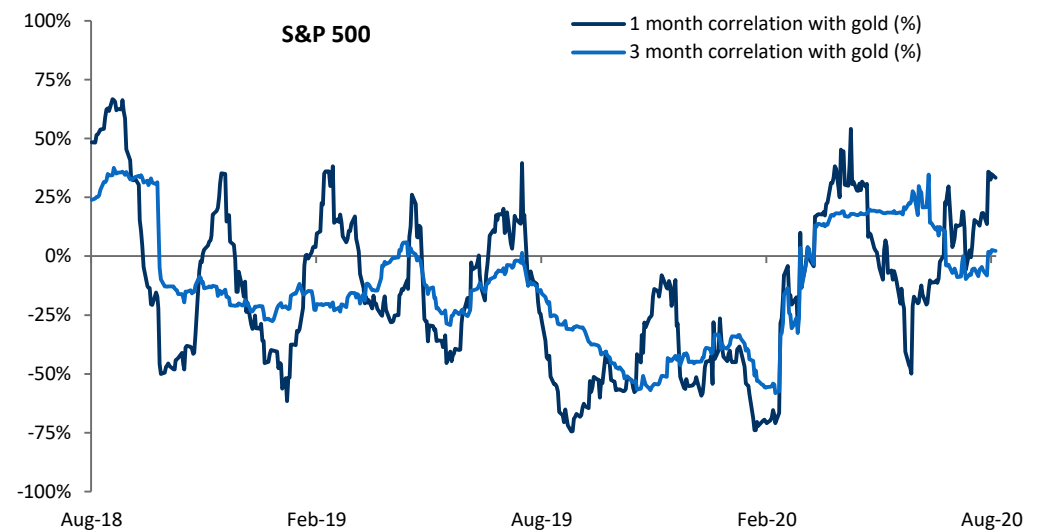
Source: Bloomberg, RBC Capital Markets

Equities. Turning toward public equities, a few months ago we highlighted in our note [“Gold Strategy: To Infinity and Beyond?”](#) that during a crisis like we are experiencing now, gold can gain alongside equities and simultaneously serve as an inverse hedge against them, thus implying that the correlation can and would break down and even turn positive. That thesis has largely panned out. That is not to say that there have not been challenges (i.e., June), but in comparing gold to the S&P 500, we have seen that gold's relationship with equities indeed has not been an either/or relationship since we published our note.

The reasoning remains the same now as then, when we wrote that “while market participants may be ready to reinvest in public markets, they are aware of inherent risks, so even as they choose to pile into new positions, they can and likely will continue to allocate to gold at the same time. In fact, even as markets improve further—whether temporarily or not—we think gold will absorb inflows alongside other asset classes. That is not to say that some of the capital currently allocated to gold will not be redeployed. Rather, we simply think gold holdings will remain in favor regardless...If indeed the historical correlation between gold and the S&P 500 remains decoupled (a positive versus a more historically normal negative correlation...), there is some room to run for both.”

That is largely what we have seen play out, particularly as gold-backed ETP inflows have set records (more on that next), and the rolling correlation has remained in positive to neutral territory for months. We think this trend will continue, at least absent a COVID-19 vaccine-driven move to our low price scenario (a scenario to which we assign just 10% probability currently). Therefore, regardless of equity market performance in the near term, we think gold allocations will remain relevant to investors even if risk-on attitudes persist or grow. This lends sustainability to elevated prices in most scenarios and is key to our forecasts.

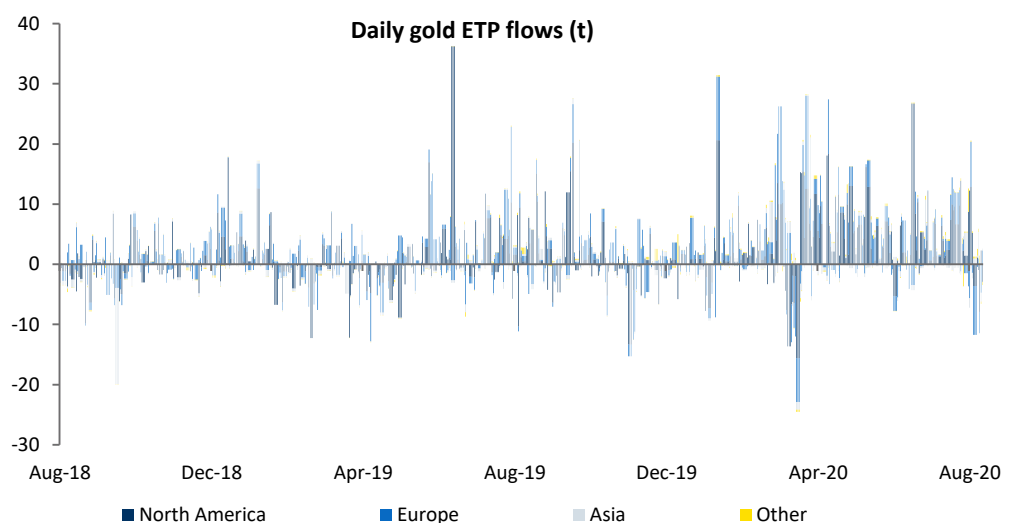
Figure 4: Our thesis that the relationship with US Equities was less of an either/or has panned out—a theme that we think will continue, at least outside of our vaccine-driven low scenario



Source: Bloomberg, RBC Capital Markets

Exchange Traded Product Flows (ETP Flows). ETP flows (including ETFs, ETCs, and ETNs) are widely watched at this point, tonnage is very transparent, and the level of holdings have obvious relevance in the current market environment. At this point, ETPs flows are viewed as a proxy for investor interest, and rightly so. Given the extent of inflows year-to-date, they are perhaps the best example of the widespread surge in gold interest. With about 900 tons of inflows so far in 2020 already far surpassing any single full-year record in history, we forecast net inflows finishing the year at 1039.4 tons overall, lending ongoing sustainability to prices.

Figure 5: Massive net ETP inflows in 2020 are indicative of widespread investor interest in gold, driving inflows and holdings to levels never seen before in the history of gold ETPs



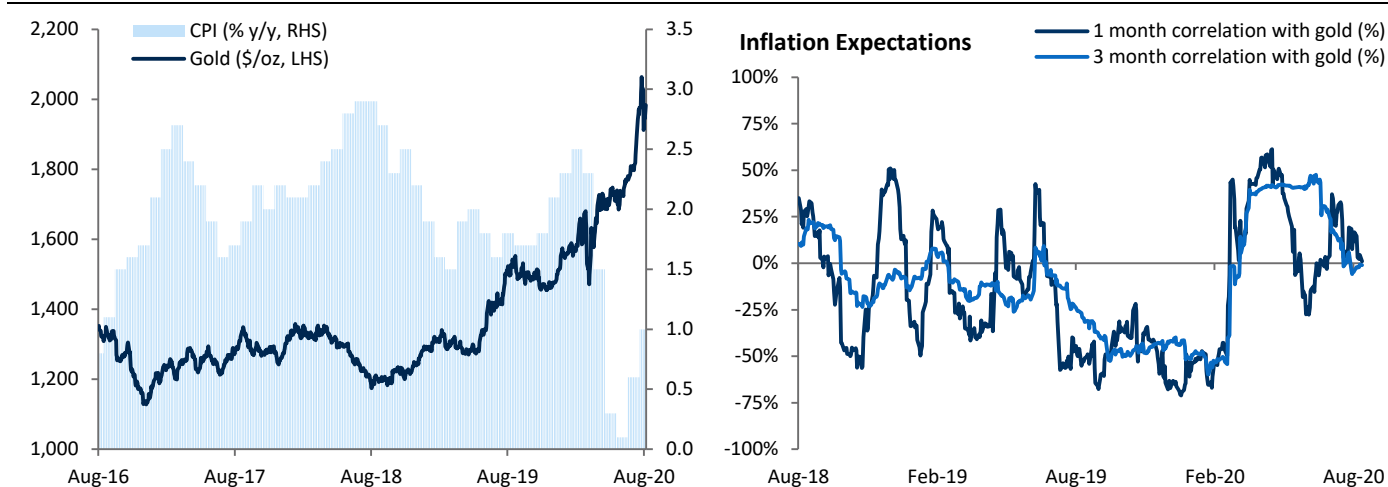
Source: Bloomberg, ETP issuers, RBC Capital Markets

Secondly, let's tackle the muddier factors for gold

While the aforementioned factors for gold are relatively clear-cut, fairly obvious, and quite transparent, there are some with which the relationship is a bit more fickle, or muddier per se. In our view, these drivers are important, but in of themselves they can sometimes be a bit misleading for price action of various tenors and holding periods.

Inflation. Gold has an earned reputation as a hedge against inflation. While the data is actually a bit muddier than many think, we believe that positioning driven by inflation expectations is occurring in some capacity at this time. In our view, this can be characterized as similar to that seen during the financial crisis, where the explosion of inflation that some feared would arrive after the financial crisis and then unprecedented easy monetary policy, QE, etc., never really came. We are seeing something similar unfolding now (in our view) as the world's central banks have essentially adopted "whatever it takes" stimulus packages, their balance sheets continue to grow, and the world continues to amass negative-yielding debt. Central banks continue to pump money into their respective economies and governments continue to take on debt in order to support their respective economies. While some expect this level of borrowing around the world to eventually result in material inflation, in some ways, we have been here before, but it has not panned out. Thus, while we still are not prepared to make a truly inflation-based call for gold, we think there will be some additional inflation-driven positioning into the gold market, on the back of inflation worries.

Figures 6 & 7: Gold versus CPI; Gold's relationship with inflation expectations

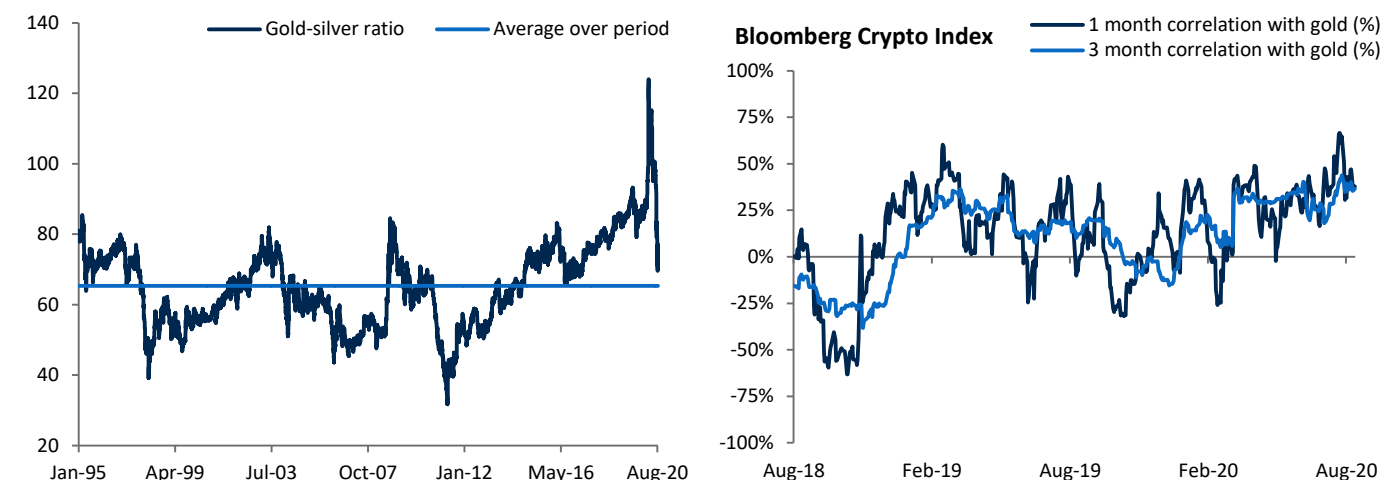


Source: Bloomberg, RBC Capital Markets

Perceived Alternatives. Looking at perceived alternatives such as silver and crypto currencies, we still think that amid the current environment gold is unique. There continue to be viable relative value arguments to be made for silver, but most of the ground has been covered at this point. More importantly, in a highly uncertain macroeconomic environment, gold's history as a perceived safe haven and accepted role as a store of value make it a more durable choice in our view, and we think it has better reason to continue drawing investors' focus amid the current economic crisis. While most of the room to run has been covered already, in the short term outperformance cannot and should not be ruled out. Yet at the end of the day, gold remains better suited to the current environment in any case, and compared to alternatives, it is best suited in our view.

Likewise, turning to crypto currencies, the rolling correlation has turned positive; we remain wary of the argument that gold and crypto currencies are interchangeable. While the relationship is perhaps evolving, both remain quite distinct, in our view, given their myriad of differences, despite some overlap in investor psychology surrounding each (i.e., both are stateless, non-debaseable instruments). Thus, in our view there are no real alternatives in our current forecasts that affect gold's price performance in any significant way.

Figures 8 & 9: The Gold-Silver ratio is much closer to historical norms; Rolling correlation with Cryptocurrencies



Source: Bloomberg, RBC Capital Markets

Lastly, let's tackle the more difficult to quantify drivers— arguably some of the most important factors for gold right now

Most important in our view are the less obvious or, in some cases, merely less clear and more difficult to quantify dynamics fueling gold. In our view, the most underappreciated of these are politics and geopolitics. Economic uncertainty, while a bit nebulous to quantify, is in our view the most sustainable supportive theme. Lastly, the well-appreciated biggest downside risk to our forecasts is a potential COVID-19 vaccine, a potential gold driver that we cannot forget (and hope for).

Underappreciated Upside Risks: Politics and Geopolitics

Even in this environment, politics and geopolitics are the most underappreciated themes for gold in our view. Because politics and geopolitics are so inherently difficult to quantify, the market tends to value gold based almost solely on macro proxies. These are the easily quantifiable metrics, most of which are listed above. While these accessible and transparent measures matter, by themselves they are unable to explain gold's price action. Analysis that focuses solely on tickers available in a spreadsheet misses the emotional and psychological nature of gold, as well as the impact of qualitative drivers of gold price performance. We make our best effort to quantify and model this through a custom momentum driver in our models. It is through this variable that we can build in added risk and momentum in a given quarter when we think there is a reason to do so. This is an inherently qualitative exercise, but one explicitly meant to capture gold-relevant themes in an analytical way.

Take, for example, politics. We expect the run-up and outcome of the current US presidential election cycle to add significant political uncertainty to the mix, and thus add to gold's upside pressure, or additional gold volatility at the very least. This of course will be partly translated to gold via moves in other gold-relevant macro moves, but turbulence elsewhere is unlikely to explain all of gold's price action. Gold is widely known by every type of investor, and investor

interest in gold is driven by more than a ticker can explain, particularly during periods when gold's popularity is so widespread. Thus in Q4 we have built in even more heightened momentum into our models. We have extended that into Q1 2021 in our latest forecasts, as we think the following quarter will also see heightened political tensions, no matter the outcome, add to gold's appeal to investors at large. This does unwind thereafter, but we expect elevated political tensions to be a very relevant driver for gold in the coming quarters.

Geopolitics need to be kept in mind, too, as they also remain underappreciated among gold investors. The growing tensions with China over Hong Kong, trade, apps like TikTok, and numerous other flashpoints add to geopolitical uncertainty, which could easily spill over into gold in a more material way. These risks are on top of the long-running geopolitical themes lingering in the background spanning in the Middle East, Europe, and elsewhere that, while unexpected, always present a risk—and in this highly uncertain environment, a particularly gold-relevant risk in our view.

Most Sustainable Supportive Theme: Economic Uncertainty

To put it simply, we continue to attribute much of the rapid acceleration in gold prices to economic uncertainty. This is the crux of our view on gold's relationship with equities—that the historically normal negative correlation has and will continue to give way to neutral and positive territory; that while investors continue to invest in risk and public equities, they will continue to add to gold positions, in recognition of the uncertainty at hand. Likewise, this uncertainty underpins much of the other moves we have seen in gold's other macro-drivers, and it has manifested through allocations into gold-backed products. Thus, viewing gold as a proxy for investor interest tells us that gold as a risk overlay in investor portfolios is alive and well, and thus a both sticky and supportive, sustainable theme for gold throughout our forecast horizon.

Biggest Downside Price Risk: COVID-19 Vaccine

The biggest downside price risk for gold is a COVID-19 vaccine. Such a positive development for global health and economic concerns would certainly represent a swing factor toward our low price scenario. This would begin to unwind the economic uncertainty mentioned above and eat into the monetary and fiscal policies that have given rise to gold-positive moves in rates, the dollar, inflation expectations, investor interest, and more. While such an outcome seems a ways off (to the detriment of the health and economic prospects of all people), it is one that we should hope for, and thus cannot write off.

See the next page for how this all fits into our price outlook and high and low scenarios.

Recent Global Commodity Strategy and MENA Research

[Quick Take: Jack Devine/Covert Affairs](#)

[Commodity Comment: Running on Empty](#)

[Follow the Barrel - Margin Call](#)

[Commodity Surveyor: There Is No Substitute](#)

[Commodity Comment: Enforcement Mechanism](#)

[Quick Take: Lebanon Explosions](#)

[Gold Strategy: Haven Hunting](#)

[Quick Take: Assistant Secretary of State Fannon](#)

[Commodity Comment: 40 is Far From Fabulous...](#)

[Oil Market in 60 Seconds: Stagnant Summer](#)

Forecasts Summary

Figure 10: Modeled gold prices

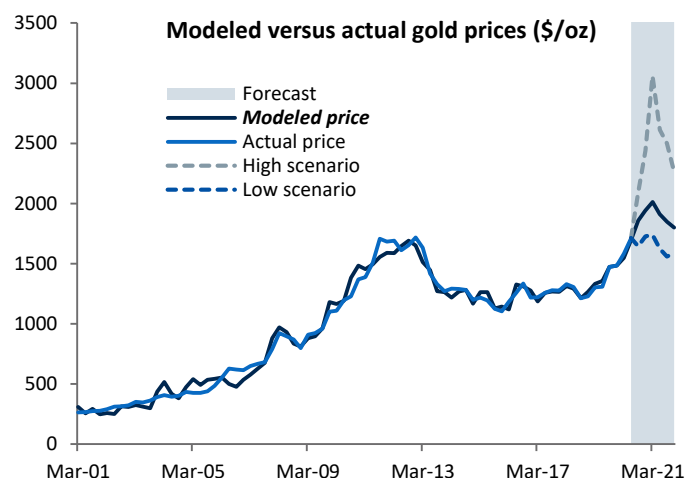
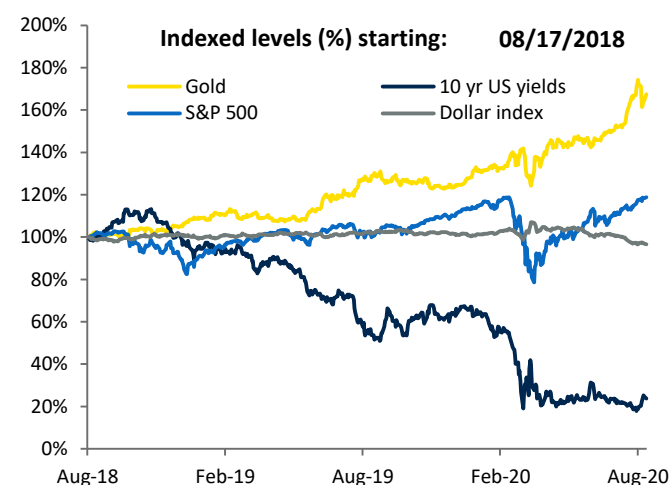


Figure 11: Big three macro factors



Forecast Summary: The recent consolidation in gold prices was arguably due amid a record rally, but has our outlook changed with that? No, gold has recovered and we maintain our mid/base case scenario (50% probability) with the \$1,900s per ounce being a well-supported level going into year-end (see bottom for forecasts). Likewise, we maintain the probability for our high scenario at 40%, a scenario in which gold trends toward the mid-\$2,000's per ounce before year-end and as high as the \$3,000's in early 2021. Our low scenario remains unchanged as well. To get to our forecasted price levels, we think the big three macro factors rank as follows in terms of importance: 1) rates; 2) dollar; and 3) equities—the last of which will remain the weakest in our view (in neutral and even positive territory as we have long called for unless a COVID-19 vaccine materializes). These trends, in addition to the more qualitative drivers, will continue to underpin investor flows for the foreseeable future, in our view, namely through gold-backed ETPs (but also physical OTC gold, COMEX gold, etc.). This will continue to lend support, as investors at large make ongoing risk overlay allocations. Part of what drives the continued interest in gold are the difficult to quantify drivers that do and should matter for gold prices. In particular, we think politics (namely the US presidential election cycle) and geopolitics (i.e., US-China tensions) underpin gold materially. While these themes represent the biggest underappreciated upside drivers, in our view, the most sustainable support factor for gold continues to be economic uncertainty. It is not only intertwined in gold's macro relationships but also a key factor in the growing allocations among investors, who we would argue have a renewed appreciation for and relationship with gold. *See below for quarterly prices (bottom) and the fundamental balance.*

Figures 12 & 13: Supply & demand balance, annual & quarterly price forecasts (Global Commodity Strategy & MENA Research)

Gold balance (t)	2013	2014	2015	2016	2017	2018	2019 E	2020 F	2021 F
Supply									
Mine production	3096.3	3208.8	3247.9	3355.7	3374.5	3428.3	3467.2	3312.8	3553.3
Scrap supply	1265.7	1158.3	1122.8	1274.9	1175.0	1194.2	1271.4	1061.0	1547.5
Net producer hedging	-33.4	106.4	17.0	34.8	-33.2	-2.2	22.7	42.7	48.5
Total Supply	4328.6	4473.4	4387.6	4665.3	4516.2	4620.3	4761.2	4416.5	5149.4
Demand									
Jewelry	2668.5	2542.6	2371.3	1957.9	2229.6	2197.7	2026.2	1123.0	1284.6
Industrial	354.8	349.8	319.8	285.5	327.4	335.3	325.3	273.0	289.3
Dental	33.5	31.4	29.7	29.2	27.6	27.3	24.9	19.2	16.4
Bar & Coin	1494.8	912.6	835.4	935.1	884.3	941.6	822.3	790.8	1038.7
ETPs	-880.3	-153.7	-126.7	534.4	227.0	67.3	442.3	1039.4	261.0
Official sector	629.4	601.2	579.6	394.9	378.6	656.6	667.8	490.0	544.8
Total Demand	4300.7	4283.9	4009.0	4137.0	4074.4	4225.8	4308.7	3735.5	3434.7
Balance	27.9	189.5	378.6	528.3	441.8	394.5	452.5	681.0	1714.7
Price (\$/oz)	1411	1266	1160	1249	1259	1269	1392	1774	1893
Quarterly									
Price (\$/oz)	Q1 20	Q2 20	Q3 20 F	Q4 20 F	2020 F	Q1 21 F	Q2 21 F	Q3 21 F	Q4 21 F
Low scenario	1582	1714	1859	1942	1774	2012	1911	1848	1801
High scenario	-	-	1644	1726	1666	1739	1624	1561	1586
	-	-	2086	2440	1956	3060	2612	2500	2259
									2608

Note (all): Price forecasts (published as averages) draw from two primary methodologies. Source (all): WGC, Thomson Reuters, Refinitiv Eikon, GFMS, Bloomberg, other sources, RBC Capital Markets

Required disclosures

Conflicts disclosures

The analyst(s) responsible for preparing this research report received compensation that is based upon various factors, including total revenues of the member companies of RBC Capital Markets and its affiliates, a portion of which are or have been generated by investment banking activities of the member companies of RBC Capital Markets and its affiliates.

Michael Tran is a member of the advisory board of Orbital Insight.

Conflicts policy

RBC Capital Markets Policy for Managing Conflicts of Interest in Relation to Investment Research is available from us on request. To access our current policy, clients should refer to <https://www.rbccm.com/global/file-414164.pdf> or send a request to RBC Capital Markets Research Publishing, P.O. Box 50, 200 Bay Street, Royal Bank Plaza, 29th Floor, South Tower, Toronto, Ontario M5J 2W7. We reserve the right to amend or supplement this policy at any time.

Dissemination of research and short-term trade ideas

RBC Capital Markets endeavors to make all reasonable efforts to provide research simultaneously to all eligible clients, having regard to local time zones in overseas jurisdictions. RBC Capital Markets' equity research is posted to our proprietary website to ensure eligible clients receive coverage initiations and changes in ratings, targets and opinions in a timely manner. Additional distribution may be done by the sales personnel via email, fax, or other electronic means, or regular mail. Clients may also receive our research via third party vendors. RBC Capital Markets also provides eligible clients with access to SPARC on the Firm's proprietary INSIGHT website, via email and via third-party vendors. SPARC contains market color and commentary regarding subject companies on which the Firm currently provides equity research coverage. Research Analysts may, from time to time, include short-term trade ideas in research reports and / or in SPARC. A short-term trade idea offers a short-term view on how a security may trade, based on market and trading events, and the resulting trading opportunity that may be available. A short-term trade idea may differ from the price targets and recommendations in our published research reports reflecting the research analyst's views of the longer-term (one year) prospects of the subject company, as a result of the differing time horizons, methodologies and/or other factors. Thus, it is possible that a subject company's common equity that is considered a long-term 'Sector Perform' or even an 'Underperform' might present a short-term buying opportunity as a result of temporary selling pressure in the market; conversely, a subject company's common equity rated a long-term 'Outperform' could be considered susceptible to a short-term downward price correction. Short-term trade ideas are not ratings, nor are they part of any ratings system, and the firm generally does not intend, nor undertakes any obligation, to maintain or update short-term trade ideas. Short-term trade ideas may not be suitable for all investors and have not been tailored to individual investor circumstances and objectives, and investors should make their own independent decisions regarding any securities or strategies discussed herein. Please contact your investment advisor or institutional salesperson for more information regarding RBC Capital Markets' research.

For a list of all recommendations on the company that were disseminated during the prior 12-month period, please click on the following link: <https://rbcnw.bluematrix.com/sellside/MAR.action>

The 12-month history of SPARCs can be viewed at <https://www.rbcsightresearch.com/>.

Analyst certification

All of the views expressed in this report accurately reflect the personal views of the responsible analyst(s) about any and all of the subject securities or issuers. No part of the compensation of the responsible analyst(s) named herein is, or will be, directly or indirectly, related to the specific recommendations or views expressed by the responsible analyst(s) in this report.

Third-party-disclaimers

RBC Capital Markets disclaims all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any statements made to the media or via social media that are in turn quoted in this report, or otherwise reproduced graphically for informational purposes.

References herein to "LIBOR", "LIBO Rate", "L" or other LIBOR abbreviations means the London interbank offered rate as administered by ICE Benchmark Administration (or any other person that takes over the administration of such rate).

Disclaimer

RBC Capital Markets is the business name used by certain branches and subsidiaries of the Royal Bank of Canada, including RBC Dominion Securities Inc., RBC Capital Markets, LLC, RBC Europe Limited, Royal Bank of Canada, Hong Kong Branch and Royal Bank of Canada, Sydney Branch. The information contained in this report has been compiled by RBC Capital Markets from sources believed to be reliable, but no representation or warranty, express or implied, is made by Royal Bank of Canada, RBC Capital Markets, its affiliates or any other person as to its accuracy, completeness or correctness. All opinions and estimates contained in this report constitute RBC Capital Markets' judgement as of the date of this report, are subject to change without notice and are provided in good faith but without legal responsibility. Nothing in this report constitutes legal, accounting or tax advice or individually tailored investment advice. This material is prepared for general circulation to clients and has been prepared without regard to the individual financial circumstances and objectives of persons who receive it. The investments or services contained in this report may not be suitable for you and it is recommended that you consult an independent investment advisor if you are in doubt about the suitability of such investments or services. This report is not an offer to sell or a solicitation of an offer to buy any securities. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. RBC Capital Markets research analyst compensation is based in part on the overall profitability of RBC Capital Markets, which includes profits attributable to investment banking revenues. Every province in Canada, state in the U.S., and most countries throughout the world have their own laws regulating the types of securities and other investment products which may be offered to their residents, as well as the process for doing so. As a result, the securities discussed in this report may not be eligible for sale in some jurisdictions. RBC Capital Markets may be restricted from publishing research reports, from time to time, due to regulatory restrictions and/or internal compliance policies. If this is the case, the latest published research reports available to clients may not reflect recent material changes in the applicable industry and/or applicable subject companies. RBC Capital Markets research reports are current only as of the date set forth on the research reports. This report is not, and under no circumstances should be construed as, a solicitation to act as securities broker or dealer in any jurisdiction by any person or company that is not legally permitted to carry on the business of a securities broker or dealer in that jurisdiction. To the full extent permitted by law neither RBC Capital Markets nor any of its affiliates, nor any other person, accepts any liability whatsoever for any direct, indirect or consequential loss arising from, or in connection with, any use of this report or the information contained herein. No matter contained in this document may be reproduced or copied by any means without the prior written consent of RBC Capital Markets in each instance.

Additional information is available on request.

To U.S. Residents: This publication has been approved by RBC Capital Markets, LLC (member FINRA, NYSE, SIPC), which is a U.S. registered broker-dealer and which accepts responsibility for this report and its dissemination in the United States. Any U.S. recipient of this report that is not a registered broker-dealer or a bank acting in a broker or dealer capacity and that wishes further information regarding, or to effect any transaction in, any of the securities discussed in this report, should contact and place orders with RBC Capital Markets, LLC.

To Canadian Residents: This publication has been approved by RBC Dominion Securities Inc. (member IIROC). Any Canadian recipient of this report that is not a Designated Institution in Ontario, an Accredited Investor in British Columbia or Alberta or a Sophisticated Purchaser in Quebec (or similar permitted purchaser in any other province) and that wishes further information regarding, or to effect any transaction in, any of the securities discussed in this report should contact and place orders with RBC Dominion Securities Inc., which, without in any way limiting the foregoing, accepts responsibility for this report and its dissemination in Canada.

To U.K. Residents: This publication has been approved by RBC Europe Limited ('RBCEL'), which is authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority ('FCA') and the Prudential Regulation Authority, in connection with its distribution in the United Kingdom. This material is not for general distribution in the United Kingdom to retail clients, as defined under the rules of the FCA. RBCEL accepts responsibility for this report and its dissemination in the United Kingdom.

To German Residents: This material is distributed in Germany by RBC Europe Limited, Frankfurt Branch, which is regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin).

To Persons Receiving This Advice in Australia: This material has been distributed in Australia by Royal Bank of Canada, Sydney Branch (ABN 86 076 940 880, AFSL No. 246521). This material has been prepared for general circulation and does not take into account the objectives, financial situation or needs of any recipient. Accordingly, any recipient should, before acting on this material, consider the appropriateness of this material having regard to their objectives, financial situation and needs. If this material relates to the acquisition or possible acquisition of a particular financial product, a recipient in Australia should obtain any relevant disclosure document prepared in respect of that product and consider that document before making any decision about whether to acquire the product. This research report is not for retail investors as defined in section 761G of the Corporations Act.

To Hong Kong Residents: This publication is distributed in Hong Kong by Royal Bank of Canada, Hong Kong Branch, which is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission (SFC) in Hong Kong, RBC Investment Services (Asia) Limited and RBC Global Asset Management (Asia) Limited, both entities are regulated by the SFC. This material is not for general distribution in Hong Kong to persons who are not professional investors (as defined in the Securities and Futures Ordinance of Hong Kong (Cap. 571) and any rules made thereunder).

To Singapore Residents: This publication is distributed in Singapore by the Royal Bank of Canada, Singapore Branch, a registered entity licensed by the Monetary Authority of Singapore. This material has been prepared for general circulation and does not take into account the objectives, financial situation, or needs of any recipient. You are advised to seek independent advice from a financial adviser before purchasing any product. If you do not obtain independent advice, you should consider whether the product is suitable for you. Past performance is not indicative of future performance. If you have any questions related to this publication, please contact the Royal Bank of Canada, Singapore Branch. Royal Bank of Canada, Singapore Branch accepts responsibility for this report and its dissemination in Singapore.

To Japanese Residents: Unless otherwise exempted by Japanese law, this publication is distributed in Japan by or through RBC Capital Markets (Japan) Ltd. which is a Financial Instruments Firm registered with the Kanto Local Financial Bureau (Registered number 203) and a member of the Japan Securities Dealers Association ("JSDA") and the Financial Futures Association of Japan ("FFAJ").

® Registered trademark of Royal Bank of Canada. RBC Capital Markets is a trademark of Royal Bank of Canada. Used under license.

Copyright © RBC Capital Markets, LLC 2020 - Member SIPC

Copyright © RBC Dominion Securities Inc. 2020 - Member Canadian Investor Protection Fund

Copyright © RBC Europe Limited 2020

Copyright © Royal Bank of Canada 2020

All rights reserved

Global Macro, Economics & Rates Strategy Research Team

Europe

RBC Europe Limited:

Vatsala Datta	UK Rates Strategist	+44 20 7029 0184	vatsala.datta@rbccm.com
Cathal Kennedy	European Economist	+44 20 7029 0133	cathal.kennedy@rbccm.com
Megum Muhic	Associate	+44 20 7029 0092	megum.muhic@rbccm.com
Peter Schaffrik	Global Macro Strategist	+44 20 7029 7076	peter.schaffrik@rbccm.com
Gordon Scott	Associate	+44 20 7653 4576	gordon.scott@rbccm.com

Asia-Pacific

Royal Bank of Canada – Sydney Branch:

Su-Lin Ong	Head of Australian and New Zealand FIC Strategy	+612-9033-3088	su-lin.ong@rbccm.com
Robert Thompson	Macro Rates Strategist	+612 9033 3088	robert.thompson@rbccm.com

North America

RBC Dominion Securities Inc.:

Mark Chandler	Head of Canadian Rates Strategy	(416) 842-6388	mark.chandler@rbccm.com
Simon Deeley	Rates Strategist	(416) 842-6362	simon.deeley@rbccm.com

RBC Capital Markets, LLC:

Jacob Oubina	Senior US Economist	(212) 618-7795	jacob.oubina@rbccm.com
Tom Porcelli	Chief US Economist	(212) 618-7788	tom.porcelli@rbccm.com

Global Commodity Strategy and MENA Research Team

North America

RBC Capital Markets, LLC:

Helima Croft	Head of Global Commodity Strategy and MENA Research	(212) 618-7798	helima.croft@rbccm.com
Christopher Louney	Commodity Strategist	(212) 437-1925	christopher.louney@rbccm.com
Michael Tran	Commodity Strategist	(212) 266-4020	michael.tran@rbccm.com
Megan Schippmann	Senior Associate	(212) 301-1531	megan.schippmann@rbccm.com
Akash Gupta	Associate	(212) 428-5491	akash.gupta@rbccm.com