



Topical Research:

## **Gold Market Trends**

*As of 2/22/22*

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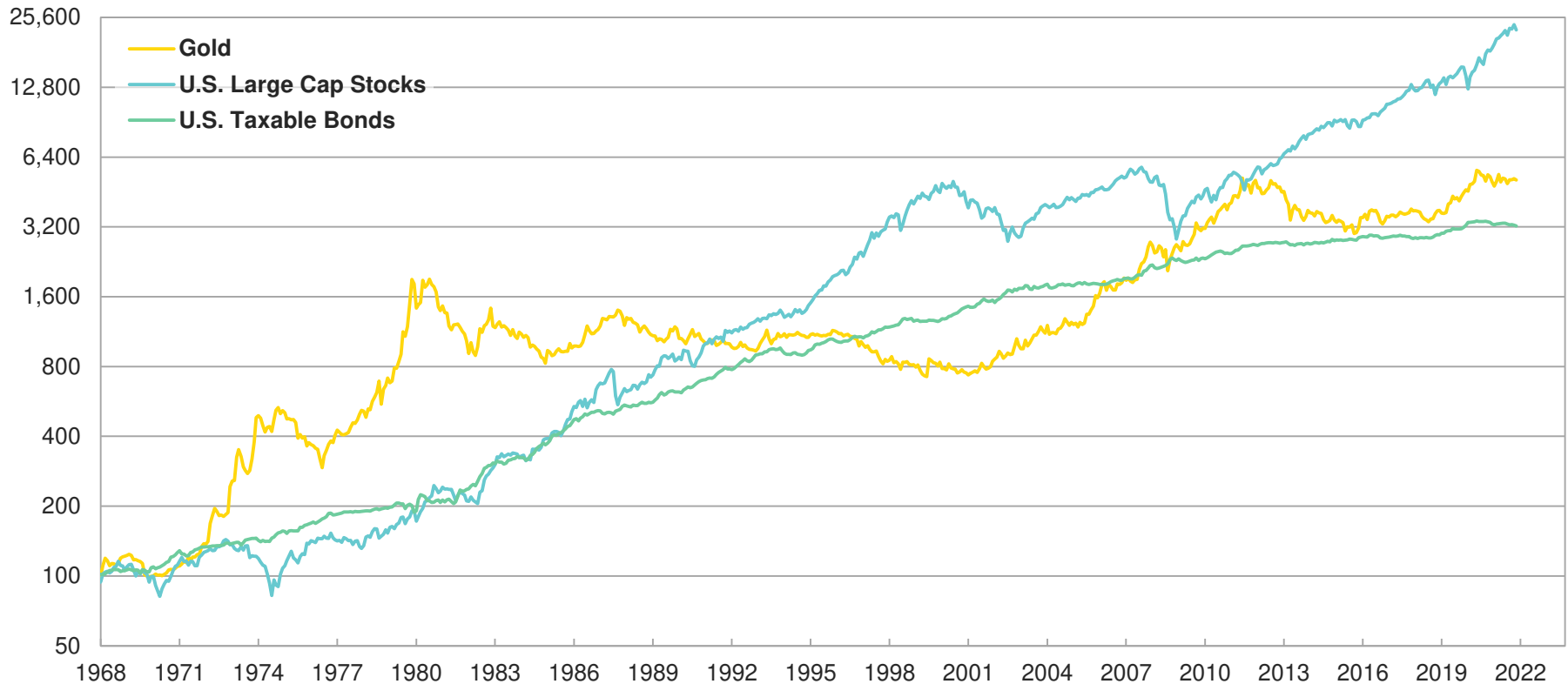
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US 10-YEAR TREASURY NOTE



# Gold has trailed stocks, but outpaced bonds for more than 50 years

GROWTH OF 100



| Asset Class           | Name                         | QTD  | YTD  | 5-Yr | 10-Yr | 20-Yr | 50-Yr | 2020 | 2019 | 2018 | 2017 | 2016 | 2015  | 2014 | 2013  | 2012 | 2011  |
|-----------------------|------------------------------|------|------|------|-------|-------|-------|------|------|------|------|------|-------|------|-------|------|-------|
| Gold                  | LBMA Gold Price Index        | -1.6 | -1.6 | 8.4  | 0.3   | 9.7   | 7.9   | 24.2 | 18.8 | -1.1 | 11.9 | 9.1  | -11.4 | -0.2 | -27.8 | 5.7  | -27.8 |
| U.S. Large Cap Stocks | IA SBBI US Large Stock Index | -5.2 | -5.2 | 16.8 | 15.4  | 9.3   | 11.1  | 18.4 | 31.5 | -4.4 | 21.8 | 12.0 | 1.4   | 13.7 | 32.4  | 16.0 | 32.4  |
| U.S. Taxable Bonds    | IA SBBI US IT Govt Index     | -0.8 | -0.8 | 2.3  | 1.8   | 3.8   | 6.8   | 7.3  | 8.3  | 1.2  | 1.6  | 1.9  | 1.8   | 3.0  | -3.7  | 1.7  | -3.7  |

Source: Bloomberg.

Returns for periods longer than 1 year are annualized. Data as of most recent month end.

## Gold Market Trends

# After strong returns out of the pandemic lows, gold has trailed since the vaccine announcements, only recently outperforming

| Asset Class                  | Benchmark                            | 3/10/00<br>(Tech<br>Bubble<br>peak) | 10/9/02<br>(Tech<br>Bubble<br>low) | 10/9/07<br>(Housing<br>Bubble<br>high) | 3/9/09<br>(GFC low) | 11/8/16<br>(Trump<br>election) | 1/26/18<br>(Jan high) | 3/21/18<br>(start of<br>Trade War) | 9/21/18<br>(Sep 2018<br>high) | 12/24/18<br>(Dec low) | 8/1/19<br>(Trade War<br>escalation) | 2/20/20<br>(Covid-19<br>escalation) | 11/9/20<br>(Covid-19<br>Vaccine) |
|------------------------------|--------------------------------------|-------------------------------------|------------------------------------|----------------------------------------|---------------------|--------------------------------|-----------------------|------------------------------------|-------------------------------|-----------------------|-------------------------------------|-------------------------------------|----------------------------------|
| ■ Cryptocurrencies           | MMS CryptoCompare Digital Top 25 In  | -                                   | -                                  | -                                      | -                   | 146.4                          | 10.2                  | 26.7                               | 62.5                          | 100.6                 | 89.2                                | 117.4                               | 210.7                            |
| ■ Bitcoin                    | MMS CryptoCompare Bitcoin Index      | -                                   | -                                  | -                                      | -                   | 119.9                          | 36.0                  | 45.3                               | 68.5                          | 107.9                 | 69.0                                | 93.6                                | 103.2                            |
| ■ Midstream Energy           | Alerian MLP Index                    | 3.9                                 | 8.9                                | 4.6                                    | 9.1                 | 1.5                            | -1.0                  | 4.2                                | -0.5                          | 7.7                   | 1.2                                 | 9.8                                 | 71.2                             |
| ■ Commodity Futures          | Bloomberg Commodity Index            | -1.0                                | 1.5                                | -2.4                                   | 0.9                 | 6.7                            | 6.5                   | 7.8                                | 9.7                           | 13.3                  | 15.0                                | 20.8                                | 39.6                             |
| ■ US REITs                   | MSCI US REIT Index                   | 11.0                                | 10.7                               | 6.3                                    | 17.7                | 8.9                            | 10.0                  | 12.0                               | 9.8                           | 15.0                  | 9.1                                 | 6.4                                 | 30.8                             |
| ■ US Micro Cap Stocks        | Russell Micro Cap Index              | 11.0                                | 10.5                               | 6.8                                    | 16.0                | 12.1                           | 7.0                   | 7.5                                | 6.0                           | 18.0                  | 14.3                                | 13.9                                | 23.4                             |
| ■ US Large Cap Stocks        | S&P 500 Index                        | 14.1                                | 11.3                               | 9.7                                    | 17.7                | 16.6                           | 13.1                  | 14.8                               | 14.2                          | 23.6                  | 17.9                                | 15.1                                | 19.9                             |
| ■ Global Real Estate Sec's   | S&P Global Property Index            | 8.1                                 | 9.4                                | 3.5                                    | 13.8                | 7.0                            | 4.4                   | 6.2                                | 6.2                           | 9.8                   | 5.2                                 | 2.1                                 | 19.6                             |
| ■ US Small Cap Stocks        | Russell 2000 Index                   | 11.1                                | 11.1                               | 7.7                                    | 16.0                | 11.8                           | 7.1                   | 7.8                                | 6.0                           | 17.2                  | 11.3                                | 10.2                                | 18.1                             |
| ■ Intl Dev Ex-US Stocks      | MSCI EAFE Index                      | 6.4                                 | 8.3                                | 3.0                                    | 10.5                | 9.1                            | 3.6                   | 5.7                                | 6.6                           | 12.6                  | 9.4                                 | 8.1                                 | 15.1                             |
| ■ Closed-End Funds           | S-Network Composite CEF Index        | 7.1                                 | -                                  | 6.2                                    | 12.1                | 8.1                            | 5.8                   | 6.8                                | 6.9                           | 12.3                  | 6.6                                 | 4.0                                 | 12.9                             |
| ■ Intl Dev Ex-US Real Est.   | S&P Global Ex-US Property Index      | 6.1                                 | 8.9                                | 1.8                                    | 11.5                | 5.4                            | 0.1                   | 1.6                                | 3.2                           | 5.7                   | 1.7                                 | -1.8                                | 10.0                             |
| ■ US Leveraged Loans         | S&P/LSTA Leveraged Loan Index        | 4.6                                 | 5.0                                | 4.5                                    | 7.4                 | 4.4                            | 4.0                   | 4.0                                | 3.9                           | 5.3                   | 4.0                                 | 3.8                                 | 6.3                              |
| ■ Municipal High Yield Bonds | Bloomberg US HY Muni Index           | 6.4                                 | 6.1                                | 5.1                                    | 7.9                 | 5.6                            | 6.2                   | 6.3                                | 6.0                           | 6.3                   | 4.8                                 | 3.1                                 | 6.2                              |
| ■ Emerging Market Stocks     | MSCI EM Index                        | 4.7                                 | 11.3                               | 2.6                                    | 10.3                | 9.0                            | 2.0                   | 3.2                                | 7.8                           | 11.4                  | 9.5                                 | 8.3                                 | 5.9                              |
| ■ US High Yield Bonds        | Bloomberg US Corporate HY Index      | 6.7                                 | 8.3                                | 6.8                                    | 10.3                | 5.4                            | 4.5                   | 5.1                                | 5.0                           | 7.1                   | 4.4                                 | 3.3                                 | 3.5                              |
| ■ Cash                       | Bloomberg 1-3 Mth Treasury Index     | 0.5                                 | 1.2                                | 0.6                                    | 0.5                 | 1.0                            | 1.1                   | 1.1                                | 1.0                           | 0.9                   | 0.5                                 | 0.2                                 | 0.0                              |
| ■ US Inter-Term Muni Bonds   | Bloomberg Municipal Bond 1-10Y Inde  | 2.6                                 | 3.2                                | 3.2                                    | 3.0                 | 1.9                            | 2.3                   | 2.5                                | 2.7                           | 2.4                   | 1.1                                 | 0.3                                 | -1.1                             |
| ■ Short-Term Bonds           | Bloomberg 1-3 Year Treasury Index    | 1.1                                 | 1.9                                | 1.6                                    | 1.1                 | 1.2                            | 1.6                   | 1.7                                | 1.8                           | 1.6                   | 1.0                                 | 0.4                                 | -1.3                             |
| ■ Gold                       | LBMA Gold Price PM                   | 4.5                                 | 9.6                                | 6.8                                    | 5.6                 | 7.6                            | 8.6                   | 9.8                                | 14.0                          | 13.8                  | 11.7                                | 8.6                                 | -1.9                             |
| ■ Emerging Market Bonds      | JPM EMBI Global Diversified Index    | 5.4                                 | 7.7                                | 5.8                                    | 7.4                 | 2.9                            | 2.1                   | 2.8                                | 3.7                           | 4.1                   | 0.3                                 | -1.7                                | -2.2                             |
| ■ US Inter-Term Bonds        | Bloomberg U.S. Agg Bond Index        | 3.1                                 | 3.8                                | 3.7                                    | 3.6                 | 2.2                            | 2.8                   | 3.2                                | 3.6                           | 3.4                   | 1.6                                 | 0.0                                 | -3.6                             |
| ■ Developed Ex-US Bonds      | S&P International Sov Ex-US Bond Ind | 1.0                                 | 3.9                                | 2.1                                    | 2.0                 | 0.6                            | -1.0                  | -0.9                               | 0.3                           | 0.6                   | -1.1                                | -0.7                                | -8.2                             |

Source: Bloomberg. Returns for periods longer than 1 year are annualized

## Gold Market Trends

SEE IMPORTANT DISCLOSURES AT THE END OF THIS PRESENTATION

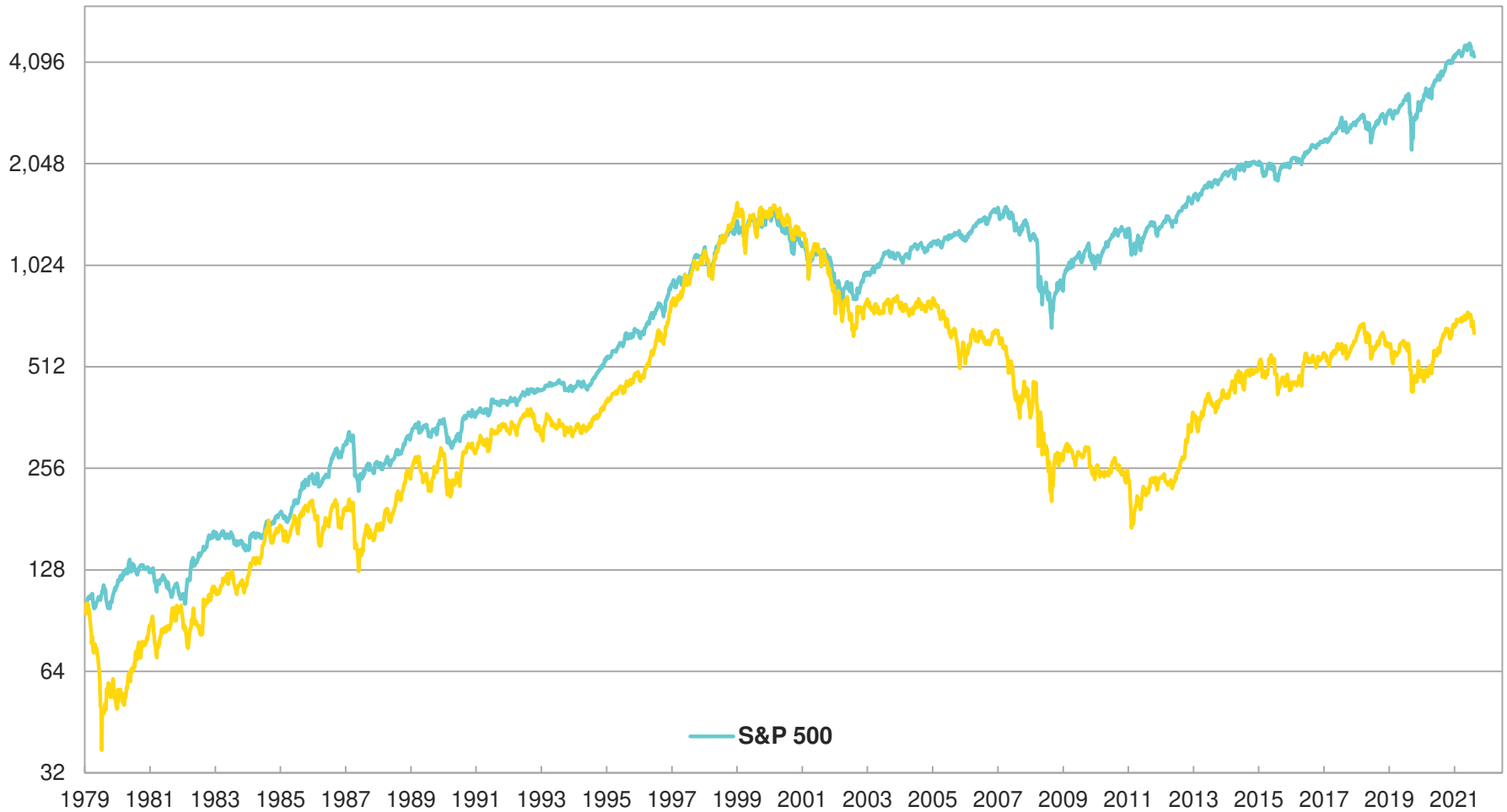
## U.S. large cap stocks-to-gold ratio for over 100 years



Source: Bloomberg

## ➤ Priced in gold, stocks are yet to regain Tech Bubble highs

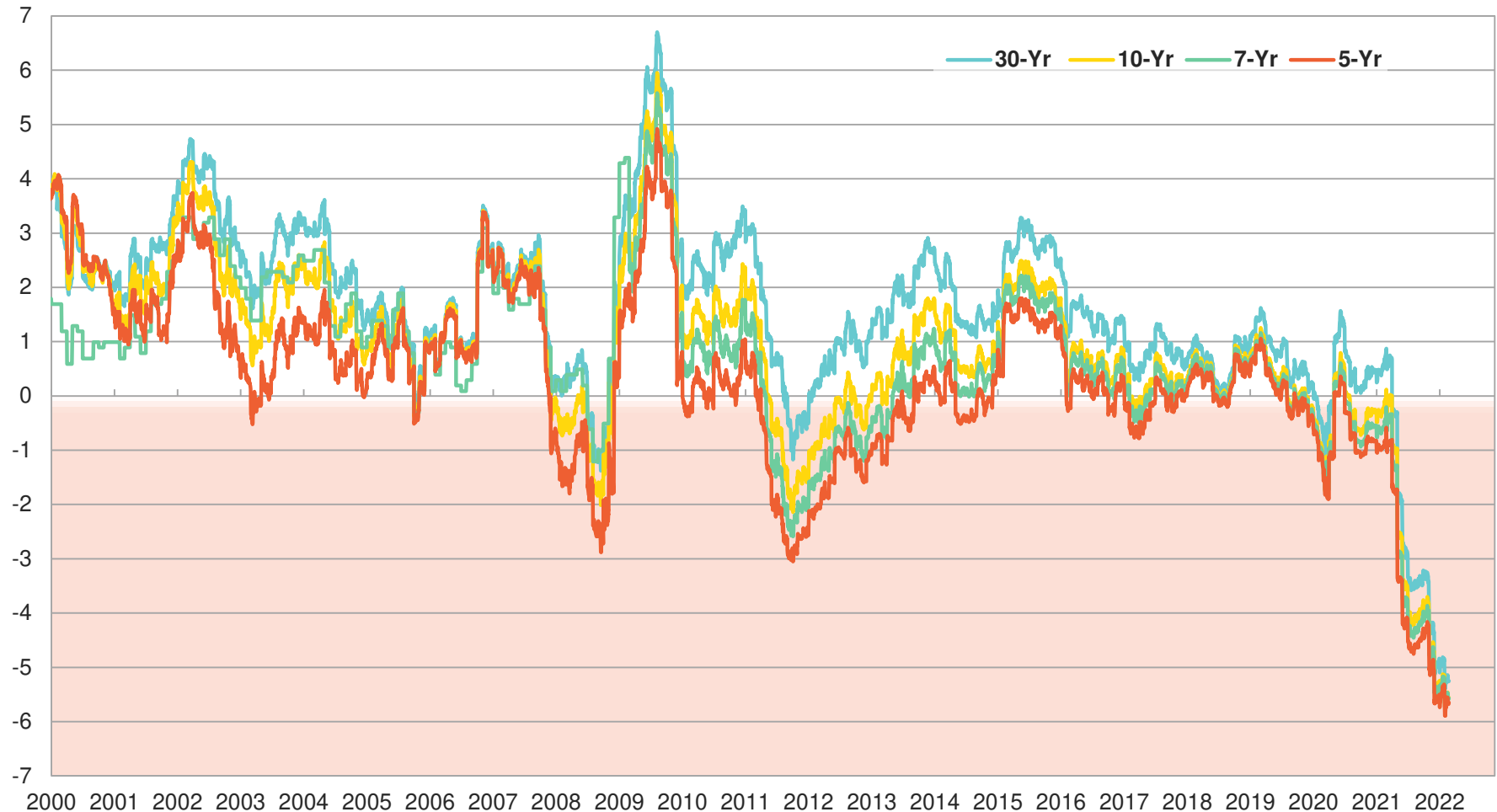
GROWTH OF 100



Source: Bloomberg

➤ **Real yields, which historically have had a strong inverse correlation with the price of gold, are at the lowest level of the last 40 years...**

REAL YIELD, %

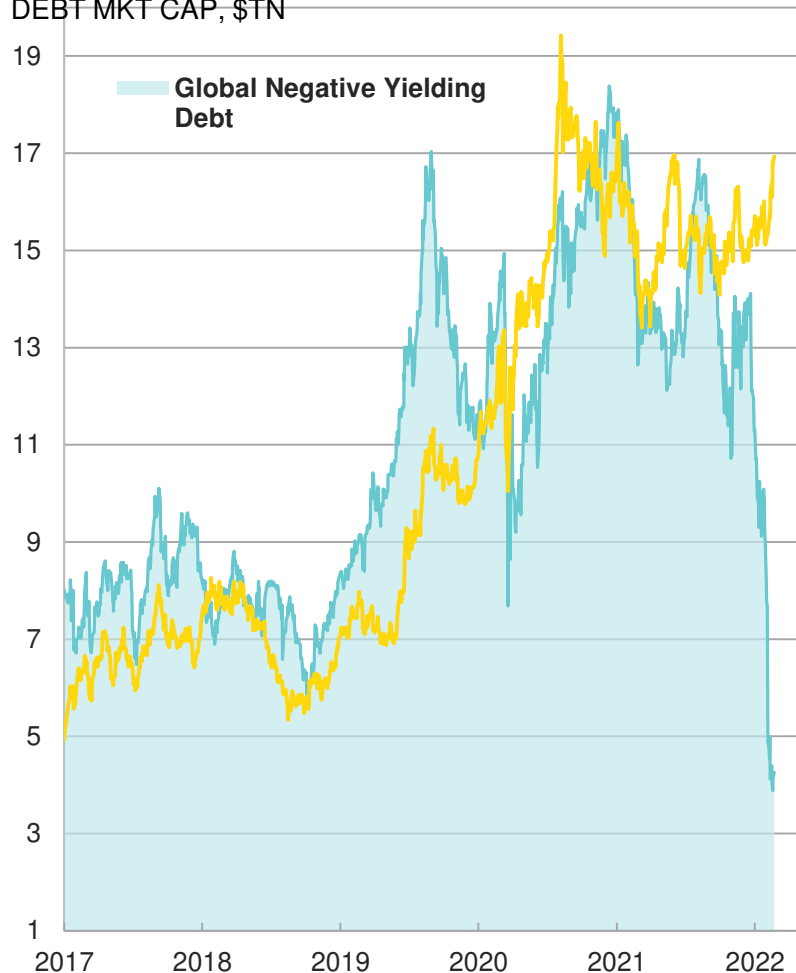


Source: Bloomberg

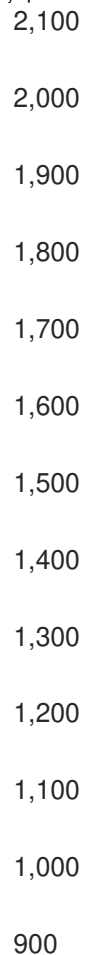


# ➤ ...but the relationship between real yields and gold has broken down in recent months, possibly as investors look past the expended rate hike cycle

GLOBAL AGGREGATE NEGATIVE YIELDING  
DEBT MKT CAP, \$TN



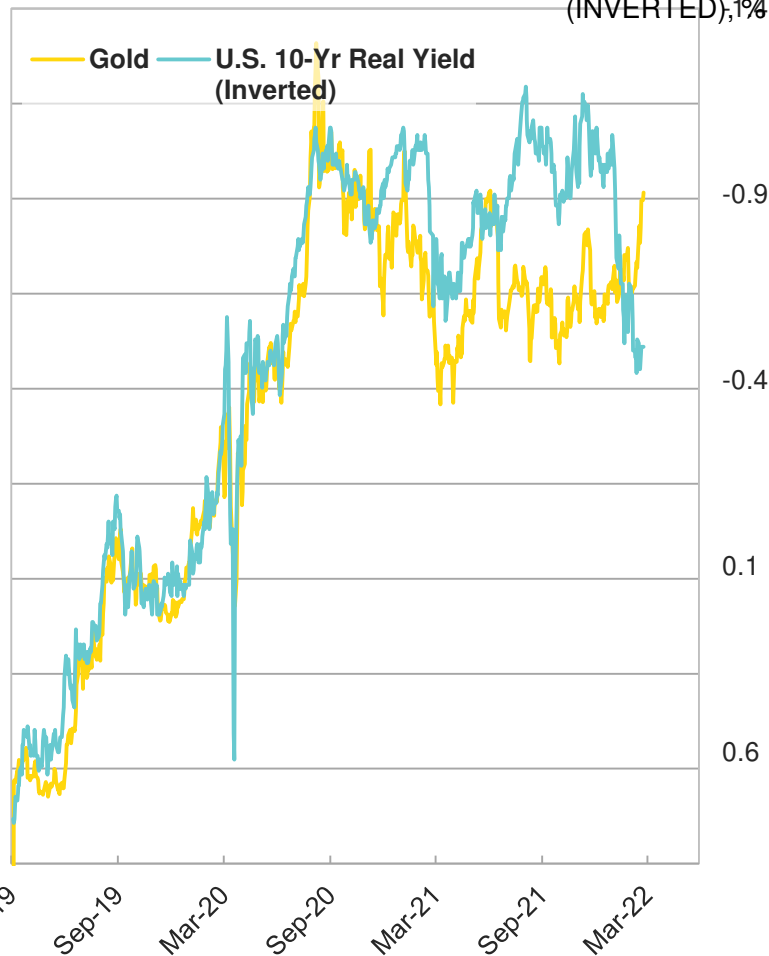
GOLD, \$/OZ



GOLD, \$/OZ



U.S. 10-YR REAL YIELD  
(INVERTED), 1%



Source: Bloomberg

U.S. 10-year Real Yield is represented by the U.S. Treasury Real Constant Maturity Treasury (R-CMTs) rate.

## Gold Market Trends

# Despite the year-to-year volatility, longer-term returns have been surprisingly consistent across multiple currencies

|                    | Calendar Year Returns |       |       |      |       |      |      |      |       |      |      |      |      |       |      |       |       |      |      |      |      | YTD  | 20-Yr |      |
|--------------------|-----------------------|-------|-------|------|-------|------|------|------|-------|------|------|------|------|-------|------|-------|-------|------|------|------|------|------|-------|------|
|                    | 2000                  | 2001  | 2002  | 2003 | 2004  | 2005 | 2006 | 2007 | 2008  | 2009 | 2010 | 2011 | 2012 | 2013  | 2014 | 2015  | 2016  | 2017 | 2018 | 2019 | 2020 |      |       | 2021 |
| Average            | 1.6                   | 14.3  | 35.3  | 10.2 | -0.2  | 23.2 | 18.4 | 21.9 | 20.6  | 18.4 | 26.9 | 16.8 | 6.0  | -23.1 | 10.7 | 2.2   | 11.2  | 8.7  | 10.2 | 21.2 | 28.9 | 3.8  | 4.5   | 11.8 |
| Developed Markets  | -0.8                  | 7.4   | 15.4  | 9.3  | 0.1   | 27.1 | 17.1 | 22.3 | 12.7  | 18.9 | 26.3 | 11.6 | 6.1  | -26.3 | 7.7  | -4.6  | 10.0  | 7.5  | 1.7  | 16.3 | 20.0 | -1.3 | 5.0   | 8.9  |
| U.S. Dollar        | -5.8                  | 2.4   | 24.8  | 19.4 | 5.4   | 17.9 | 23.2 | 30.9 | 5.8   | 24.5 | 29.5 | 10.1 | 7.1  | -28.3 | -1.8 | -10.2 | 8.1   | 13.5 | -1.6 | 18.3 | 25.1 | -3.7 | 4.2   | 9.8  |
| Euro               | 2.4                   | 8.4   | 5.8   | -0.6 | -2.4  | 35.0 | 10.4 | 18.5 | 10.5  | 22.3 | 38.6 | 13.7 | 5.2  | -30.8 | 11.4 | 0.1   | 11.8  | -0.7 | 3.1  | 21.0 | 14.9 | 3.5  | 4.7   | 8.4  |
| Canadian Dollar    | -2.4                  | 8.9   | 23.2  | -1.8 | -2.3  | 14.1 | 23.4 | 12.2 | 24.0  | 7.7  | 22.8 | 12.7 | 4.0  | -23.3 | 6.3  | 7.0   | 4.9   | 6.6  | 7.0  | 12.7 | 22.6 | -4.3 | 5.1   | 8.6  |
| Hong Kong Dollar   | -5.5                  | 2.3   | 24.8  | 18.8 | 5.6   | 17.8 | 23.4 | 31.3 | 5.1   | 24.5 | 29.8 | 10.0 | 6.8  | -28.1 | -1.8 | -10.3 | 8.2   | 14.8 | -1.7 | 17.7 | 24.5 | -3.1 | 4.3   | 9.8  |
| Israeli Shekel     | -7.5                  | 11.4  | 34.5  | 10.5 | 3.9   | 25.6 | 12.7 | 19.7 | 3.7   | 24.9 | 21.0 | 19.1 | 4.9  | -32.6 | 10.5 | -10.4 | 7.4   | 2.2  | 5.8  | 9.7  | 16.3 | -7.0 | 8.1   | 7.8  |
| Japanese Yen       | 6.2                   | 17.9  | 12.6  | 7.7  | 0.7   | 35.4 | 24.3 | 22.9 | -14.0 | 27.7 | 12.9 | 4.3  | 20.8 | -12.9 | 10.7 | -9.9  | 5.0   | 9.8  | -4.2 | 17.1 | 18.8 | 7.4  | 3.9   | 9.0  |
| Norwegian Krone    | 5.1                   | 4.4   | -3.6  | 14.7 | -4.3  | 30.9 | 13.7 | 14.2 | 35.3  | 4.1  | 30.7 | 13.1 | -0.3 | -21.6 | 20.6 | 6.6   | 5.6   | 8.2  | 3.7  | 20.1 | 22.2 | -1.0 | 6.5   | 9.9  |
| Swiss Franc        | -3.1                  | 5.5   | 3.8   | 6.9  | -3.4  | 36.0 | 14.2 | 21.8 | -0.2  | 21.3 | 16.9 | 10.5 | 4.4  | -29.9 | 8.5  | -9.5  | 10.0  | 8.6  | -0.8 | 16.6 | 14.5 | -0.8 | 4.6   | 6.5  |
| British Pound      | 3.2                   | 5.3   | 12.6  | 7.6  | -2.0  | 31.4 | 8.2  | 29.3 | 44.0  | 12.9 | 33.9 | 10.6 | 2.4  | -29.5 | 4.5  | -5.1  | 29.2  | 4.1  | 4.2  | 13.7 | 21.3 | -2.6 | 3.6   | 10.1 |
| Emerging Markets   | 4.1                   | 21.3  | 55.2  | 11.1 | -0.6  | 19.3 | 19.7 | 21.5 | 28.4  | 17.9 | 27.5 | 22.0 | 5.9  | -19.9 | 13.8 | 9.0   | 12.3  | 10.0 | 18.7 | 26.1 | 37.7 | 8.9  | 4.0   | 14.7 |
| Brazilian Real     | 1.0                   | 21.1  | 91.2  | -2.5 | -3.2  | 3.7  | 12.6 | 9.6  | 37.6  | -6.9 | 23.2 | 23.7 | 17.9 | -17.1 | 10.1 | 34.4  | -10.8 | 15.1 | 15.4 | 23.1 | 61.6 | 3.4  | -4.5  | 14.0 |
| Argentine Peso     | -5.9                  | 2.3   | 319.2 | 4.1  | 6.7   | 20.2 | 24.4 | 35.4 | 16.0  | 36.9 | 35.5 | 19.4 | 22.1 | -4.5  | 27.6 | 36.9  | 33.2  | 32.7 | 99.3 | 89.3 | 76.5 | 16.6 | 9.4   | 34.0 |
| Chinese Renminmi   | -5.8                  | 2.3   | 24.8  | 19.4 | 5.4   | 15.0 | 19.1 | 22.3 | -1.1  | 24.5 | 25.0 | 5.3  | 5.9  | -29.6 | 0.7  | -6.1  | 16.6  | 5.5  | 3.9  | 20.4 | 17.2 | -6.5 | 3.6   | 8.3  |
| Hungarian Forint   | 6.2                   | -0.4  | 1.8   | 10.7 | -8.9  | 39.0 | 9.8  | 19.2 | 15.8  | 24.1 | 43.3 | 28.6 | -2.9 | -29.0 | 19.4 | -0.2  | 10.1  | -0.5 | 6.9  | 25.1 | 25.8 | 5.2  | 1.3   | 10.5 |
| Turkish Lira       | 16.3                  | 121.5 | 42.4  | 1.4  | 0.7   | 18.6 | 29.1 | 8.5  | 39.3  | 21.2 | 33.9 | 34.5 | 1.3  | -12.8 | 6.9  | 12.5  | 30.9  | 22.0 | 37.4 | 33.6 | 56.6 | 72.2 | 7.4   | 23.1 |
| Indian Rupee       | 1.0                   | 5.8   | 24.0  | 13.5 | 0.5   | 22.3 | 21.0 | 17.3 | 30.6  | 18.7 | 24.1 | 30.9 | 10.4 | -18.0 | 0.7  | -6.0  | 11.4  | 6.2  | 7.2  | 21.4 | 28.0 | -2.5 | 4.3   | 12.1 |
| Korean Won         | 5.7                   | 6.5   | 12.6  | 20.0 | -8.4  | 15.1 | 13.4 | 32.4 | 42.4  | 14.6 | 25.4 | 13.8 | -1.9 | -27.4 | 2.2  | -3.4  | 11.5  | -0.1 | 2.9  | 23.4 | 18.0 | 5.6  | 4.4   | 9.3  |
| Mexican Peso       | -4.6                  | -2.8  | 41.4  | 29.2 | 4.8   | 12.5 | 25.1 | 32.3 | 32.5  | 18.8 | 22.2 | 24.4 | -1.4 | -26.7 | 11.6 | 4.8   | 30.4  | 7.3  | -1.8 | 14.5 | 31.7 | -0.7 | 3.1   | 14.3 |
| South African Rand | 16.4                  | 61.4  | -10.8 | -6.9 | -10.7 | 32.0 | 36.0 | 26.5 | 47.0  | -3.2 | 16.2 | 34.3 | 12.0 | -10.2 | 8.5  | 20.4  | -3.7  | 2.0  | 14.2 | 15.5 | 31.3 | 4.5  | -0.8  | 11.4 |
| Russian Ruble      | -3.0                  | 10.9  | 30.7  | 9.2  | -0.1  | 22.3 | 12.8 | 22.9 | 31.1  | 27.4 | 31.5 | 16.2 | 1.7  | -22.5 | 65.1 | 11.7  | -8.9  | 6.1  | 17.7 | 5.6  | 49.6 | -2.2 | 11.1  | 15.2 |
| Philippines Peso   | 17.8                  | 5.6   | 29.5  | 24.4 | 6.8   | 11.3 | 13.7 | 10.1 | 21.6  | 21.1 | 22.4 | 10.8 | 0.2  | -21.0 | -0.6 | -5.9  | 15.0  | 13.8 | 3.1  | 15.5 | 18.6 | 2.5  | 4.9   | 9.8  |

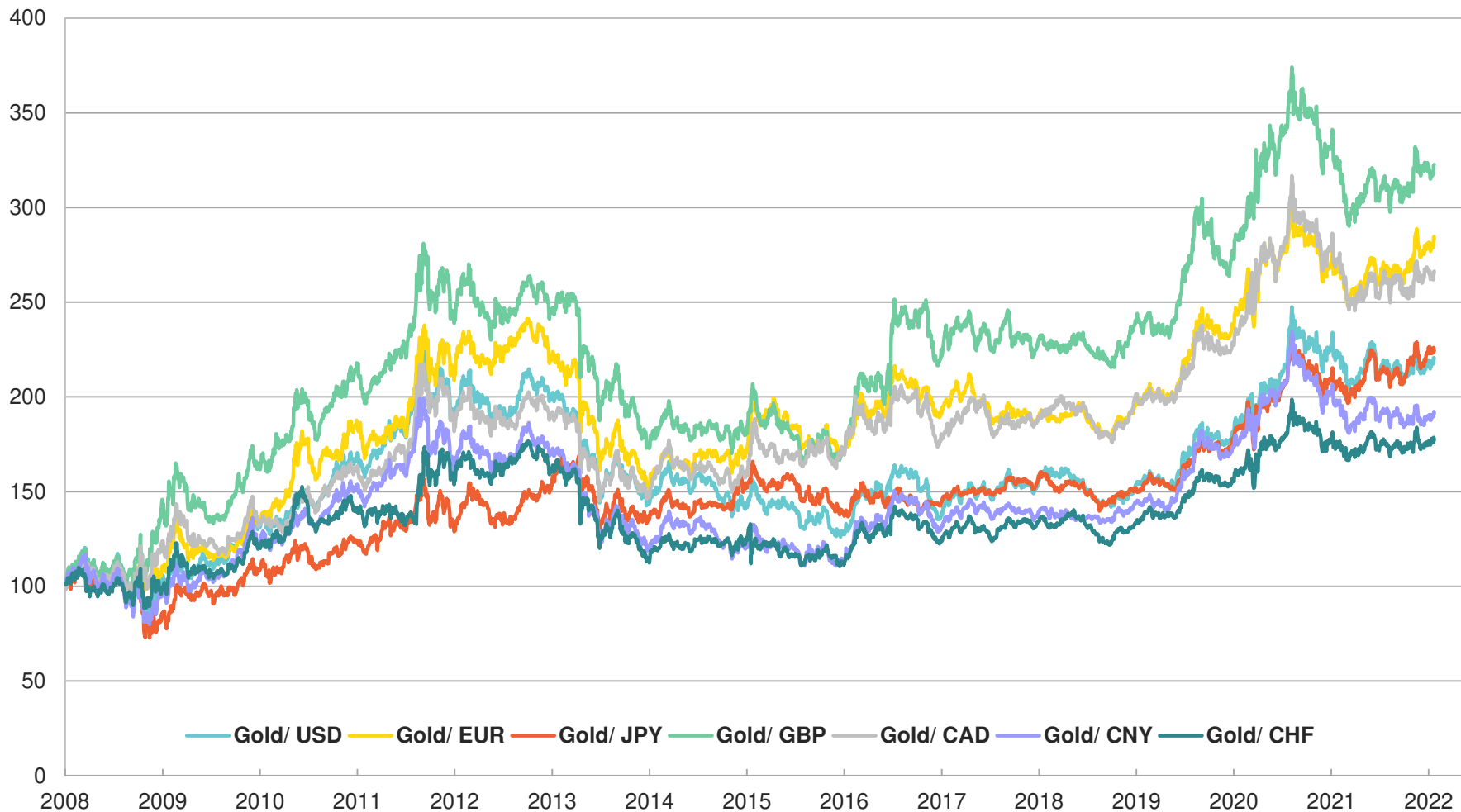
Source: Bloomberg

Returns for periods longer than 1 year are annualized.

**Gold Market Trends**

## ➤ The longer-term trend appears intact despite drawdown across several major currencies

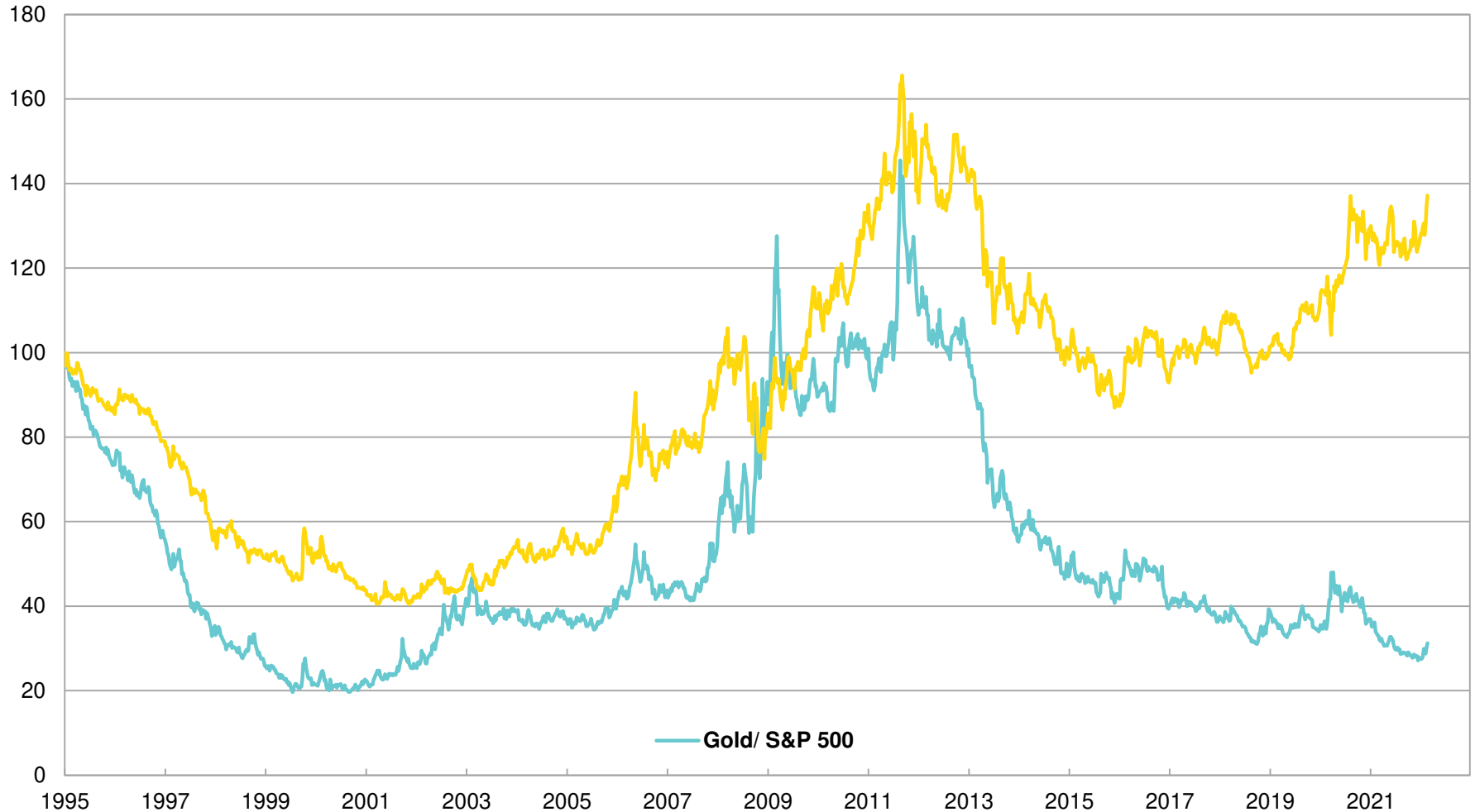
GROWTH OF 100



Source: Bloomberg

## ➤ Gold looks cheap relative to U.S. stocks and doesn't look overbought/stretched relative to Treasuries

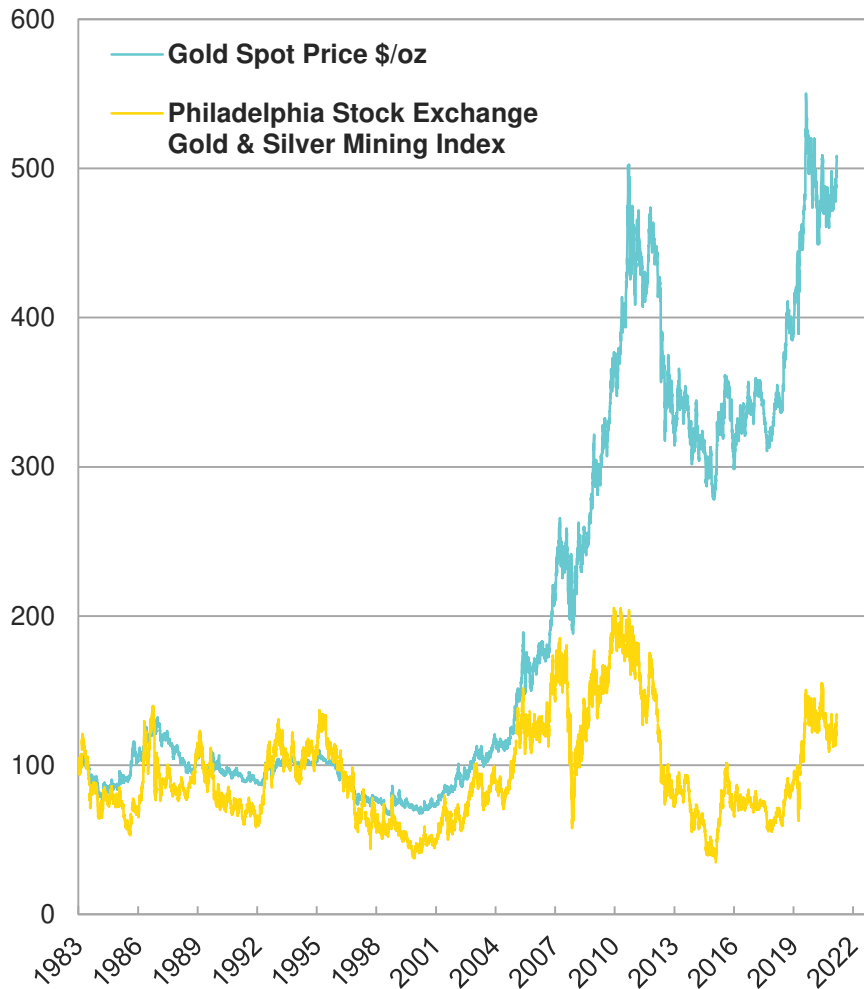
GROWTH OF 100



Source: Bloomberg

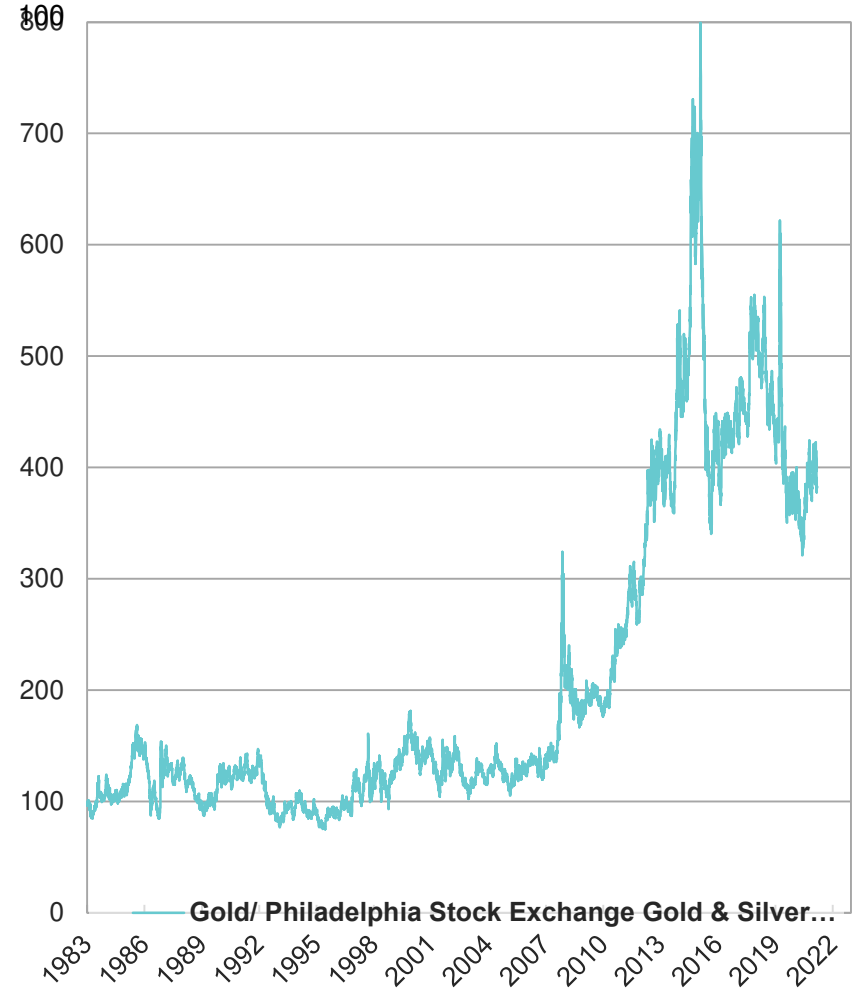
## Gold miners still look very cheap relative to bullion

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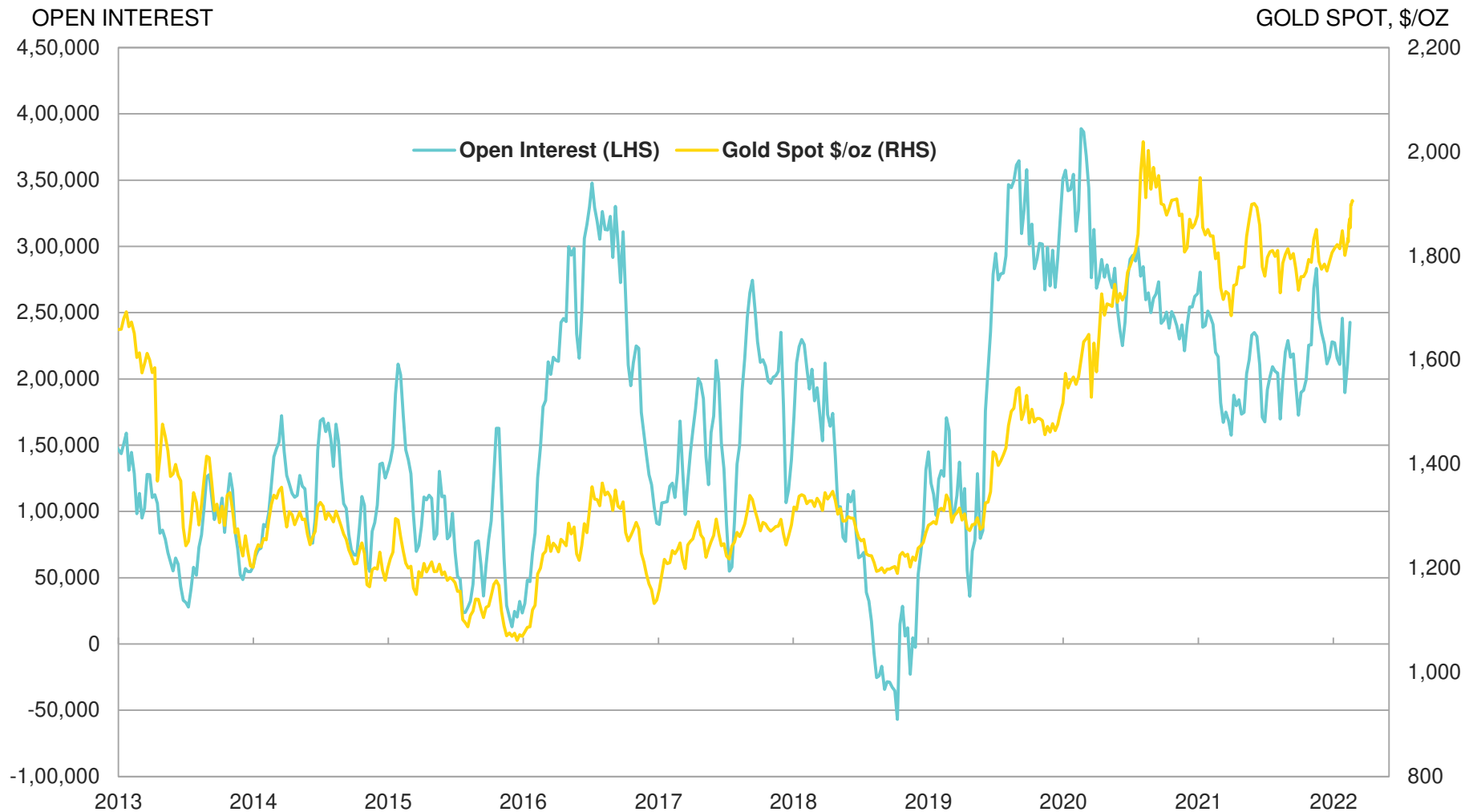


Source: Bloomberg

RATIO: GROWTH OF



# Gold futures sentiment has recently picked up as the gold price has rebounded

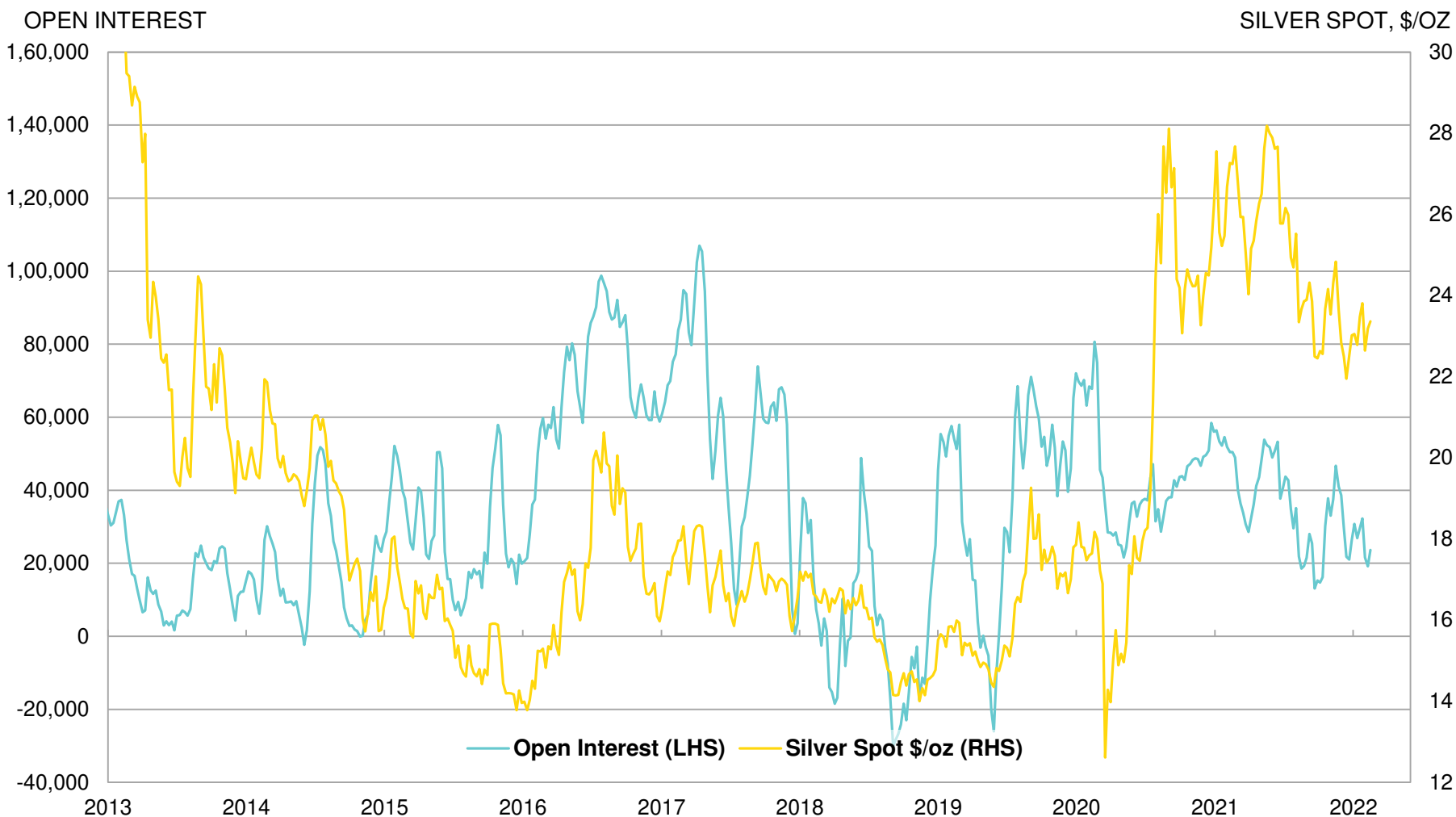


Source: Bloomberg  
 \*Data as of most recent available.

## Gold Market Trends

SEE IMPORTANT DISCLOSURES AT THE END OF THIS PRESENTATION

## ➤ Silver sentiment trending lower as prices make lower highs and lower lows



Source: Bloomberg  
\*Data as of most recent available.

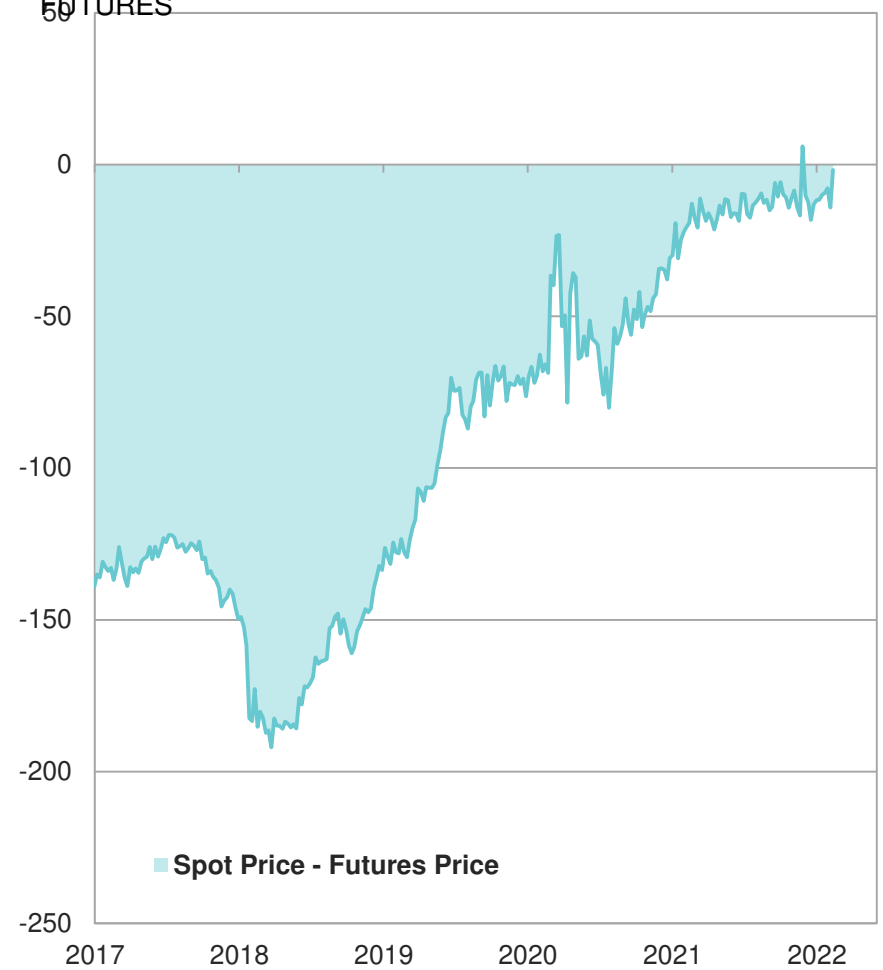
### Gold Market Trends

# High demand for physical hints at increased perceived systemic risk

GOLD, \$/OZ



SPREAD: SPOT -  
FUTURES

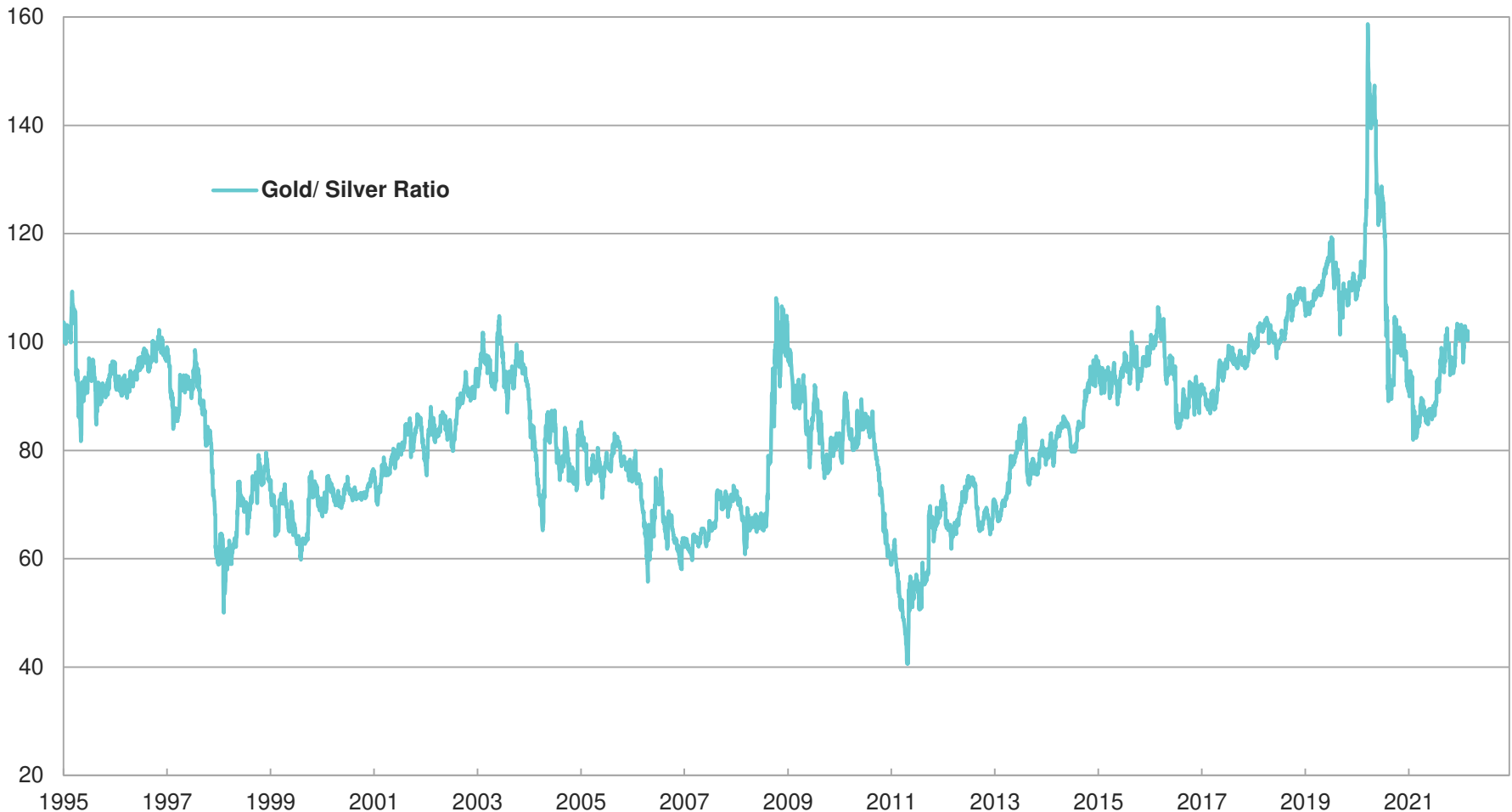


Source: Bloomberg



## ➤ No clear excesses in the price of gold relative to silver after epic extreme in pandemic liquidation

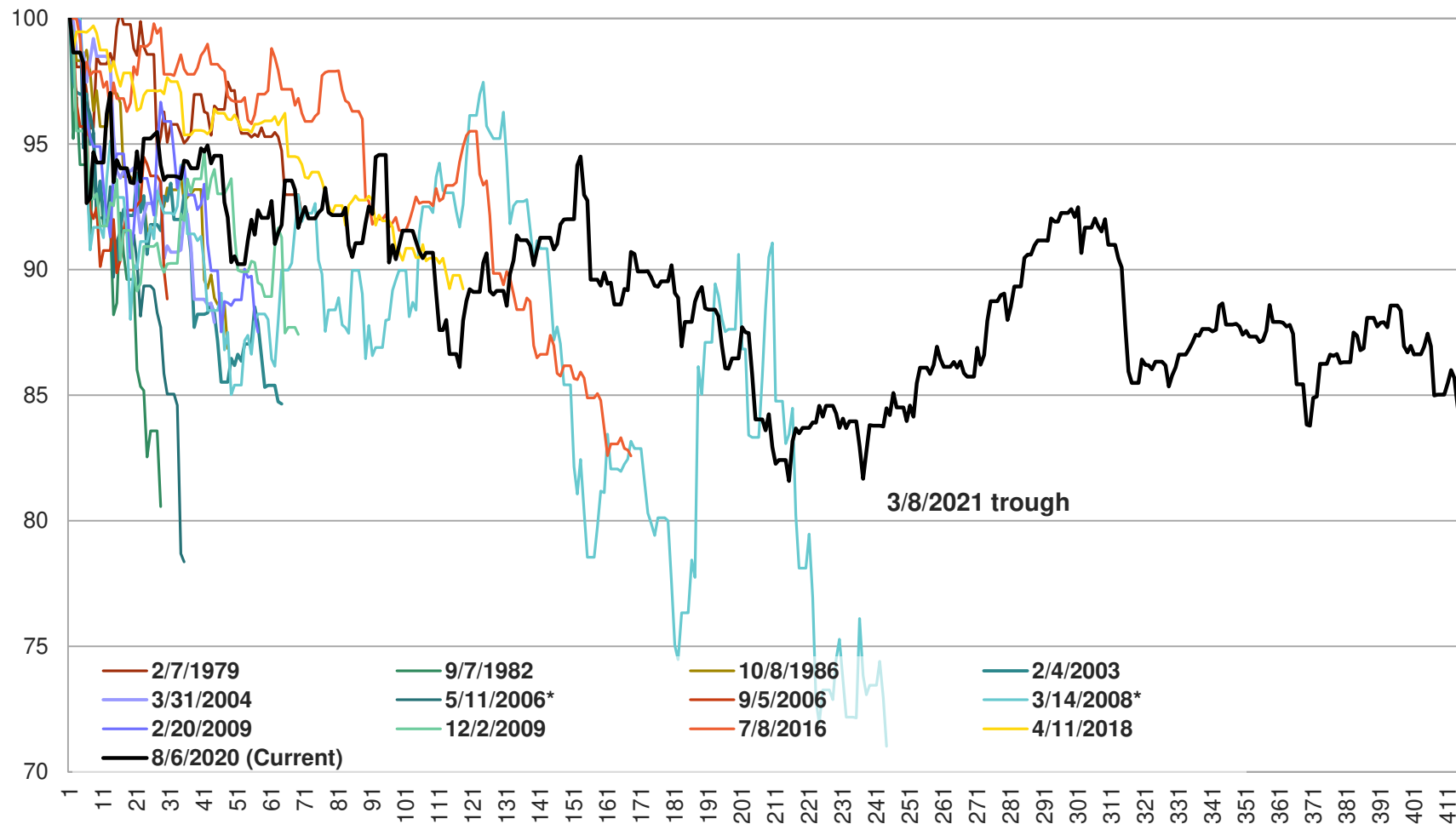
GROWTH OF 100



Source: Bloomberg

# ➤ Assuming March was the low, the correction that ended last year was run-of-the-mill relative to historical bull market declines

GROWTH OF 100



Source: Bloomberg

\*Technical bear market in context of a larger bull market.

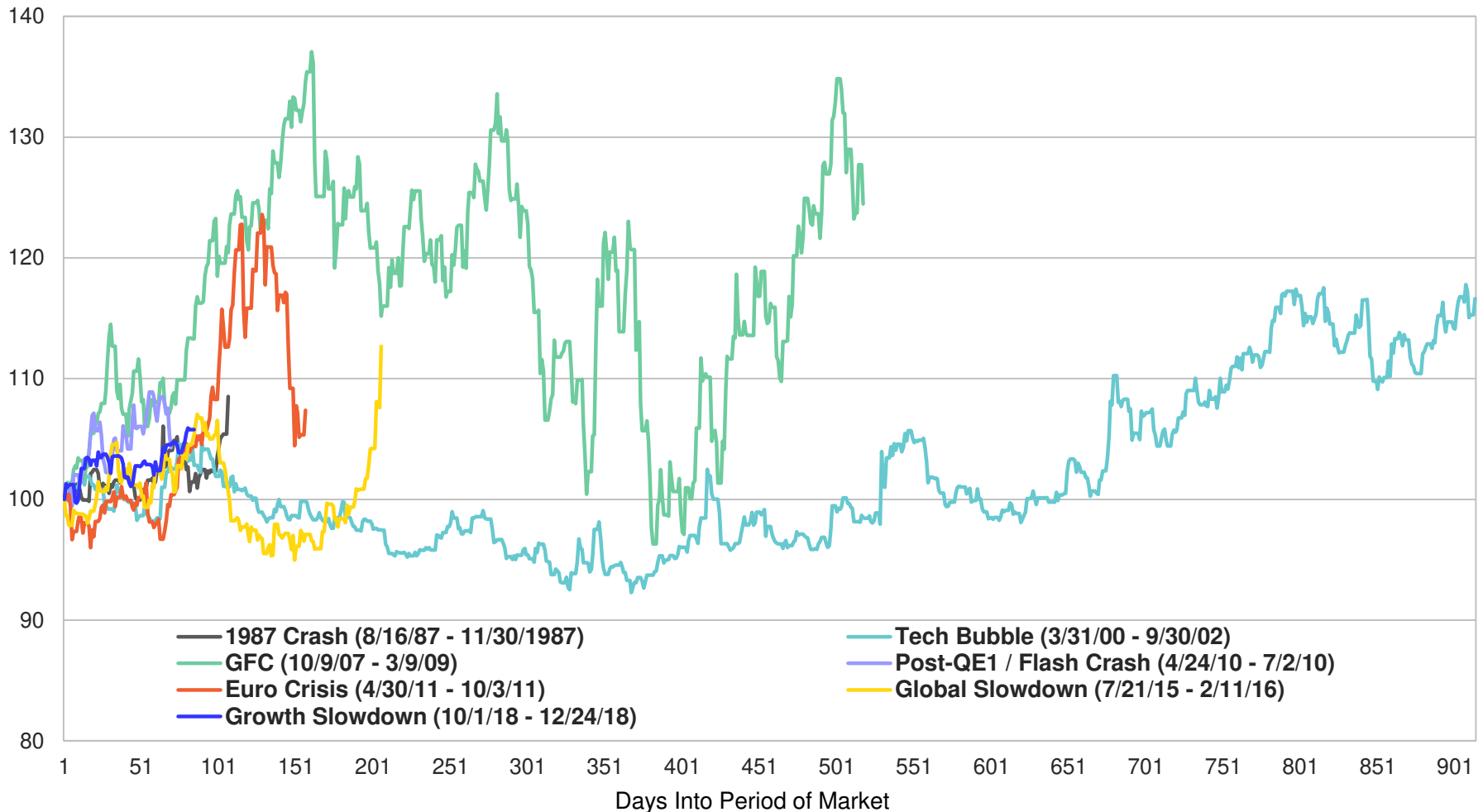
Gold Market Trends

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SEE IMPORTANT DISCLOSURES AT THE END OF THIS PRESENTATION

## ➤ Gold has had mixed, but generally positive returns during stock market declines; current environment confirming its value as a hedge

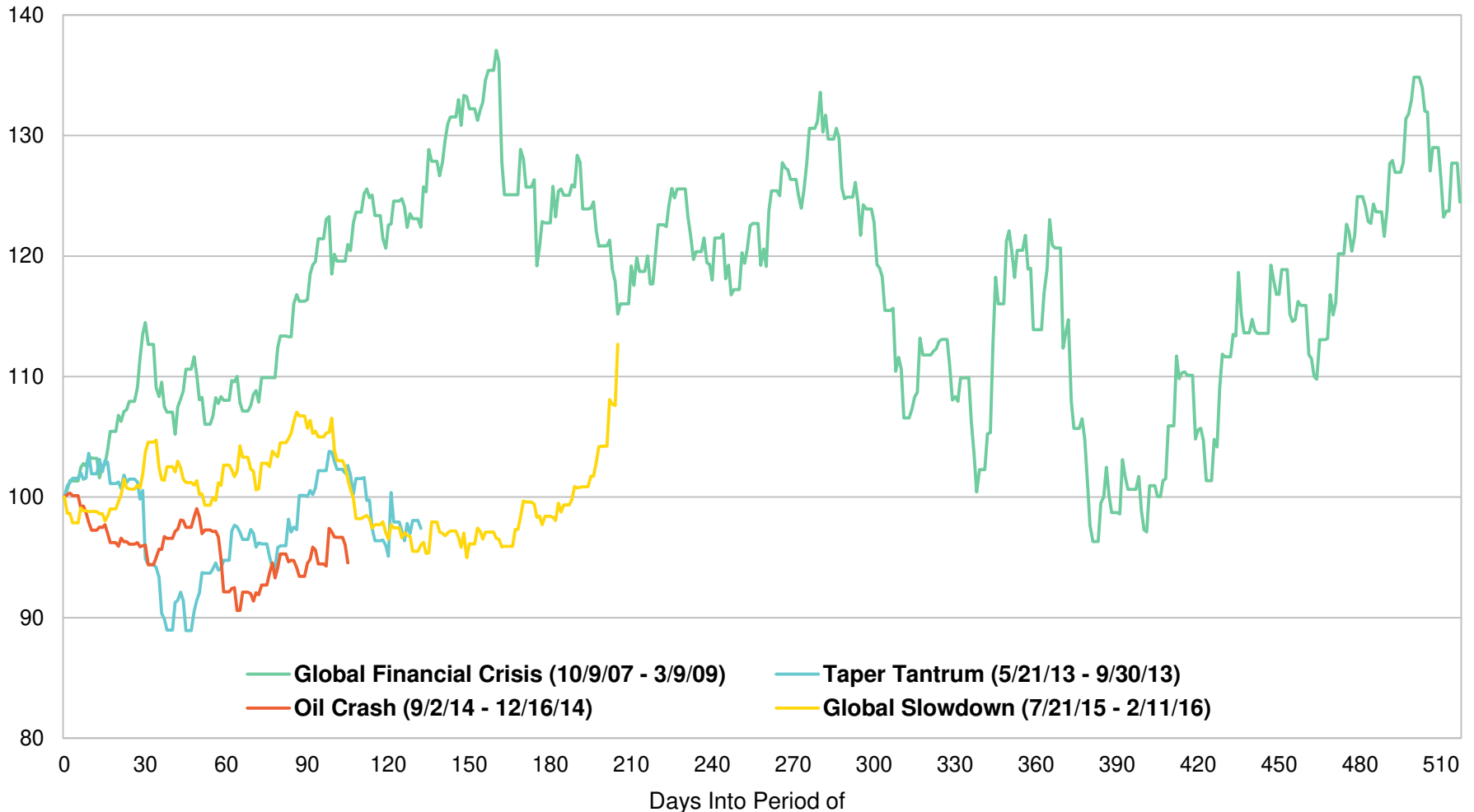
GROWTH OF 100



Source: Bloomberg

## ➤ Gold, however, has mixed historical returns during other significant market events

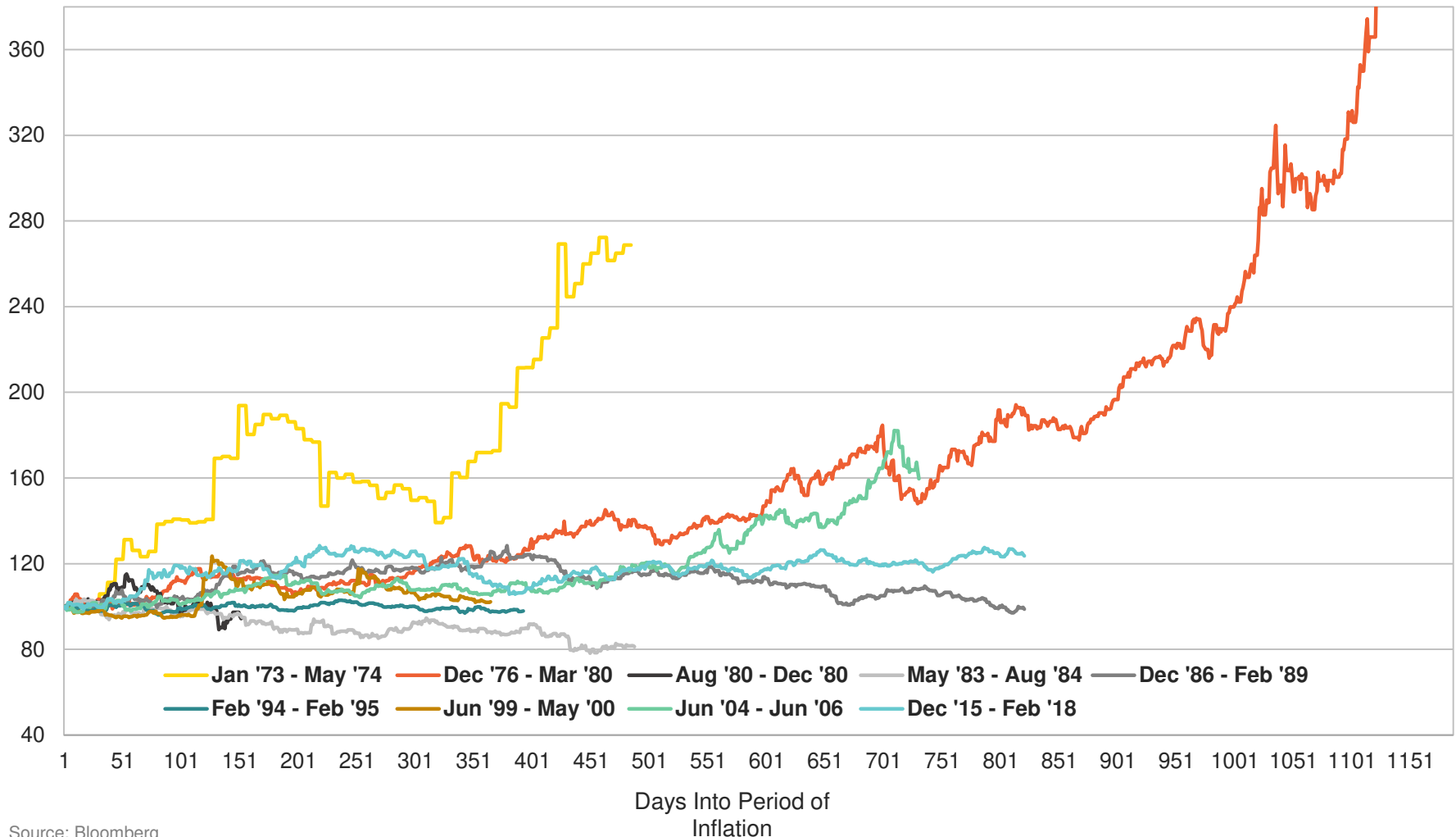
GROWTH OF 100



Source: Bloomberg

## ➤ Gold has a decent track record as an inflation hedge, but it is by no means a portfolio panacea during these episodes

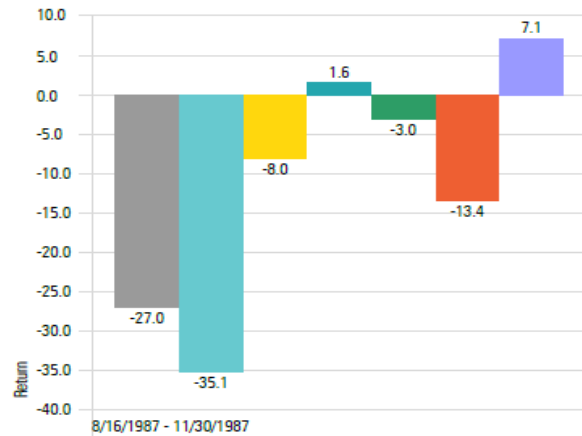
GROWTH OF 100



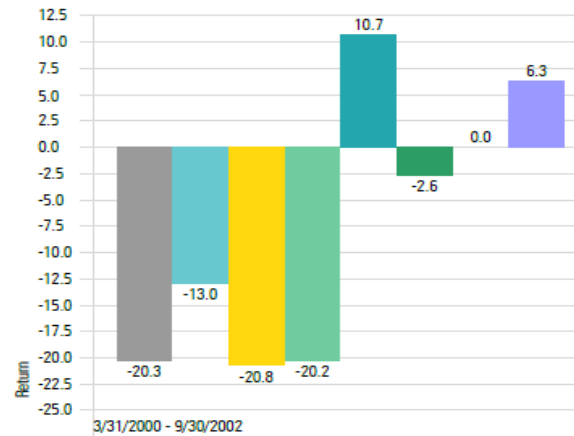
Source: Bloomberg

# Case study 1: gold returns during stock market declines

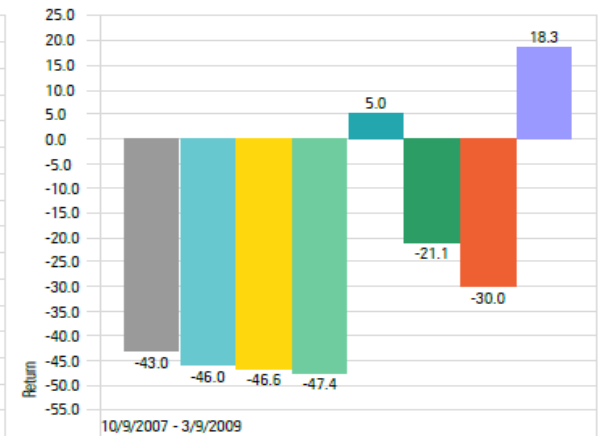
**1987 Flash Crash**



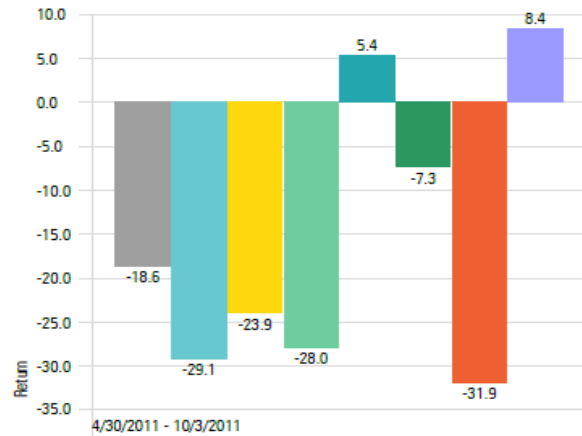
**Tech Bubble**



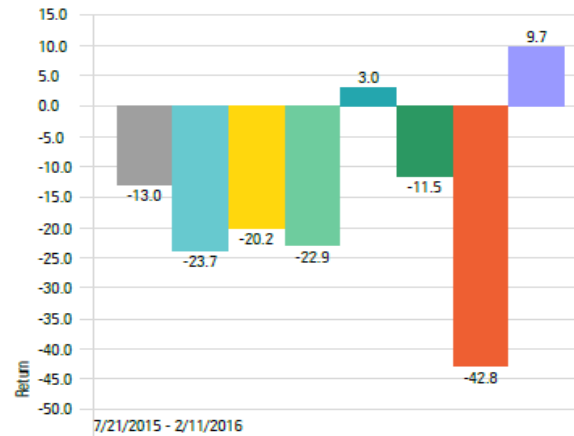
**Global Financial Crisis**



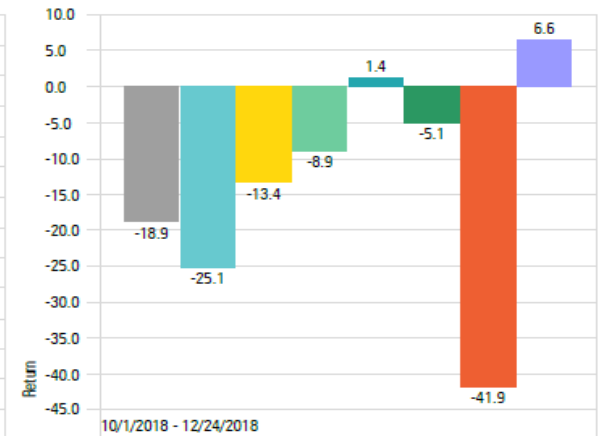
**Euro Crisis**



**Global Slowdown**



**Growth Slowdown**



■ S&P 500 Index ■ Russell 2000 Index ■ MSCI EAFE Index ■ MSCI EM Index ■ Bbg U.S. Agg Bond Index ■ Bbg U.S. HY Bond Index ■ S&P GSCI Crude Oil ■ Gold

Source: Morningstar

## Gold Market Trends

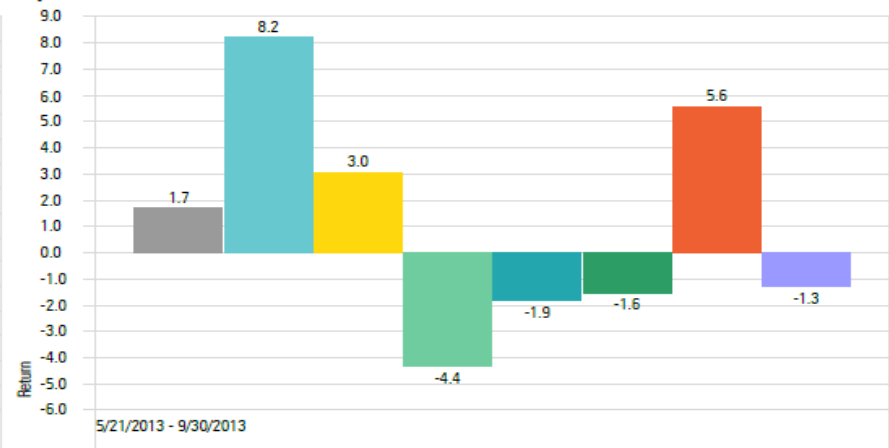
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## Case study 2: gold returns during significant market events

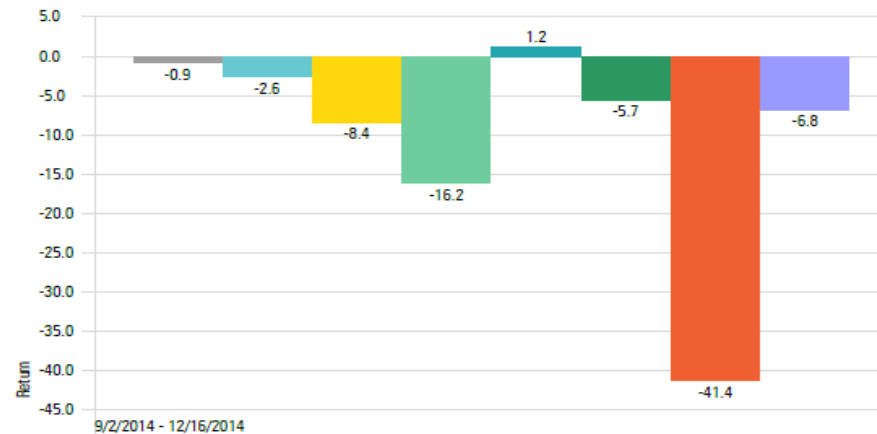
Global Financial Crisis



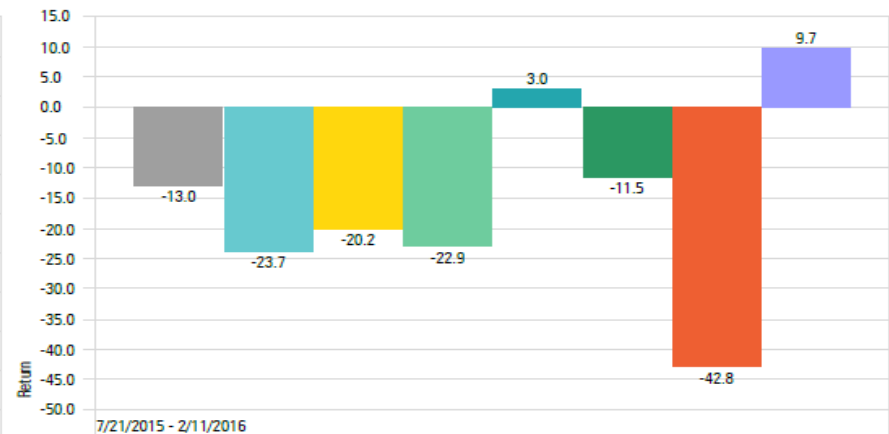
Taper Tantrum



Oil Crash



Global Slowdown



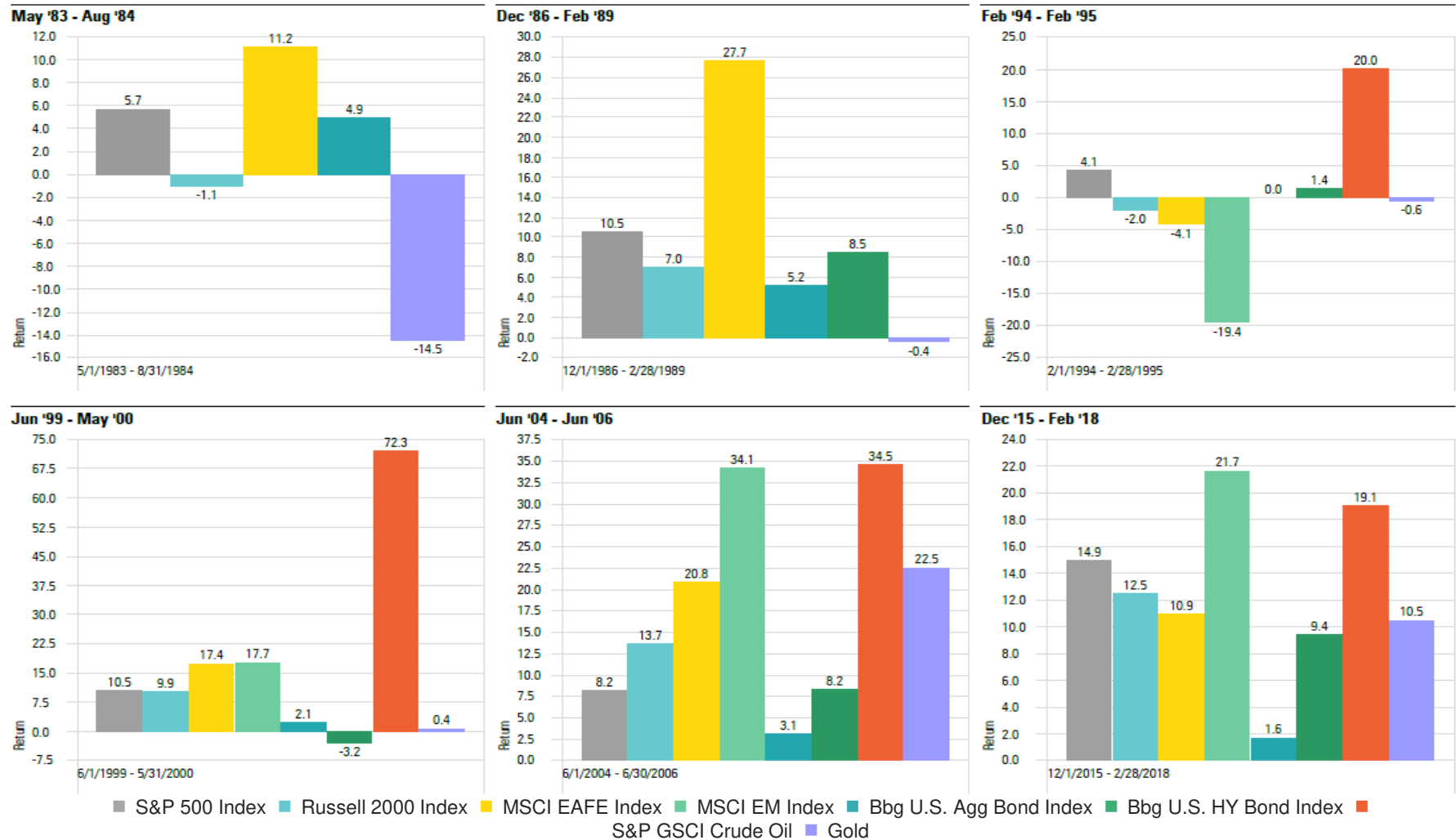
■ S&P 500 Index ■ Russell 2000 Index ■ MSCI EAFE Index ■ MSCI EM Index ■ Bbg U.S. Agg Bond Index ■ Bbg U.S. HY Bond Index ■ S&P GSCI Crude Oil ■ Gold

Source: Morningstar

### Gold Market Trends

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# ➤ Case study 3: gold returns during periods of rising inflation

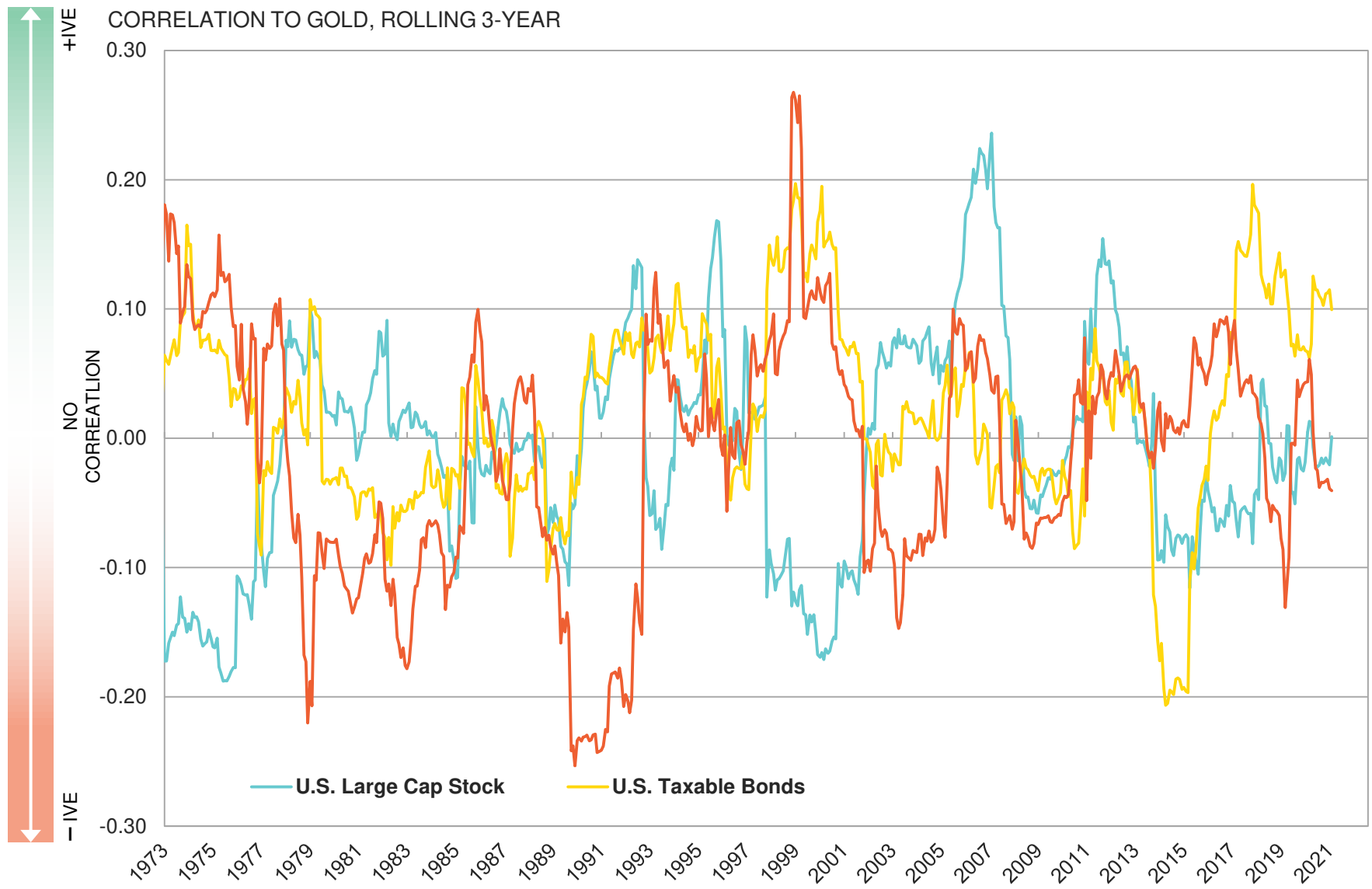


Source: Morningstar

## Gold Market Trends

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Source: Morningstar

## APPENDIX: CORRELATION MATRIX

| Asset Class                      | U.S. Large Cap Stocks | U.S. Small & Micro Cap | Intl Dev Large Cap Stocks | Intl Dev Small & Micro Stocks | Emerging & Frontier Mkt Stocks | Global Stocks | Private Equity | Venture Capital | U.S. Interm-Term Muni Bonds | U.S. Short-Term Muni Bonds | U.S. High Yield Muni Bonds | U.S. Interm-Term Bonds | U.S. Short-Term Bonds | U.S. High Yield Bonds | U.S. Bank Loans | Intl Developed Bonds | Emerging & Frontier Mkt Bonds | Public BDCs | U.S. REITs | Ex U.S. Real Estate Securities | Private Real Estate | Commodity Futures | Midstream Energy | Gold  | Long/Short Equity | Managed Futures | Relative Value | Closed-End Funds | Insurance-Linked Securities | Digital Assets | Cash/Ultra-Short Bonds | U.S. Inflation |
|----------------------------------|-----------------------|------------------------|---------------------------|-------------------------------|--------------------------------|---------------|----------------|-----------------|-----------------------------|----------------------------|----------------------------|------------------------|-----------------------|-----------------------|-----------------|----------------------|-------------------------------|-------------|------------|--------------------------------|---------------------|-------------------|------------------|-------|-------------------|-----------------|----------------|------------------|-----------------------------|----------------|------------------------|----------------|
| U.S. Large Cap Stocks            | 1.00                  |                        |                           |                               |                                |               |                |                 |                             |                            |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| U.S. Small & Micro Cap           | 0.87                  | 1.00                   |                           |                               |                                |               |                |                 |                             |                            |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Intl Dev Large Cap Stocks        | 0.85                  | 0.76                   | 1.00                      |                               |                                |               |                |                 |                             |                            |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Intl Dev Small & Micro Stocks    | 0.85                  | 0.79                   | 0.95                      | 1.00                          |                                |               |                |                 |                             |                            |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Stocks                           |                       |                        |                           |                               |                                |               |                |                 |                             |                            |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Emerging & Frontier Mkt Stocks   | 0.71                  | 0.66                   | 0.81                      | 0.80                          | 1.00                           |               |                |                 |                             |                            |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Global Stocks                    | 0.96                  | 0.85                   | 0.95                      | 0.93                          | 0.84                           | 1.00          |                |                 |                             |                            |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Private Equity                   | 0.25                  | 0.22                   | 0.23                      | 0.25                          | 0.37                           | 0.28          | 1.00           |                 |                             |                            |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Venture Capital                  | 0.15                  | 0.18                   | 0.12                      | 0.14                          | 0.29                           | 0.18          | 0.85           | 1.00            |                             |                            |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| U.S. Interm-Term Muni Bonds      | 0.06                  | -0.01                  | 0.14                      | 0.17                          | 0.18                           | 0.12          | 0.02           | 0.04            | 1.00                        |                            |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| U.S. Short-Term Muni Bonds       | 0.13                  | 0.04                   | 0.16                      | 0.20                          | 0.18                           | 0.17          | 0.04           | 0.03            | 0.82                        | 1.00                       |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| U.S. High Yield Muni Bonds       | 0.19                  | 0.17                   | 0.25                      | 0.28                          | 0.30                           | 0.25          | 0.00           | 0.01            | 0.78                        | 0.56                       | 1.00                       |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Bonds                            |                       |                        |                           |                               |                                |               |                |                 |                             |                            |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| U.S. Interm-Term Bonds           | -0.01                 | -0.11                  | 0.02                      | 0.02                          | 0.13                           | 0.03          | 0.02           | 0.02            | 0.73                        | 0.51                       | 0.54                       | 1.00                   |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| U.S. Short-Term Bonds            | -0.37                 | -0.43                  | -0.31                     | -0.37                         | -0.19                          | -0.34         | -0.11          | -0.06           | 0.34                        | 0.29                       | 0.05                       | 0.65                   | 1.00                  |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| U.S. High Yield Bonds            | 0.76                  | 0.73                   | 0.77                      | 0.77                          | 0.75                           | 0.81          | 0.32           | 0.23            | 0.36                        | 0.36                       | 0.48                       | 0.25                   | -0.28                 | 1.00                  |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| U.S. Bank Loans                  | 0.65                  | 0.68                   | 0.62                      | 0.69                          | 0.59                           | 0.68          | 0.24           | 0.17            | 0.24                        | 0.34                       | 0.48                       | 0.08                   | -0.44                 | 0.87                  | 1.00            |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Intl Developed Bonds             | 0.29                  | 0.19                   | 0.44                      | 0.45                          | 0.57                           | 0.42          | 0.20           | 0.17            | 0.43                        | 0.37                       | 0.36                       | 0.54                   | 0.25                  | 0.46                  | 0.29            | 1.00                 |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Emerging & Frontier Mkt Bonds    | 0.57                  | 0.48                   | 0.66                      | 0.64                          | 0.69                           | 0.66          | 0.17           | 0.13            | 0.60                        | 0.52                       | 0.67                       | 0.49                   | -0.08                 | 0.82                  | 0.71            | 0.61                 | 1.00                          |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Bonds                            |                       |                        |                           |                               |                                |               |                |                 |                             |                            |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Public BDCs                      | 0.76                  | 0.83                   | 0.71                      | 0.74                          | 0.58                           | 0.76          | 0.22           | 0.13            | 0.18                        | 0.25                       | 0.35                       | 0.06                   | -0.40                 | 0.80                  | 0.83            | 0.26                 | 0.64                          | 1.00        |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| U.S. REITs                       | 0.66                  | 0.63                   | 0.56                      | 0.56                          | 0.51                           | 0.65          | 0.19           | 0.17            | 0.33                        | 0.22                       | 0.46                       | 0.39                   | -0.09                 | 0.66                  | 0.56            | 0.36                 | 0.63                          | 0.66        | 1.00       |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Ex U.S. Real Estate Securities   |                       |                        |                           |                               |                                |               |                |                 |                             |                            |                            |                        |                       |                       |                 |                      |                               |             |            |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Private Real Estate              | 0.72                  | 0.64                   | 0.87                      | 0.85                          | 0.85                           | 0.84          | 0.21           | 0.13            | 0.26                        | 0.25                       | 0.40                       | 0.22                   | -0.16                 | 0.78                  | 0.63            | 0.61                 | 0.77                          | 0.70        | 0.73       | 1.00                           |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Commodity Futures                | 0.49                  | 0.48                   | 0.54                      | 0.54                          | 0.58                           | 0.56          | 0.32           | 0.21            | 0.08                        | 0.11                       | 0.20                       | -0.09                  | -0.24                 | 0.61                  | 0.54            | 0.38                 | 0.46                          | 0.48        | 0.31       | 0.59                           | 0.20                | 1.00              |                  |       |                   |                 |                |                  |                             |                |                        |                |
| Midstream Energy                 | 0.70                  | 0.68                   | 0.63                      | 0.64                          | 0.56                           | 0.70          | 0.34           | 0.23            | 0.16                        | 0.21                       | 0.24                       | 0.07                   | -0.34                 | 0.73                  | 0.75            | 0.26                 | 0.54                          | 0.79        | 0.55       | 0.62                           | 0.12                | 0.49              | 1.00             |       |                   |                 |                |                  |                             |                |                        |                |
| Gold                             | 0.10                  | 0.02                   | 0.15                      | 0.19                          | 0.35                           | 0.18          | 0.20           | 0.15            | 0.35                        | 0.35                       | 0.23                       | 0.43                   | 0.33                  | 0.27                  | 0.13            | 0.62                 | 0.37                          | 0.07        | 0.12       | 0.26                           | 0.05                | 0.37              | 0.09             | 1.00  |                   |                 |                |                  |                             |                |                        |                |
| Long/Short Equity                | 0.88                  | 0.90                   | 0.87                      | 0.90                          | 0.81                           | 0.93          | 0.31           | 0.22            | 0.07                        | 0.17                       | 0.30                       | -0.02                  | -0.40                 | 0.81                  | 0.75            | 0.35                 | 0.61                          | 0.81        | 0.59       | 0.81                           | 0.10                | 0.61              | 0.75             | 0.18  | 1.00              |                 |                |                  |                             |                |                        |                |
| Managed Futures                  | 0.33                  | 0.23                   | 0.29                      | 0.27                          | 0.29                           | 0.33          | 0.17           | 0.11            | 0.25                        | 0.23                       | 0.26                       | 0.32                   | 0.15                  | 0.24                  | 0.14            | 0.24                 | 0.28                          | 0.22        | 0.29       | 0.32                           | 0.09                | 0.19              | 0.24             | 0.33  | 0.37              | 1.00            |                |                  |                             |                |                        |                |
| Relative Value                   | 0.70                  | 0.73                   | 0.74                      | 0.77                          | 0.69                           | 0.76          | 0.24           | 0.17            | 0.28                        | 0.33                       | 0.55                       | 0.07                   | -0.45                 | 0.87                  | 0.92            | 0.32                 | 0.75                          | 0.84        | 0.59       | 0.77                           | 0.09                | 0.61              | 0.77             | -0.12 | 0.86              | 0.27            | 1.00           |                  |                             |                |                        |                |
| Closed-End Funds                 | 0.85                  | 0.79                   | 0.84                      | 0.85                          | 0.76                           | 0.89          | 0.27           | 0.16            | 0.33                        | 0.33                       | 0.46                       | 0.21                   | -0.31                 | 0.88                  | 0.81            | 0.43                 | 0.77                          | 0.86        | 0.75       | 0.83                           | 0.09                | 0.57              | 0.79             | 0.21  | 0.87              | 0.34            | 0.86           | 1.00             |                             |                |                        |                |
| Insurance-Linked Securities      | 0.17                  | 0.12                   | 0.15                      | 0.18                          | 0.19                           | 0.17          | 0.02           | 0.01            | 0.13                        | 0.17                       | 0.41                       | 0.04                   | -0.44                 | 0.60                  | 0.58            | 0.22                 | 0.51                          | 0.51        | 0.45       | 0.53                           | -0.02               | 0.46              | 0.40             | 0.17  | 0.49              | 0.06            | 0.58           | 0.52             | 1.00                        |                |                        |                |
| Digital Assets                   | 0.26                  | 0.26                   | 0.34                      | 0.34                          | 0.23                           | 0.30          | 0.30           | 0.30            | 0.12                        | 0.08                       | 0.19                       | 0.01                   | -0.16                 | 0.30                  | 0.30            | 0.17                 | 0.23                          | 0.36        | 0.29       | 0.34                           | -0.08               | 0.25              | 0.37             | 0.06  | 0.34              | 0.29            | 0.36           | 0.34             | 0.06                        | 1.00           |                        |                |
| Cash/Ultra-Short Bonds           | -0.17                 | -0.21                  | -0.16                     | -0.21                         | -0.11                          | -0.16         | -0.12          | -0.07           | 0.00                        | 0.11                       | -0.08                      | 0.16                   | 0.45                  | -0.18                 | -0.24           | 0.04                 | -0.12                         | -0.22       | -0.14      | -0.10                          | -0.13               | -0.10             | -0.21            | 0.12  | -0.22             | -0.03           | -0.25          | -0.19            | -0.20                       | -0.27          | 1.00                   |                |
| State of California, Morningstar | 0.66                  | 0.63                   | 0.56                      | 0.56                          | 0.51                           | 0.65          | 0.19           | 0.17            | 0.33                        | 0.22                       | 0.46                       | 0.39                   | -0.09                 | 0.66                  | 0.56            | 0.36                 | 0.63                          | 0.66        | 1.00       |                                |                     |                   |                  |       |                   |                 |                |                  |                             |                |                        |                |

\*Correlations for asset classes with less than 10 years of benchmark data are calculated since inception.

### Gold Market Trends

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