

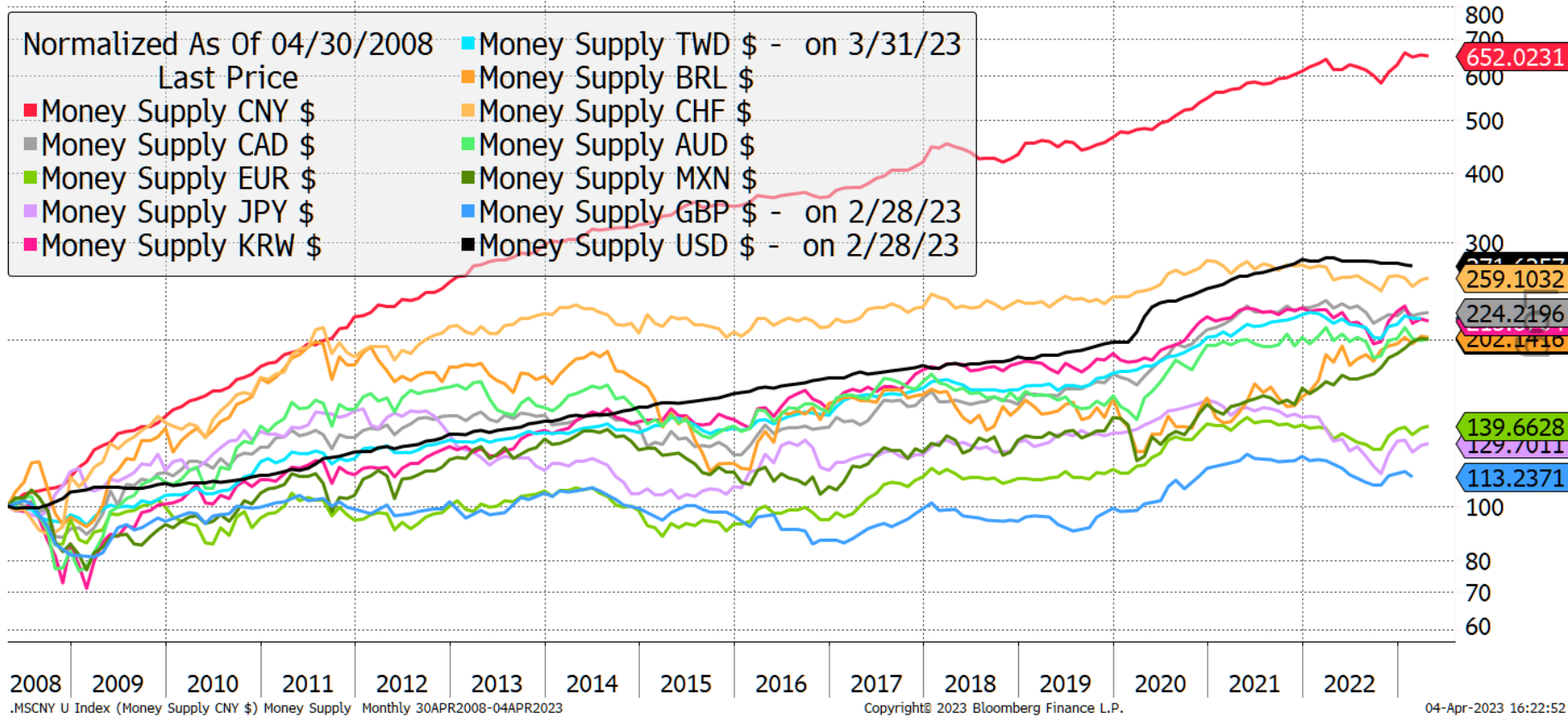
# The Bitcoin and Gold Chart Book

April 2023

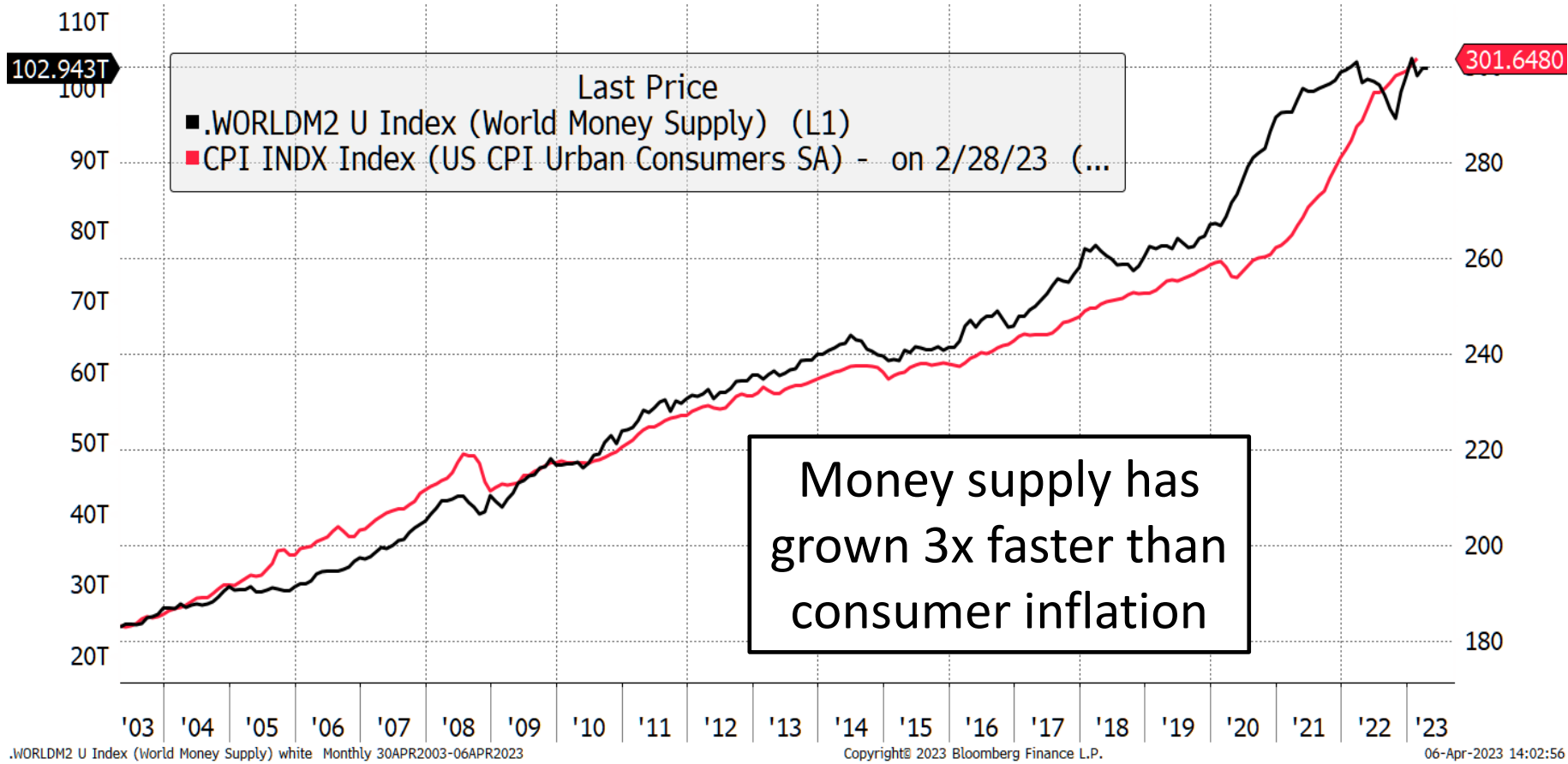
Finding an Efficient Inflation Hedge



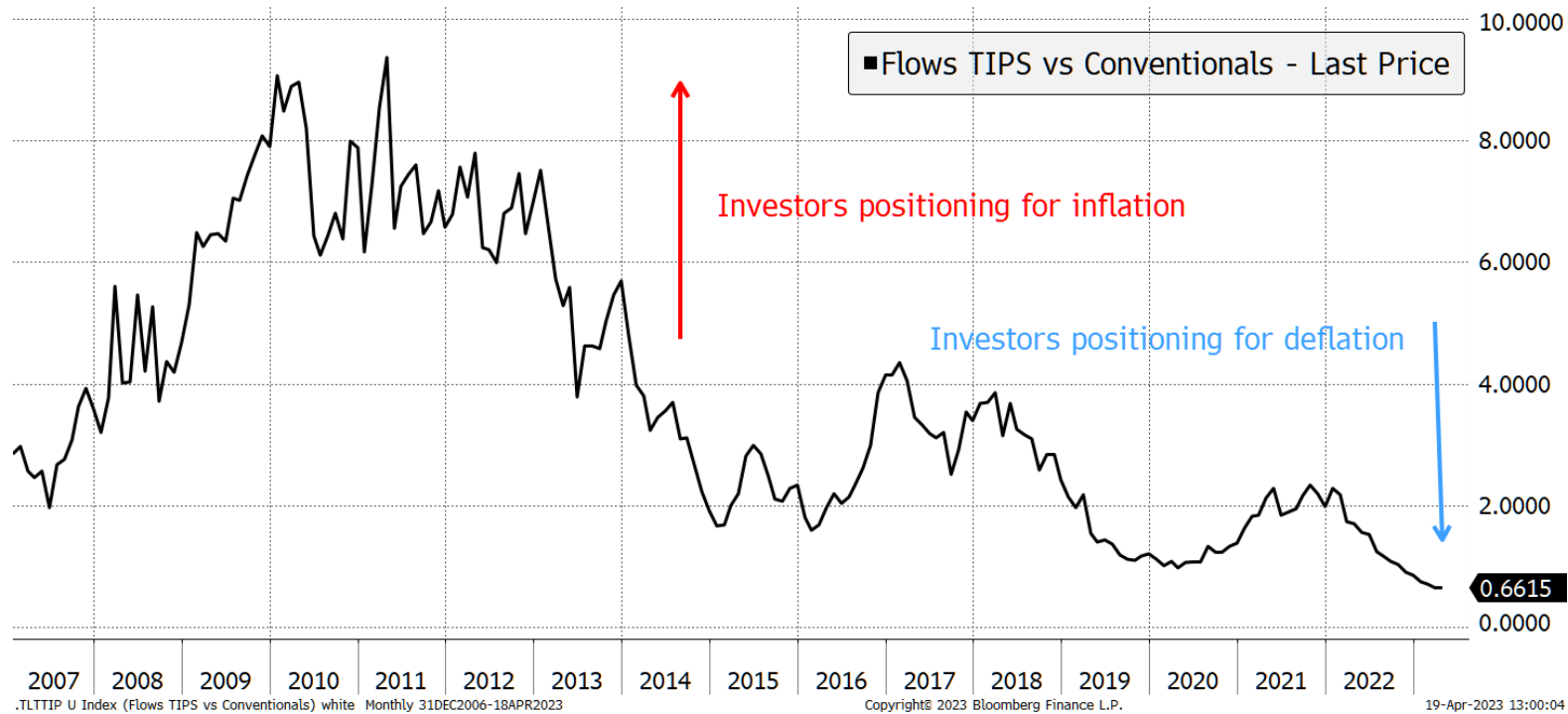
# Money Can Be Created in Different Countries



# G20 Money Supply Leads Consumer Inflation



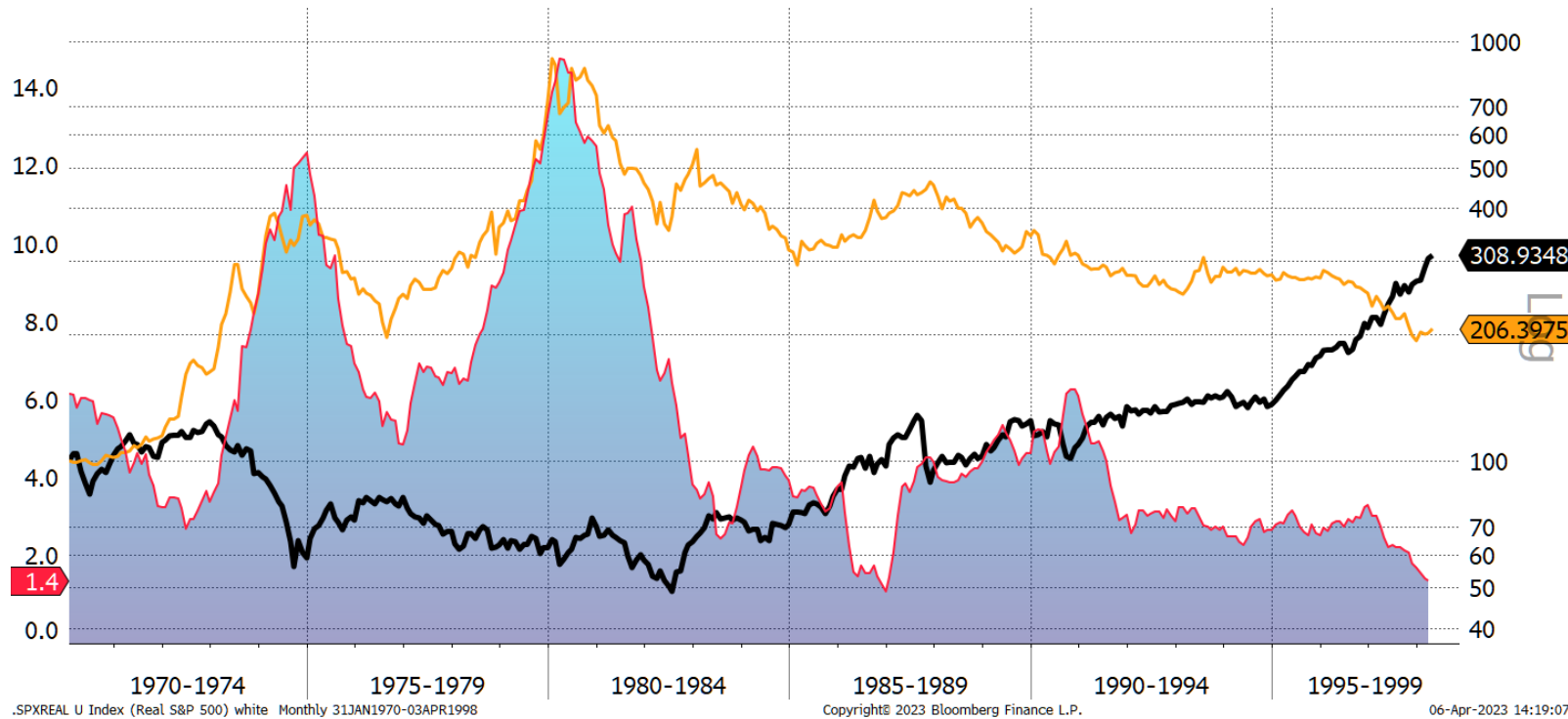
# Investors Are Well-prepared for Deflation



- TLT ETF (long bond) has seen assets double over the past year to \$34 billion
- TIP ETF (Inflation-linked bond) seen assets halve over the past year to \$22 billion
- Consensus sees deflation
- **Inflation is a contrarian view**



# 1970s Gold and Equities in Real Terms



- In the 1970s, inflation was volatile
- Gold was correlated with inflation, equities were negatively correlated
- Equities overtook gold in 1997 (real terms, excluding dividends)
- **Alternative assets essential to survive a period of volatile inflation**

# Inflation Hedges Should Be Liquid & Physical



## Liquid



## Liquid AND Physical



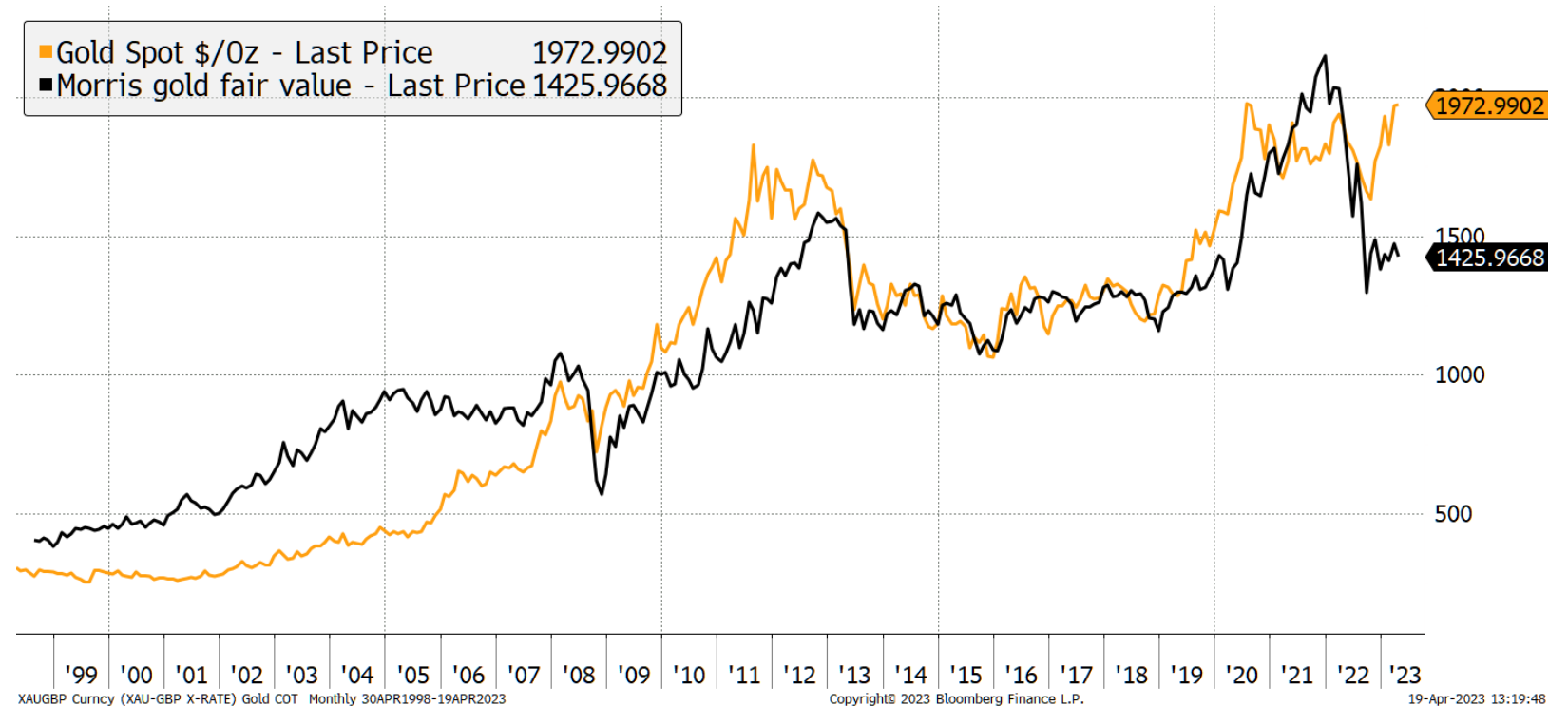
## Physical



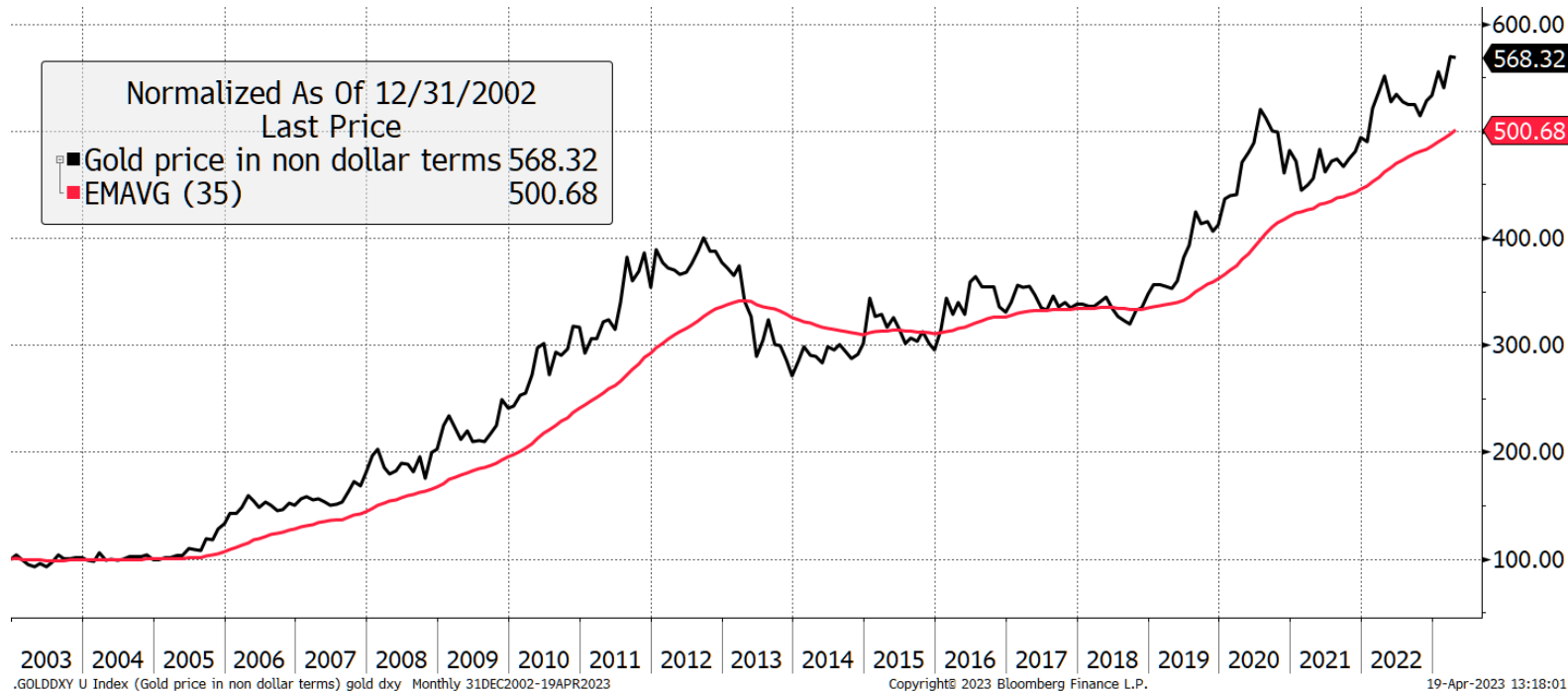
# Valuation – Gold Premium Is High for Good Reason



- Gold responds well to:
  - Real Interest Rates
  - Weak dollar
  - Geopolitical risk
  - Sovereign risk
- Rates component captured by this model  
Gold behaves like a 20-year zero-coupon TIPS
- Gold premium is 38% which is historically high



# Gold Price Trend Is Strong Around the World



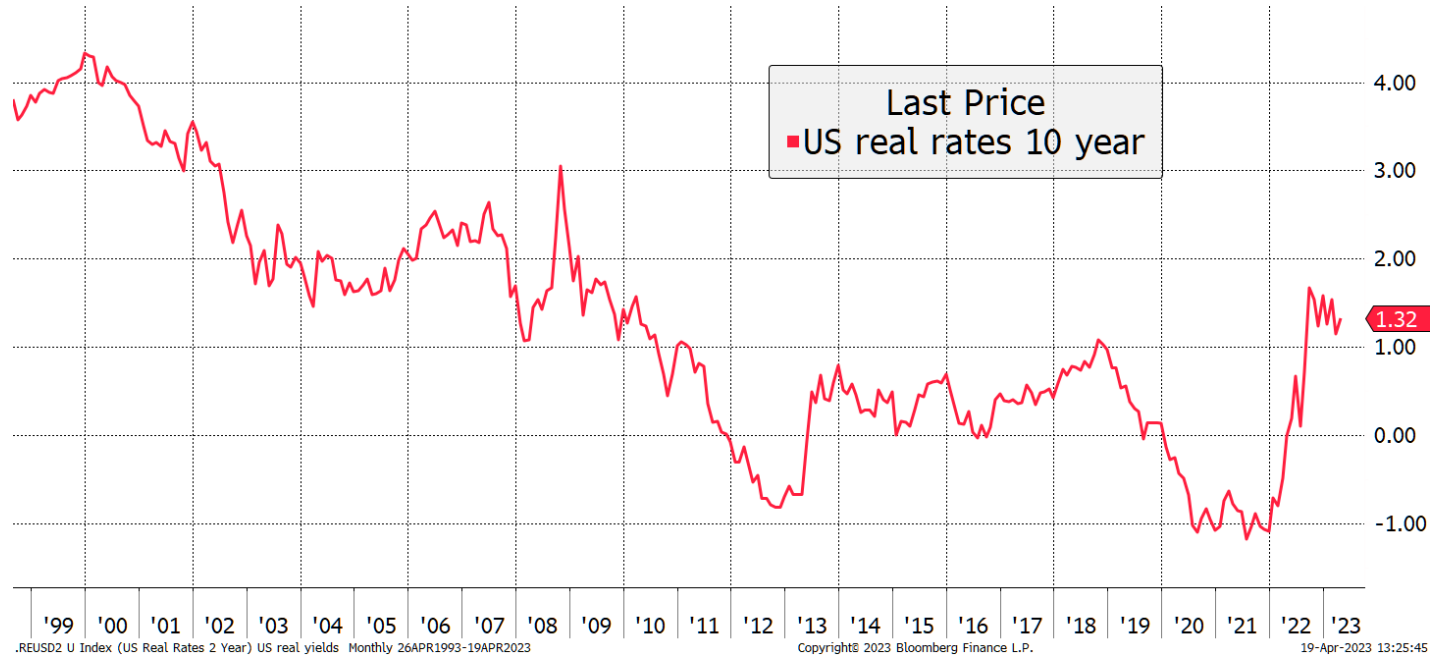
- Gold price is trending higher in most currencies
- US dollar, Swiss Franc and Singapore dollar last hold outs where we are yet to see a new all time high
- It should happen soon



# Real Yields Are Already High



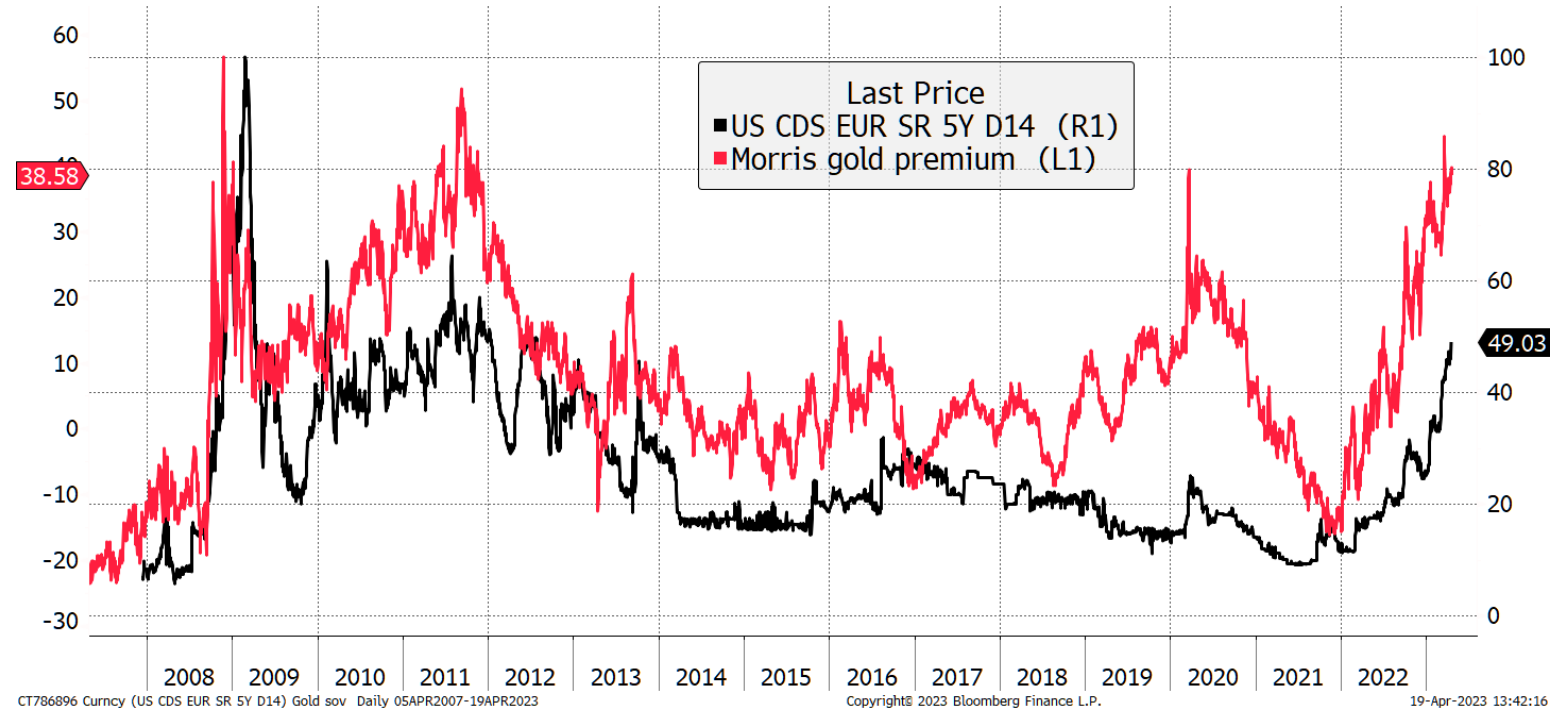
- Gold responds well to falling real rates
- Either comes from lower bond yields or higher expected inflation
- Currently real rates are historically high (hence the premium to TIPS) which makes it difficult for governments to manage public finances
- Premium likely overstated because inflation expectations are understated



# The World Is Riskier



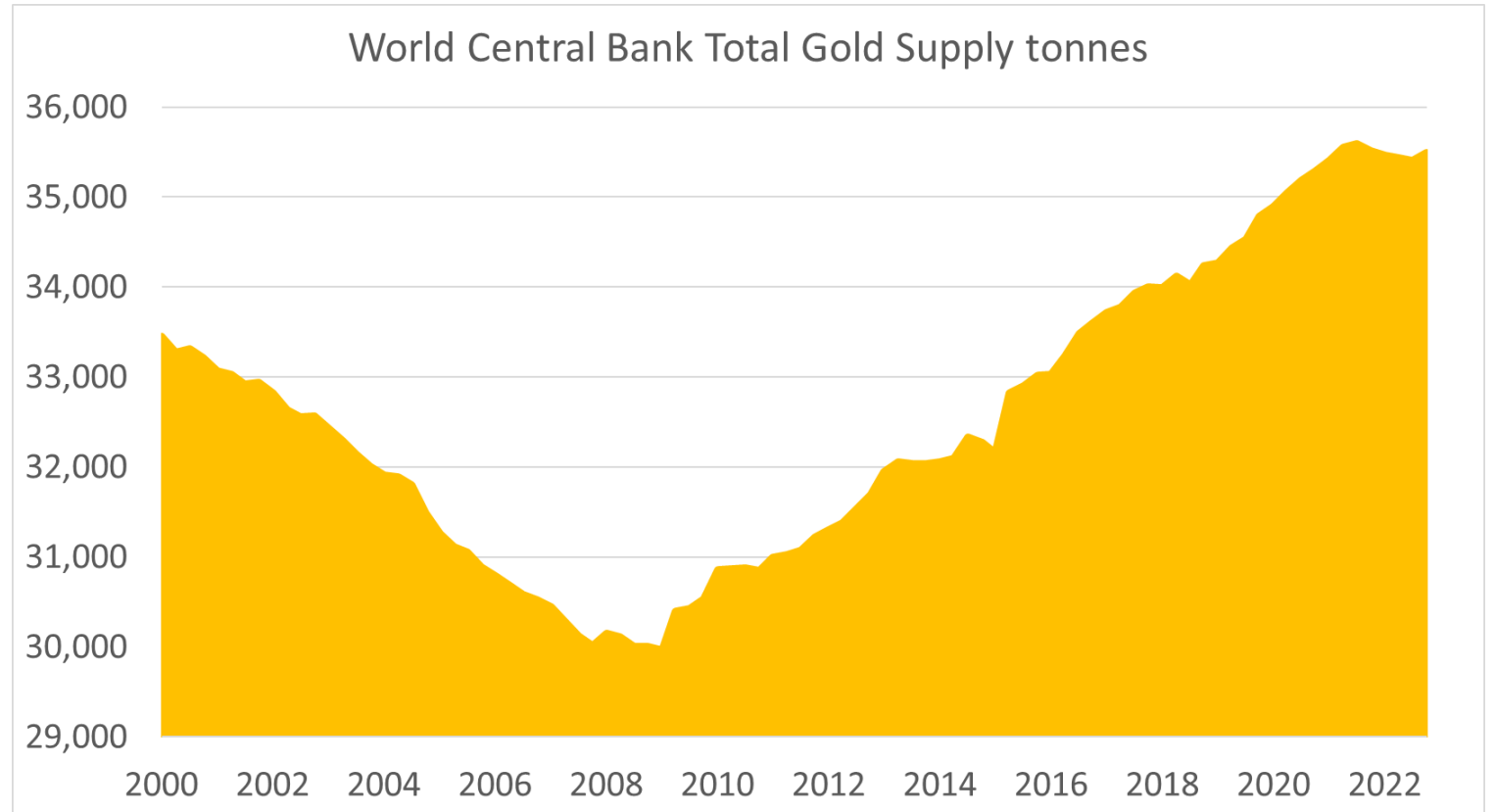
- Sovereign risk has been increasing as:
  - Interest rates have risen making it harder to repay debt
  - War in Ukraine
  - Geopolitics
  - Bank failures
- **The world has changed**



# Central Banks Buy Gold



- Central banks have been rebuilding their gold stocks since 2008
- Heightened sovereign risk is a primary driver
- 2022 saw record buying
- **China is accumulating gold each month**



# Ray Dalio Says...



***“I would take the gold... I would like to sprinkle a bit of bitcoin into that mix too.”***

Ray Dalio, Bridgewater Associates



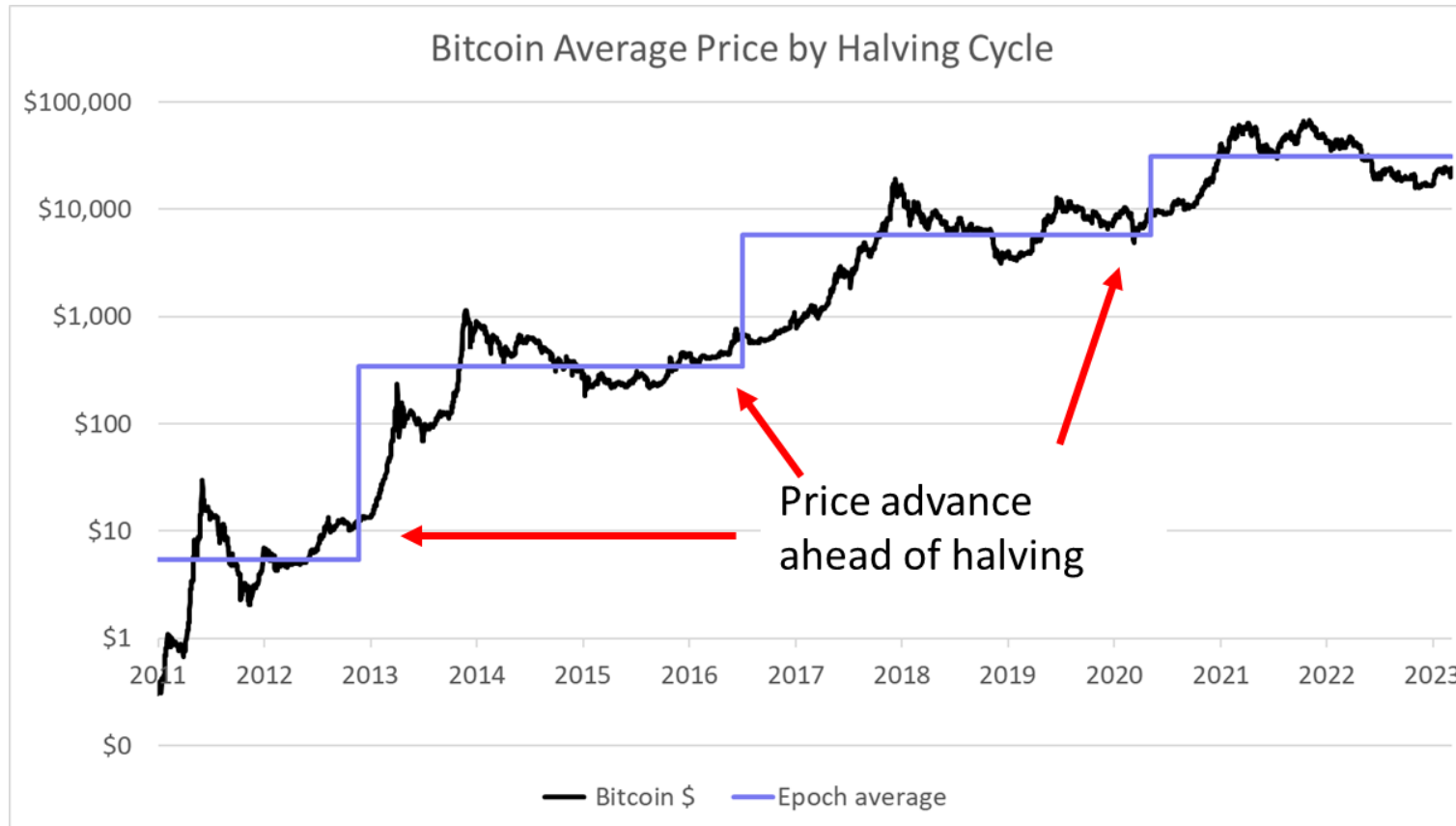
# Bitcoin Limited Supply



Epoch number	Epoch start date	Blocks mined during epoch	Block reward	Mined during epoch	Total Supply	% of final supply at epoch end
Epoch 1	03-Jan-09	210,000	50	10,500,000	10,500,000	50.0%
Epoch 2	29-Nov-12	210,000	25	5,250,000	15,750,000	75.0%
Epoch 3	10-Jul-16	210,000	12.5	2,625,000	18,375,000	87.5%
Epoch 4	11-May-20	210,000	6.25	1,312,500	19,687,500	93.8%
Epoch 5	16-Apr-24	210,000	3.125	656,250	20,343,750	96.9%
Epoch 6	13-Apr-28	210,000	1.5625	328,125	20,671,875	98.4%
Epoch 7	10-Apr-32	210,000	0.7813	164,063	20,835,938	99.2%
Epoch 8	07-Apr-36	210,000	0.3906	82,031	20,917,969	99.6%
Epoch 9	04-Apr-40	210,000	0.1953	41,016	20,958,984	99.8%
Epoch 10	01-Apr-44	210,000	0.0977	20,508	20,979,492	99.9%

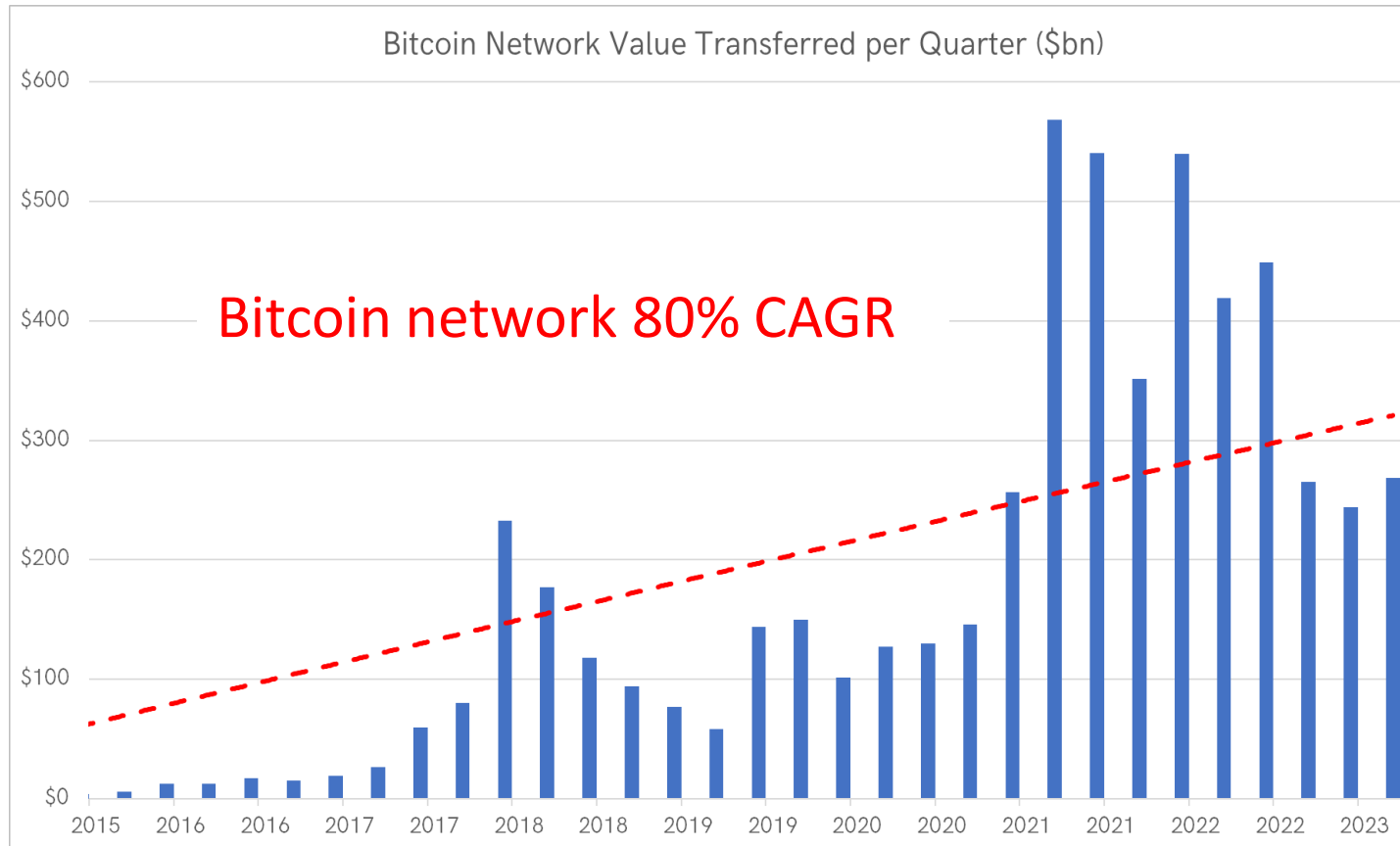
- Halving estimated in April 2024 will reduce annual supply growth to 0.9%
- 91.9% of bitcoins have already been mined
- 96.9% mined by 2028
- **The bitcoin squeeze begins**

# One Year to Halving



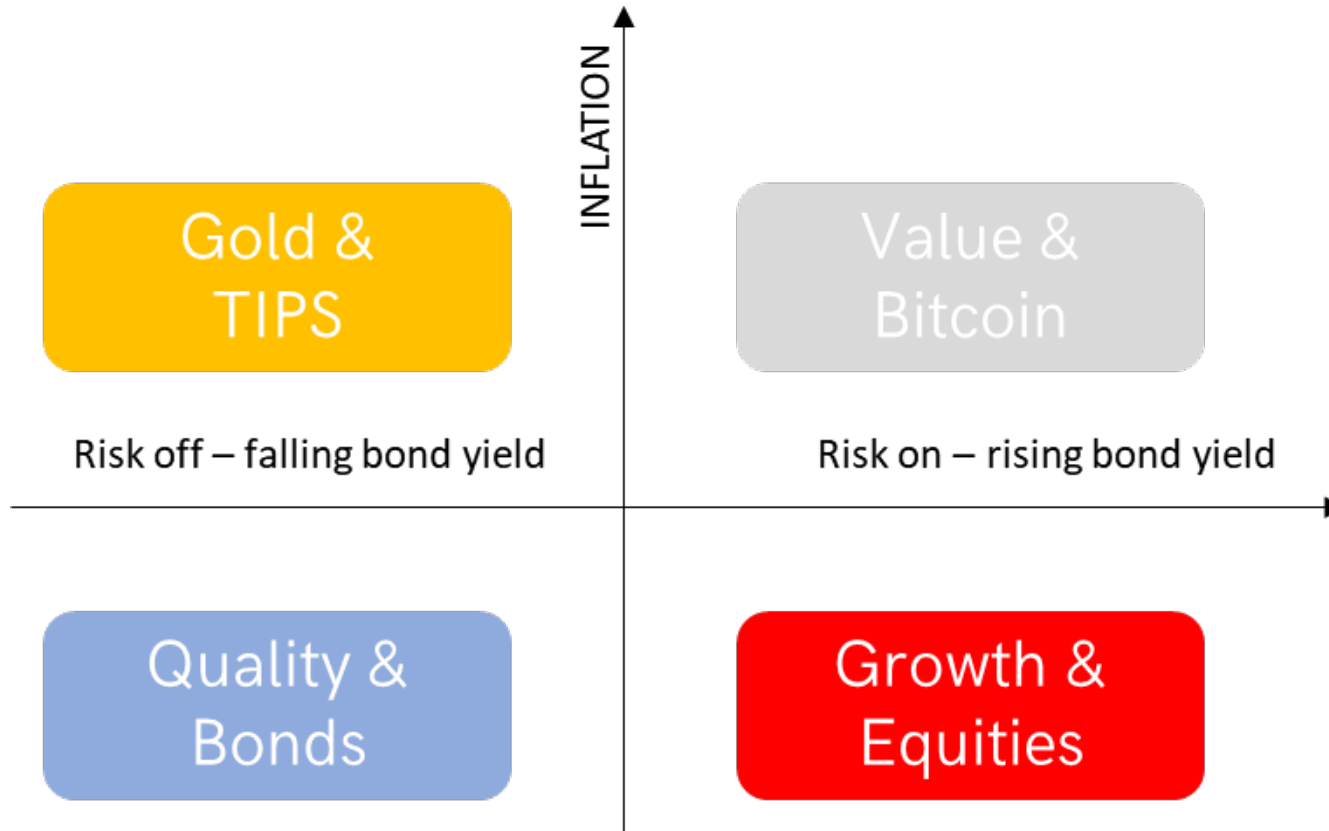
- Bitcoin price shown with 4-year mining cycle average price
- Typical cycle starts below, overshoots, undershoots, finishes above
- Next halving estimated April 2024
- \$40,00 over the next 12 months likely on this basis

# Bitcoin Network Grows



- Bitcoin is a vibrant network which has enjoyed 80% trend growth over the past two cycles
- Q4 2022 saw \$260 billion change hands over the bitcoin blockchain, which was similar to the Q4 2017 high
- **In 2023, network activity growth has resumed**

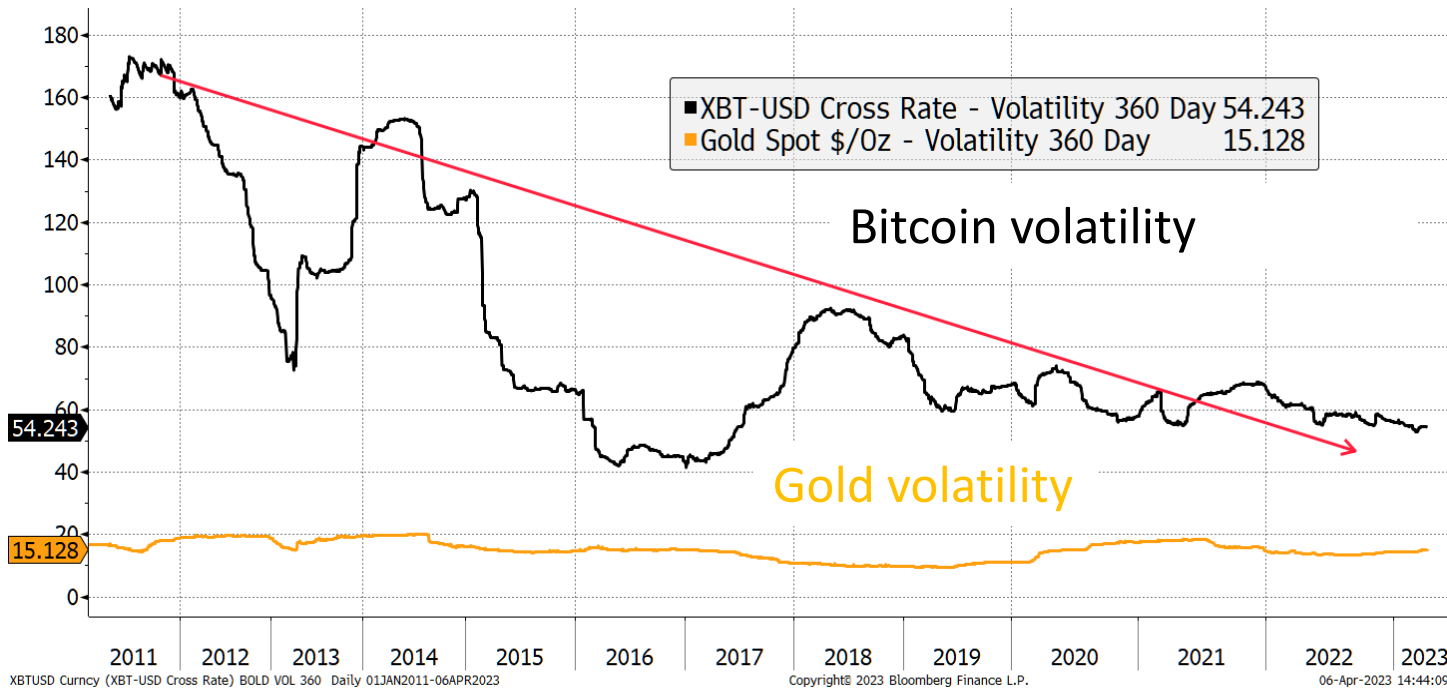
# Bitcoin & Gold = BOLD



- Gold and bitcoin are effective inflation hedges
- Gold is risk-off
- Bitcoin is risk-on
- Blending them on a risk weighted basis leads to an optimal outcome



# Bitcoin Volatility Is Falling



- Gold volatility is consistently low
- Bitcoin volatility has been falling to similar levels as cyclical stocks or oil
- **Aim is to allocate more to the less volatile asset**

# Calculating Inverse Volatility Weights



## Inverse Volatility Weights

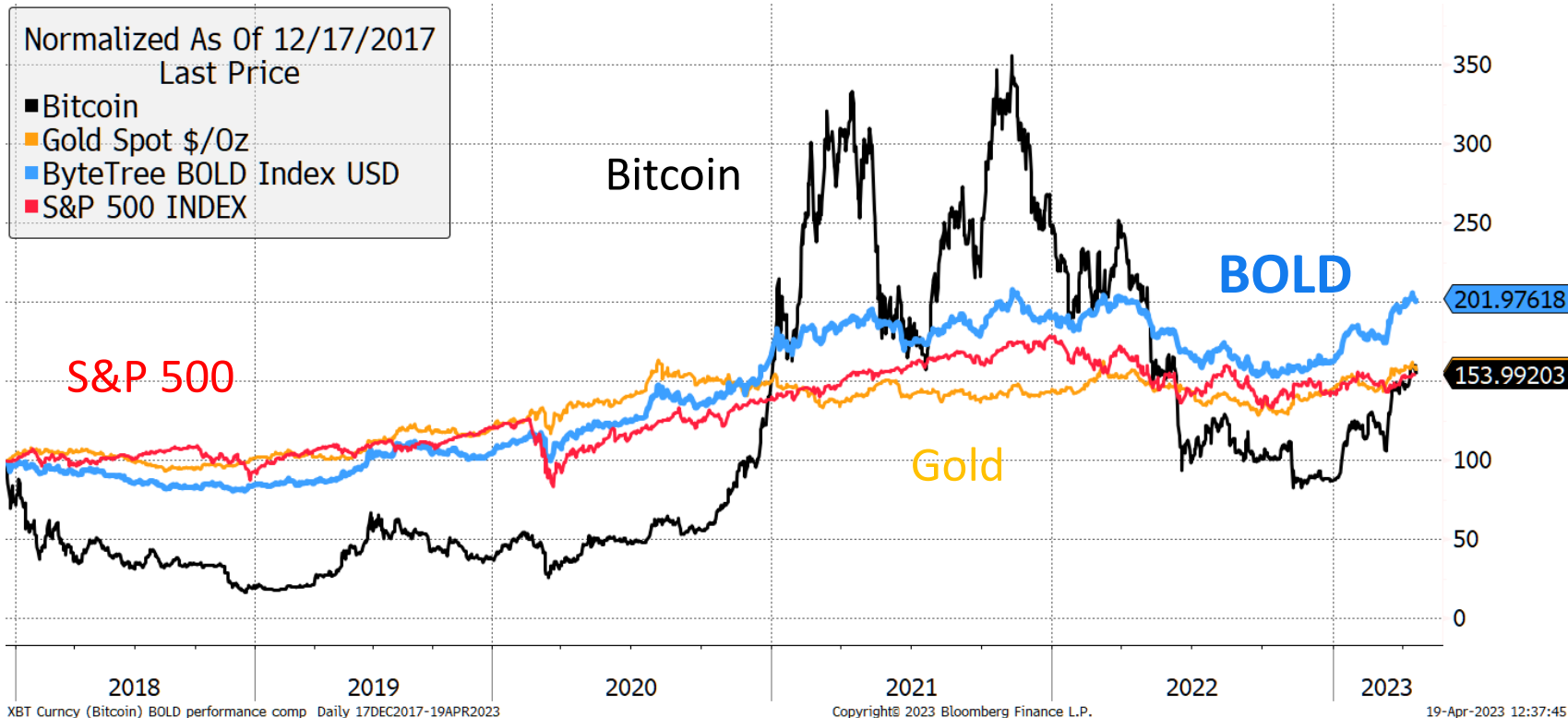
	Volatility over past 360 days (v)	Inverse volatility (1/v)	Calculation	Weight
Bitcoin	49.9%	2.0	$2.0 / 9.3$	21.5%
Gold	13.7%	7.3	$7.3 / 9.3$	78.5%

The table shows the calculation of inverse volatility weights for Bitcoin and Gold. The volatility of Bitcoin is 49.9%, which is inverted to 2.0. The volatility of Gold is 13.7%, which is inverted to 7.3. The sum of these inverse volatilities is 9.3. The weight for Bitcoin is calculated as 2.0 / 9.3, resulting in 21.5%. The weight for Gold is calculated as 7.3 / 9.3, resulting in 78.5%.

- Higher volatility leads to a lower weight
- If the assets' volatility was the same, the weights would be 50/50

- Input the volatility over the past 360 days for bitcoin and gold
- Simple equation
- If the volatilities are the same, the weights are 50/50
- Otherwise, the less volatile assets gets a higher allocation
- **Rebalance the portfolio to the new weights each month**

# BOLD vs BTC and Gold Since '17 High



- Since the 2017 bitcoin high, BOLD is +102% when bitcoin +53% and gold +56%
- Excess return comes from monthly rebalancing transactions
- Known as “volatility harvesting” (literally)
- **Excess returns can be in the region of 5% to 7% per annum**

# BOLD - Most Efficient Monetary Inflation Hedge



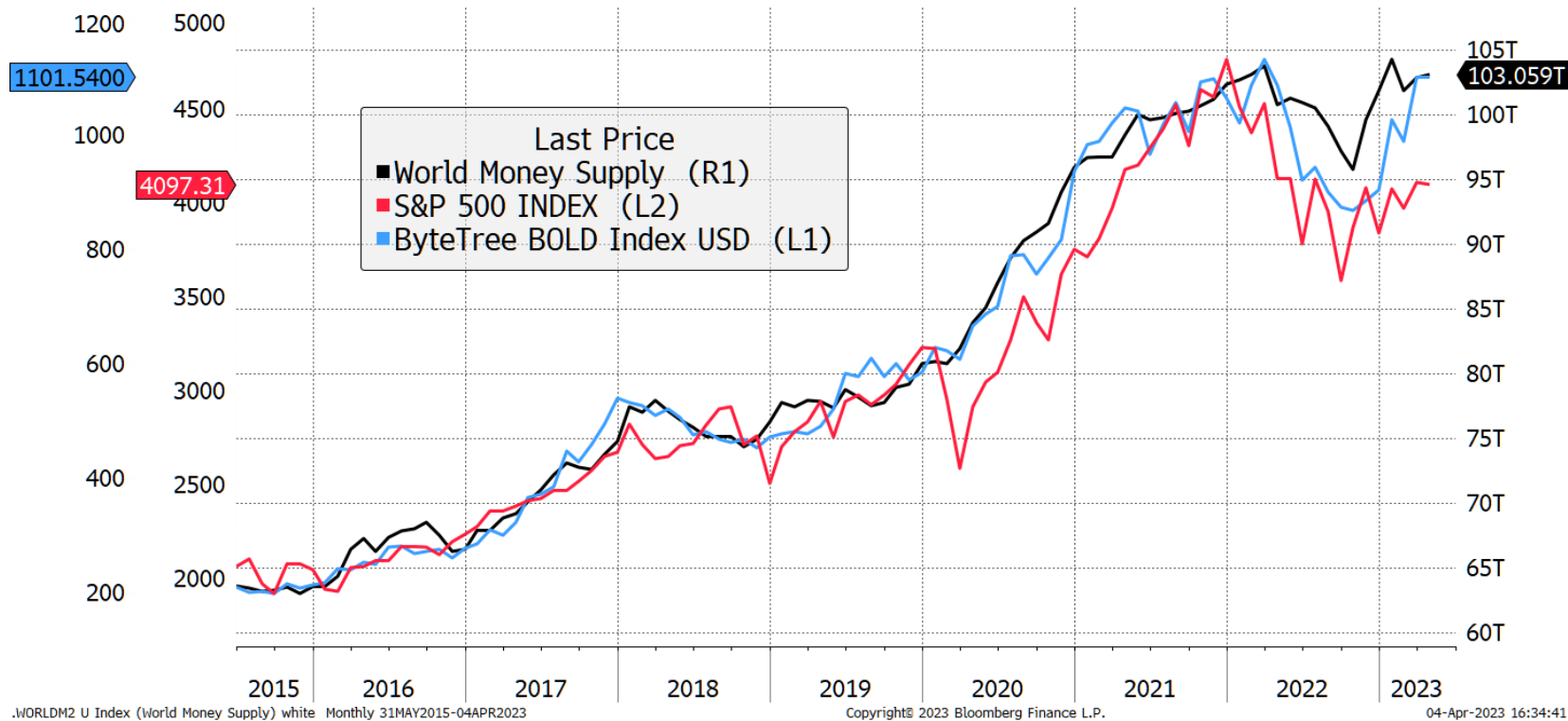
BOLD	99.0%
S&P 500	92.5%
NASDAQ	92.2%
Gold	88.1%
Bitcoin	84.7%
Long Bond	79.4%
TIPS	76.5%
Emerging Markets	66.5%
Nikkei	65.5%
US Dollar	55.9%
Copper	53.9%
Oil	18.1%

*“No other asset class or asset combination has been more closely correlated with the G20 money supply than BOLD”*

*Charlie Morris,  
CIO ByteTree*



# BOLD - Most Efficient Monetary Inflation Hedge



- The S&P 500 was doing well until recently
- It is overvalued and growth is slowing
- Alternative assets essential to survive a period of volatile inflation
- **BOLD stands out as the inflation hedge for the 2020s**

# Asset Class Returns 2015 to 2023

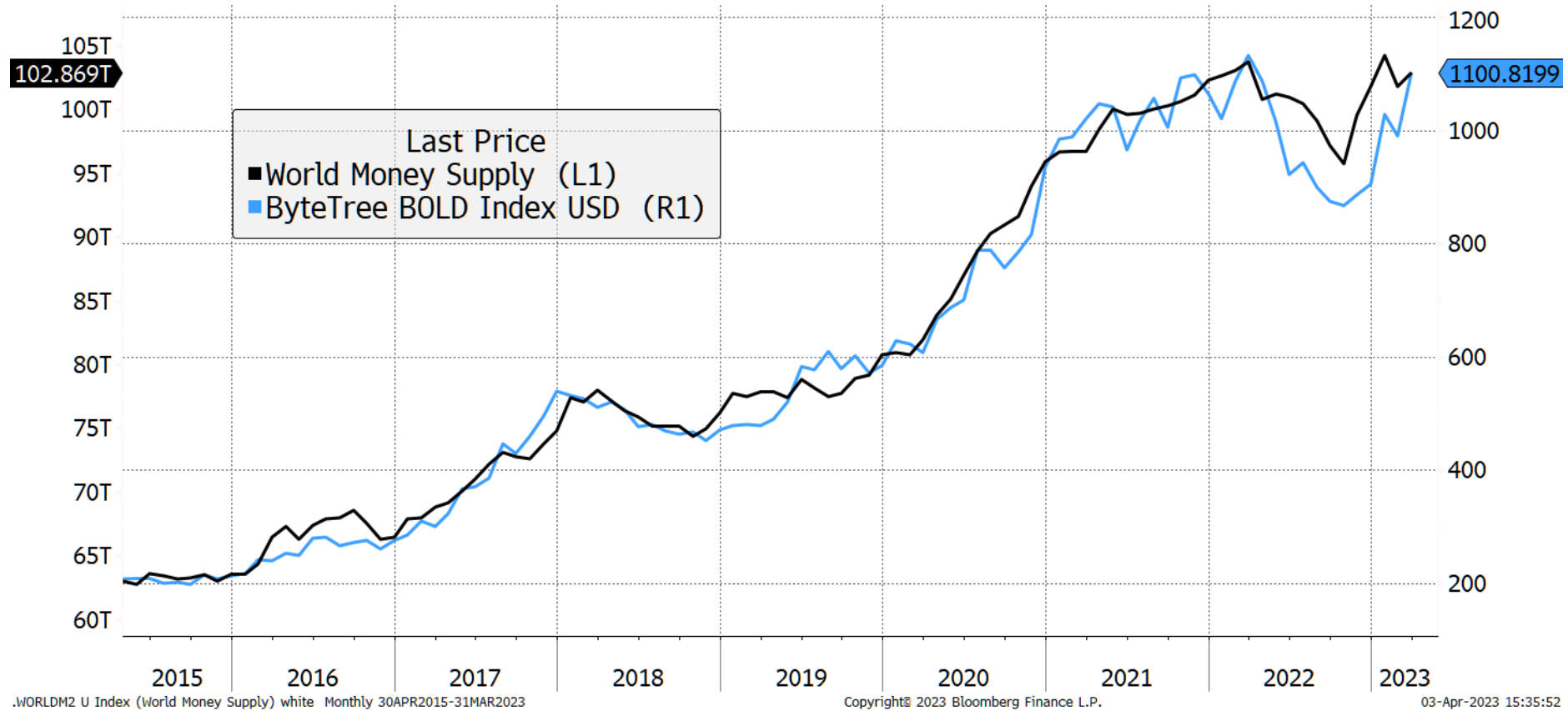
	Inflation-linked gov												
	USA	UK	S&P 500	NASDAQ	Europe	Suisse	Japan	Emerging markets	Brent Crude	Dollar Index	Bitcoin	Gold	<b>BOLD</b>
2015	-8.6%	-5.7%	1.4%	9.8%	-2.8%	0.4%	9.6%	-14.9%	-35.0%	9.3%	36.2%	-10.4%	-2.6%
2016	9.7%	11.3%	12.0%	7.3%	-0.4%	-4.9%	2.4%	11.2%	52.4%	3.6%	120.3%	8.1%	30.1%
2017	9.4%	12.8%	21.8%	33.0%	25.5%	22.5%	24.0%	37.3%	17.7%	-9.9%	1375.1%	13.5%	95.3%
2018	-7.0%	-7.3%	-4.4%	0.0%	-14.9%	-9.1%	-12.9%	-14.6%	-19.5%	4.4%	-73.8%	-1.6%	-12.7%
2019	18.0%	12.3%	31.5%	39.5%	23.8%	32.3%	19.6%	18.4%	22.7%	0.2%	94.8%	18.3%	24.2%
2020	25.6%	19.1%	18.4%	48.9%	5.4%	11.6%	14.5%	18.3%	-21.5%	-6.7%	305.1%	25.1%	60.0%
2021	6.5%	3.0%	28.7%	27.5%	16.3%	19.3%	1.7%	-2.5%	50.2%	6.4%	59.8%	-3.6%	13.7%
2022	-32.4%	-52.7%	-18.1%	-32.4%	-15.1%	-18.3%	-16.6%	-20.1%	10.5%	8.2%	-64.3%	-0.3%	-15.0%
2023	6.8%	7.7%	7.5%	20.8%	10.6%	6.7%	6.2%	4.0%	-7.1%	-1.0%	71.7%	8.0%	21.8%
<b>Total</b>	<b>40%</b>	<b>-8%</b>	<b>165%</b>	<b>304%</b>	<b>38%</b>	<b>63%</b>	<b>43%</b>	<b>23%</b>	<b>-28%</b>	<b>28%</b>	<b>3702%</b>	<b>64%</b>	<b>446%</b>

BOLD is consistent and delivers strong risk-adjusted returns

US\$, total return by year

Source: Bloomberg, Asset class returns (TR) 1/1/2015 to 30/3/2023

# BOLD Is Key to Surviving Monetary Inflation



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