BofA SECURITIES

Global Investment Strategy

The Longest Pictures

06 November 2023

Investment Strategy
Global

Transforming World

Thematic Research

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The history of financial markets in pictures

Our 6th edition of BofA's Longest Pictures illustrates trends in the economy, interest rates and financial markets in recent decades and centuries.

The big change

2020s: an era of higher inflation and rates (periodically interrupted by recession/credit events), US debt and dollar debasement, booms and busts in wide equity trading range, driven by new trends in society (inequality to inclusion), policy (monetary to fiscal), Wall St (leveraging to deleveraging), trade (globalization to isolationism), geopolitics (peace to war), tech (AI), environment (net zero, energy/food security) & demographics (aging).

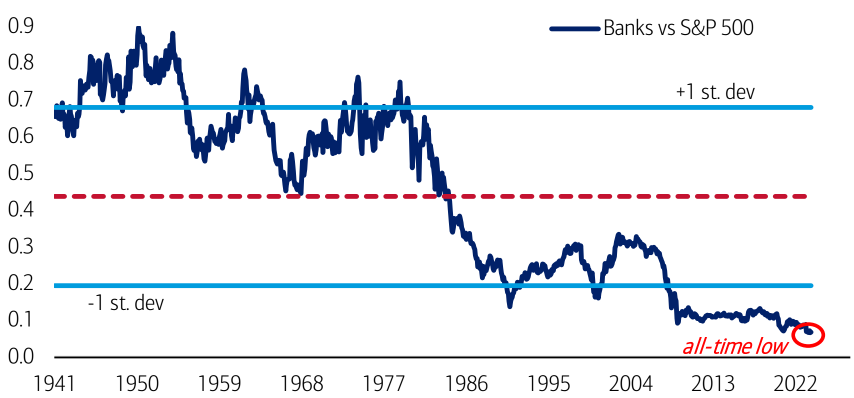
The secular contrarian

25/25/25/25 cash/commodities/bonds/stocks likely to outperform 60/40, real assets to outperform financial assets, Main St to outperform Wall St; bonds have completed first leg of secular bull; we buy secular contrarian plays in gold, small cap, value stocks, global banks (Chart 1), emerging markets, distressed tech, in anticipation of recession and elections sparking inflationary policy moves in '24.

Four long years

4.5 billion people in lockdown, $30tn policy stimulus, US nominal GDP +40%, >10% inflation for 2 billion people, US deficit 9% GDP, Russia/Ukraine/Israel/Hamas, 50% collapse in 30-year Treasury, "Magnificent 7" 30% of US market cap, first ever decline in China population, EM at 50-year relative lows, US banks at all-time relative lows; Fed resorts to YCC, China new economy bull, stagflationary AI...tales of unexpected set to continue.

Chart 1: US bank stocks at record lows vs S&P 500
Banks vs S&P 500 (price relative)



Source: BofA Global Investment Strategy, Bloomberg, Global Financial Data

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YCC – yield curve control

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Timestamp: 06 November 2023 07:00AM EST

The long run in words

“Those classes of investments considered ‘best’ change from period to period. The pathetic fallacy is what are thought to be the best are in truth only the most popular—the most active, the most talked of, the most boosted, and consequently, the highest in price at that time.” *Fred Schwed Jr.*

“Markets stop panicking when central banks start panicking.” *BofA Strategist*

“When all the experts and forecasts agree – something else is going to happen.” *Bob Farrell*

“If there are two rules in investing they are that magnificent portfolios attract inflows, and inflows ultimately destroy magnificent portfolios.” *Eric Peters*

“Buy on the cannons, sell on the trumpets.” *Baron Rothschild*

“We simply attempt to be fearful when others are greedy and to be greedy only when others are fearful.” *Warren Buffett*

“Successful investing is anticipating the anticipations of others.” *John Maynard Keynes*

“The four most dangerous words in investing are ‘This time it’s different.’” *John Templeton*

“There are two types of forecasters: those that don’t know, and those that don’t know they don’t know.” *John Kenneth Galbriath*

"Little else is requisite to carry a state to the highest degree of opulence from the lowest barbarism but peace, easy taxes, tolerable administration of justice." *Adam Smith*

“Wall Street’s favorite short is always ‘denial’ and Wall Street’s favorite long is ‘panic’.” *BofA Strategist*

“There are only three ways to meet the unpaid bills of a nation. The first is taxation. The second is repudiation. The third is inflation.” *Herbert Hoover*

“Inflation is like toothpaste. Once it's out, you can hardly get it back in again.” *Karl Otto Pohl*

“Nothing is so permanent as a temporary government program.” *Milton Friedman*

“There are no new eras—excesses are never permanent.” *Bob Farrell*

“The average long-term experience in investing is never surprising, but the short-term experience is always surprising.” *Charles Ellis*

“Buy humiliation, sell hubris.” *BofA Strategist*

“Markets can remain irrational longer than you can remain solvent.” *John Maynard Keynes*

“Compound interest is the eighth wonder of the world. He who understands it, earns it … he who doesn’t … pays it." *Albert Einstein*

“In economics, things take longer to happen than you think they will, and then happen faster than you thought they could.” *Rudiger Dornbusch*

“Never in the field of monetary policy was so much gained by so few at the expense of so many.” *BofA Strategist on 2010s*

“Speculation is an effort to turn a little money into a lot. Investment is an effort to prevent a lot of money from becoming a little.” *Fred Schwed Jr.*

“If all the economists were laid end to end, they’d never reach a conclusion.” *George Bernard Shaw*

“Past performance is not necessarily a guide to future performance.” *SEC requirement*

“The long run is a misleading guide to current affairs. In the long run we are all dead.” *John Maynard Keynes*

The long run in years

1602: the Dutch East India Company becomes the first company to issue stocks and bonds on the Amsterdam Stock Exchange

1685: Germany establishes the second stock exchange in the world

1790: an $80 million US Government bond offering to refinance Revolutionary War debt becomes the first publicly traded security in the US

1792: the NYSE is established and the Bank of New York becomes the first company listed

1810: Russia is the first "emerging market" country to establish a stock market

1821: Great Britain adopts the gold standard

1862: US stocks record their best year ever, returning 70%

1891: the first US equity bear market (>20% loss) is caused by the "Baring Brothers Crisis"

1918: record high in US inflation rate of 20.4%

1923: hyperinflation in Germany, $1 worth 4,210,500,000,000 German marks

1929: Wall Street Crash signals beginning of Great Depression

1930: US implements Smoot-Hawley Act raising tariffs on more than 20,000 imported goods.

1931: US stocks record their worst year ever, declining 43%

1933: US unemployment peaks at 25%, President Franklin D. Roosevelt launches "New Deal"

1948: hyperinflation in Japan, consumer prices rise 5,300%

1971: "Nixon shock" as US ends convertibility of US dollar to gold, ending Bretton Woods; US dollar becomes a fiat currency

1981: monthly US 10-year Treasury yields hit an all-time high of 15.8%

1982: the best year of total return for long-term Treasuries of 40%

1987: on "Black Monday" October 19th, the Dow falls 23%, the largest daily drop ever

2001: China becomes member of World Trade Organization

2007: 1st iPhone launched

2008: Global Financial Crisis…US financial stocks fall 57%

2009: Fed launches Quantitative Easing

2011: US debt downgraded by Standard & Poor; gold price hits record high of $1900/oz

2014: Fed ends QE program; oil begins brutal bear market ($107/bbl to $26/bbl in Feb'16)

2016: Bank of Japan announces negative interest rate policy; TPP (Trans-Pacific Partnership legislation) not ratified by US Congress

2017: US stock volatility hits 50-year low

2018: S&P500 becomes longest bull market of all-time; US/China trade war begin

2019: US economic expansion became the longest since Civil War; US budget deficit hits $1tn

2020: COVID-19 pandemic begins; US unemployment rises 33mn; equity market crashes $30tn; global GDP crashes $9tn; interest rates drop to 5,000-year lows

2021: COVID-19 monetary & fiscal policy stimulus totals $28tn; Bitcoin hits all-time high at $68,992; Apple 1st company to hit $3tn market cap

2022: Russia-Ukraine War; Fed starts most aggressive rate hiking cycle in 40 years; worst loss (17%) in 10-year Treasury since 1788; S&P 500 crashes from 4.8k to 3.5k

2023: India surpasses China population; 2nd US debt downgrade; US Treasury losses for 3rd consecutive year; ChatGPT ignites AI "baby bubble".

The long run in numbers

5000 years: on Mar 9th 2020 the US 10-year Treasury yield fell to an intraday low of 0.3%, taking global interest rates to their lowest level in 5000 years

520: central bank rate hikes in the past 24 months (vs. 1351 rate cuts since Lehman bankruptcy in 2008)

$5tn: liquidity drain by global central banks since 2022 (vs $34tn liquidity injection from 2008 to 2022)

31%: Fed balance sheet as % of GDP…was 0% to 3% during WWI, 2% to 11% during WWII, 6% to 15% after GFC, hit high of 37% after COVID

44%: US government spending % GDP…peaked at 24% in WWI, 44% in WWII, 43% after GFC, hit high of 54% after COVID

40%: growth of US economy in past 3 years in nominal GDP terms, fastest expansion since 1975-79

26 million: US jobs created since Apr 2020 (follows 22 million jobs lost Mar-Apr 2020)

2 billion: number of people that experienced inflation of >10% in 2022 (quarter of global population)

$6.9tn: proposed US federal budget for 2024 would make US government 3rd largest economy in the world

$33.6 trillion: US government debt, more than combined GDP of China, Japan, Germany, India, and rising $5.2 billion every day

3: US Treasuries on course for 3rd consecutive years of negative returns, first time in 246-year history of US republic

75%: loss on 100-year Austria government bond since Dec 2020

52%: Americans more concerned than excited about increased use of AI (vs 10% more excited than concerned & 36% who say both)

4.1 million: workdays lost to strikes in the US in Aug 2023, most since 2000

3.6%: Japanese wage growth in 2023, highest in 30 years

21.8%: China youth unemployment at record high in Jun 2023 (series discontinued in Aug 2023)

800 million: decline in China's current population of 1.4 billion by 2100

$1.5tn: annualized YTD inflow to money market funds in 2023, on course for record year

$4.9 trillion: peak market cap gain of "Magnificent Seven" in 2023, a gain greater than GDP of Germany (tech at all-time high vs. S&P 500)

1926: US bank stocks at lowest level vs. S&P 500 since 1926

1971: US equities at highest level vs Emerging Market equities since 1971

-8.6%: price return of MSCI All Country World Equal-Weighted Index (contains 2,947 stocks) since Jan 1st 2020

9914: average gain in 14 US equity bull markets in past 100 years…177% in 59 months….history says S&P500 hits peak of 9914 in Sep 2027

2043: average time for US stocks to regain new highs in real terms after secular peak…22 years…history say S&P500 hits new highs in real terms in 2043

The Big Change

The Big Change

Chart 2: The Big Change
Investment Themes for the 2010s vs 2020s

2010s	2020s
1%	99%
Wall Street	Main Street
Inequality	Inclusion
Capital	Labor
QE	AI
Deregulation	Regulation
Monetary excess	Fiscal excess
Tax cuts	Bailouts
Stocks & Bonds	Cash & Commodities
60-40	25/25/25/25
Financial Assets	Real Assets
Globalization	Mercantilism
Democracy	Autocracy
Peace	War
Deflation	**Inflation**

Sources: BofA Global Investment Strategy

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- 2020s…era of higher inflation & rates (periodically interrupted by recession/credit events), US debt & dollar debasement, booms & busts in big, fat equity trading range, driven by new trends in society (inequality to inclusion), policy (monetary to fiscal), Wall St (leveraging to deleveraging), trade (globalization to isolationism), geopolitics (peace to war), tech (AI), environment (net zero, energy/food security) & demographics (aging)..

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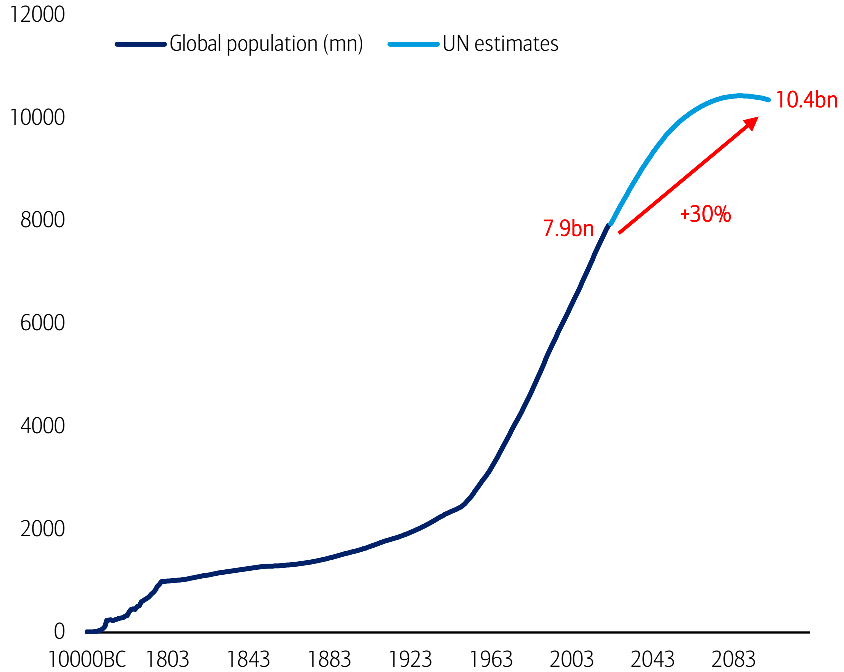
- In the past 4 years…4.5 billion people in COVID lockdown, $30tn policy stimulus, US nominal GDP +40%, >10% inflation for 2 billion people, US deficit 9% GDP, Russia/Ukraine/Israel/Hamas, 50% collapse in 30-year Treasury, "Magnificent 7" 30% of US market cap, 1st ever decline in China pop, EM @ 50-year relative lows, US banks @ all-time relative lows; Fed resorts to YCC, China new economy bull, stagflationary AI…tales of unexpected set to continue.

12000 Years of Population

Chart 3: 12000 Years of Population
Global population since 10,000 BC (UN estimates through 2100)



Source: OurWorldInData HYDE (2017); Gapminder (2022); UN (2022)

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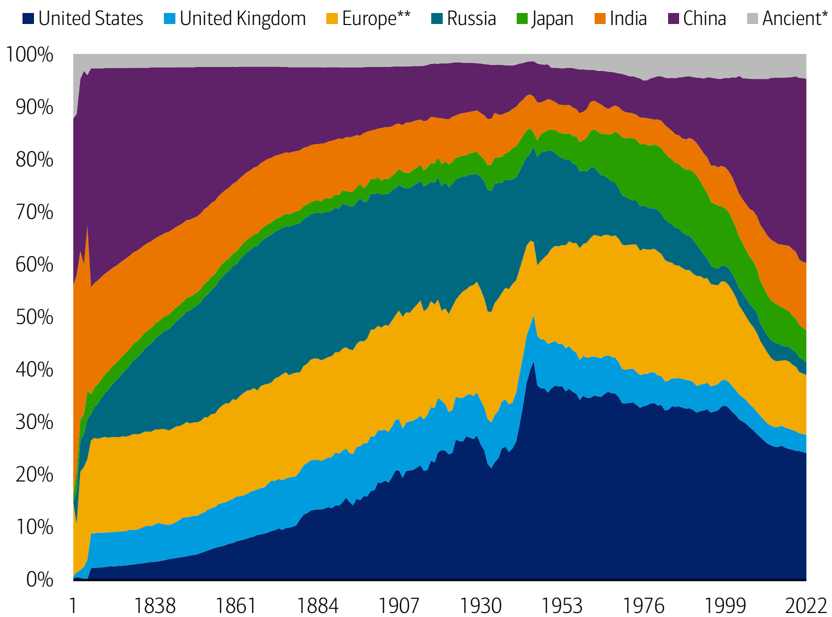
- The number of people on the planet has increased from 100 million people to 8 billion in the past 2000 years and has increased from 1 billion to 8 billion in just the past 200 years.
- The UN predicts global population will rise more than 30% before peaking at 10.4 billion in 2086, driven largely by Africa's population, which is forecast to double to 2.8 billion by 2060.
- India's population surpassed China in 2023 and will rise to a peak of 1.7 billion in 2064 from 1.4 billion today; in contrast China's 1.4 billion population is set to decline to below 800 million people by 2100.
- Countries & regions set to experience big declines in population by 2100, per UN forecasts…China, Japan, Russia, Brazil, Italy, Spain, Germany, France.
- The world population continues to grow and to age…since 1900 global average life expectancy has more than doubled from 32 to 72 years.

2000 Years of Economic History

Chart 4: 2000 Years of Economic History

Share of the global economy (major world powers)



Source: BofA Global Investment Strategy, Groningen Growth and Development Centre (Angus Maddison), IMF

*Ancient = Greece, Turkey, Egypt, Iran; **Europe = Germany, Italy, Spain, France

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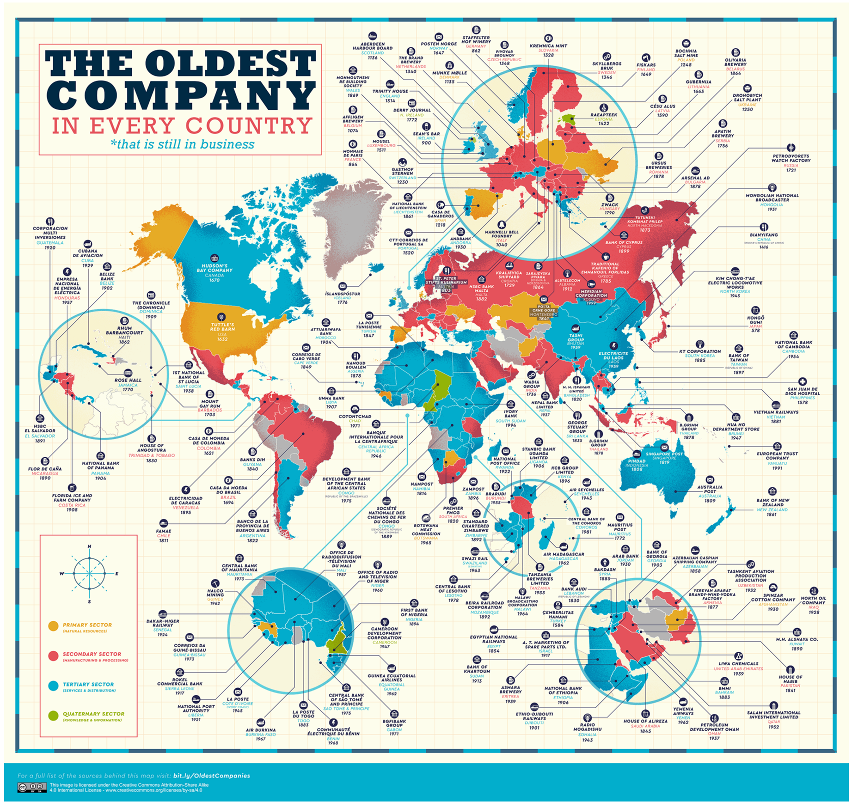
- 2000 years ago China was the largest economy in the world; back then China (32%), Greece, Egypt, Turkey, Iran & India accounted for over 50% of world GDP.
- By the 1800s the UK, Europe & Russia were the dominant global economic powers, accounting for over 50% of global GDP, until war sapped their dominance.
- In 1916 the US became the largest economy world; the US share of global GDP peaked at 35% in 1944 (measured using Purchasing Power Parity), has fallen to around 16% and was surpassed by China (18%) in 2016; but when measured using today's exchange rates the US remains by far the largest economy on the planet.
- The US & China are now locked in a battle for economic, financial, technological & geopolitical supremacy in the 21st century, a battle that is shaping geopolitical & economic policies, and in the 2020s has thus far driven global asset allocators to shift investment away from China toward the US.

1000 Years of Corporations

Chart 5: 1000 Years of Corporations
The oldest company in every country



Source: BusinessFinancing.co.UK

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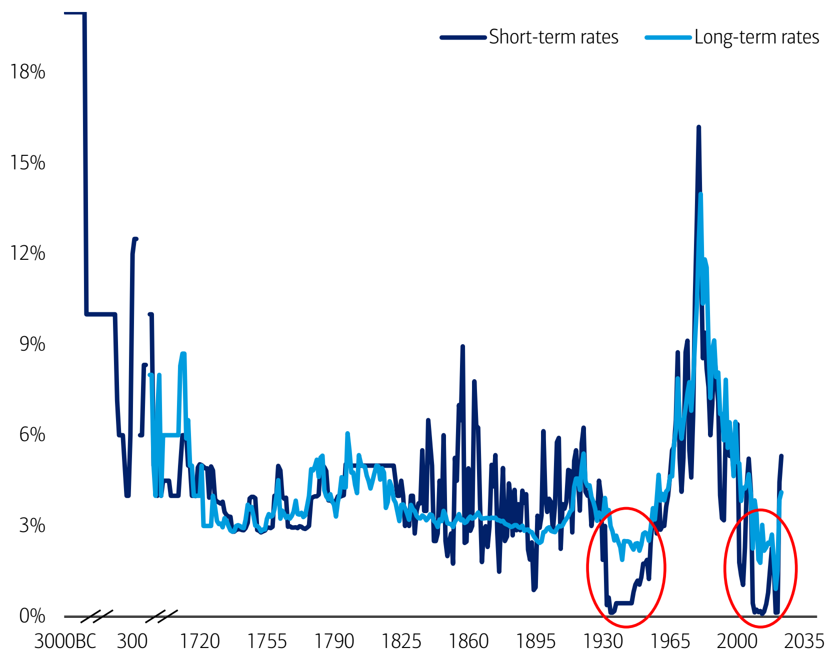
- In 2023 the global equity market is dominated by the "Magnificent 7"; yet Apple, Microsoft, Google, Amazon, Nvidia, Tesla, Meta are mere toddlers in the history of corporations…there are companies well over 1000 years old still operating in many countries.
- The oldest still-functioning company in the world is Kong Gumi, a Japanese construction company established in 578; the next three oldest companies in the world are St. Peter Stiftskulinarium in Austria established in 803, Staffelter Hof in Germany dating back to 862, and The Royal Mint in UK founded in 886.
- Meanwhile today's US stock market has never been so concentrated in just a handful of companies; the "Magnificent 7" account for a record 30% of S&P 500 market cap; history replete with eras of monopolistic dominance of goods & services…Standard Oil, US Steel, American Tobacco, De Beers, the East India Company, Hudson Bay, and replete with wars, revolutions, government regulations to placate angry electorates that ended monopolistic dominance.

5000 Years of Interest Rates

Chart 6: 5000 Years of Interest Rates
Interest rates since 3000BC



Source: The Public Domain Review, Staatsbibliothek Berlin

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- This is the most important "longest picture" of past 15 years…the collapse in the price of money to 5000-year lows and abrupt end to this period of monetary excess in the past 2 years.
- In the past 15 years revolutionary monetary policies of QE, ZIRP, NIRP, YCC (1343 rate cuts, $23tn of asset purchases by central banks) caused an unprecedented decline in short- and long-term interest rates; this collapse in the price of money was unambiguously positive for financial assets, particularly US stocks & HY bonds.
- On March 9th 2020 the 10-year US Treasury yield hit 0.3%, its lowest level ever; 3½ years later 10-year yields are close to 5% as the pandemic, war, fiscal excess and inflation have caused a dramatic rise in interest rates, a rise that has and will continue to suppress bond & equity returns in the 2020s.

2000 Years of Pandemics

Table 1: 2000 Years of Pandemics
A history of pandemics

Pandemic	Time period	Death Toll
Black Death (Bubonic Plague)	1347-51	200,000,000
Smallpox	1520	56,000,000
Spanish Flu	1918-19	40,000,000-50,000,000
Plague of Justinian	541-2	30,000,000-50,000,000
HIV/AIDs	1981-present	25,000,000-35,000,000
The Third Plague	1855	12,000,000
COVID-19	**2020-present**	**6,955,141**
Antonine Plague	165-80	5,000,000
17th Century Great Plagues	1600	3,000,000
Asian Flu	1957-58	1,100,000
Cholera 6 outbreak	1817-1923	1,000,000
Japanese Smallpx Epidemic	735-37	1,000,000
Russian Flu	1889-90	1,000,000
Hong Kong Flu	1968-70	1,000,000
MERS	2012-present	850,000
SARS	2002-03	770,000
18th Century Great Plagues	1700	600,000
Swine Flu	2009-10	200,000
Yellow Fever	Late 1800s	150,000
Ebola	2014-16	113,000

Source: BofA Global Investment Strategy, CDC, WHO, BBC, Wikipedia, Encyclopedia Britannica, Johns Hopkins University

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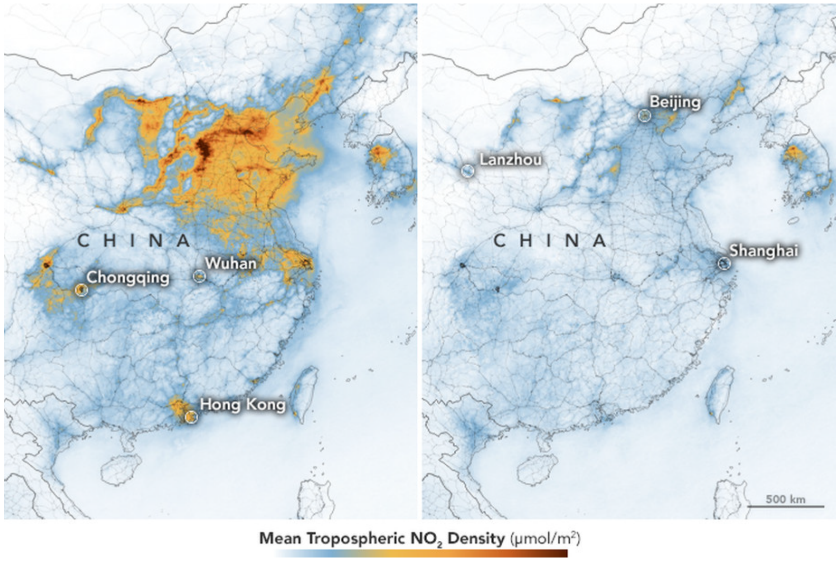
- In the early 2020s, 3 "exogenous shocks" have hit financial markets…the pandemic, war & AI (Artificial Intelligence).
- On March 11th 2020 (two days after US Treasury yields fell to all-time lows) the World Health Organization declared COVID-19 a pandemic; according to WHO there have been almost 7 million mortalities associated with the COVID-19 virus, making it the 7th most deadliest pandemic in history.
- The COVID-19 pandemic and its associated lockdowns, recession & deaths we believe accelerated nascent secular inflationary investment themes such as government intervention, social inclusion, geopolitical isolationism, and economic nationalism to protect supply chains.

The Virus

Chart 7: The Virus
China's air pollution before and after COVID outbreak



Source: NASA Earth Observatory

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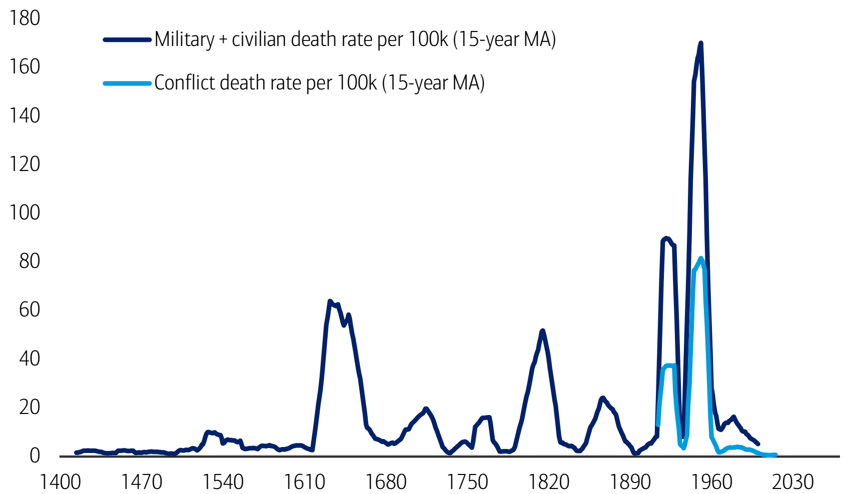
- By mid-2020 the political, social & health response to the COVID-19 pandemic caused a partial or complete social lockdown of 4.5bn people, a shutdown of the global economy (which notably caused a collapse in air pollution), and mass unemployment (US unemployment rate jumped from 3% to 15%)…
- …to which the policy response was one of the greatest ever seen…$30tn of monetary & fiscal stimulus…in turn the spark for the inflationary 2020s.

The War

Chart 8: 600 years of War
Global deaths in conflicts since the year 1400



Source: OurWorldinData; PRIO/UCDP

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- War is expensive & inflationary.
- The Russian/Ukraine/NATO war is the 487th military conflict in Europe in the past 2000 years; and the Israel-Hamas conflict adds to belief that war not peace will dominate the 2020s.
- Periods of global peace are an exception, periods of war the norm…over 150 million people, both military & civilian, have died in conflicts since 1400 worldwide (of which 71% have occurred since the beginning of the 20th century).
- Yet by 2005 there were just 12K deaths due to military conflict, a historically very low number and this figure was still below 50k in 2019; in 2022 it jumped above 250k.
- The Russia/Ukraine/NATO war caused policies of US/EU electorate protection via energy rebates & windfall taxes, acceleration in inexorable rise in defense spending (almost $1tn per annum in the US) & a reversal of globalization via sanctions, embargoes, trade barriers to secure energy & food supply; the Israel-Hamas conflict has sparked political calls for more military spending in the US, and the conflict similarly threatens the global supply of oil & gas.

Globalization to Isolationism

Chart 9: The US-China Trade War
Map from China's perspective

Source: Earthstar Geographics LLC, Esri

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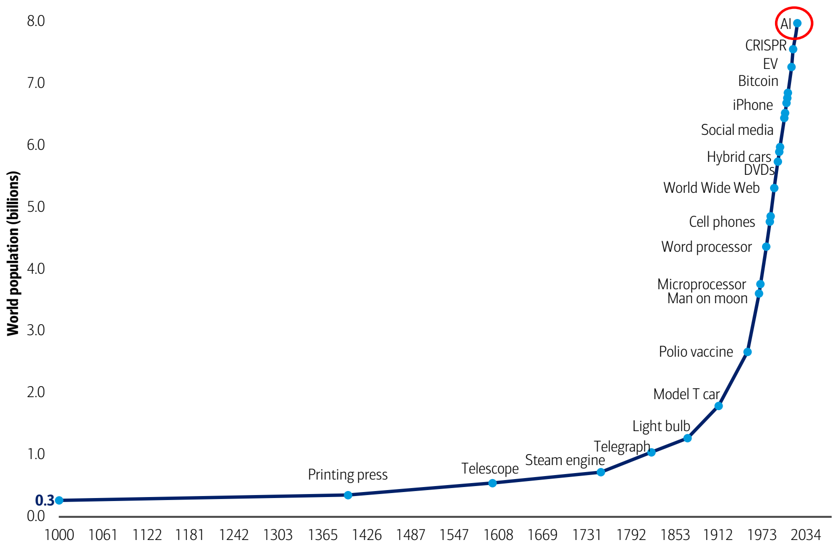
- Globalization has been with technology the dominant disinflation drivers of the past 40 years.
- Since the Great Depression & WWII, globalization via formation of EU, fall of Berlin Wall, NAFTA, China's accession to the WTO, has been arguably most powerful global economic force; world trade as a % of world GDP rose from 10% in 1945 to peak of 61% in 2008; free, untethered movement of people, capital, goods, commodities, increased supply & reduced inflation as capitalism trounced socialism.
- In the past 15 years the GFC, failure of US congress to pass Trans-Pacific Partnership (TPP), BREXIT, China-US trade war, COVID, war…globalization has been reversed via protectionism, sanctions, re-shoring, immigration barriers, all new geopolitical tools for populists & progressives in world fractured by political & social media polarization.
- Biggest geopolitical rift is between the US & China, the two largest economies in world; China's economy depends on exports and access to Pacific, access blocked by a series of island states…Japan, Taiwan, the Philippines, Indonesia; China wants & needs free access to the Pacific… US sees this as a threat to its own geopolitical aims; the US has responded to China's trade, tech & military ambitions by trade barriers, subsidies to support reshoring to the US & the Chips Act.

1000 Years of Technological Disruption

Chart 10: 1000 Years of Technological Disruption
Technological disruption since 1000 AD



Source: BofA Global Investment Strategy, Global Financial Data

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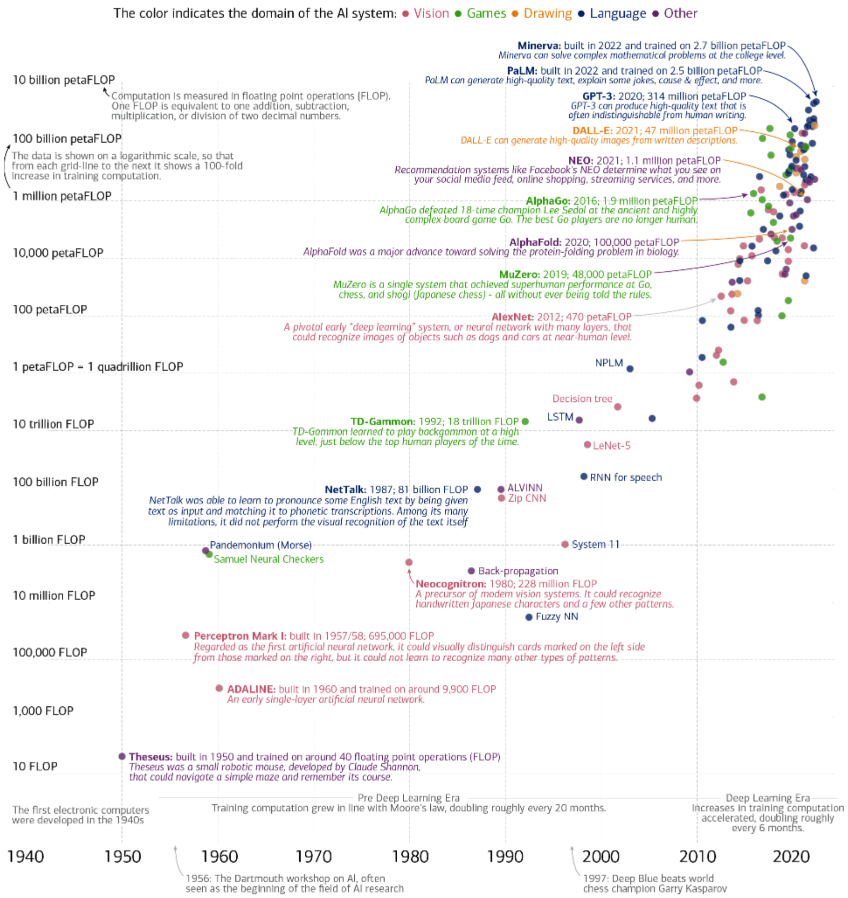
- Technological disruption has also been a big driver of disinflation & asset prices over the past 30 years.
- Technological disruption has reduced the price of goods & services (internet increased supply), and the price of labor (via robotics, automation, internet & now AI); unambiguously disinflationary this century, the evidence that tech disruption has increased productivity is much less compelling.
- Tech remains the leadership sector in world and particularly US equity markets; but the social & wealth inequality that has resulted from tech disruption, the monopolistic power of Big Tech, plus unintended consequences of greater AI, clearly threaten the sector's singular dominance via greater regulation & taxation, hence the sectors increasing claims to be a sector of national security.

The Robots

Chart 11: The Robots
Rise of AI and related technologies over the last eight decades



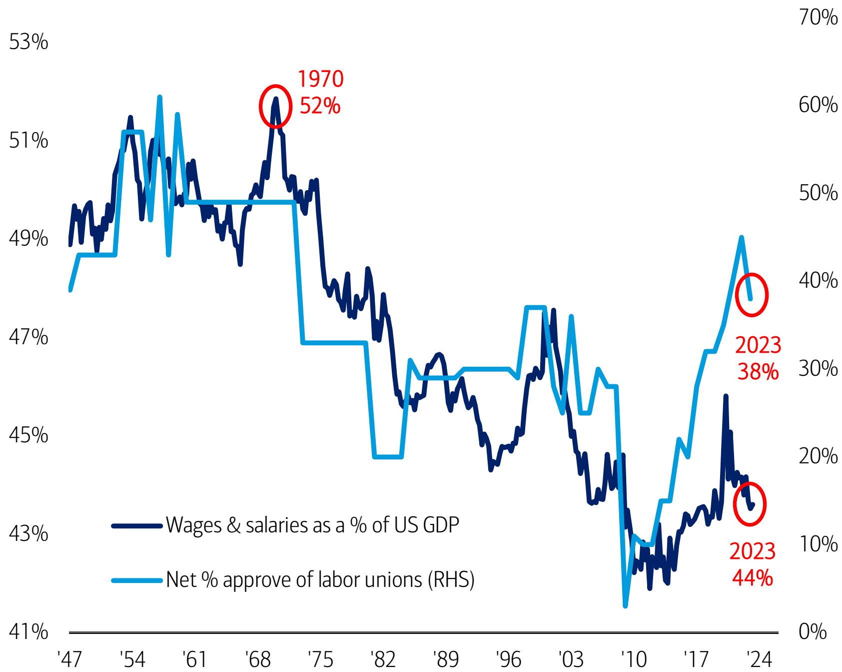
Source: BofA Thematic Research, Sevilla et al (2022) Parameter, Compute, and Data Trends in Machine Learning
BofA GLOBAL RESEARCH

- AI is a disruptive technology thanks to new generative AI models like ChatGPT which enable machines to process and utilize today's massive amount of global data (AI + Big Data + Machine Learning).

- The race for dominance in AI has in 2023 caused a massive rerating in stocks involved in the AI "arms race" and has led to much market bullishness that a 4th industrial revolution is underway that will structurally boost productivity growth & increase profits; bears will point out that from steam power to the internet there has always been a lag between innovation & widespread social, corporate & economic adoption; in addition the quickest way for AI to increase productivity is via a significant rise in unemployment (see BofA Thematic Research primer on AI).

The Humans

Chart 12: The Humans
Wages & salaries as % of US GDP vs Net % approve of labor unions since 1947



Source: BofA Global Investment Strategy, Gallup

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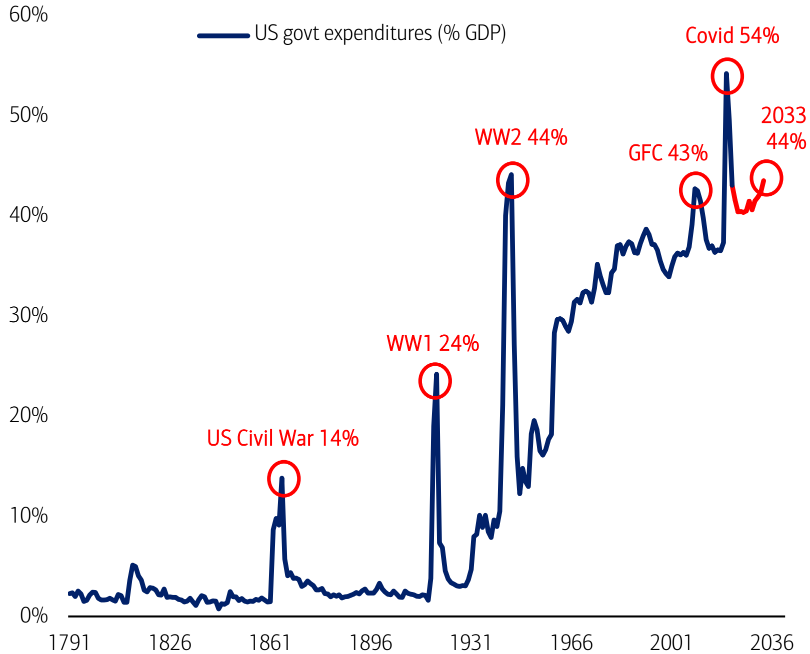
- The rise of AI has coincided with a revival in recent years of the power of labor.
- Populism railing against wealth inequality & the dominance of capitalists over workers has become popular in the past 10 years (Occupy Wall Street, BREXIT, Trump, Sanders, Biden's Build Back Better).
- Capital has dominated labor in the past 50 years…wages & salaries as a share of US GDP fell from 52% to 42% in the mid-2010s, permitting a rise in corporate profit margins.
- But labor's share of US GDP has risen to 44% in the past few years, and via a significant rise in industrial action/strikes by workers angry with inflation, worried about AI, wage growth and employment levels have been notably elevated despite monetary tightening in the past two years; note Americans are becoming more supportive of labor…a net 38% today approve of labor unions; last year, it peaked at 44%, the highest level since 1972.

Big Government

Chart 13: Big Government
US government expenditures % GDP since 1791



Source: BofA Global Investment Strategy, Bloomberg

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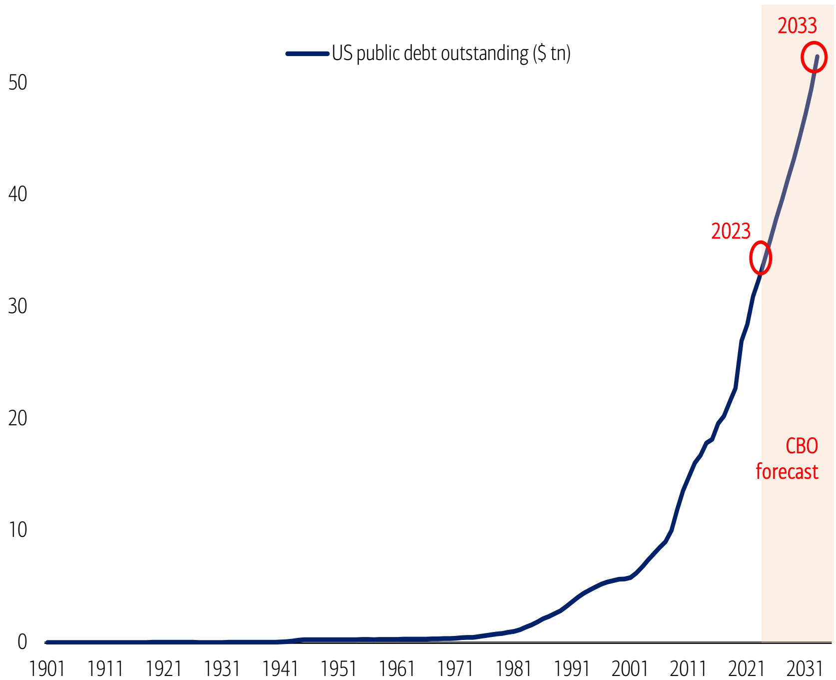
- A new secular theme in the 2020s is bigger government, a big reason why bond yields have risen so dramatically in recent years.
- The US government deficit in Q3'2023 was 8% of GDP, the largest deficit in history outside of war & recession; government spending as % of GDP currently equivalent to 44% of GDP a level matched during WW2; the size of the proposed 2024 Biden budget is so large ($6.9tn) it would make the US Federal government the 3rd largest economy in world GDP terms.
- A new investment risk is that bond yields may need to rise to levels that cause greater fiscal spending discipline; but 2024 is a huge election year (voters in countries that represent 80% of global equity market cap, 60% of global GDP, 40% of world population head to polls next year) which is not a political incentive for discipline.

Big Debt

Chart 14: Big Debt
US public debt outstanding & CBO projections



Source: BofA Global Investment Strategy, CBO, Haver

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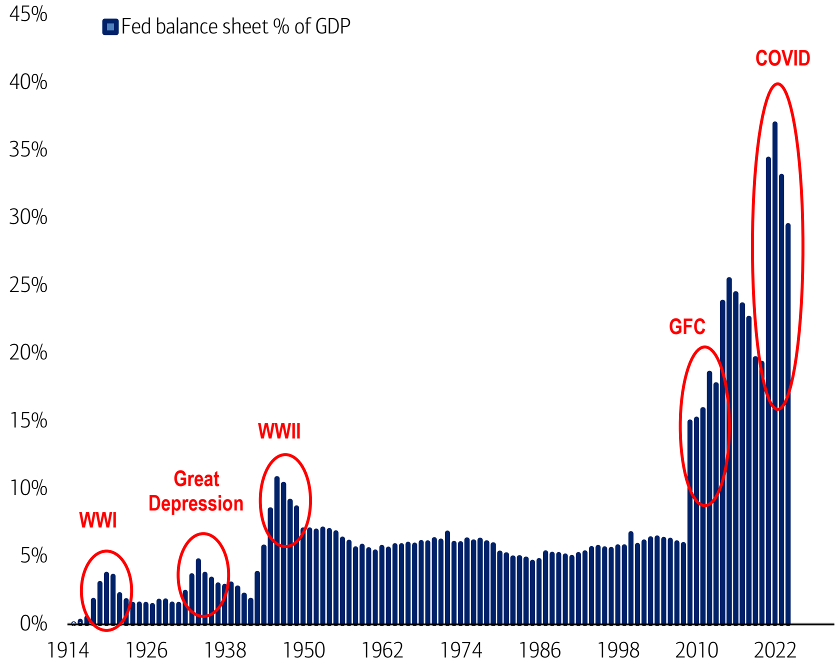
- Fiscal excess in the 2020s is adding to already high levels of government debt; until policy makers address the trajectory of government debt, investors are likely to worry that asset-bearish solutions to indebtedness such as inflation, default, currency debasement, are set to be pursued; but as likely central banks may simply bail out governments in coming years via QE & the introduction of YCC (policies that would be v US dollar negative).
- US public debt is $33.6 trillion, more than the combined GDPs of China, Japan, Germany, and India. CBO projects the US government debt will rise by $20 trillion next 10 years…that's $5.2 billion every day or $218 million every hour.
- Total world debt (government, corporate & household) hit a record $227tn in Q1'23, up from $110tn in 2007 & $0.5tn in 1952.

Big Liquidity

Chart 15: Big Liquidity
Fed balance sheet % of GDP since 1914



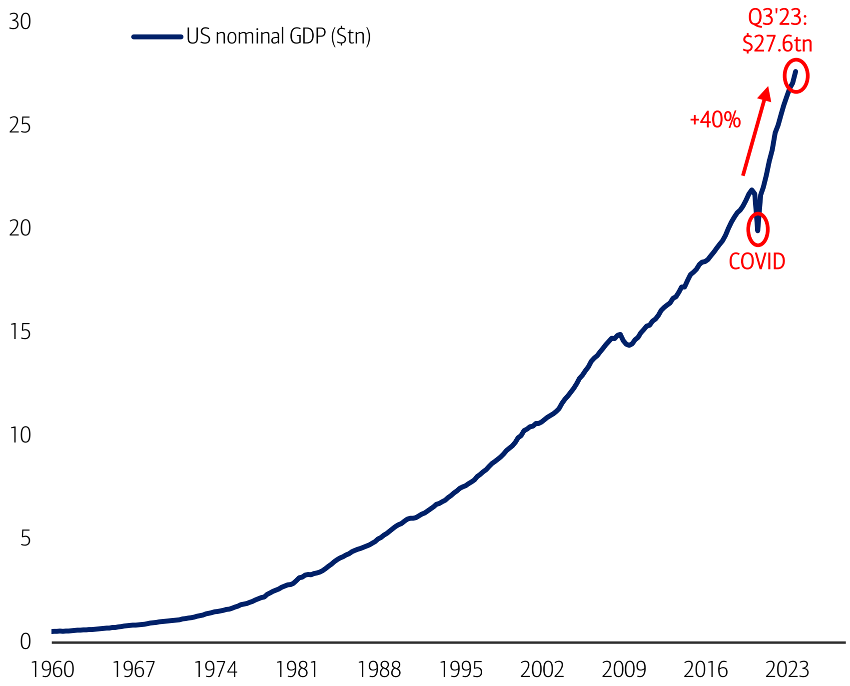
Source: BofA Global Investment Strategy, Bloomberg

BofA GLOBAL RESEARCH

- The Fed's balance sheet peaked at an extraordinary 38% of GDP in 2022, up from 19% in 2019, and on average 5% in the 60 years that followed WW2.
- The central bank liquidity supernova of the past 15 years caused a great asset price inflation; central banks are now reducing global liquidity…down $5tn since Feb'22; but bulls can legitimately say there is still "excess liquidity"; and almost all investors believe the next negative economic/financial event will be met with another bout of Fed & central bank panic.
- We believe central banks are still in business of bailing out Wall St, and governments now very much in the business of bailing out Main St, so the ultimately monetary policy destination in the 2020s may be Yield Curve Control policies across the G7 to finance fiscal excess & government debt.

Big Boom

Chart 16: Big Boom
US nominal GDP since 1960



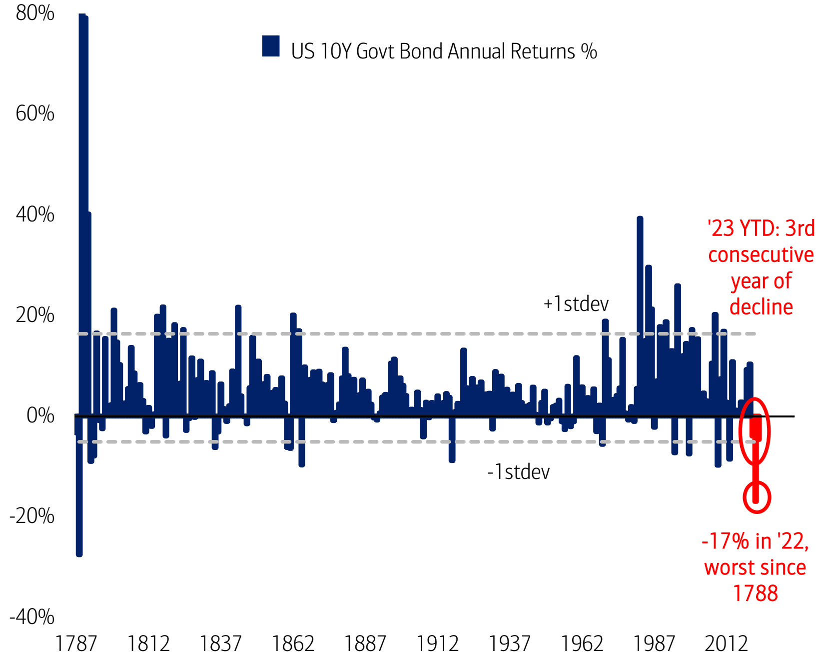
Source: BofA Global Investment Strategy, Bloomberg, Atlanta Fed.

BofA GLOBAL RESEARCH

- The combo of monetary & fiscal excess in recent years created the conditions for US nominal GDP to grow an astounding 40% in the past 3 years, its fastest expansion since 1975-79.
- In 2024 the lagged impact of monetary policy set to become more visible via small business credit crunch, mid & small business employment (84% of US payrolls), defaults & delinquencies, and weaker global PMI's; nominal GDP growth will slow.
- Once macro data turns unambiguously recessionary (ERR falls) & once investors can confidently expect central bank rate cuts (FCI falls faster) we expect cyclical bull markets in the 3Bs of Bonds, Bullion (weak $, higher gold & EM) & (equity) Breadth.

Big Bust

Chart 17: Big Bust
US 10-year government bond annual returns since 1787



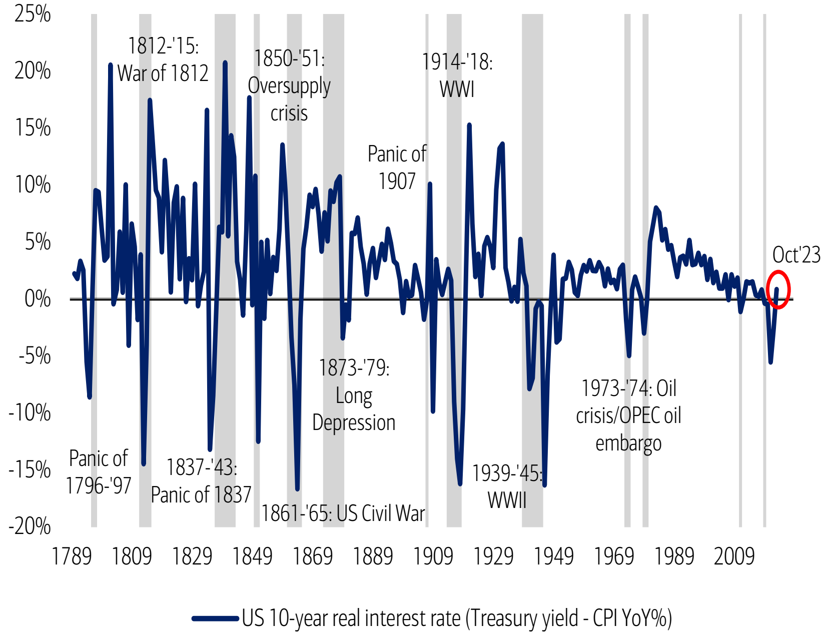
Source: BofA Global Investment Strategy, Bloomberg, Global Financial Data

BofA GLOBAL RESEARCH

- Never before in the history of the US republic has the value of US Treasuries fallen for 3 consecutive years as they are on course to do in 2023 (-7% in '23, -17% in '22, -4% in '21).
- "Buy humiliation"…we believe that bonds will outperform in 2024 (despite our structural negativity on the asset class); the outperformance will be driven by the most old fashioned of reasons…recession.

Real Yields

Chart 18: Bond Yield adjusted for Inflation
US 10-year real interest rate vs recessions since 1789



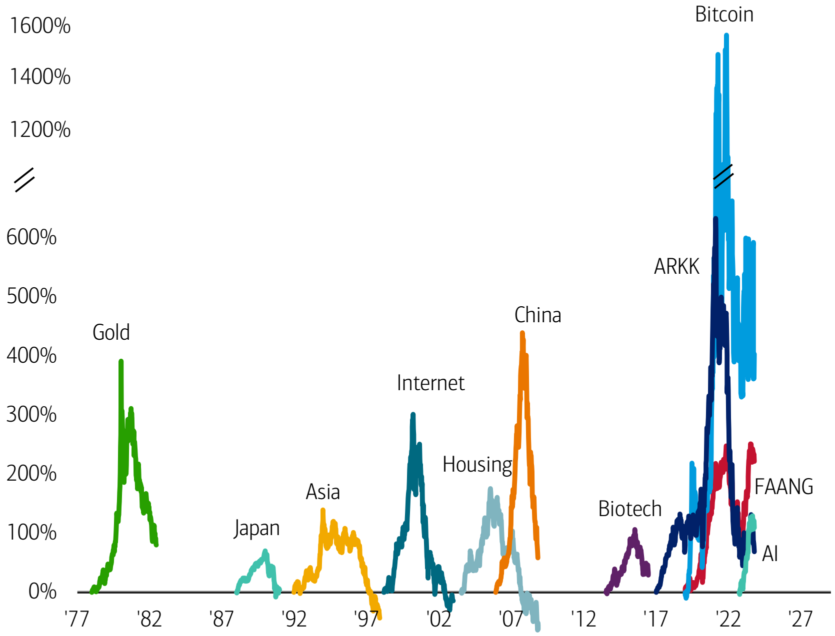
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- The US 10-year real interest rate measured using current inflation is currently at 1.1%, the highest in 15 years; measured using expected inflation real rates are 2½%, the highest since 2008.
- Periods of rapidly rising real rates are normally followed by a deleveraging cycle and recession; and real rates today are rising in an environment of significantly higher debt loads.
- Note also high real rates pop investment bubbles…4% real yields popped internet bubble, 3% popped subprime, crypto popped on real yield rip from -100bps to 150bps; 2½% real yields have thus far in 2023 not popped the "baby bubble" in AI.

Bubbles

Chart 19: Bubbles
History of asset bubbles since 1977



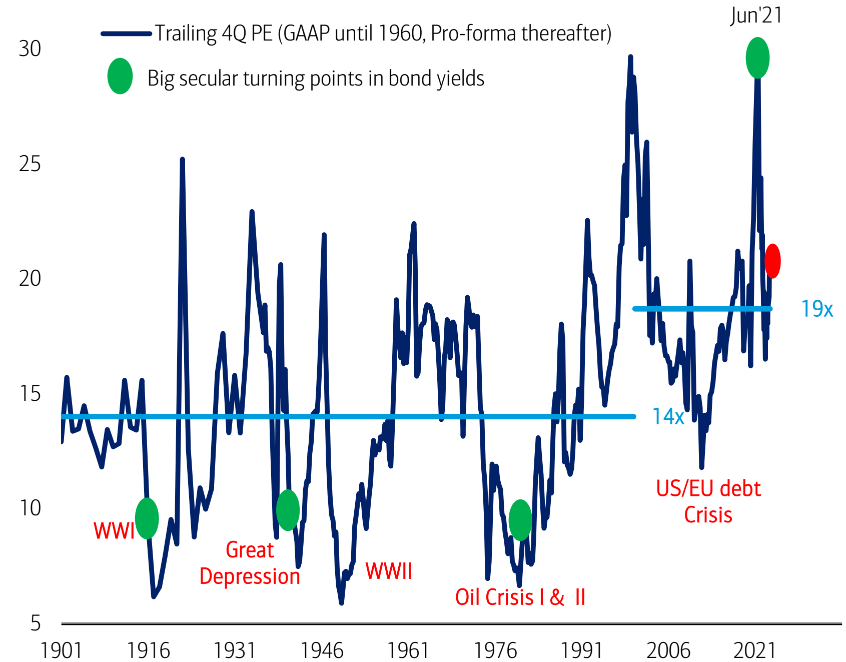
Source: BofA Global Investment Strategy, Bloomberg

BofA GLOBAL RESEARCH

- The bubble that has burst in 2022 & 2023 is the bond bubble.
- The asset class most bubble-like in 2023 is AI & the Magnificent Seven big tech monopolies/oligopolies which until recently accounted for well over 90% of all the market cap gains in the S&P500 this year; we have termed this a "baby bubble".
- The Magnificent Seven trade on roughly 30x earnings versus the rest of the US market which trades on 15x; we fear the ghastly lack of breadth in the US equity market will be resolved via the "strong" getting weak before the "weak" get strong.

Big Sideways

Chart 20: Big Sideways
S&P 500 trailing PE ratio since 1901



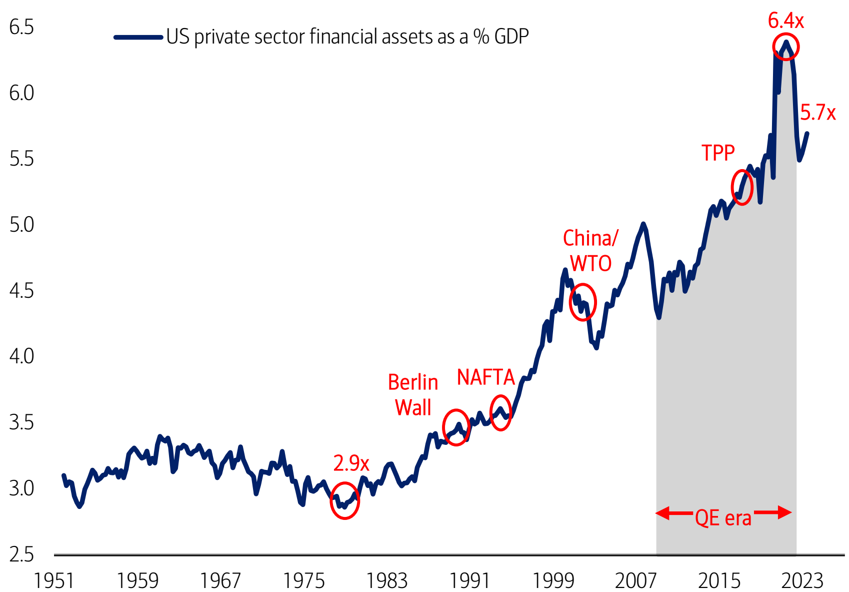
Source: BofA US Equity & Quant Strategy, Bloomberg

BofA GLOBAL RESEARCH

- If 21st century equity multiple of 19x still the correct multiple then equities fine; but there is no longer the rise of China, fiscally responsible governments, globalization, low taxation and so on…so if new secular trends mean 20th century multiple of 14x more appropriate (we think so) then equity returns will disappoint.
- AI 'baby' bubble, stocks as poor man's inflation hedge, stocks front-running YCC all potential catalysts for new highs in US equity prices; more likely we believe 3-5% rates, 3-5% inflation in next 3-5 years keeps SPX in a sideways 3.6-4.8k range.

Long Main St, short Wall St

Chart 21: Long Main St, short Wall St
US private sector financial assets as % of GDP since 1951



Source: BofA Global Investment Strategy, Haver

BofA GLOBAL RESEARCH

- Value of financial assets (Wall Street) relative to the value of the economy (Main Street) rose from 4.5x to 6.4x past 15 years…has since dropped to 5.7x but well above 3-4x average between 1950 & 1999.
- Two ways to reduce wealth inequality…lower asset prices or higher wages.
- 2020s policies of government fiscal intervention to soften blows from COVID, war, US regional bank run, plus structural policies of redistribution, regulation, reshoring to reverse wealth inequality, raise the value of labor relative to capital, help explain low household savings ratios and strong US consumer spending in past 2 years.
- And in 2024 politicians more likely to favor Main St voter desire for greater government spending rather than Wall St investor desire for fiscal discipline.

Long 25/25/25/25, short 60/40

Table 2: Long 25/25/25/25, short 60/40
Rates, returns & valuation in 21st vs 20th century

	3-month T-bill	10-year UST yield	Real short rate	SPX dividend yield	SPX PE ratio
1925-1999	4%	5%	1%	4%	14x
2000-2022	1½%	3%	-1%	2%	19x
2023	5%	5%	1%	2%	20x

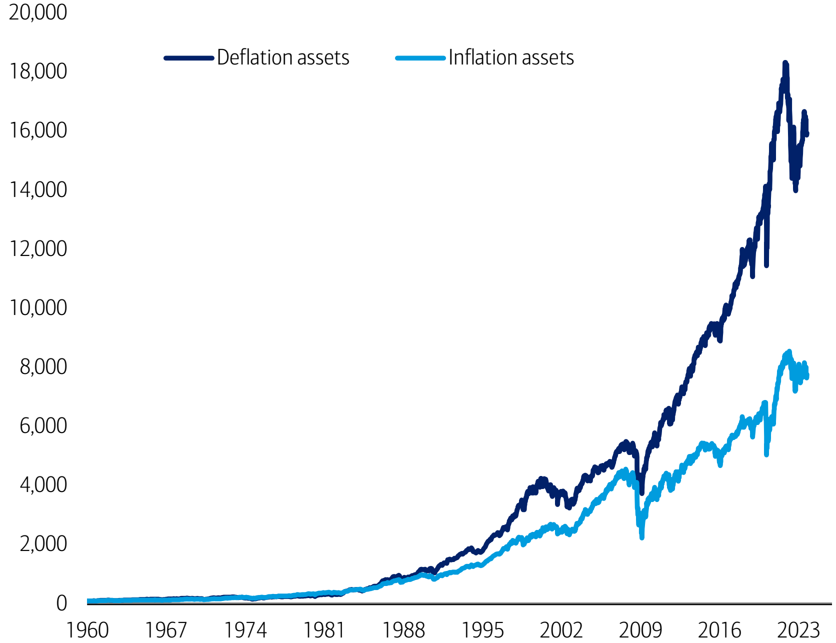
Source: BofA Global Investment Strategy, GFD Finaeon, Bloomberg, Haver
Table shows average yield, rate, dividend yield, and Price/Earning ratio for each period considered
Table shows average annual return for each period considered

BofA GLOBAL RESEARCH

- We believe the 25/25/25/25 cash/commodities/bonds/stocks "permanent portfolio" will outperform the 60/40 portfolio, and that cash, commodities, real assets outperform financial assets such as bonds and equities in 2020s.
- In the 20th century T-bills averaged 5%, Treasury yields 5%, and the equity market price-earnings ratio was 14x.
- In the past 20 years T-bills averaged 1.5%, Treasury yields 3%, and the equity market price-earnings ratio was 19x.
- In 2023 T-bills are once again 5%, Treasury yields are 5%, and the equity market price-earnings ratio remains historically high at 20x… the equity risk premium has collapsed to zero.

Long Inflation, short Deflation

Chart 22: Long Inflation, short Deflation
"Deflation assets" relative to "inflation assets" since 1960



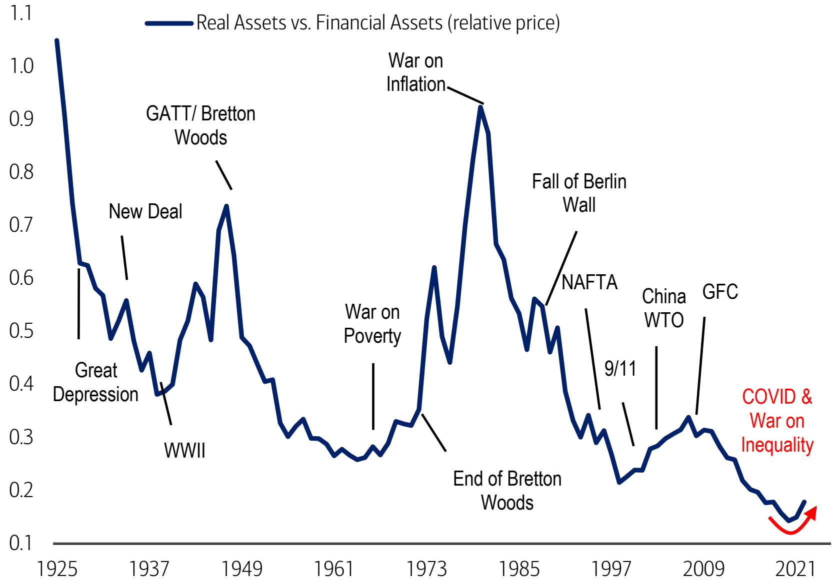
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg; Note: Inflation assets= Commodities, real estate, TIPS, EAFE, US Banks, Value and Cash; Deflation assets = Govt bonds, US IG, S&P 500, US Cons. Disc, Growth and US HY

BofA GLOBAL RESEARCH

- In the last decade deflation assets (such as bonds, tech, growth stocks…) outperformed inflation assets (such as cash, commodities, value stocks be 400bps per annum; thus far in the 2020s the outperformance has shrunk to 40bps.
- In 2023 deflationary US tech/growth stocks have rallied but we are sellers into a 2023 recession, and we would buy inflation assets such as commodities, real estate, value cyclicals as recession begins.
- We believe the next recession prompts policy panic well before inflation is close to the Fed's target of 2% and that the next recession will be the first recession in which leverage outperforms quality, small outperforms large, value outperforms growth.

Long Real Assets, short Financial Assets

Chart 23: Long Real Assets, short Financial Assets
Real Assets relative to Financial Assets since 1925



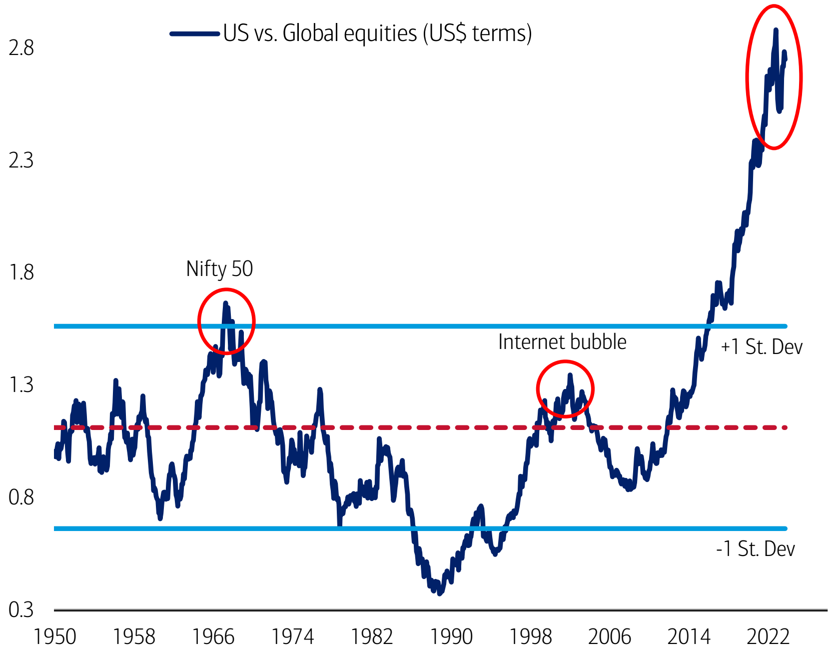
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg, USDA, Savills, Shiller, ONS, Spaenjers, Historic Auto Group. Note: Real Assets (Commodities, Real Estate, Collectibles) vs. Financial Assets (Large Cap Stocks, Long-term Govt. Bonds)

BofA GLOBAL RESEARCH

- Real assets are, scarce, cheap (relative to financial assets close to 100-year lows), under-owned, a hedge against Inflation and diversify portfolios.
- All individual real assets are positively correlated with inflation since 1950…diamonds, US farmland and gold have the highest correlation between change in the price and the US CPI inflation rate.
- Cash is financial asset most positively correlated with inflation, and far behind are large caps and small caps both positively correlated while bonds are negatively correlated with inflation.

Long Gold, short US exceptionalism

Chart 24: Long RoW, short US stocks
US relative to Rest-of-World stocks since 1950



Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

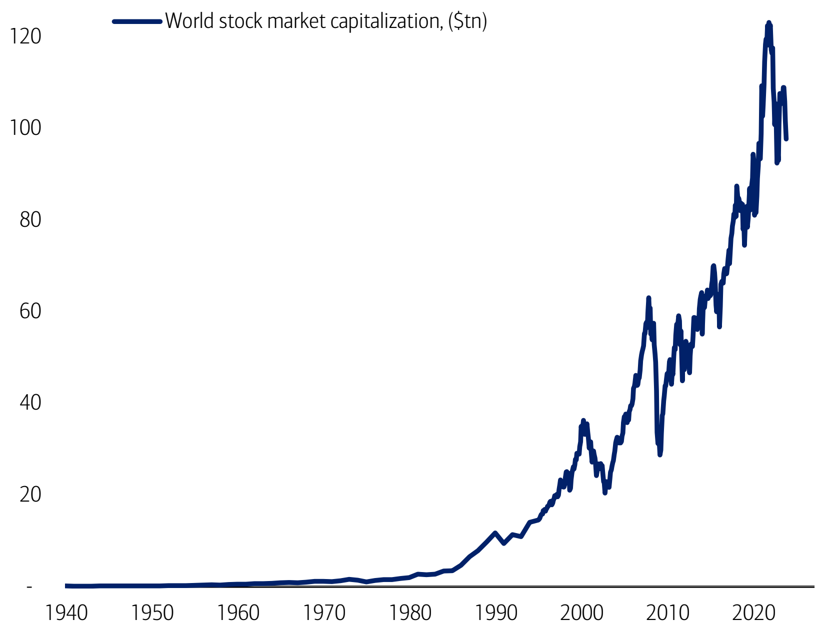
BofA GLOBAL RESEARCH

- US equities close to 70-year highs vs global stocks…little wonder "US exceptionalism" so consensus; best hedges for "exceptionalism" flipping to "debasement" are real assets, gold, TIPS, small cap value, EM.
- Peak AI bubble will undoubtedly coincide with peak US dollar (see peak "Nifty 50" & internet bubble); but greatest risk to US dollar in 2024 is a loss of confidence in US policy credibility (government deficit denial coupled with Fed policy panic before inflation close to target).
- Gold, crypto & EM assets the biggest beneficiaries of peak US dollar.

The Longest Equity Pictures

World stock market cap since 1940

Chart 25: World stock market cap is $99tn
World stock market capitalization



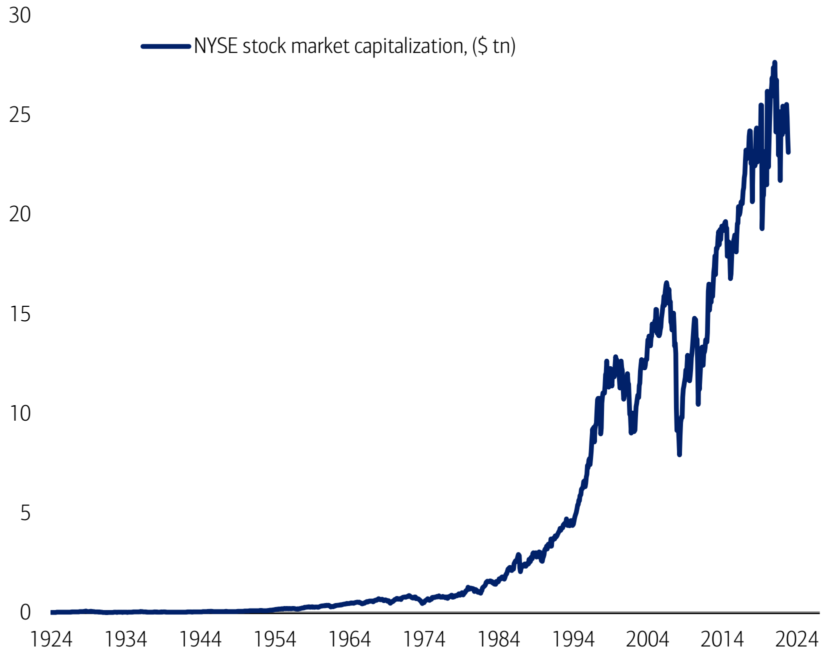
Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- Global equity market capitalization hit an all-time high of $123tn in Nov 2021 up $61tn from the Mar 2020 low.
- The seven prior peaks were: Jan 1990, Mar 2000, Oct 2007, May 2015, Jan 2018, Jan 2020, and Nov 2021.
- Global market cap is $99tn, 20% below the high in Nov 2021 and equivalent to 102% of world GDP (at the 2008 lows, global equity market cap was just 54% of world GDP).

US stock market cap since 1940

Chart 26: NYSE market capitalization is $23tn
NYSE stock market capitalization ($tn)



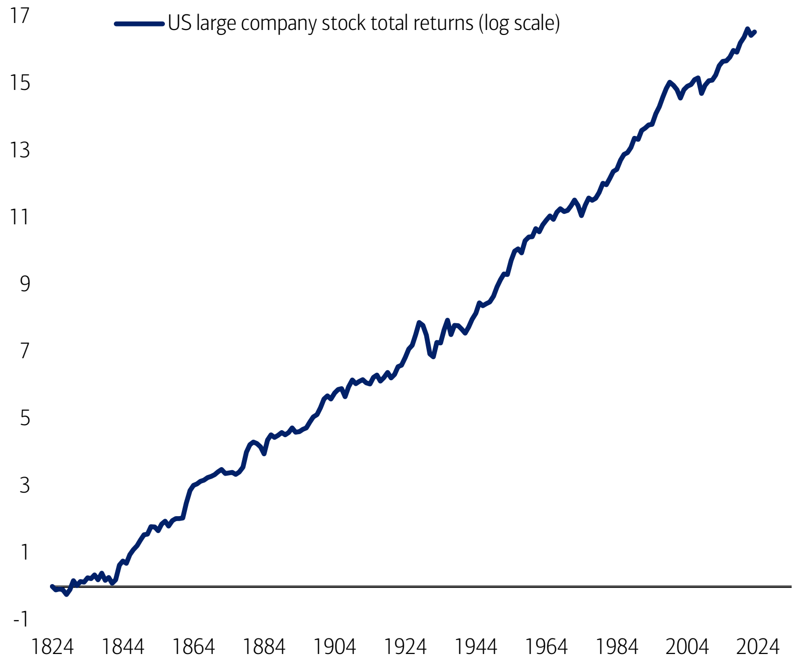
Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- NYSE market capitalization is currently $23tn, down from an all-time high of $28tn in Dec 2021.
- The 2009-2020 bull market in US equities was the longest in history and was just shy of becoming the longest *and* largest of all time (the largest was the US equity bull market from 1990-2000).

US equity prices since 1825

Chart 27: In the long run, stock prices go up
US large company stock total returns, log scale



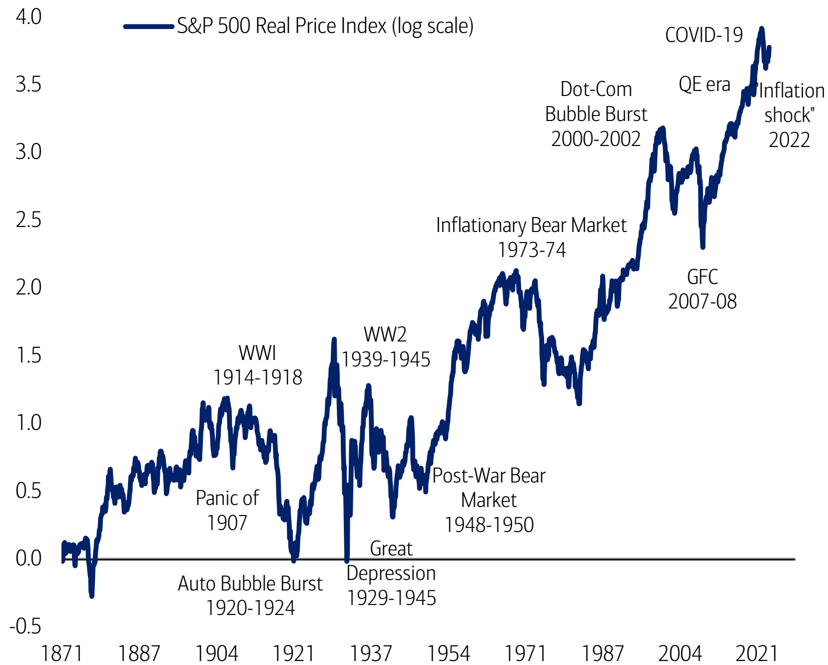
Source: BofA Global Investment Strategy, Ibbotson, Global Financial Data

BofA GLOBAL RESEARCH

- "In the long run, we are all dead"…
- …and as this chart illustrates, in the long run, stock prices go up.
- $1 invested in US large company stocks in 1824 was worth $16 million in Oct 2023 with dividends reinvested, a stark illustration of the power of compounding and total return.

US equities since 1871 in real terms

Chart 28: US equity prices adjusted for inflation
US equities since 1871 in real terms



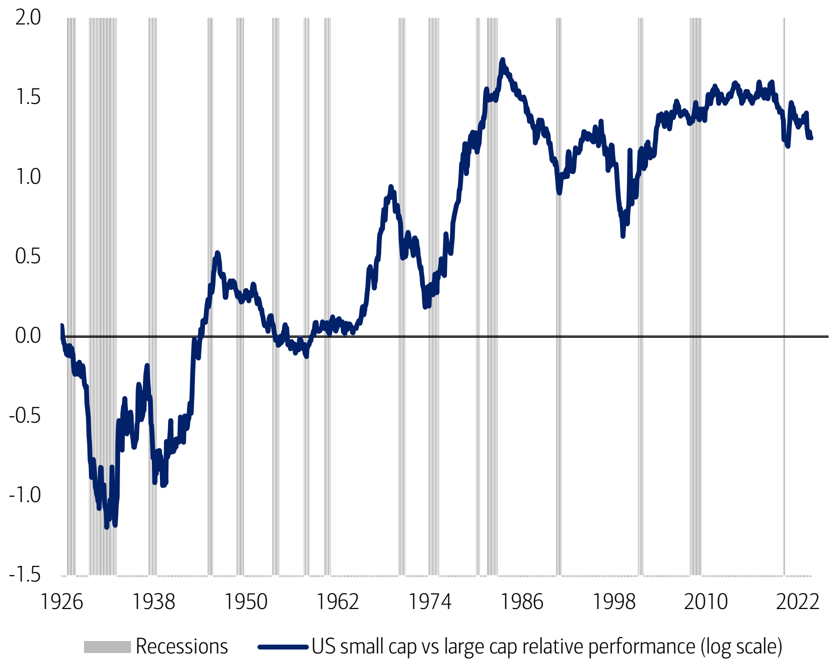
*US large company stock market returns, logarithmic values of real monthly average price return
Source: BofA Global Investment Strategy, Ibbotson, Robert Shiller

BofA GLOBAL RESEARCH

- "In the long run, stock prices go up"...
- ...but when adjusted for inflation, over the long run we see a much more nuanced picture of equity market returns.
- The S&P 500 has had a negative *real* price return in 4 out of every 10 years since 1871.
- Stocks peaked in real terms in Nov 2021.
- Note that after major secular tops in real terms in 1907, 1929, 1968, and 2000, stocks took on average 22 years to reach new highs; with a new high reached 2021, this implies US stocks in real terms will not see a new high until 2043.

Small Cap vs. Large Cap stocks since 1926

Chart 29: US small caps relative to large caps and recessions
US Small-cap vs. Large-cap, relative performance (log values)



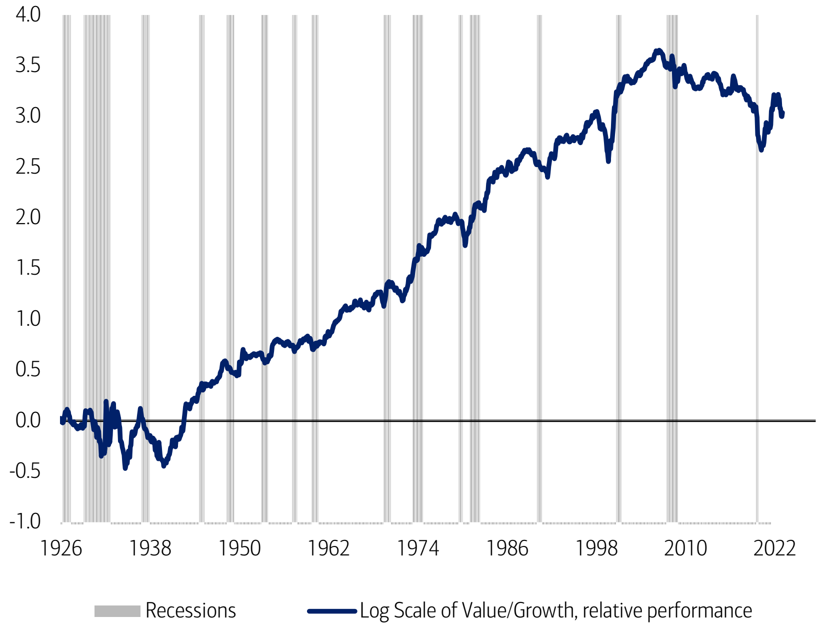
Monthly data. 1933 small company stocks total return = 142.9%
Source: BofA Global Investment Strategy, Ibbotson, Bloomberg

BofA GLOBAL RESEARCH

- Small cap stocks have tended to outperform in the long run as in the long-term economies grow, and economic growth & inflation tends to favor small cap over large cap; in recessions, small caps underperform.
- The underperformance of small cap was very marked during the 1930s, the post-war decades (1946-64), and the post-stagflation period of 1983-99; in contrast small outperformed very strongly in the second half of the 1970s.
- US small cap's annual average total return has been 16% since 1926 vs. 12% for large-cap stocks; small-cap has outperformed large in almost 3 out of every 5 years.
- In the secular stagnation of the 2010s, small and large caps both delivered similar average annual returns of roughly 13-14%.
- In the 2020s large cap returns have been far superior (13% vs 8%) as higher interest rates have steered investors away for leverage and small companies reliant on bank finance.

US Value vs US Growth stocks since 1926

Chart 30: US value relative to growth stocks and recessions
US value vs growth, relative performance



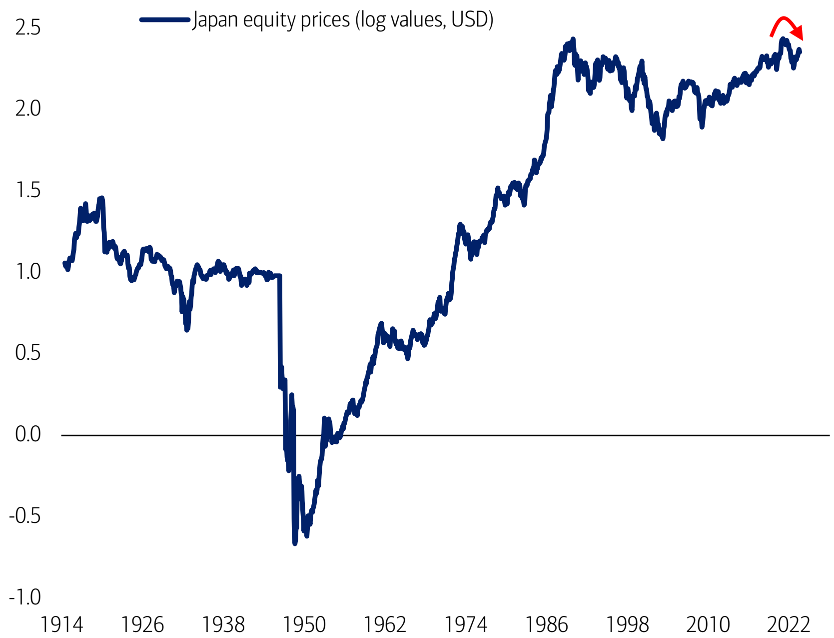
Source: BofA Global Investment Strategy, Ibbotson, Bloomberg; monthly data

BofA GLOBAL RESEARCH

- Like small cap stocks, value stocks have tended to outperform growth stocks in the long run but have underperformed in the post-GFC era.
- Average annual returns since 1927: US growth 12.3% vs US value 16.8%.
- Since 1926, there have been only three decades during which value stocks have underperformed growth stocks: 1930s, 2010s, 2020s.
- In the 2020s, value stocks have underperformed growth stocks (decade-to-date annualized: value 11.2%, growth 13.2%), and the bulk of this underperformance has occurred in 2023 alone (growth has outperformed value by 21ppt).
- Value stocks have tended to outperform growth stocks in periods of strong economic growth and rising inflation; this was especially the case in the 1940s and 1970s.
- The two decades that recorded the biggest outperformance of value vs growth: 1940s (324ppt cumulative), 1970s (203ppt).
- Value stocks tend to outperform after recessions and crises, as stimulus stimulates cheap valuations.

Japanese equity price since 1914

Chart 31: Japanese stocks down 29% from all-time high in Feb 2021
Japan equity price index (log values, USD)



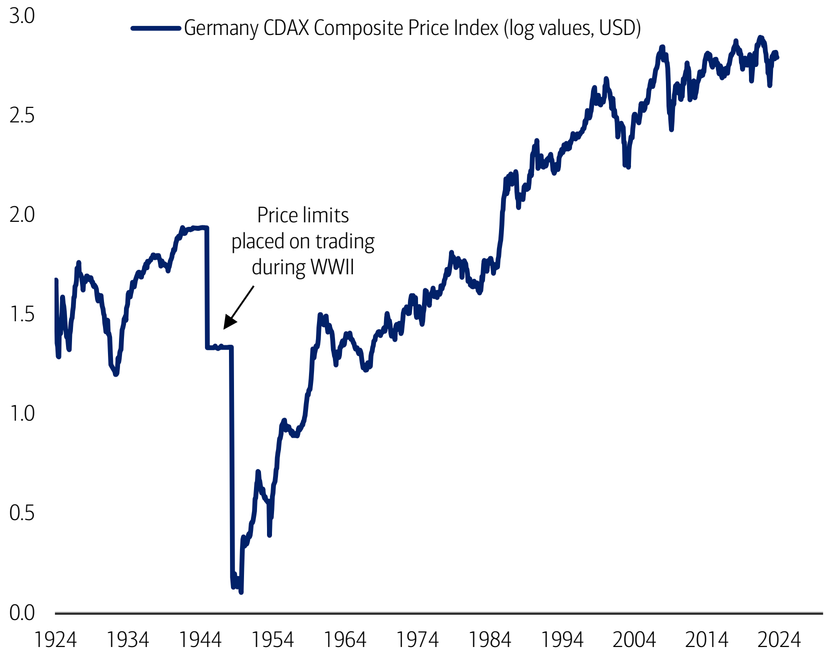
Monthly data. No data available: September 1945 – June 1946
Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- The chart shows how Japanese equity prices collapsed after WW2 and 1944-48 period of hyperinflation.
- Thereafter Japanese stocks soared 138x to a new high in 1989…the Nikkei Index peaked at 38,957 on Dec 29th 1989.
- The Japanese equity bubble burst in 1990, the beginning of Japan's "lost decades"; from the Dec 1989 peak to the Apr 2003 low (USD terms), the Nikkei Index fell 77%.
- Japanese equities reached their highest (USD terms) ever in Feb 2021, surpassing the prior high in Dec 1989; as of Oct 31st 2023, the Nikkei Index was 29% below the all-time high.

German equity price since 1924

Chart 32: German equity market now 18% below all-time high in Jun 2021
German CDAX price index (log values, USD)



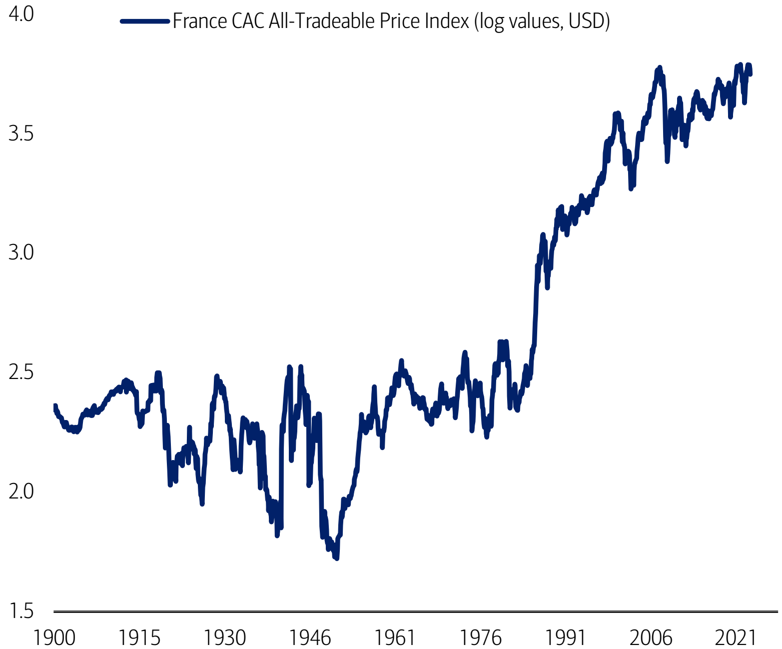
Monthly data. No data available: October 1931 – March 1932. In January 1943 price limits were placed on trading which essentially froze share prices at their existing levels. These price limits continued until July 1948 when prices were allowed to seek market levels as part of the currency stabilization process.
Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- In US dollar terms, the German equity market reached an-all time high in Jun 2021, 15% above its prior Jan 2018 high.
- German equity prices collapsed in the 1940s; thereafter German equity prices soared over 3100% between the end of WW2 and their 2007 high prior to the Global Financial Crisis.
- The DAX Index is now 18% below the Jun 2021 all-time high (in USD terms as of Oct 31st 2023).

French equity price since 1900

Chart 33: French equities 14% below all-time high in 2007
France CAC price index (log values, USD)



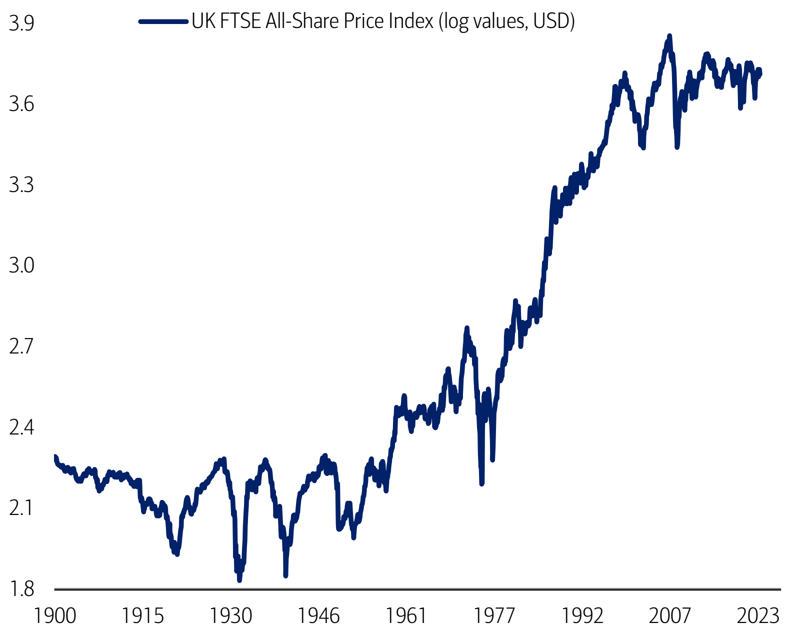
Monthly data. No data available: August 1914 - December 1914; June 1940 - February 1941; March 1979
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- Unlike Japan & Germany, French equities did not enjoy spectacular gains in the 1960s & '70s.
- The strongest returns from French equities were in the '80s & '90s, a period during which French interest rates collapsed.
- The CAC index peaked in Oct 2007 & lost roughly 60% of its value in the Global Financial Crisis; in the 2020 crash French equities fell 40% peak-to-trough.
- In US dollar terms, French equities are now (as of Oct 31st 2023) trading 14% below the 2007 all-time high.

UK equity price since 1900

Chart 34: UK equities (in USD terms) remain below the all-time high in 2007
UK FTSE price index (log values, USD)



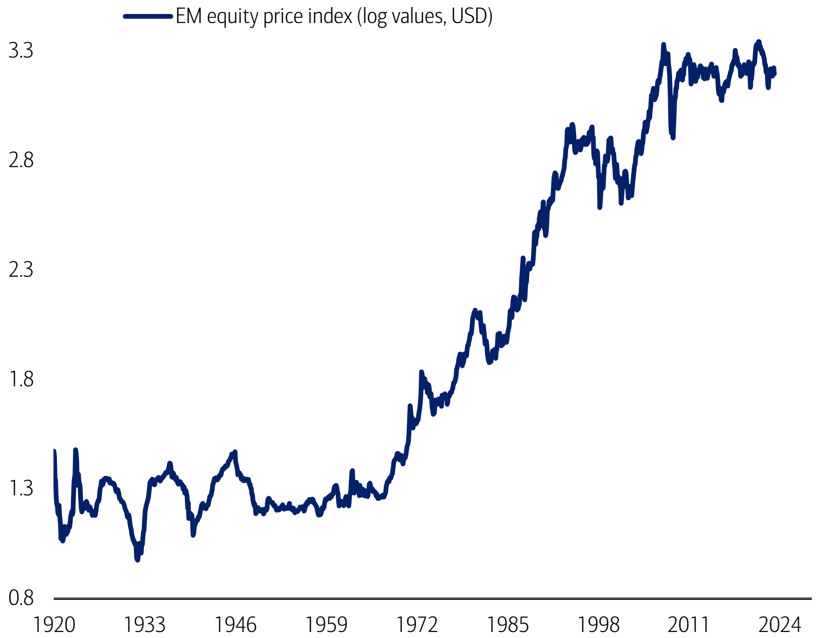
Monthly data
Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- The chart shows how UK equity returns were poor over the first half of the 1900s, damaged by two vicious bear markets during the 1930s (a 65% drop 1929-1932, and a 63% drop 1936-1940).
- They recovered strongly in the second half of the century, interrupted only by the bear market of 1972-74 (when the UK market experienced a 74% collapse).
- The weakness of the British pound in the past 10 years in large part explains the marked FTSE weakness in USD terms (GBP hit a 35-year low post-Brexit).
- In US dollar terms (as of Oct 31st 2023), the FTSE 100 Index is trading 36% below the all-time high in 2007.

Emerging Market equities since 1920

Chart 35: EM equities have pulled back from the all-time high in Feb 2021
EM equity price index (log values, USD)



Monthly data
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- The chart shows how the great bull market in Emerging Market equities began with the end of the Gold Standard & Bretton Woods currency framework in the late 1960s; since then EM equities are up 80x.
- In contrast to developed markets, EM equities initially trended decisively higher in the 2000s and 2010s due to China's accession to the WTO, a weak US dollar and a boom in commodity markets.
- China's epic policy response to the Global Financial Crisis meant EM equities recovered much quicker than developed markets in 2009-11.
- But since 2014 EM have equities struggled as oil & commodity prices collapsed, the Chinese economy slowed, and the US dollar entered a bull market.
- While the US-China trade war and the COVID-19 outbreak hurt EM equities particularly hard in 2020, the inflationary cyclical trade saw EM equities propelled to a new high by Feb 2021 before pulling back as concerns over China weighed on EM stocks.
- In US dollar terms, the MSCI EM Index reached an all-time high in Feb 2021 (surpassing the 2007 high) but have struggled since.
- The MSCI EM Index is now 37% below the Feb 2021 all-time high (in USD terms as of Oct 31st 2023).

US equities relative to World equities

Chart 36: US equities almost back at all-time highs vs Rest of World
US vs. World ex-US equities (relative price performance, USD)

Monthly data
Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- US equities reached an all-time high vs Rest of World stocks (i.e. world ex-US) in Oct 2022, and are now 5% below the high.
- US stocks have outperformed Rest of World stocks by 7% so far in 2023.
- The prior secular high was Apr 1967, in the midst of the "Nifty 50" era of US large cap growth stock outperformance; the top in the 60s preceded higher US inflation, interest rates, and the monetary instability of the 1970s.
- US outperformance has been a function of the dominance of technology and disruptors in the US market (as was the case in 2000) as well as the very large amounts of central bank liquidity since the onset of COVID-19.
- Continued US vs. RoW outperformance in 2023 has been driven in part by 'AI mania' as well as by liquidity injections post-Mar 2023.

US equities vs. UK equities since 1950

Chart 37: US equities near all-time high relative to UK equities
US vs. UK equities (relative price performance, USD)

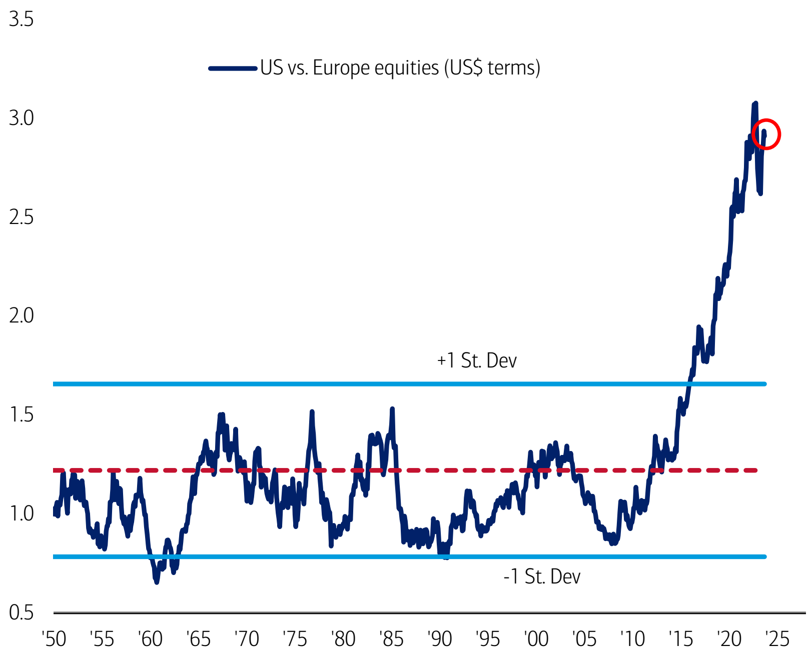
Monthly data
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- US equities relative to UK equities reached their highest level in Nov 2021.
- The prior peak in US equities vs. UK equities was 1976, the year a financial crisis forced the UK government to apply to the IMF for a $4 billion loan.
- US equities underperformed UK stocks by 19% between Nov 2021 and Mar 2023, but have since bounced back near the Nov 2021 high on the back of surging US big tech stocks.

US equities vs. European equities since 1950

Chart 38: US equities approaching all-time highs vs European equities
US vs. European equities (relative price performance, USD)



Monthly data. GFD Europe index is used, which reconstitutes the MSCI Europe estimate pre-1970, and includes a 12% UK weighting until 1970, after which it uses actual MSCI Europe weightings; latest UK weight is approx. 26%
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- US stocks reached an all-time high relative to European stocks in Oct 2022.
- From Oct 2022 to Apr 2023, US stocks underperformed European stocks, as a US tech rally was outpaced by an even stronger rally in EU luxury stocks.
- From May 2023 onward, US stocks have once again returned to outperforming European stocks; US stock relative performance is now almost back at the prior all-time high.
- Prior peaks in the performance of the US vs. Europe: 1963, 1976, 1985, 2001, 2016, 2020, 2022.

US equities vs. Swiss equities since 1950

Chart 39: US equities are above the historical average vs Swiss equities
US vs. Swiss equities (relative price performance, USD)

Monthly data
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- The performance over much of the past 50 years reflects the sustained strength of the Swiss franc vs. the US dollar, as well as the big healthcare and consumer staples sectors within the Swiss bourse.
- US stocks are currently at their highest level vs Swiss equities since Feb 1985, and are trading >1 standard deviation higher than their historic average vs. the classic “defensive” Swiss equity market.

US equities vs. Japanese equities since 1950

Chart 40: Japan equities have outperformed US equities since Jan 2022
US vs. Japan equities (relative price performance, USD)

Monthly data
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- From the 1950s to 1989, the US was in a major secular bear market vs. Japan.
- Japanese stocks collapsed during the 1990s, the first of Japan's "lost decades," and continued to struggle despite a range of extraordinary monetary interventions by the Bank of Japan.
- In Jan 2022 US equities reached a 71-year high relative to Japanese equities; Japanese equities have since outperformed US equities, propelled by the still accommodative policy of the Bank of Japan (BoJ), the only major central bank still easing monetary policy.

US equities vs. Emerging Market equities since 1950

Chart 41: US equities vs. Emerging Market equities at highest since 1971
US vs. EM equities (relative price performance, USD)

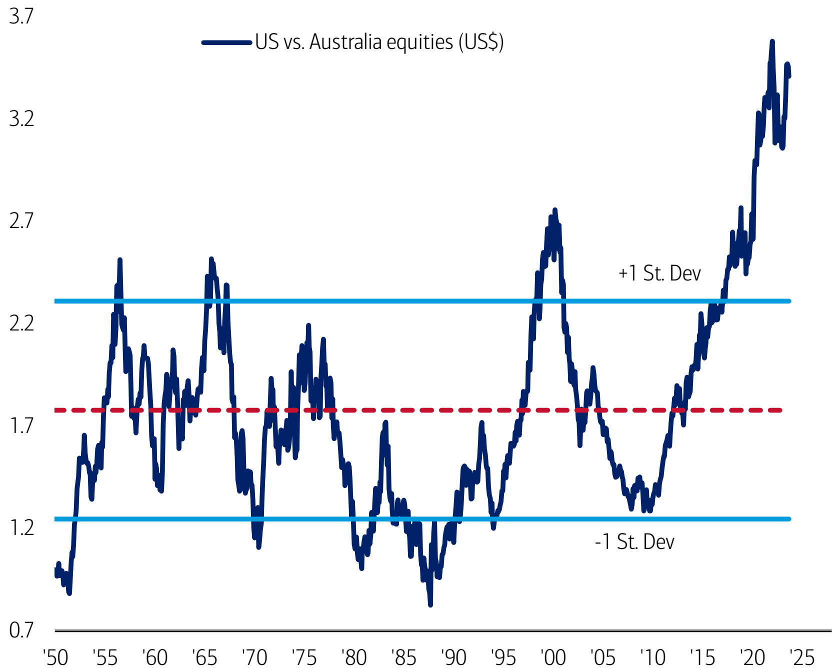
Monthly data
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- Long periods of underperformance by US equities relative to Emerging Markets have been punctuated by vicious bouts of outperformance during EM crises:
    - the LatAm debt crisis of the early 1980s
    - the Mexican peso & Asia Crises of the 1990s.
- The pronounced underperformance of US vs. EM equities since 9/11, which coincided with both the onset of a US dollar bear market and China's entry into the WTO, has reversed in recent years as the slowdown in the Chinese economy and volatile Chinese equity market have weighed on EM equity and currency markets.
- US stocks are currently at their highest level vs EM stocks since 1971.

US equities vs. Australian equities since 1950

Chart 42: US stocks vs. Australian equities almost back at all-time high
US vs. Australia equities (relative price performance, USD)



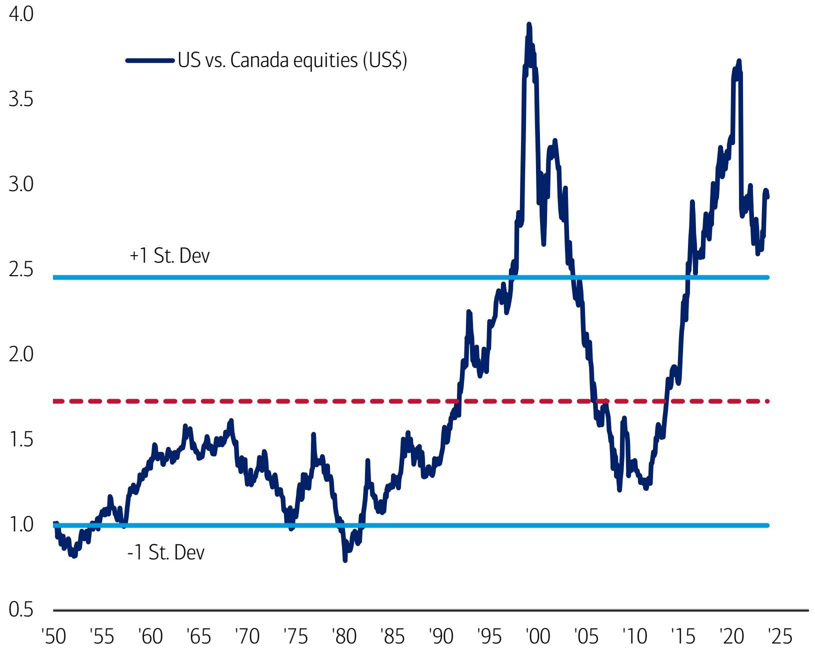
Monthly data
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- US equities are almost back at the prior all-time high vs. Australian equities reached in Jan 2022.
- The 1990s tech bubble caused US equities to break out significantly from their historical range vs. Australian stocks…
- …and then the commodity bubble of the 2000s caused US stocks to break down vs. Australian equities.
- The post-GFC outperformance of US equities can be explained by US dollar strength, concentration of tech stocks in the US index, and underperformance of Australian financials in the past few years.

US equities vs. Canadian equities since 1950

Chart 43: US vs. Canadian equities still below the 21-year high reached in 2020
US vs. Canada equities (relative price performance, USD)



Monthly data
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- US equities hit a 21-year high vs. Canadian equities in Oct 2020; US stocks have since underperformed, and remain below the all-time high, but still well above the historical average.
- Canada outperformed the US in the stagflationary 1970s all the way through to the peak of US yields in the early 1980s.
- As with Australia, the 1990s tech bubble caused US equities to break out from their historical range vs. Canadian stocks.
- Likewise, the commodity bubble of the 2000s caused US stocks to break down vs. Canadian equities.

Technology stocks vs. S&P 500 since 1926

Chart 44: Tech stocks at all-time high relative to S&P 500
Technology vs. S&P 500, relative price performance (USD)

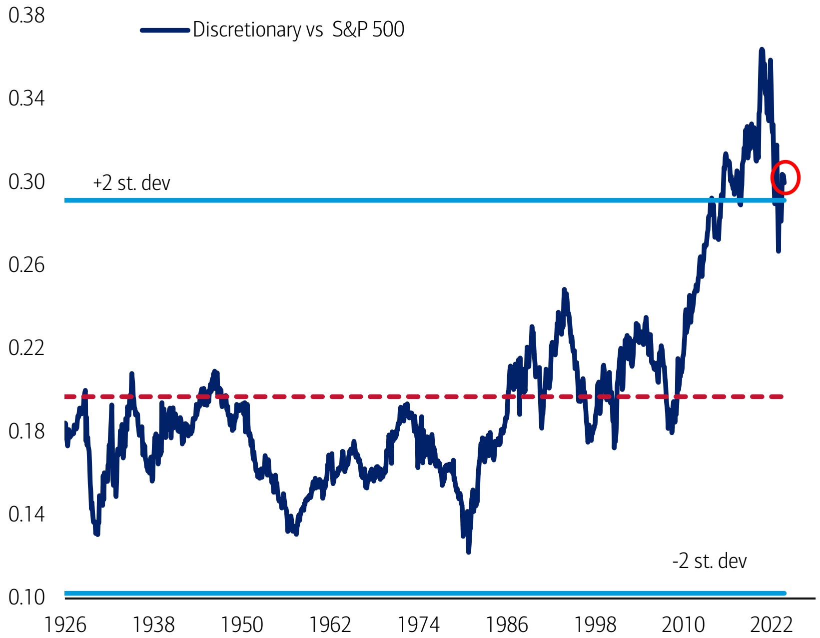
Monthly data; Note: Computer Hardware sector index was used prior to 1990
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- Turning to US sector performance over the past century…
- Technology hit an all-time high vs. the S&P 500 in Jun 2023.
- Technology outperforms during periods of rapid adoption of new technologies…personal computing (70s/80s), Internet retail/dotcom (90s/00s) and AI/social media (20s).
- The Fed's determination to stoke Wall St exuberance and Main St inequality was particularly positive to the US tech sector in the past 15 years.
- Tech was the biggest winner in the post-COVID QE era, but was hit hard in 2022 by the end of QE & the jump in real rates.
- Following the bankruptcy of Silicon Valley Bank, tech has seen a strong rally driven by AI exuberance and the "Magnificent 7" (Apple, Microsoft, Alphabet, Amazon, Nvidia, Meta, Tesla).

Consumer Discretionary stocks vs. S&P 500 since 1926

Chart 45: US consumer discretionary stocks trading 2 st dev above LT average
Discretionary vs. S&P 500, relative price performance (USD)



Monthly data
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- The outperformance of the US consumer discretionary sector vs. the S&P 500 is currently more than 2 standard deviations above the long-term average.
- The COVID-19 pandemic sent consumer discretionary stocks to all-time relative highs in October 2020, but discretionary stocks thereafter fell back to pre-pandemic levels as the era of QE ended.

Bank stocks vs. S&P 500 since 1941

Chart 46: US bank stocks at lowest in at least 80 years
Banks vs. S&P 500, relative price performance (USD)

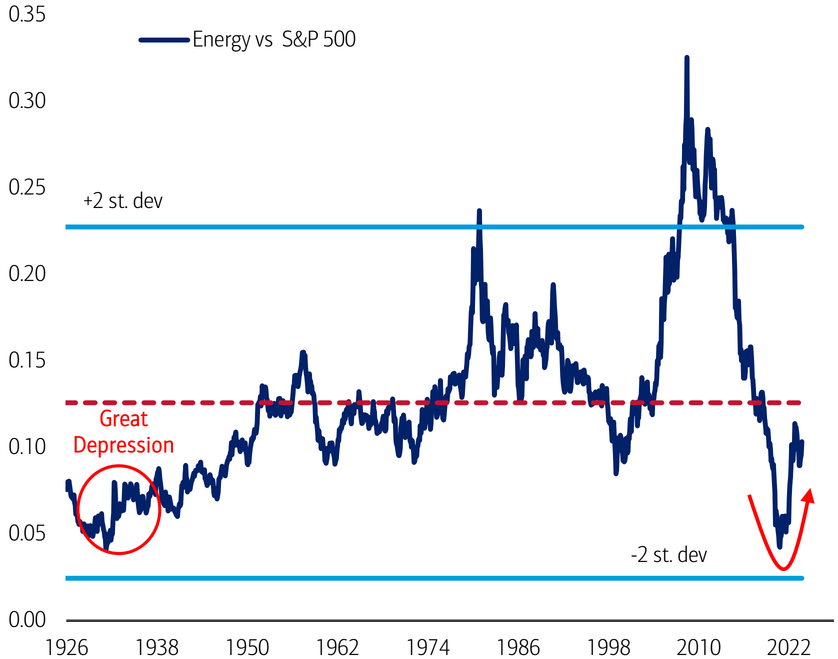
Monthly data
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- US banks are at all-time lows vs. the S&P 500.
- Since interest rates peaked in the early 1980s, the performance of banks has been hit by periodic debt crises (Latin America in the '80s, Asia/Russia in the late-90s, and the Global Financial Crisis of '07-'09).
- The underperformance of banks in the past 10 years has been driven by historically low interest rates, poor balance sheets and government regulations hampering bank profitability.

Energy stocks vs. S&P 500 since 1926

Chart 47: Energy stocks have rebounded from all-time lows
Energy vs. S&P 500, relative price performance (USD)



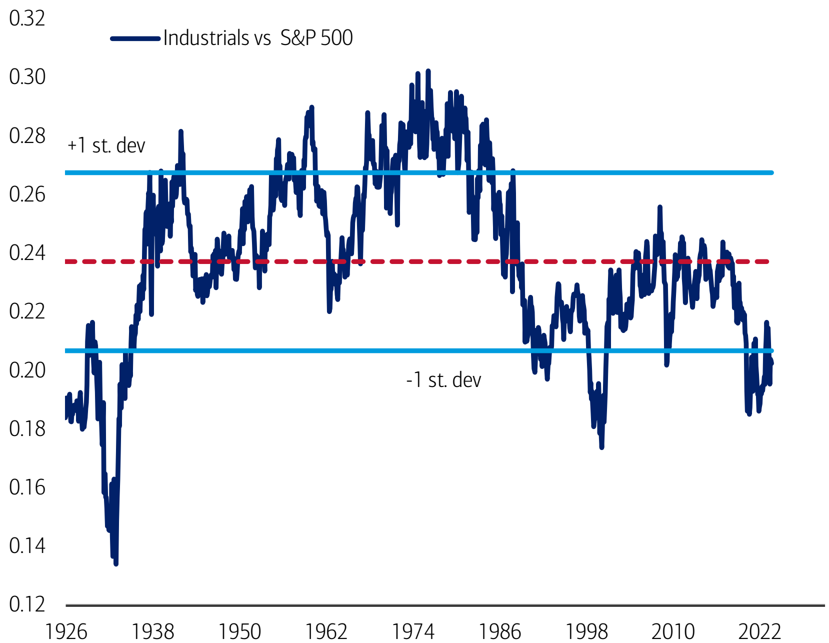
Monthly data
Note: Oil & Gas sector index was used prior to 1990
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- Since reaching an all-time low relative to the S&P 500 in Nov 2020, energy stocks have rebounded near the LT average; energy stocks are up 262% since the 2020 low, up 28% since the start of the Russia-Ukraine war (as of Oct 31st 2023),
- Energy stocks collapsed to their lowest relative level in 100-years in 2020 on the demand shock from COVID-19.
- The two great bull markets in energy in the past 50 years were during the inflationary 1970s and the 2000s boom in Emerging Markets.
- The US energy sector hit an all-time relative high vs. the S&P 500 in Jun 2008, then entered a prolonged bear market despite big jumps in oil prices in 2011 & 2018 as "peak oil" narrative dominated.

Industrial stocks vs. S&P 500 since 1926

Chart 48: Industrial stocks have enjoyed a recent recovery on 'reshoring' theme
Industrials vs. S&P 500, relative price performance (USD)



Monthly data
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- Industrials have bounced off the relative low in Nov 2021, but remain more than 1 standard deviation below the historical average.
- As the global economy recovered from the Great Depression in the 1930s, US industrials began to significantly outperform the broader market; this outperformance was interrupted by WW2 and then resumed with the announcement of the Marshall Plan.
- The two early-decade recessions of the 1950s and 1960s saw industrials underperform, but aside from these periods, industrials enjoyed outperformance until the 1970s.
- In the 1980s and 1990s industrials underperformed and were punished during the tech bubble when industrials' share of the US index declined from over 14% to 9%.
- Like many cyclical sectors, industrials enjoyed a quick, sharp recovery from their GFC lows, remain buoyed by the "reshoring" theme, but hindered by weak Chinese and global growth.

Healthcare stocks vs. S&P 500 since 1926

Chart 49: Healthcare has underperformed since the GFC on regulatory concerns
Pharma vs. S&P 500, relative price performance (USD)

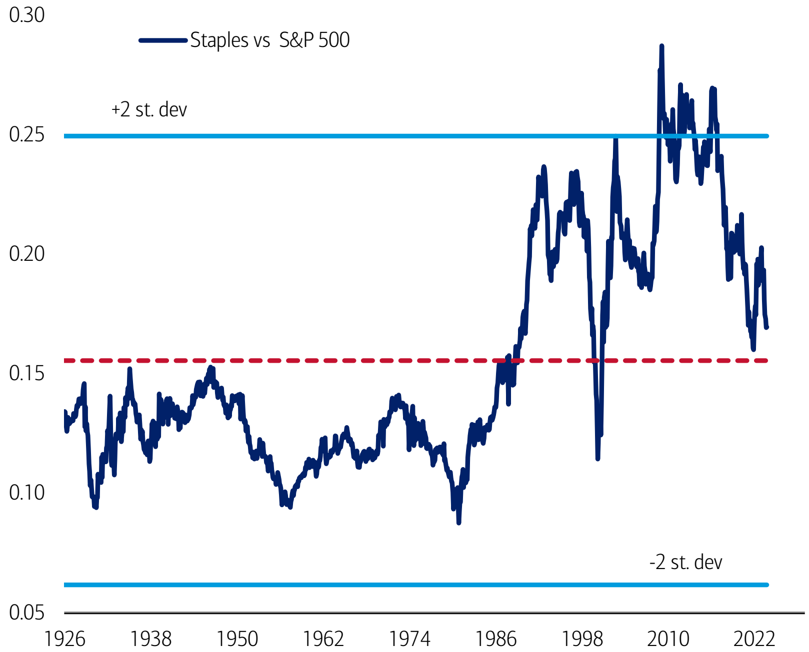
Monthly data
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- Pharma enjoyed a long period of trend outperformance from the mid-1950s, until the global peak in 2001, albeit with some interruptions (late 1970s, early 1990s recession, Asia crisis of '98).
- The weakest secular period was from late 2001 until mid-2008 during the China/commodity boom.
- After the Global Financial Crisis healthcare stocks were sought after for their defensive qualities, although concerns about regulation and the popping of the biotech bubble have hit the sector in recent years.

Consumer Staples stocks vs. S&P 500 since 1926

Chart 50: Consumer staples have underperformed since 2016
Staples vs. S&P 500, relative price performance (USD)



Monthly data
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- US consumer staples have underperformed the S&P 500 since 2016.
- US consumer staples outperform during periods of weak economic growth.

Utility stocks vs. S&P 500 since 1926

Chart 51: Utilities' relative performance at all-time low
Utilities vs. S&P 500, relative price performance (USD)

Monthly data
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

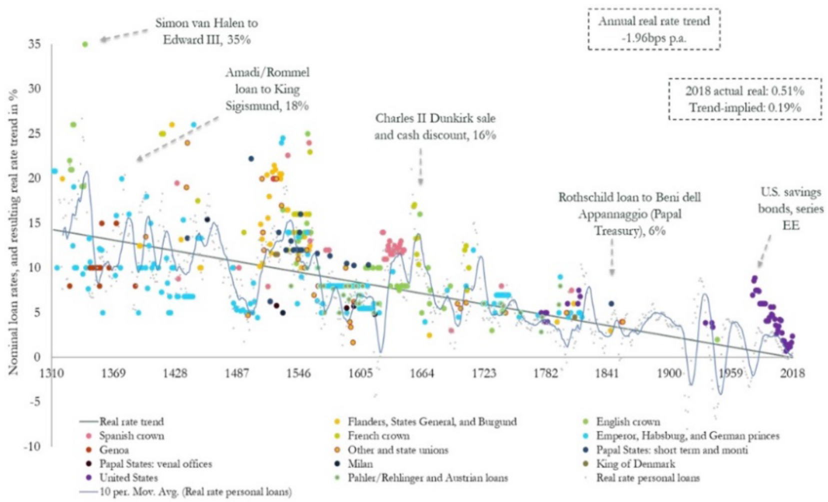
BofA GLOBAL RESEARCH

- Utilities hit an all-time low vs. the S&P 500 in Oct 2023 driven by the massive jump in bond yields in the past 18 months.

The Longest Bond & Currency Pictures

Nominal loan rates and annual real rates since 1310

Chart 52: Nominal & real rates have been declining since the 14th century
Nominal loan rates and annual real rates



Source: BofA Global Investment Strategy, Bank of England, Visual Capitalist

BofA GLOBAL RESEARCH

- Paul Schmelzing's study of the history of interest rates shows how global real interest rates have experienced an average annual decline of 1.96bp through the past eight centuries.
- Nominal rates have averaged 3.5% in the 21st century; only the 1800s comes close to this level since the 1300s.
- Real rates have declined every century since the 1400s; real rates have averaged just 1.3% in the 2000s and in 2020-22 collapsed into deeply negative territory, driven by exorbitant monetary easing & inflation.

  In 2023 US real rates have risen above 1% (and 2½% measured using breakeven inflation rates) as Fed policy has somewhat normalized.

US 10-year Treasury yields since 1790

Chart 53: The 3rd great bond bear market in US history
US 10-year Treasury yields since 1790

Monthly data; **Source:** BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- 2020 marked the secular low for inflation & yields…the 3rd great bond bear market is now underway.
- The prior great bond bear markets were 1899 to 1920 and 1946 to 1981.
- The 10-year rolling return from US government bonds has fallen sharply to 0.6% from 16.3% in Sep 1991; over the same period, the 10-year rolling return from US corporate bonds has fallen to 3.0% from 15.9%.

US 3-month Treasury Bill since 1920

Chart 54: 3-month T-Bill at highest level since 2000
US 3-month Treasury Bill since 1920

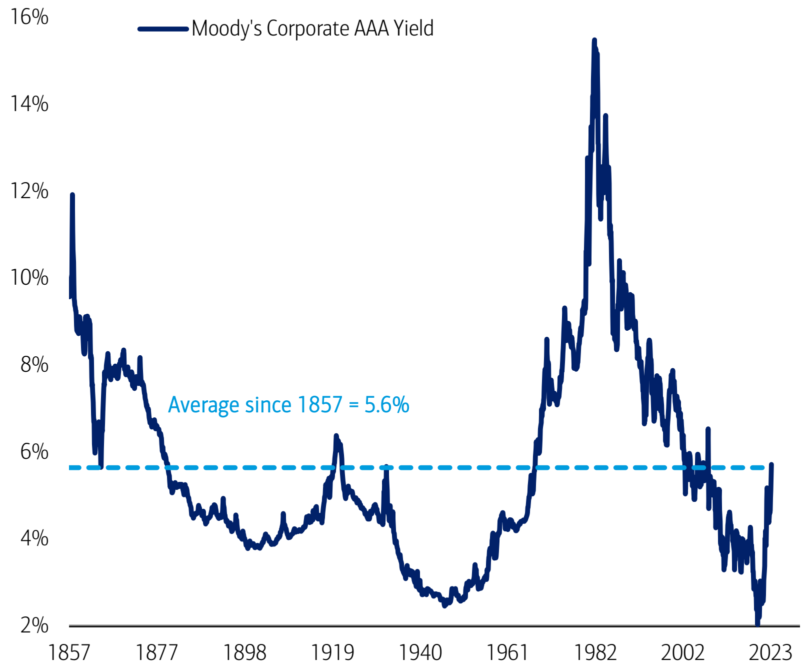
Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- The US 3-month Treasury Bill yielded 5.5% in Oct 2023, a 23-year high. It fell to a record low of -25bps in Mar 2020.
- Rates were close to zero for 15 years during the 1930s and early-1940s, thereafter rising in the next 3 decades to an all-time high of 17.1% in Dec 1980.
- The Fed rate hike in Dec 2015 marked the end of the longest period (113 months) without a rate rise in Federal Reserve history.
- US short-term rates were essentially zero from Nov 2008 to mid-'17, a longer period at zero than even during the 1930s.

US corporate bond yields since 1857

Chart 55: US AAA corporate bond yield highest since 2009
AAA corporate bond yield, %



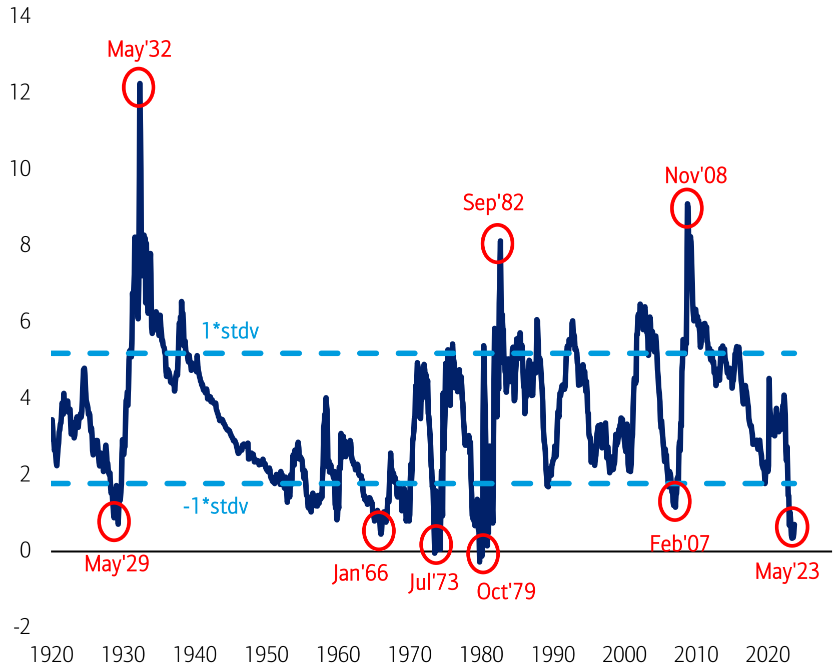
Monthly data. Moody's AAA corporate bond yields
Data unavailable during August-November 1914 (WW1)
Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- Moody's AAA US corporate bond yield rose to a 14-year high of 5.8% in Oct 2023.
- The average yield since 1857 is 5.6%.
- The long-run trend in corporate bond yields largely follows that of government bonds.
- In Jul 2020, Moody's AAA corporate bond yields fell to an all-time low of 2.0%, prior low was in Mar 1946.
- In Oct 1981, yields rose to an all-time high of 15.5%.

US corporate bond spreads since 1920

Chart 56: US BBB corporate bond spread up from 43-year low
US BBB corporate bond yield minus 3-month US Treasury Bill yield, %



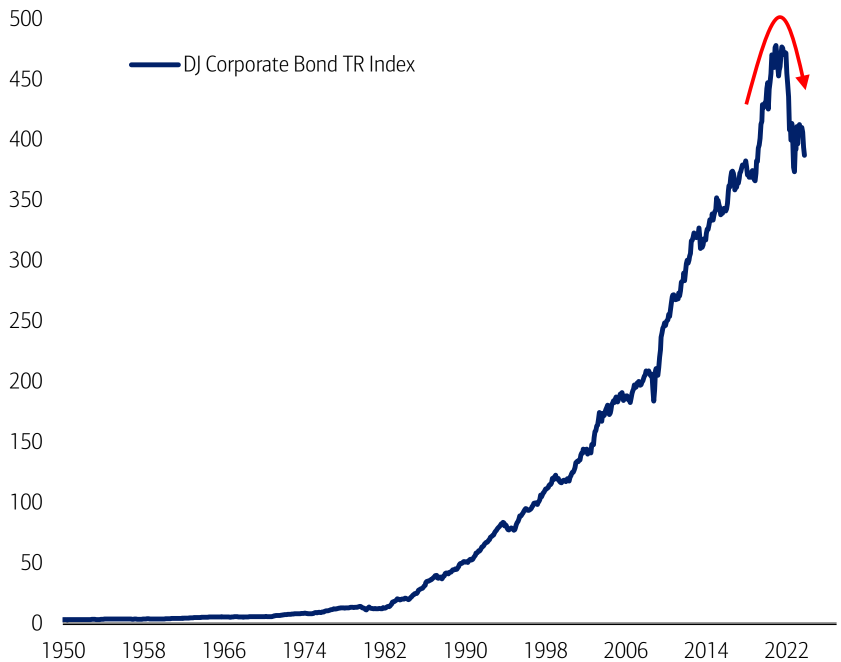
Monthly data. Moody's BBB corporate bond yields
Source: BofA Global Investment Strategy, Global Financial Data, ICE Data Indices LLC.

BofA GLOBAL RESEARCH

- The spread, i.e. difference, between US BBB-rated corporate bond yields and the 3-month Treasury Bill yield was >100bps as of Oct 2023.
- In May 2023, this spread was 34bps, lowest since Nov 1980.
- Since 1920, there have only been 8 months during which the BBB vs cash yield spread was lower than in May 2023…Jul 1973, Aug 1973, Apr 1974, Oct 1979, Dec 1979, Feb 1980, Mar 1980, Nov 1980.

US corporate bond returns since 1950

Chart 57: US corporate bond total returns have rolled over from record high
Dow Jones corporate bond index, Total Return



Source: BofA Global Investment Strategy, Bloomberg and Global Financial Data

BofA GLOBAL RESEARCH

- The US corporate bonds total returns index reached its record high of 478 in Dec 2020 and has since rolled over.
- Since 1980, the DJ Corporate bond index rose 31x…the greatest bond bull market of all-time, which halted in Dec 2020.
- Since then, US corporate bonds have returned -16.2%.
- And the 21.8% drawdown between Dec 2020 and Oct 2022 was far bigger than the 11.8% peak-to-trough decline observed during the GFC.

Japanese bond yields since 1870

Chart 58: Japan government bond yields have risen slightly from historic lows
Japan 10-Year government bond yield, %

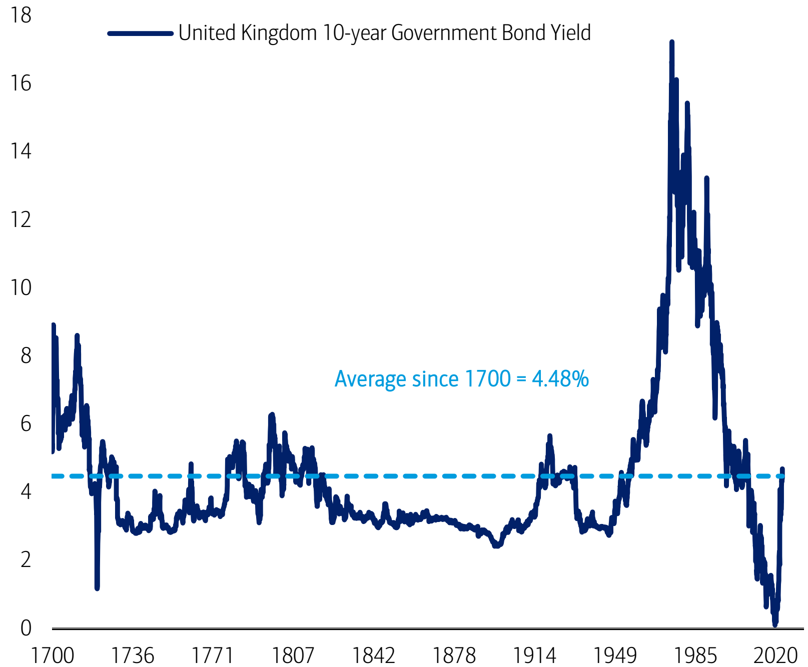
Monthly data. Data was unavailable during February 1915-December 1915; August 1931 – March 1932; July 1936 – November 1940; December 1943 – December 1945
Source: BofA Global Investment Strategy, Global Financial Data and Bloomberg

BofA GLOBAL RESEARCH

- Japanese 10 year government bond yields surged higher after WW2, rising to a peak of almost 15% in Dec 1961.
- Since 1961, Japanese interest rates have headed decisively lower, interrupted briefly by oil shocks and the late-1980s Japanese equity bubble. The bear market for Japanese government bonds that started in 2022 drove the most decisive rise in Japanese interest rates since the late '80s.
- As the original source of "deflation", JGB yields remain a potent gauge in the battle between global deflation and inflationary monetary policies.
- Japanese 10-year bond yields fell to an all-time low of -0.27% in Aug 2019.
- Since Sep 2016, the Bank of Japan has operated a yield curve control policy anchoring 10-year JGB yields.
- The Bank of Japan effectively lifted the floor for global government bond yields to 1.0% since end of Jul 2023.
- The 10-year Japanese government bond currently yields 0.94% (as of Oct 31st 2023).

UK bond yields since 1700

Chart 59: UK government bond yield back to the average level since 1700
Bank of England base lending rate, %



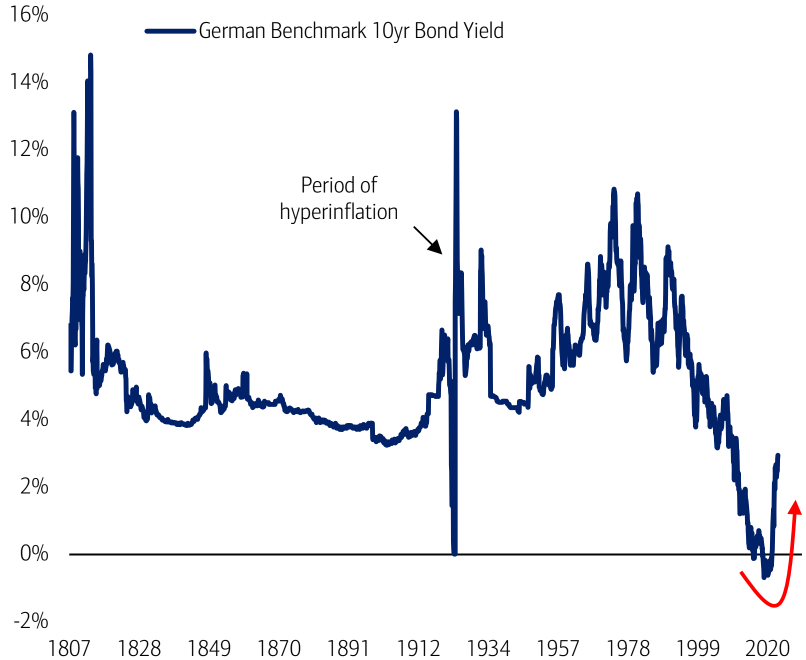
Monthly data.
Source: BofA Global Investment Strategy, Global Financial Data and Bloomberg

BofA GLOBAL RESEARCH

- UK 10-year government bond yield averaged 4.3% in the 18th century, 3.5% in the 19th century, 6.0% in the 20th century, and 3.1% in the 21st century. Since 1700, the average has been 4.48%.
- During most of the 19th century, between 1821 and 1890, the 10-year UK government bond yield trade in a relatively narrow range of 3-4%.
- This period of relative stability for UK bond yields contrasts with the 20th century, which saw high volatility for 10-year UK government bond yields.
- The 10-year UK government bond yield peaked at 17.24% in 1974, before dropping to a 320-year low of 0.16% on Mar 9th 2020.
- UK 10-year government bonds are now experiencing their third great bear market since 1900.
- The 10-year UK government bond currently yields 4.51% (as of Oct 31st 2023).

German bond yields since 1807

Chart 60: 10-year German Bund yield has reached a 12-year high
Germany benchmark 10-year bond yield, %



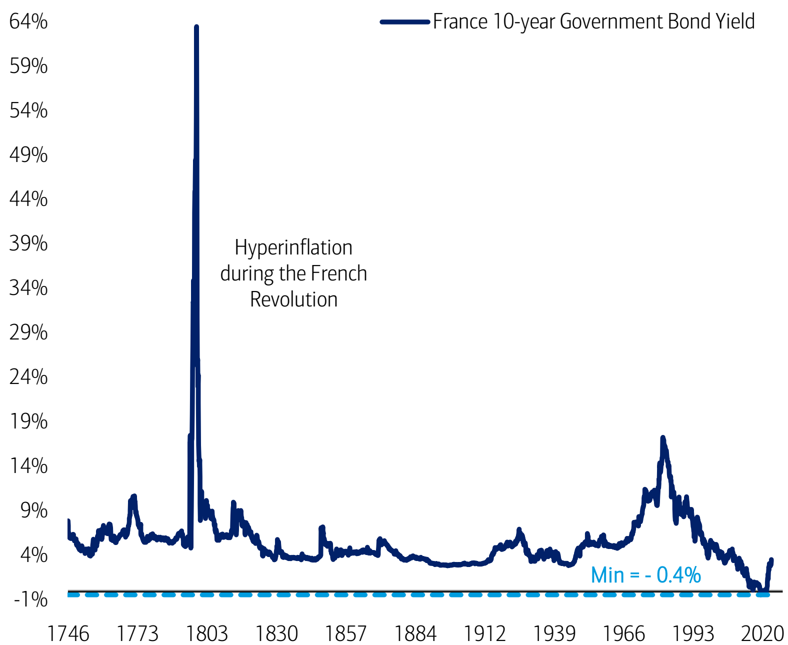
Monthly data. Data was unavailable from August 1931 – March 1932 and December 1943 – December 1945
Source: BofA Global Investment Strategy, Global Financial Data and Bloomberg

BofA GLOBAL RESEARCH

- The German 10-year bond is considered the risk-free rate for Eurozone assets.
- The post-WW2 high for German bond yields was 10.8% in Jul 1974, following the 1973 oil shock and, just ten years ago, the yield was as high as 4.7%, much closer to its long-term average of 5.0%.
- The 10-year Bund yield fell to a record low of -91bp in Mar 2020 following the collapse in global bond yields and ECB QE response to COVID-19.
- The 10-year Bund yield turned positive in Jan 2022 for the first time since May 2019 and has continued to rise.
- The German 10-year bond yielded as much as 2.97% in Oct 2023, the highest level since 2011.

French bond yields since 1746

Chart 61: French 10-year government bond yield at 12-year high
France benchmark 10-year bond yield, %



Monthly data. Data was unavailable from July 1793 – December 1796
Source: BofA Global Investment Strategy, Global Financial Data and Bloomberg

BofA GLOBAL RESEARCH

- Excluding the 1789-1799 period of the French Revolution, the major historic peak in French yields was 17.3% in Jun 1981.
- The French 10-year government bond yield has averaged 5.6% since 1746.
- French government bond yields remain low relative to their historical average level since 1746, and reached their all-time low of -44bp in Aug 2019.
- The French 10-year bond yield rose to 3.56% in Oct 2023, the highest level since 2011.

Swiss bond yields since 1900

Chart 62: Swiss government bond yields hit a 12-year high in December 2022
Swiss benchmark 10-year bond yield, %

Monthly data.
Source: BofA Global Investment Strategy, Global Financial Data and Bloomberg

BofA GLOBAL RESEARCH

- Between 1992 and 2020 Swiss bonds fell from 7.02% to a low of -116bp in Aug'19.
- Swiss government bond yields turned positive in Jan 2022 for the 1st time since Nov 2018; the 10-year Swiss government bond yield subsequently rose to a 12-year high in December 2022 of 1.58%.
- Swiss 10-year government bonds currently yield 1.10% (as of Oct 31st 2023).

Spanish bond yields since 1822

Chart 63: Spanish bond yields at a 10-year high
Spain benchmark 10-year bond yield, %

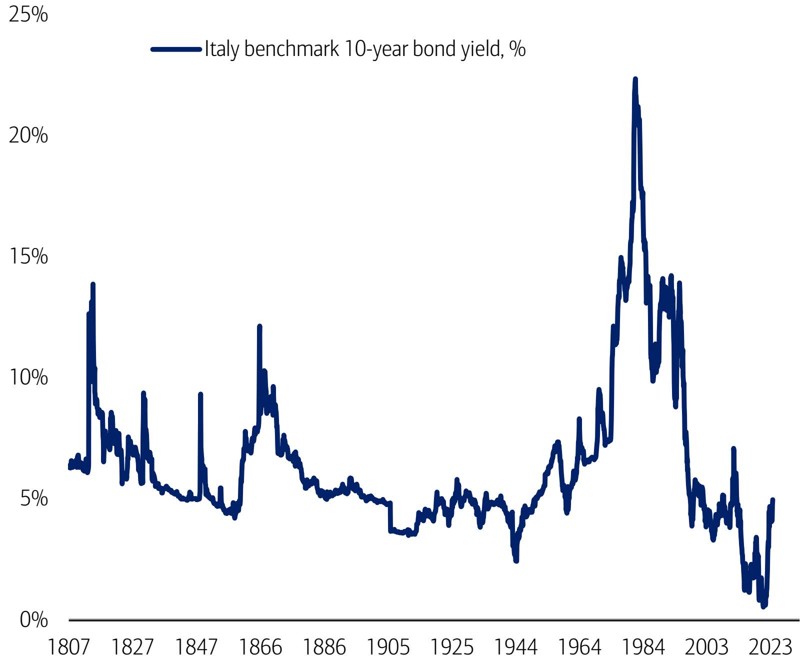
Source: BofA Global Investment Strategy, Global Financial Data and Bloomberg

BofA GLOBAL RESEARCH

- Since 1821, Spain's 10-year government bond yield has averaged 9.14%, but was remarkably stable between 1890 and 1960, trading in a relatively narrow 5-6% range.
- Spain has been an EU member since Jan 1st 1986. Spanish yields peaked at 18.1% in late-1983, a little more than 2 years prior to membership.
- Despite a debt crisis in Spain in recent years, which sent yields up to 7.6% in 2012, Spanish government bonds fell in Aug 2019 to 2bp, a 200-year low.
- The 10-year Spanish government bond yield rose to 4.07% in Oct 2023, the highest level since Dec 2013.

Italian bond yields since 1807

Chart 64: Italian bond yields at 11-year high
Italy benchmark 10-year bond yield, %



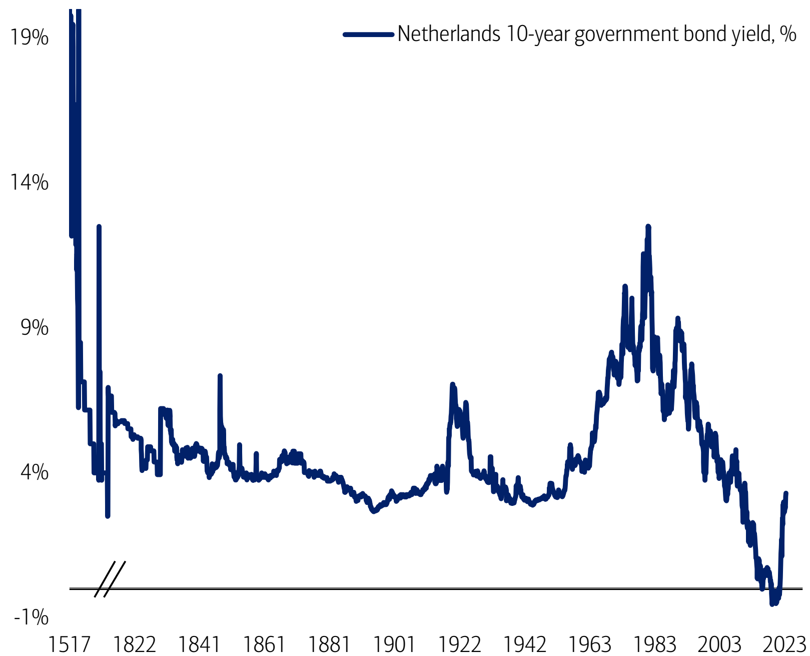
Source: BofA Global Investment Strategy, Global Financial Data and Bloomberg

BofA GLOBAL RESEARCH

- Italian yields were 22.4% in September 1981 and because of their reputation for debt, default and devaluation, have historically averaged much higher levels than Germany and France.
- Since 1807, Italy's 10-year government bond yield has averaged 6.4%
- The 10-year Italian bond yield fell to historic lows of just 46bp in Feb 2021.
- The 10-year Italian government bond yield rose to 4.98% in Oct 2023, the highest since 2012.
- The BTP-Bund spread, a measure of core-periphery risk within the Eurozone, is currently around 192bps, below the 200bps threshold that signals elevated "fragmentation" risk.

Dutch bond yields since 1517

Chart 65: Dutch government bond yields up from 500-year record lows
Netherlands benchmark 10-year bond yield, %



Annual data prior to 1815, monthly thereafter. Data was unavailable during 1577-1599, 1700-1746, 1748-1761, 1763-1797, 1799-1813

Source: BofA Global Investment Strategy, Global Financial Data and Bloomberg

BofA GLOBAL RESEARCH

- Since 1517, Netherlands' 10-year government yield has averaged 4.67%.
- Dutch government bonds reached their lowest level in 500 years of history in Mar 2020.
- In the last 100 years, Dutch 10-year government bond yields peaked at 12.5% in Aug 1981.
- Dutch bond yielded 3.31% in Oct 2023, the highest since 2011.

Indian bond yields since 1800

Chart 66: Indian bond yields down sharply from all-time high of Oct 1994
India benchmark 10-year bond yield, %

Annual data prior to 1815, monthly thereafter. Data was unavailable during 1577-1599, 1700-1746, 1748-1761, 1763-1797, 1799-1813

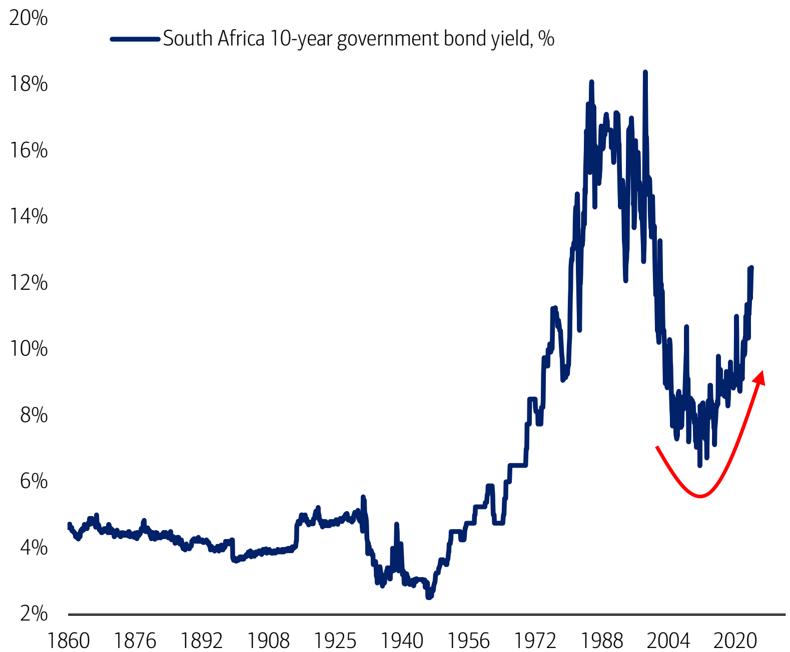
Source: BofA Global Investment Strategy, Global Financial Data and Bloomberg

BofA GLOBAL RESEARCH

- Interest rates were linked to the fortunes of the sterling bloc and the London money market for much of the past two centuries.
- Indian yields diverged from developed markets following the 1980s hitting an all-time high of 15.8% in Oct 1994, much later than the early-80s peak in Developed Markets.
- The two major rallied in Indian bond yields saw yields troughed at 4.95% in Oct 2003; 5.23% in Mar 2009, and 5.87% in Dec 2020.
- Indian 10-year government bond yield is currently 7.35% (as of Oct 31st 2023), above the 5.34% it has averaged since 1800.

South Africa bond yields since 1860

Chart 67: South African government bond yields at 21-year high
South Africa benchmark 10-year bond yield, %



Monthly data
Source: BofA h Global Investment Strategy, Global Financial Data and Bloomberg

BofA GLOBAL RESEARCH

- South African yields have trended higher in the past 10 years, after hitting 6.03% in 2013, their lowest level since 1970.
- As with India, South African interest rates were linked to the UK for much of the nineteenth and twentieth centuries.
- South African government bond yields have been relatively stable for long periods but during the 1980s and 1990s, South Africa became a country of relatively high interest rates.
- South African yields peaked at 18.4% in September 1998 during the Asian currency crisis and 5 months prior to the secular low in commodity prices.
- South African 10-year government bond yielded as high as 12.61% in Sep 2023, the highest since 2002.
- Currently the yield on a 10-year South African government bond is 12.24% (as of Oct 31st 2023).

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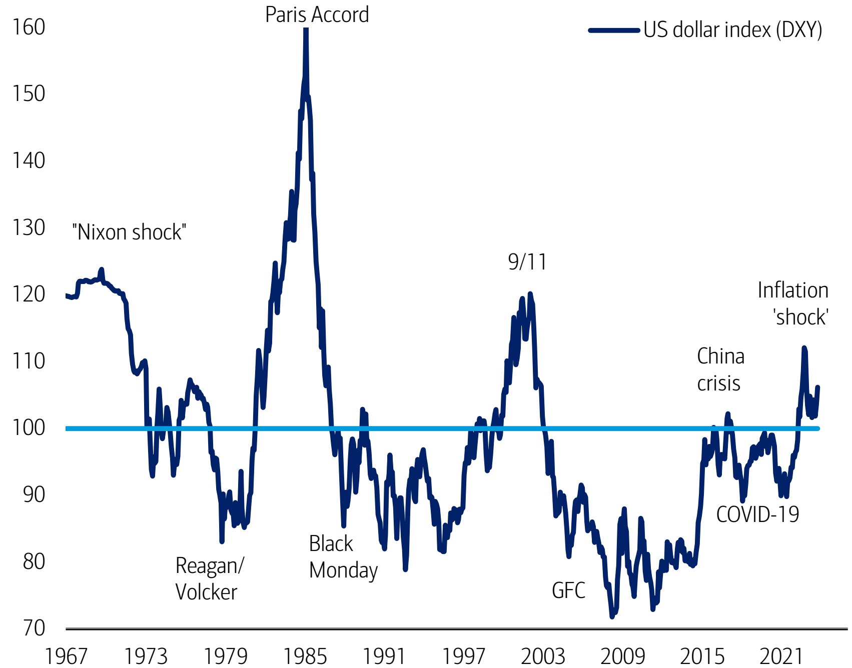
The US dollar since 1967

Chart 68: US dollar has outperformed since the GFC
US dollar index (DXY)



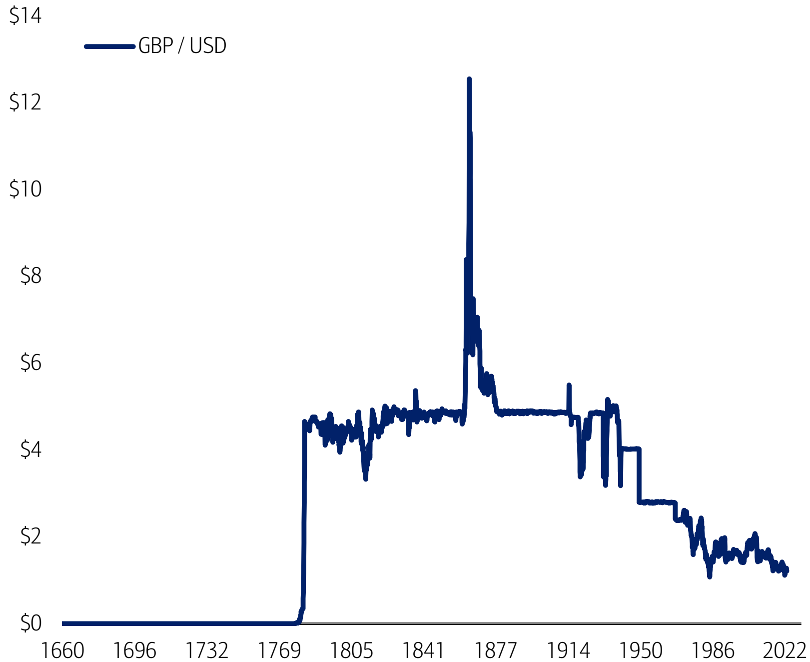
Monthly data
Source: BofA Global Investment Strategy, Bloomberg

BofA GLOBAL RESEARCH

- The US dollar became the world's reserve currency following WW2 with the introduction of the Bretton Woods currency system.
- In Aug 1971, the US unilaterally terminated convertibility of the US dollar to gold, effectively ending Bretton Woods – the so called "Nixon shock".
- Since 1967, the USD has fallen by roughly 12%; but this period enjoyed two major bull markets, and two 'rallies' of smaller magnitude.
- The first major bull market was during the early 1980s Reagan-era (tight monetary and loose fiscal policy); this spurred an all-time high of 160 in Feb'85, and the USD approached parity with the British pound.
- The second major bull market occurred during the Asia crisis and tech bubble of the late 1990s.
- The two other periods that saw meaningful appreciation of the US dollar were 2014-2015 (China weakness), and 2021-2022 ('inflation shock').
- The US dollar hit an all-time low in Mar 2008 during the global financial crisis.
- Fed rate hikes, quantitative tightening, divergent growth profiles and the US-China trade war/ protectionism caused a new dollar bull market in recent years.

The US dollar vs. the British pound since 1660

Chart 69: US dollar has outperformed British pound for the last century
British pound (GBP) / US dollar (USD)



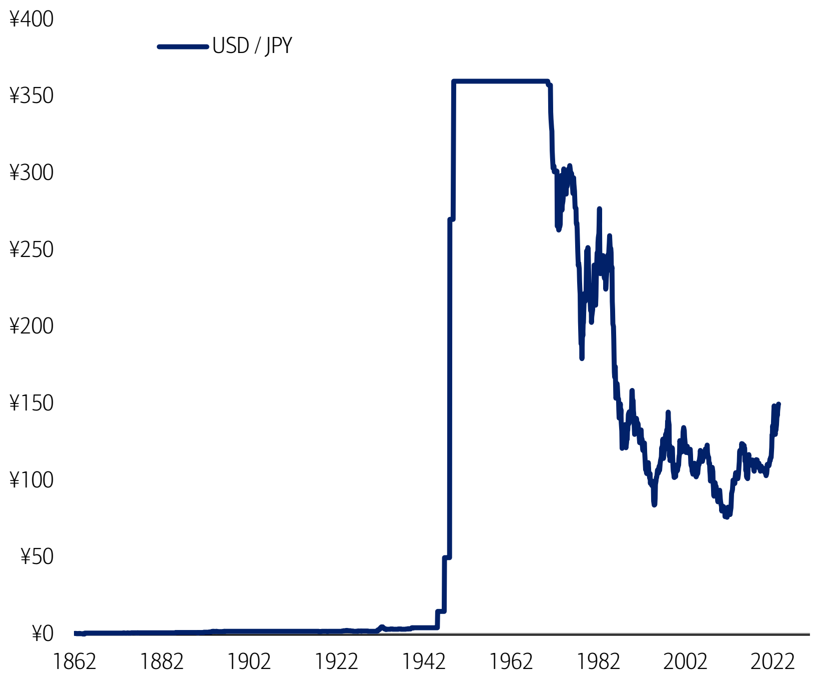
Monthly data
Source: BofA Global Investment Strategy, Bloomberg and Global Financial Data

BofA GLOBAL RESEARCH

- In 1694, the Bank of England was founded and began to issue paper money.
- During the American War of Independence and the Napoleonic Wars, BoE notes were legal tender and their value floated relative to gold.
- In 1776, the US gained independence and in 1816, the gold standard was officially adopted and the pound was widely considered the international reserve currency for the rest of the nineteenth century.
- The gold standard was suspended at the outbreak of the war in 1914.
- At the end of WWI, the UK owed money to the US, so in an attempt to resume stability, the gold standard was reintroduced until the Great Depression in 1931.
- In 1940, an agreement with the US pegged the pound to the US dollar at a rate of £1 = $4.03, and was maintained through WW2.
- With the breakdown of the Bretton Woods system, the pound floated from Aug 1971 onwards; over the period, the lowest value for sterling vs. the US dollar was $1.08 in Feb 1985, and the highest was $2.61 in Mar 1972.
- The pound traded at $1.18 in Oct 2017 amid the fallout from the Brexit vote, but rose to a recent high of 1.35 following the election of a majority Conservative government and the delivery of Brexit at the end of Jan 2020.
- The pound is currently trading at $1.22 (as of Oct 31st 2023).

The US dollar vs. the Japanese Yen since 1862

Chart 70: Japanese yen at lowest level vs the US dollar since 1990
US dollar (USD) / Japan Yen (JPY)



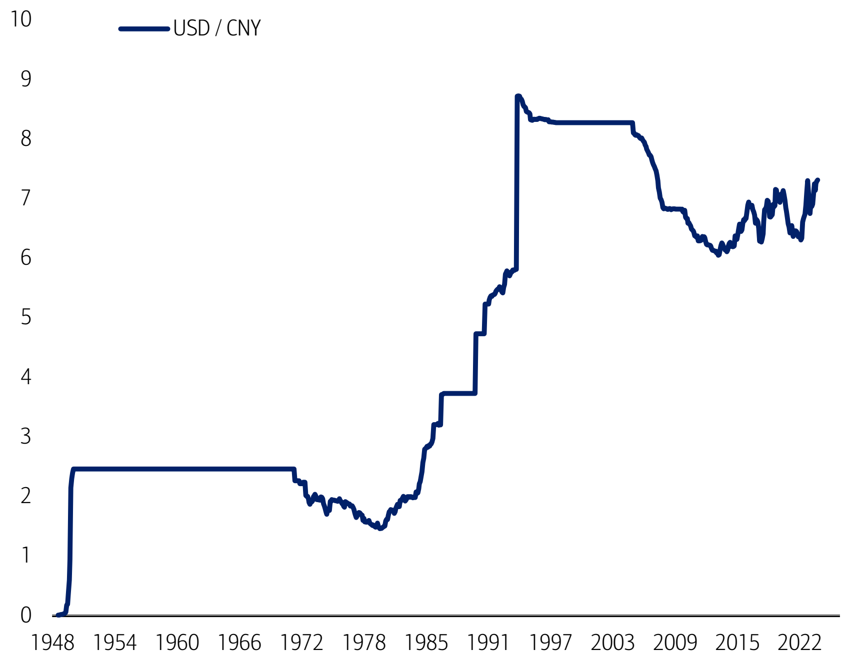
Monthly data
Source: BofA Global Investment Strategy, Bloomberg and Global Financial Data

BofA GLOBAL RESEARCH

- The Japanese Yen was officially adopted by the Meiji government in 1871.
- Japan adopted a gold standard exchange rate in 1897, following the silver devaluation in 1873; this remained in place until 1931.
- JPY fell to $0.30 in 1932 and fell further at the start of WW2.
- There was no true exchange rate between 1941 and 1949, but following WW2, the US government fixed the value of the yen at ¥360 per US$1, maintaining this rate until 1971.
- Once allowed to float, the yen appreciated over 30%, but stalled in the early 1980s despite strong current account surpluses.
- In 1985, the US and other governments signed the Plaza Accord in order to devalue the dollar, fueling a rapid rise in the yen.
- Since the local (intra-day) high of ¥75.35/$ in Oct 2011, yen depreciation has become an important policy target for the Japanese government.
- Aided by aggressive Bank of Japan QE policies, the yen fell in value to ¥125/$ in 2015.
- In 2023, the Bank of Japan remains the only major central bank easing monetary policy, despite 'tweaks' in Dec 2022 and Jul 2023 that reduce the magnitude of the support.
- In Oct 2022, the Japanese yen hit its lowest level vs the US dollar since Jun 1990 (at ¥150.15/$) and continues to trade close to that level.

The US dollar vs. the Chinese renminbi since 1948

Chart 71: Chinese renminbi weakest vs US dollar since 2007
US dollar (USD) / China renminbi (CNY)



Monthly data
Source: BofA Global Investment Strategy, Bloomberg and Global Financial Data

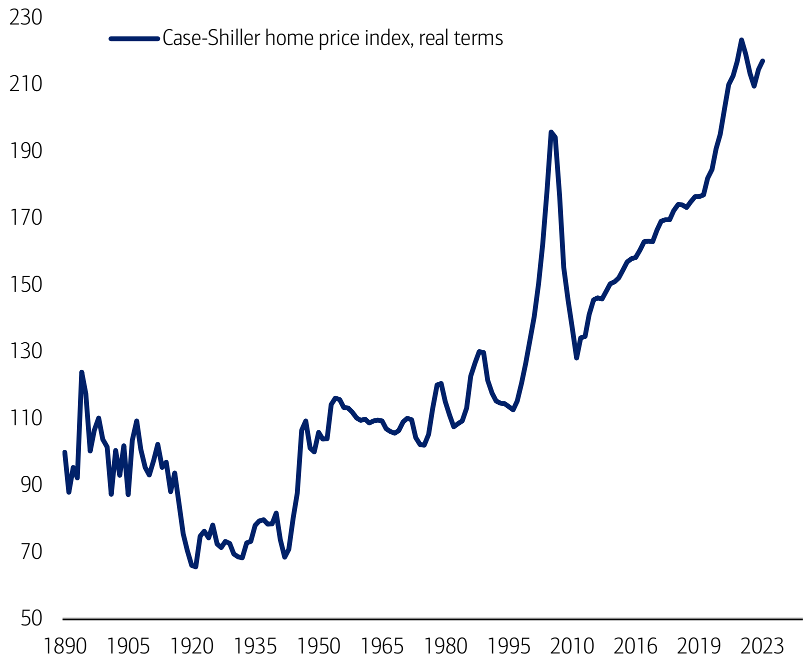
BofA GLOBAL RESEARCH

- The PBoC introduced the renminbi in 1948, replacing various currencies circulating throughout the country; one of the first tasks of the new government was to end hyperinflation.
- For most of its early history, the renminbi was pegged to the US dollar at 2.46 yuan per USD; however, the black-market rate was extremely volatile, reaching an all-time low of 21.30 in 1962.
- When China's economy began to open in the 1980s, the renminbi was devalued to help with Chinese competitiveness.
- From 1997 to 2005, the renminbi was pegged again, but this time at 8.27 yuan per USD.
- The peg was lifted in 2005, which saw a one-off revaluation to 8.11 followed by a steeper market-driven decline to 6.83; the peg was then reinstated temporarily during the Global Financial Crisis.
- In Aug 2015 the renminbi was devalued in response to weak Chinese export growth.
- Strong global growth saw the renminbi strengthen to $6.26 in Mar 2018 before concerns about US-China trade war and China transition to a lower growth, consumer-led economy saw the renminbi weaken back to a 15-year low of $7.35 in Sep 2023.
- The renminbi is currently $7.32 (as of Oct 31st 2023), near its weakest level since Nov 2007.

The Longest Real Asset Pictures

US house prices since 1890 in real terms

Chart 72: US house prices in real terms remain high
Annual real home price index



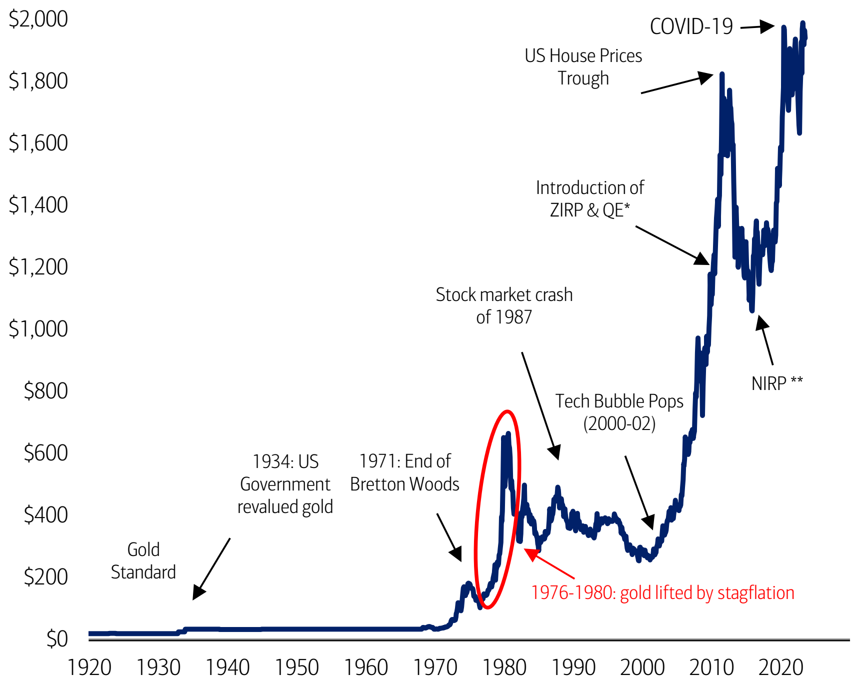
Annual data prior to 1953, quarterly thereafter; note data through 2023
Source: BofA Global Investment Strategy, Case-Shiller

BofA GLOBAL RESEARCH

- From the 2006 high to the 1Q12 trough, US housing prices in real terms fell 42%, making it the greatest bear market in housing since 1894-1921, when real home prices declined 47%.
- The first bear market was a long one, with housing prices bottoming in 1921 but moving sideways through the Depression and WW2.
- Prices jumped following the end of the war, including 21% in 1946 alone.
- Home prices moved modestly upward throughout much of the post-war period, with periods of strength that were then dwarfed by a housing bubble that began in 1997.
- During the 1997-2006 housing bubble, home prices in the United States soared 85%.
- From the 2012 trough through mid-2022, US real home prices rose nearly 80% and 13% above their 2005 peak.
- US real home prices fell -7% from the all-time high in May 2022 through Feb 2023, but have since bounced back up.

The gold price since 1920

Chart 73: Gold price near all-time highs on dollar debasement theme
Gold spot price per ounce since 1920



* ZIRP = Zero interest rate policy; QE = Quantitative easing
** NIRP = Negative interest rate policy
Monthly gold spot price ($/oz)
Source: BofA Global Investment Strategy, Bloomberg, World Gold Council

BofA GLOBAL RESEARCH

- Until 1933 the price of gold was fixed at $20/oz under the Gold Standard Act.
- During the Great Depression, Roosevelt revalued gold from $20 to $35 under the Gold Reserve Act of 1934.
- In 1944 the Bretton Woods Agreement established a system of fixed exchange rates in terms of gold for major currencies.
- In 1971, the US abandoned Bretton Woods and gold became a floating asset.
- From 1976-1980, stagflation lifted gold from $100/oz to over $660/oz; the bull market was ended by successful anti-inflationary monetary policy in the early 80s.
- Intense deleveraging and zero interest rate policies across the G7 fueled another bull market in gold, pushing prices from $600/oz to a peak of $1900/oz in September 2011.
- Declines in tail-risk fears and the prospect of the end of QE in the US caused gold to plunge to a 6 year low of $1051/oz by the end of 2015.
- The price of gold surged to an all-time high of $2064 on Aug 6th 2020 amid economic uncertainty and massive Fed QE in the aftermath of the COVID-19 pandemic.
- The current gold price (as of Oct 31st 2023) is just below $2000, near all-time highs…US dollar debasement theme.

The oil price since 1861

Chart 74: No surge in oil prices despite OPEC+ output cut...recessionary signal
Oil price per barrel since 1861

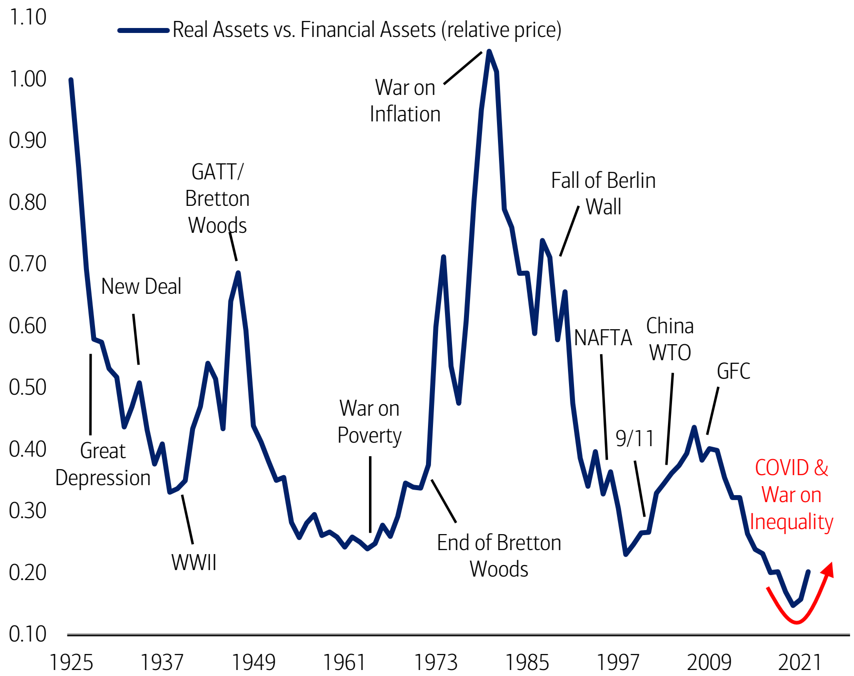
Annual data through 1950, monthly thereafter. Bloomberg Crude Oil History: 1861-1950 from BP statistical review; 1950-1983 Bloomberg Arabian Gulf Arab Light Crude Spot Contracts, 1983-current are Brent Crude Spot prices
Source: BofA Global Investment Strategy, Bloomberg

BofA GLOBAL RESEARCH

- In 1861, a barrel of oil cost 49 cents, an all-time low.
- In 1960, OPEC was founded to stabilize oil prices; since then, political disruptions in the Middle East have intermittently caused volatility in world oil markets.
- In 1973-4, during the Arab oil embargo, the oil price quadrupled.
- During the Iranian oil crisis in 1979, the oil price more than doubled.
- The all-time high in oil prices was $145/bbl on Jul 3rd 2008, before prices plummeted below $40/bbl during the credit crisis.
- Chinese fiscal stimulus in late-2008 coincided with a trough in oil prices, and in the following 2 years, prices rose back above $100/bbl.
- Sparked by the shale gas revolution in the US, coinciding with events in Russia and the Middle East since mid-2014, and exacerbated by the "End of OPEC", oil prices plunged from $115/bbl in Jun 2014 to a low of $28/bbl in Jan 2016.
- The oil price rallied to $86/bbl in 2018 as the global economy enjoyed 18-months of synchronized growth.
- In 2020 the price of oil fell to $20/bbl on oil supply shocks and a demand shock from COVID-19 but rebounded on the reopening trade.
- Oil prices soared in 2022 to its highest level since 2008 on geopolitical tensions (Russia-Ukraine conflict) and rising concerns about energy supplies.
- Currently (as of Oct 31st 2023), crude oil prices are $81/bbl.

Real assets to outperform in 2020s

Chart 75: Secular trends of 2020s to spark bull market in real assets
Real assets relative to financial assets since 1926

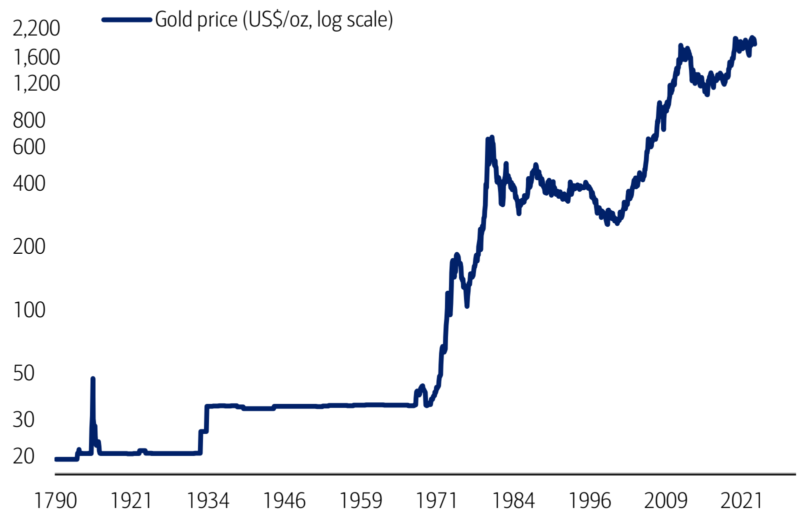


Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg, USDA, Savills, Shiller, ONS, Spaenjers, Historic Auto Group; data as of year-end 2022.
Note: Real Assets (Commodities, Real Estate, Collectibles) vs. Financial Assets (Large Cap Stocks, Long-term Govt. Bonds)
BofA GLOBAL RESEARCH

- The relative value of real assets to financial assets is highly correlated with inflation (~70% since 1970), making them an excellent hedge against rising inflation and interest rates in coming years.
- Bull markets in real assets have coincided with war and major fiscal stimulus programs in the 1940s, the rise of inflation in the 1960s and 1970s, and 9/11 and China accession to WTO in the early years of this century.
- The long-run price relative of real assets (real estate, commodities, and collectibles) to financial assets (stocks & bonds) fell in 2020 to its lowest level since 1926.
- Investment backdrop of 2020s (bond & equity bear markets, oil shocks, food shocks, monetary policy instability, fiscal policy indiscipline, industrial unrest, civil unrest, war) v close to that of Stagflationary 1970s which says bullish real assets

The history of gold & silver

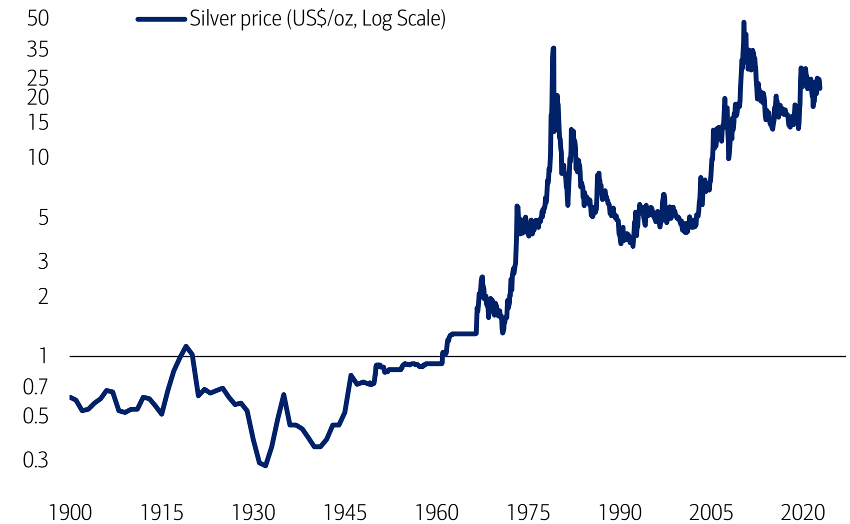
Chart 76: Gold prices near all-time highs
Gold prices since 1790 (log scale)



Source: BofA Global Investment Strategy, Bloomberg, onlygold.com.
* 1790-1919: World Gold Council (Annual data), 1920 onwards: Bloomberg (Monthly data, XAU Curncy)
BofA GLOBAL RESEARCH

- Until 1933, the price of gold was fixed at $20/oz. under the Gold Standard Act.
- In 1971, the US abandoned Bretton Woods and gold became a floating asset. From 1976-1980, stagflation lifted gold from $100/oz. to over $660/oz.
- QE fueled another bull market in gold after the Global Financial Crisis, pushing prices to a peak of $1900/oz. in September 2011.
- Prices hit record highs in 2020 as real rates tanked following Fed easing and growth fears.
- The current (as of Oct 31st 2023) gold price is just below $2000/oz.

Chart 77: Silver prices have fallen vs 7-year high in 2020
Silver prices since 1900 (log scale)

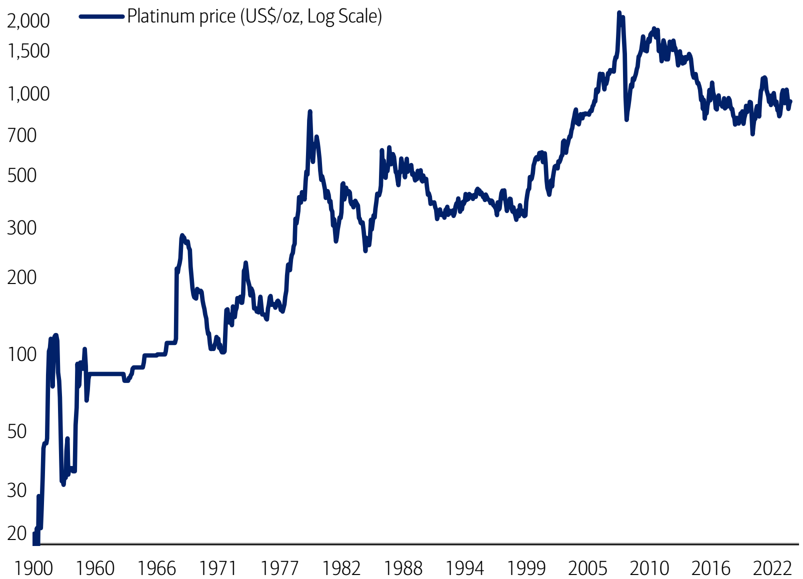


Source: BofA Global Investment Strategy, Bloomberg, United States Geological Survey.
* 1900-1949: USGS (Annual data), 1950 onwards: Bloomberg (Monthly data, XAG Curncy))
BofA GLOBAL RESEARCH

- Silver's greatest bull market was in the 1970's. Silver prices rose to $32/oz. (from $4.3/oz) in 1979 amidst stagflation; the bull market was ended by anti-inflationary policy in the early 1980s.
- Similarly to gold, in Apr 2011 prices rose to $47/oz. as QE fueled another bull market in silver.
- Prices for silver hit a 7-year high in 2020 (similar to gold's price action).
- The current (as of Oct 31st 2023) silver price is $23/oz.

The history of platinum & palladium

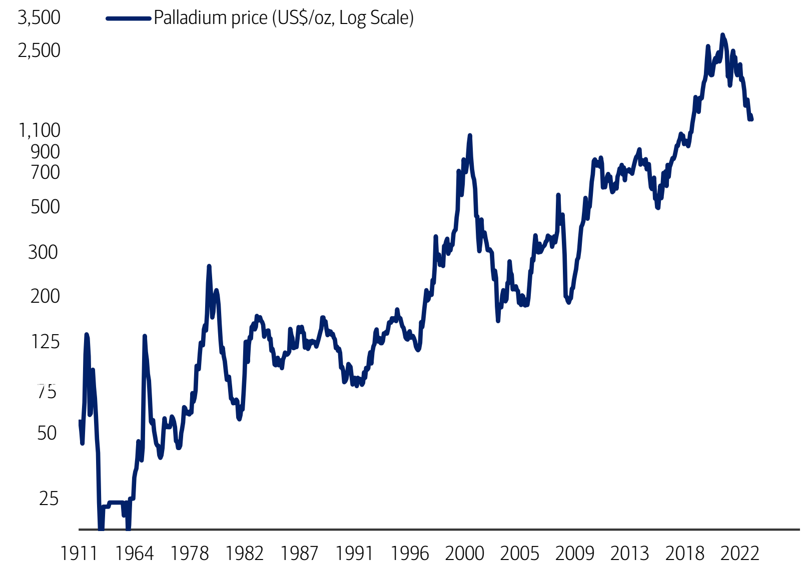
Chart 78: Platinum prices have traded roughly sideways since 2016
Platinum prices since 1900



Source: BofA Global Investment Strategy, Bloomberg, I-Net Bridge, United States Geological Survey
*1900-1959: USGS (Annual data), 1960-1986: I-Net Bridge (Monthly data), 1987 onwards: Bloomberg (Monthly data, XPT Curncy)BofA GLOBAL RESEARCH

- Until 1933, the price of gold was fixed at $20/oz. under the Gold Standard Act.
- Platinum traded higher in recent decades but hit a peak of $2,250/oz. in Mar 2008, shortly before the financial crisis.
- In Feb 2021, platinum rose to $1,305/oz, the highest level since 2014.
- The current (as of Oct 31st 2023) platinum price is $937/oz.

Chart 79: Palladium prices lowest since 2018
Palladium prices since 1911

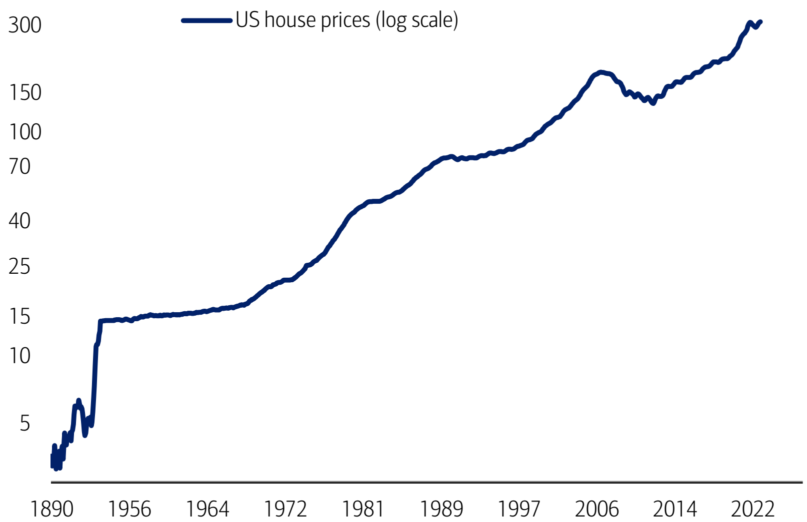


Source: BofA Global Investment Strategy, Bloomberg, United States Geological Survey.
*1900-1949: USGS (Annual data), 1950 onwards: Bloomberg (Monthly data, XAG Curncy))
BofA GLOBAL RESEARCH

- Palladium rallied to $270/oz. in the 1980s when it was popularized for jewelry & proved useful in industry.
- The 2001 bull market in palladium peaked at $1,045/oz.
- In May 2021, palladium soared to a record $2,985/oz, up 1715% since the GFC-low.
- The current palladium prices (as of Oct 31st 2023) is $1124/oz, the lowest level since 2018.

The history of US & UK house prices

Chart 80: House prices in the US still v high
US house prices since 1890

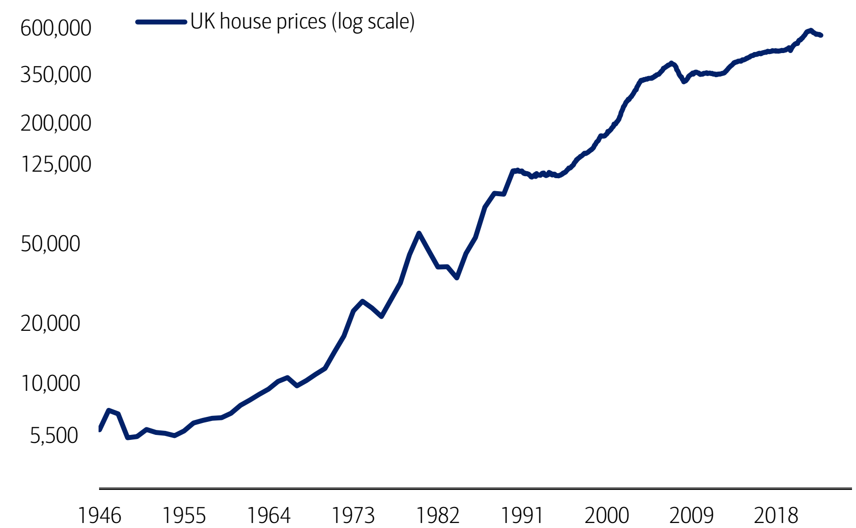


Source: BofA Global Investment Strategy, Shiller
*1890-1952: (Annual data), 1953-present: (Monthly data)

BofA GLOBAL RESEARCH

- US housing prices jumped 21% in 1946 after WWII. Growth was flat until the 1970s and 80s, when housing price growth averaged 7.5% per year.
- During the 1997-2006 housing bubble, prices soared 85%, averaging 8% growth per year.
- The housing bust from 2007-2010 was the first national decline in house prices in 100 years.
- Post COVID, US home prices rose to all-time highs in 2022; house prices remain elevated in the US.

Chart 81: UK house prices rolling over from highs
UK house prices since 1946



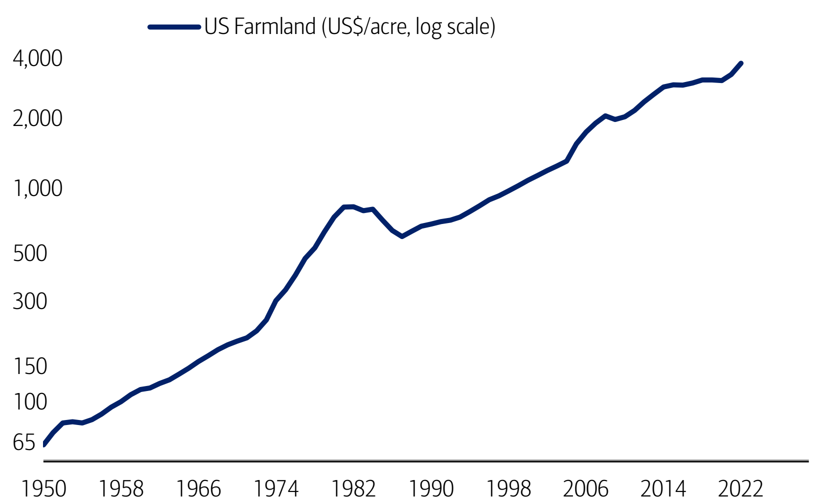
Source: BofA Global Investment Strategy, Office of National Statistics, Bloomberg
*1946-1990: ONS (Annual data), 1991-2001: Bloomberg (Monthly data, UKNBSADJ Index)

BofA GLOBAL RESEARCH

- UK housing prices tripled during the bull market from 1982-1990; after the bubble burst, the market took almost 10 years to recover.
- Another boom carried the market to highs throughout the 2000s until the financial crisis.
- House prices soared 26% from the low in Jun 2020 to an all-time high in Aug 2022.
- Since then, rising borrowing costs have driven prices down...housing prices in the UK are down -5% in the last year (Aug 2023 saw the largest YoY decline in house prices since 2009).

The history of US & UK farmland

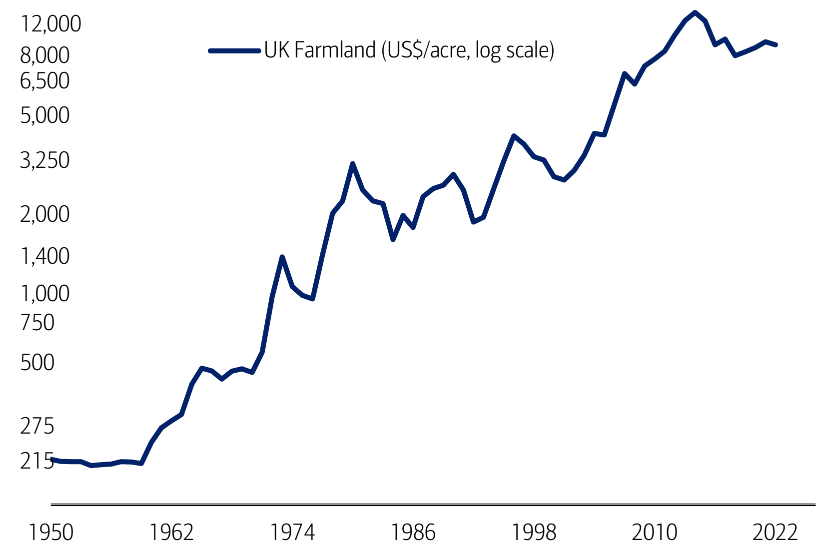
Chart 82: US farmland prices soared higher in 2022
US farmland prices since 1950



Source: BofA Global Investment Strategy, USDA, Bloomberg; *1950-2015: USDA (Annual data), 2016: Bloomberg
BofA GLOBAL RESEARCH

- US farmland prices rose to over $800/acre in the bull market of the 1970s and early 1980s.
- Farmland prices peaked again at $2,170/acre in the 2004-2008 rally.
- US farmland prices rose 12.4% YoY in 2022, the largest annual increase since 2006.

Chart 83: UK farmland prices remained below 2014 peak in 2022
UK farmland prices since 1950

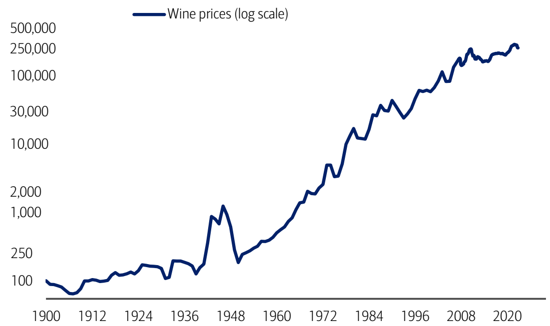


Source: BofA Global Investment Strategy, Savills; *1950-2015: Savills (Annual data)
BofA GLOBAL RESEARCH

- UK farmland prices saw a major bull market in the 1960s and 1970s, peaking at $3224/acre in 1980.
- After the 2001 trough, another bull market took UK farmland prices to $12,622/acre in 2014.
- UK farmland prices in 2022 saw the largest annual increase since 2014 though prices remained below the 2014 high.

The price history of wine, art & vintage cars

Chart 84: Wine prices now -11% from '22 peak
Wine prices since 1900

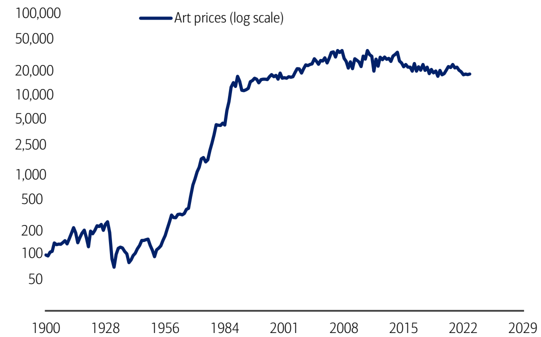


Source: BofA Global Investment Strategy, Spaenjers, Bloomberg; *1900-2007: Spaenjers (Annual data), 2008-present: Bloomberg (Monthly data, FWIFFWID Index)

BofA GLOBAL RESEARCH

- Wine prices rose tenfold between 1939 and 1946 as WWII disrupted supply.
- After the post-war bust, wine prices enjoyed a bull market from 1950 to 2008.
- Wine prices reached all-time highs in 2022, surpassing prior 2011 highs; since then, wine prices are down -11%.

Chart 85: Art price growth has been lackluster
Art prices since 1900

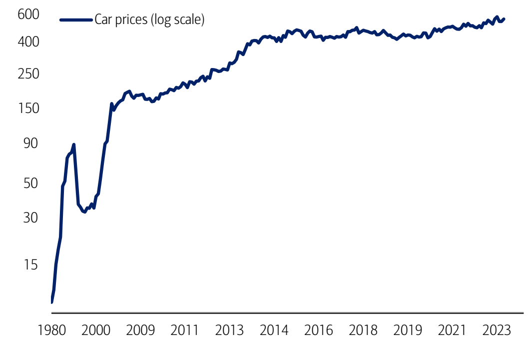


Source: BofA Global Investment Strategy, Spaenjers, Artprice.com; *1900-1997: Spaenjers (Annual data), 1998-present: ArtPrice Global index (Monthly data)

BofA GLOBAL RESEARCH

- Art prices fell 73% after the 1929 crash and took nearly 30 years to recover.
- The next bull market lasted for 40 years, with art prices peaking in 1990 at 170 times their starting value.
- Growth since then has been lackluster, with art prices hovering near their 2009 lows.

Chart 86: Car price growth has been steady
Car prices since 1980



Source: BofA Global Investment Strategy, Historic Auto Group; *1980-2008: Historic Auto Group Index (Annual data), 2009-present: HAGI (Monthly data)

BofA GLOBAL RESEARCH

- In contrast, vintage cars, which have been the best performing collectible, continue to mark new price highs.
- Vintage car prices rose nearly tenfold during the bull market of the 1980s.
- Car prices saw another bull market from 1995 to 2010, and growth has been steady since then.

Risk & Returns

Risk & return since 1926

Table 3: Risk & return since 1926
US bond and equity risk & returns, 1926-2023

	Arithmetic Mean (%)	Standard deviation (annualized %)
Large company stocks	12.2	19.8
Small company stocks*	16.0	30.9
Long-term corporate bonds	6.0	9.2
Long-term government bonds	5.6	10.5
US Treasury bills	3.3	3.1
Inflation	3.0	4.0

Source: BofA Global Investment Strategy, Ibbotson
* The 1933 Small company stocks total return was 143%

BofA GLOBAL RESEARCH

- The table shows the mean return of US asset classes, together with the associated standard deviation (volatility or "risk") of the returns.
- In the long run, the higher the risk in any asset class, the higher the expected return.
- T-bills have a historic return of 3.3% per annum in the past 95 years with a standard deviation of 3%.
- In contrast, small cap stocks have a historic return of 16.0% with a standard deviation of 31%.

A history of interest rate volatility

Chart 87: History of Treasury yield volatility
US 10-year Treasury yield 1-year volatility

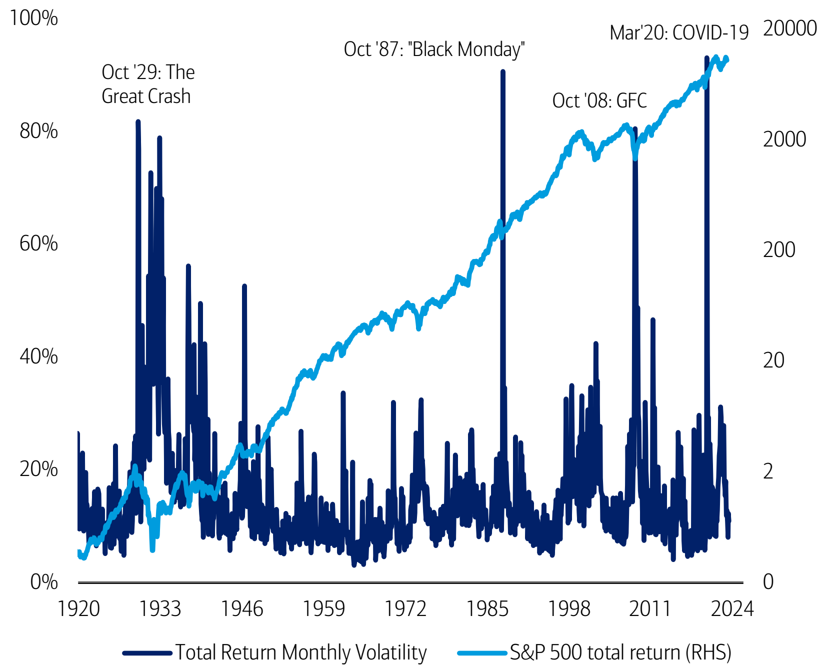
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- The volatility of Treasury yields spiked in Jan 2020 following the COVID-19 outbreak and yields hitting the lowest level since October 1978.
- The most volatile period in history for Treasuries was 1981, when the aftermath of the OPEC crisis and hikes by the Volcker Fed sent 10-year yields above 15%.
- In Mar 2023, the MOVE index surged to a high of 199, the highest since 2008, on the back the US regional banking crisis.

A history of equity volatility

Chart 88: History of equity volatility
US equity market total return and volatility



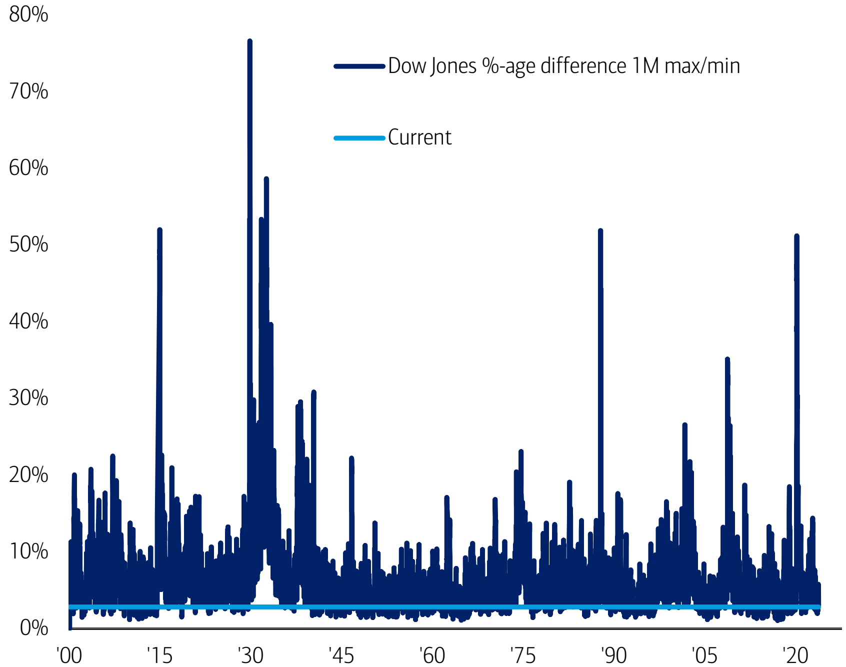
Source: BofA Global Investment Strategy, Bloomberg

BofA GLOBAL RESEARCH

- Equity market realized volatility in Mar 2020 exceeded volatility in Oct 1987 and Oct 1929; the "Inflation Shock" and "Rates Shock" of 2022 pushed realized volatility to a post Covid high of 36.
- The VIX has traded in a tight 13-20 trading range in the past 6 months, and was at 20 as of Oct 2023.
- A two standard deviation event would be associated with volatility in excess of 36%; on average, such an event has occurred once every 25 months in the past 90 years.
- Note that monthly volatility exceeded 50% on 15 different occasions during the 1930s.
- Since the 1930s, there have been only 6 ">50%" occasions: Sep 1946, Oct 1987, Sep/Oct/Nov 2008, and Mar 2020.
- In the post-GFC era of quantitative easing, equity volatility was one of the biggest losers but volatility will likely rise in the 2020s, an era of quantitative tightening.

Volatility spikes

Chart 89: History of spikes in Dow Jones volatility
Dow Jones monthly trading range



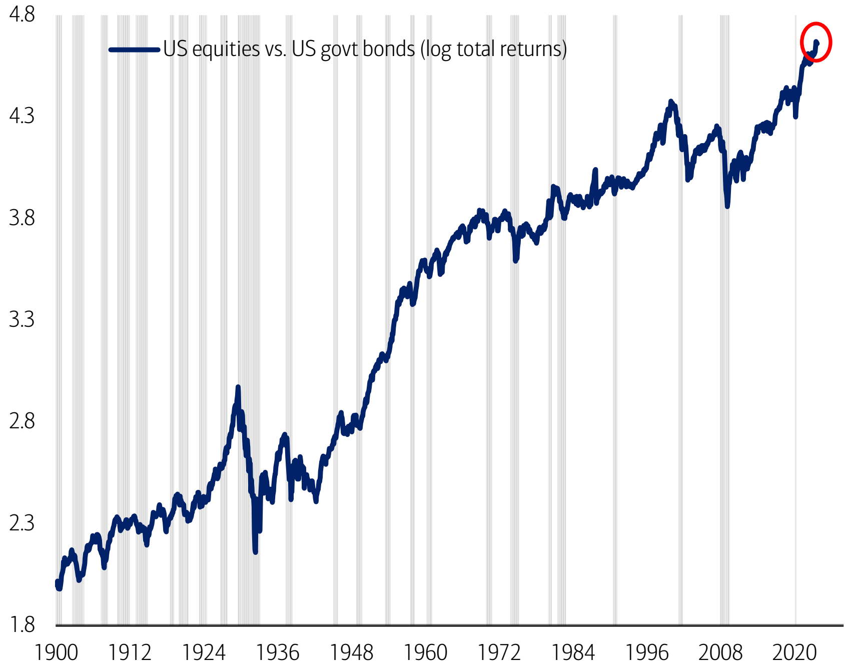
Source: BofA Global Research, Bloomberg; one-month range over 21 trading days.

BofA GLOBAL RESEARCH

- While VIX measures the volatility implied by options prices, equity volatility is also evident in the actual trading range for the Dow Jones Industrial Average.
- In Jan 2017, the difference between monthly highs and lows in the Dow Jones Industrials was the smallest in 110 years.
- On Mar 20th 2020, Dow Jones monthly volatility spiked to the highest level since 1987 (51.2%).

US equity vs. US government bond returns

Chart 90: US equities vs government bonds at all-time high
US equities vs. US government bonds



Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- US equities rose to a new high vs bonds in Jul 2023, following three years of historical losses for bonds, before retreating slightly.
- US stocks were at a high vs. US bonds in 2020 before COVID-19 crash; US stocks fell -34% from peak to trough and have since rebounded back up to new highs.
- The previous high of US equities vs. US government bonds was in Mar 2000, at the height of the tech bubble.
- The 2008 crisis brought the ratio to the lowest level since 1985.
- In the 21st century, US stocks have outperformed US Treasuries by 233ppt.

Global equity vs. Global government bond returns

Chart 91: Global equities vs. bonds at all-time high
Global equities vs. Global government bonds

Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- Global equities reached a new high vs global government bonds in Jul 2023 (before retreating slightly).
- In the 2020s, global equity returns = 37% vs global government bond returns = -15%.
- Prior to Covid, previous secular highs in the ratio of global equities vs global government bonds were: Aug 1929, Mar 1937, Jan 1973, Jul 1981, Dec 1989, Mar 2000, May 2007, Sep 2018.

Equity rolling returns

Table 4: Equity rolling returns since 1926
Equity total returns (USD) by country/region since 1926

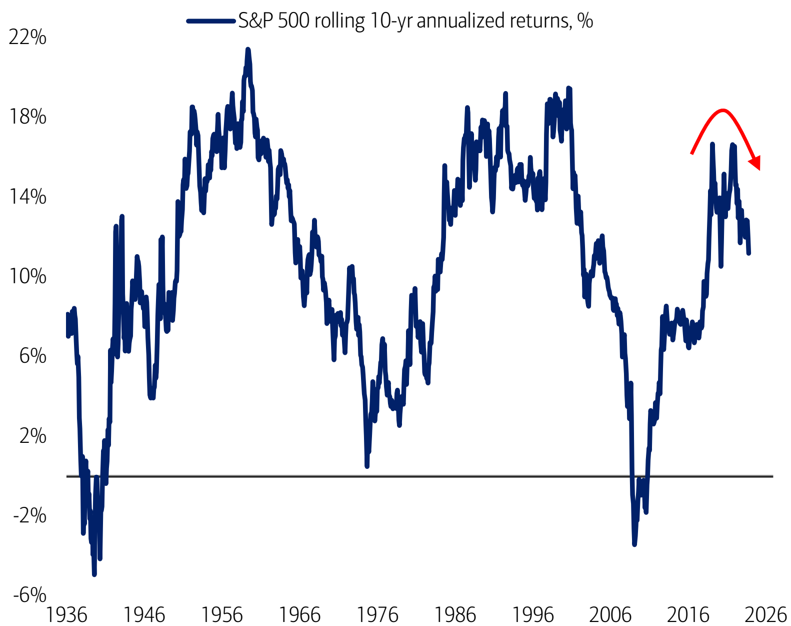
Country	10 year Annualized Return	Average Annual Return since 1926	Std. Deviation since 1926
US	12.8%	12.1%	19.8%
Germany	5.1%	13.2%	34.3%
EM	3.4%	11.2%	24.1%
Japan	5.9%	11.4%	32.9%
UK	4.0%	11.3%	25.5%
France	4.8%	12.2%	34.5%

Annualized monthly total returns, USD, as of 31 August 2023.
Source: BofA Global Investment Strategy, Ibbotson, Bloomberg and Global Financial Data
BofA GLOBAL RESEARCH

- The table shows rolling equity returns (or compound annual total returns) over the past 10 years for each region, average annual returns since 1926, and the standard deviation of those returns since 1926.
- The strongest equity returns over the past 10 years have come from the US, which are twice as high the second highest returns in the past 10 years (Japan).

US equity rolling returns

Chart 92: US equity rolling returns now in line with LT average
US rolling 10-year annualized total returns since 1936, large-cap stocks



Source: BofA Global Investment Strategy, Global Financial Data; note: shaded area starts from Mar'09 GFC lows
BofA GLOBAL RESEARCH

- Large-cap equities have averaged a return of roughly 10-13% per annum since 1926. But at its low point in Feb 2009, the rolling return had collapsed to -3.4%, the worst 10-year holding period return since 1939.
- The vigorous rise in equity prices since 2009 boosted the rolling return to 14.0% in Jan 2020 before falling to 10.5% in Mar 2020 (COVID-19).
- US equity rolling returns are now at 11%, down from the 16.6% peak in Sep 2021, and in line with their long-term average.

European equity rolling returns

Chart 93: European equity rolling returns down from highs
Europe rolling 10-year annualized total returns since 1936

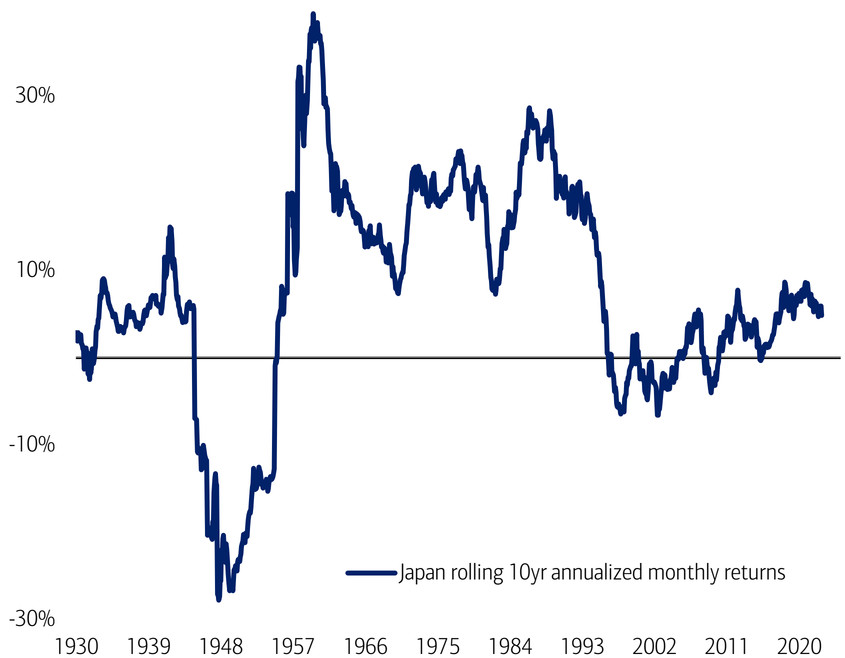
Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- European equities have been humiliated in the past decade; long-run returns from European equities have only been worse during the Global Financial Crisis and post-World War II.
- 10-year rolling return for European equities rose to 9.3% (in dollar terms) as of Oct 2021, the highest since 2019.
- Since then, the 10-year rolling return for European equities has retreated down to its average level since 2010 (5.2% as of Sep 2023).

Japanese equity rolling returns

Chart 94: Long-run returns for Japanese equities average <8%
Japan rolling 10-year annualized total returns since 1930



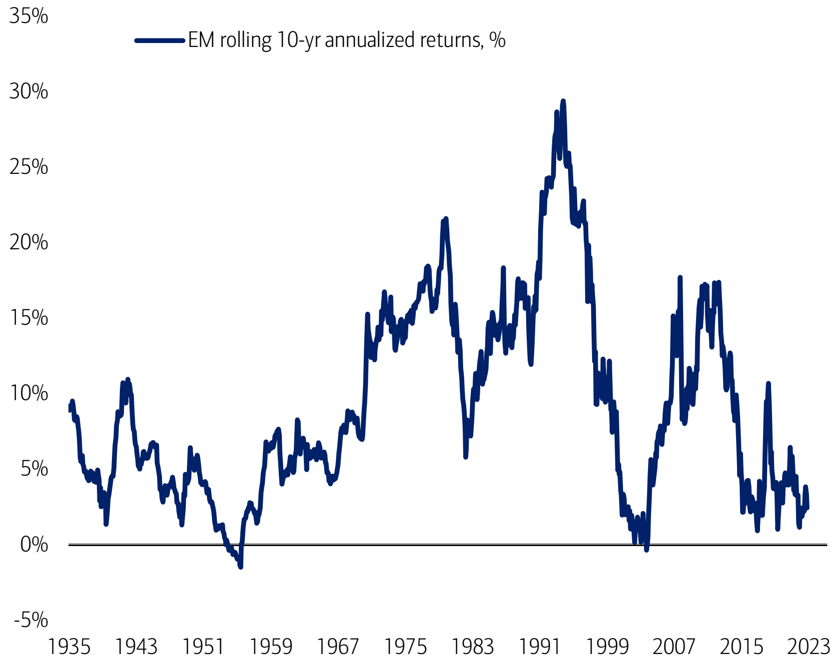
Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- From 1956 to 1996, Japanese equities averaged 18.5% annualized returns.
- 10-year rolling return from Japanese stocks has been trending higher in past decade and is currently around 5%.

Emerging market equity rolling returns

Chart 95: EM equity long-run returns well below LT average, driven by China
Emerging market rolling 10-year annualized total returns since 1935



Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- The 10-year rolling return for EM equities was 2.5% as of Sep 2023, well below the long-term average of 9.3%.
- China, the largest market in EM, is largely responsible for this poor performance.

Government bond rolling returns

Table 5: Strongest government bond returns since 1900 have been in Germany
Government bond total returns (USD) by country since 1900

Country	10 year Annualized Return	Average Annual Return since 1900	Std Dev Annual Return since 1900
UK	-1.6%	4.8%	16.0%
US	1.1%	4.6%	7.9%
France	1.8%	5.6%	8.0%
Netherlands	-0.7%	5.4%	14.1%
Germany	-1.0%	6.4%	19.4%
Japan	-0.4%	4.9%	19.6%
India	4.3%	3.9%	14.1%
South Africa	3.8%	6.0%	18.2%

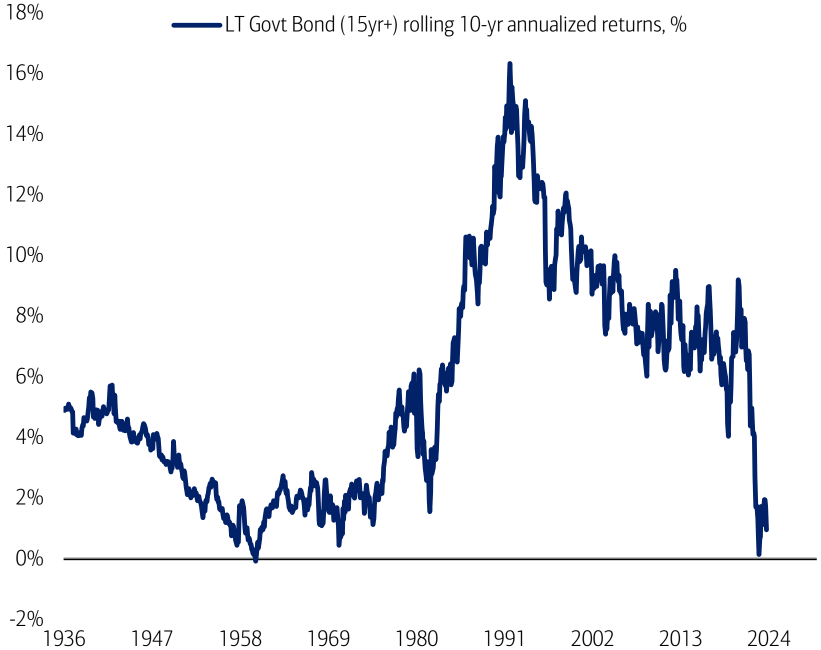
Annualized monthly total returns of 10-year government bonds; Germany data since 1926
Source: BofA Global Investment Strategy, Ibbotson, Global Financial Data

BofA GLOBAL RESEARCH

- The table shows rolling government bond returns (or compound annual total returns) over the past 10 years for each region, average annual returns since 1900, and the standard deviation of those returns since 1900.
- The strongest government bond returns since 1900 have been in Germany.
- With the exception of India, bond returns have been disappointing across most of advanced economies, with the average return in the past 10 years inferior to their long-term average.
- France and the US 10-year government bond returns have been the least volatile since 1900.

US government bond rolling returns

Chart 96: Long-run returns for LT govt bonds up from lowest since 1960
Rolling 10yr annualized total returns since 1936, long term (+15yrs) govt bonds

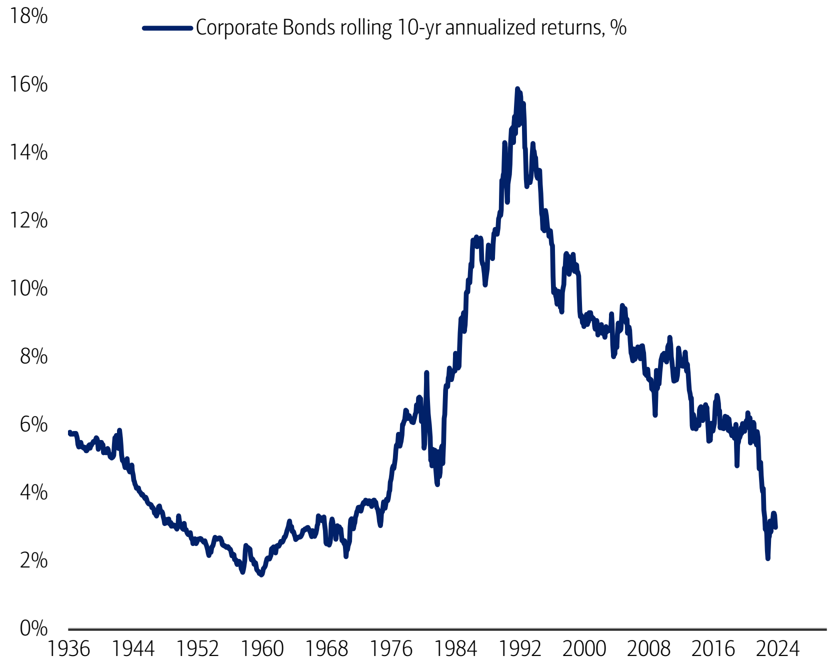


Source: BofA Global Investment Strategy, Ibbotson, Bloomberg and Datastream
BofA GLOBAL RESEARCH

- The 10-year annualized return from long-term government bonds dropped from 9% in March 2020 to 0.1% in Oct 2023, its lowest level since Jan 1960.
- 2020 marked secular low for inflation and yields with the 3rd great bear bond market now underway (prior great bears were 1899 to 1920 and 1946 to 1981).

US corporate bond rolling returns

Chart 97: 10-year rolling returns from US corp bonds up from lowest since 1970
Rolling 10yr annualized total returns since 1936, corporate bonds



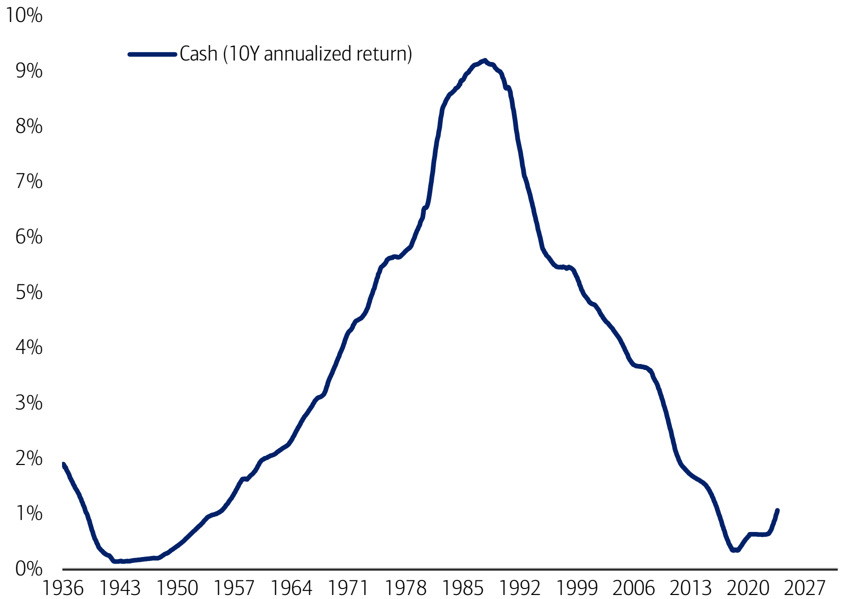
Source: BofA Global Investment Strategy, Ibbotson, Bloomberg and Datastream

BofA GLOBAL RESEARCH

- The 10-year rolling return from long-term US corporate bonds is 3.0% as of Sep 2023.
- It hit 2.1% in October 2022, the lowest since Jun 1970.
- Returns have been spectacularly strong in the past three decades, but are trending lower.
- There has never been a 10-year period of negative returns for corporate bonds.

US cash rolling returns

Chart 98: 10-year rolling returns on cash are up from 60-year lows
Rolling 10yr annualized total returns since 1936, 3-month T-bills (cash)



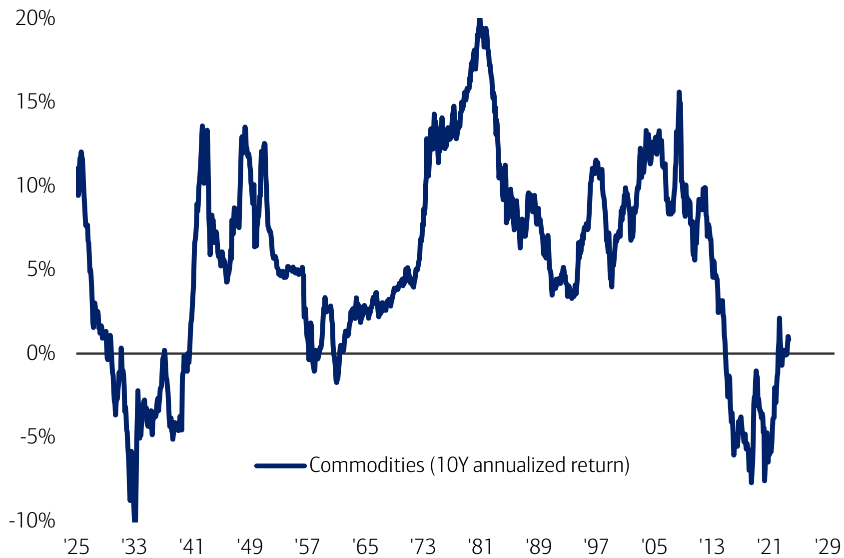
Source: BofA Global Investment Strategy, Ibbotson, Bloomberg and Datastream

BofA GLOBAL RESEARCH

- The annualized return from cash was 1.1% in Sep 2023, highest since Apr 2016.
- It is set to rise further following the most rapid and brutal Fed hiking cycle since the early 1980s.
- The 10-year rolling return on cash in 2018 was the lowest it has been in over 60 years.

Commodities rolling returns

Chart 99: Best 3-year return for commodities since 2004
Rolling 10yr annualized price returns since 1924, Commodities



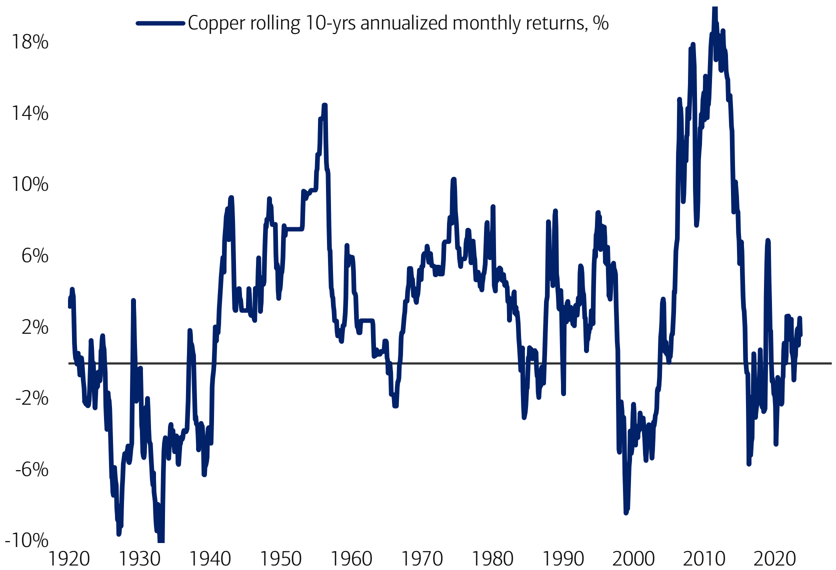
Source: BofA Global Investment Strategy, Ibbotson, Bloomberg and Datastream

BofA GLOBAL RESEARCH

- The annualized 10-year commodity return turned positive as of Apr 2022 for the first time since Nov 2014 and was 1.1% in Sep 2023.
- The rolling 10-year return fell to -7.7% in Jun 2018 which was the lowest since 1933.
- The rolling return from commodities reached an all-time high of 20.2% in Nov 1980 following the two oil shocks of the 1970s.
- Commodities are enjoying a period of stellar returns…performance was 22.0% in 2022, and 38.5% in 2021, the highest since 1973.
- Commodities have returned 7.3% YTD and are on track for 8.3% performance in 2023.

Copper rolling returns

Chart 100: Copper 10-year rolling returns have turned slightly positive
Rolling 10yr annualized price returns since 1920, Copper



Source: Bofa Global Investment Strategy, Ibboston, Bloomberg, Datastream

BofA GLOBAL RESEARCH

- The rolling return from copper fell a 90-year high of 20.5% in 2011 to -5.7% in 2016.
- Copper has a 10 year annualized return of 1.2%, after turning positive in Apr 2021 for the first time since Jul 2019.

US asset & sector returns by decade

The tables on the next two pages show US asset and sector returns by decade.

Investor takeaways:

- In decades of deflation (1930s), bonds outperform stocks.
- In decades of reflation (1940s), stocks outperform bonds.
- In decades of high inflation/stagflation (1970s), real returns from stocks and bonds are poor.
- In decades of disinflation (1980s, 1990s), real returns from stocks and bonds are very good.
- In the following decade of disinflation (2000-2009), bonds and commodities significantly outperformed stocks; only the energy, consumer staples and utility sectors recorded positive equity returns.

In the prior decade (2010-2019), bonds and commodities significantly outperformed stocks; only the energy, consumer staples and utility sectors recorded positive equity returns. The best performers: small cap stocks, consumer discretionary, financials, industrials, tech, staples and pharma. The worst performers: cash, commodities, value stocks, energy, telecoms, utilities and staples.

In the current decade, higher interest rates and volatility driven by inflationary trends in society (inequality and inclusion), politics (populism/progressivism), geopolitics (war), labor (people to AI), environment (net-zero), economy (end of globalization), demographics (China population decline), secular market leadership is shifting form QE winners of yesterday e.g. government bonds, credit, private equity, tech to new secular winners of cash, volatility, commodities, small cap, value.

US asset returns by decade

Table 6: US asset returns by decade...large-cap stocks best performer of 2010s & 2020s

US cross asset returns by decade

	1920s*	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010s	2020s**
Small Company Stocks	-4.5%	1.4%	20.7%	16.9%	15.5%	11.5%	15.8%	14.9%	5.1%	13.5%	7.8%
Large Company Stocks	19.2%	-0.1%	9.2%	19.4%	7.8%	5.9%	17.6%	18.2%	-0.9%	13.6%	13.2%
LT Corporate Bonds	5.2%	6.9%	2.7%	1.0%	1.7%	6.2%	13.0%	8.4%	7.6%	8.2%	-5.3%
LT Government Bonds	5.0%	4.9%	3.2%	-0.1%	1.4%	5.5%	12.6%	8.8%	7.7%	6.9%	-7.0%
Inflation	-1.1%	-2.0%	5.4%	2.2%	2.5%	7.4%	5.1%	2.9%	2.5%	1.8%	5.6%
Treasury Bills	3.7%	0.6%	0.4%	1.9%	3.9%	6.3%	8.9%	5.0%	2.8%	0.6%	1.7%

Source: BofA Global Investment Strategy, Ibboston, Datastream, Global Financial Data, Bloomberg

***Based on period 1926-1929**

****2020s return based on Jan 2020 - present**

BofA GLOBAL RESEARCH

US sector returns by decade

Table 7: US sector returns by decade

Annualized monthly price returns by decade

	1920s**	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010s	2020s***
Discretionary	5.7%	-2.5%	3.7%	11.1%	5.5%	-0.2%	16.8%	15.4%	-2.4%	15.4%	8.8%
Industrials	16.2%	-3.1%	2.6%	15.6%	4.2%	1.7%	9.4%	13.8%	-1.2%	11.0%	8.0%
Tech	22.7%	-6.7%	9.3%	26.9%	16.8%	-1.6%	3.5%	28.7%	-7.5%	15.8%	19.8%
Staples	5.7%	-2.5%	3.7%	11.1%	5.5%	-0.2%	18.6%	12.8%	2.8%	9.0%	4.6%
Pharma	14.3%	-3.4%	0.1%	15.9%	10.6%	0.9%	18.3%	18.1%	-1.8%	9.3%	5.2%
Banks	N/A	N/A	8.1%*	10.8%	3.7%	2.8%	1.0%	12.8%	-7.0%	11.7%	-6.5%
Utilities	19.8%	-10.5%	1.7%	8.4%	2.3%	-1.1%	11.7%	3.2%	1.0%	7.6%	0.3%
Telecoms	14.0%	-2.7%	-1.6%	6.3%	1.9%	0.6%	14.3%	12.4%	-9.8%	4.7%	-3.1%
Energy	5.1%	-4.1%	7.2%	14.6%	4.1%	7.4%	11.8%	8.8%	7.3%	0.6%	11.4%

Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg

***Return for banks in 1940s based on the period Feb 1941 - Dec 1949**

****Based on period 1926-1929**

*****2020s return based on Jan 2020 - present**

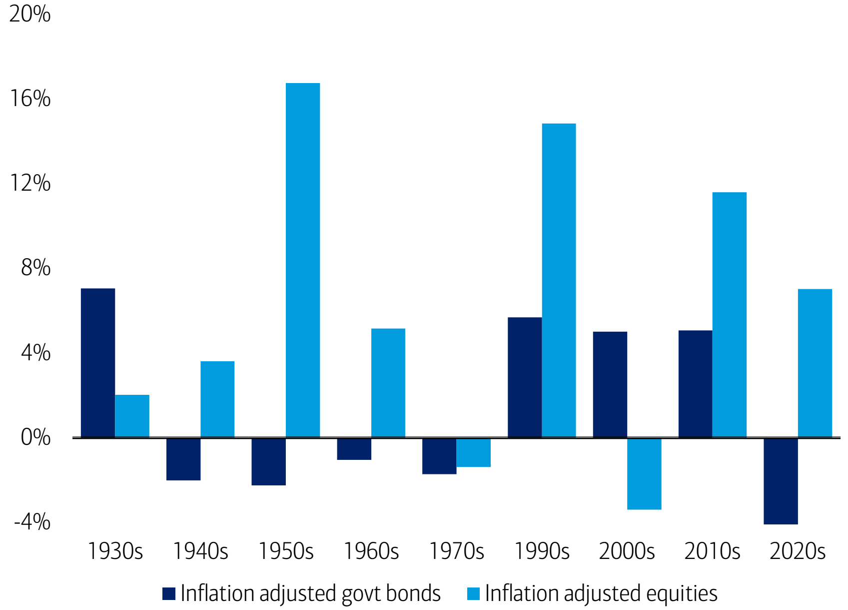
Prior to 1990 Energy = Oil, Gas & Consumable Fuels; Tech = Computer Hardware; Telecoms = Integrated Telecoms

Consumer staples and discretionary were the same index until Sept 1989

BofA GLOBAL RESEARCH

Real equity & bond returns by decade

Chart 101: 2020s has been weakest decade of last century for real bond returns
Real annualized US equity & government bond returns by decade



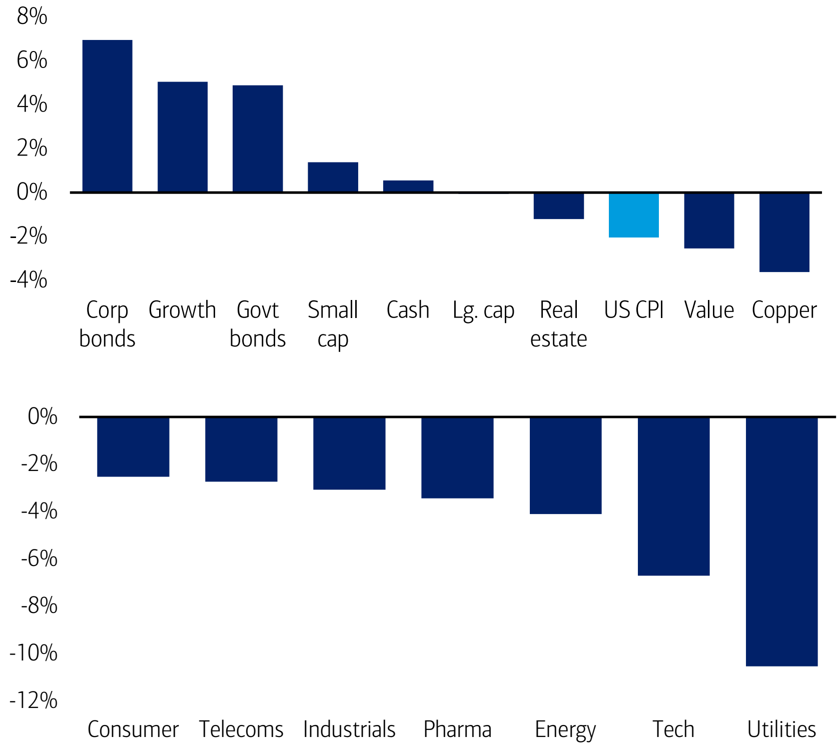
Total returns, USD. 2020s data based on the period 2020-present
Source: Bofa Global Investment Strategy, Ibboston, Bloomberg

BofA GLOBAL RESEARCH

- Asset returns can look very different when adjusted for inflation. This chart shows real annualized returns for US bonds and equities since the 1930s.
- In the 40s, 50s, 60s & 70s, US government bonds had negative returns when adjusted for inflation. But in the past four decades bonds have enjoyed very positive real returns.
- Meanwhile, inflation-adjusted equity returns have only been negative in the 1970s and 2000s.
- Real equity returns in the current decade are the 4th strongest of the past 10 decades.
- Real bond returns in the current decade are the weakest of the past 10 decades.

Asset & sector returns in the 1930s

Chart 102: 1930s: economic depression and deflation
US asset & equity returns – 1930s

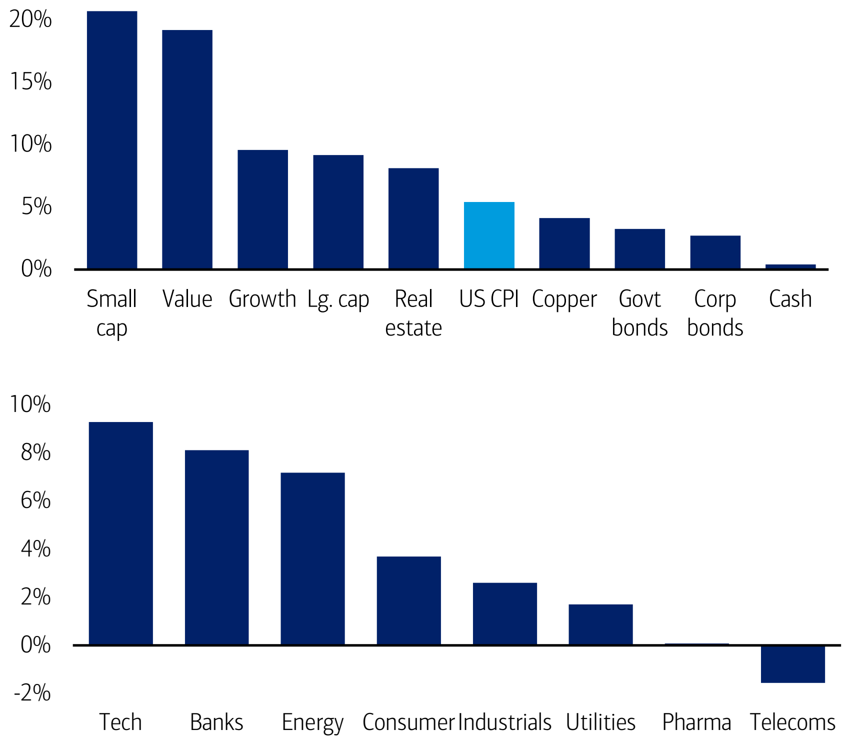


Prior to 1990 Energy = Oil, Gas & Consumable Fuels; Telecoms = Integrated Telecoms
Source: BofA Global Investment Strategy, Bloomberg, Ibbotson, Fama-French growth/value series, Case-Shiller, Bureau of Economic Analysis, Homer & Sylla, *A History of Interest Rates*

- How did various asset classes perform during different decades?
- The 1930s was a decade of economic depression and deflation, the Smoot-Hawley Tariff Act, Britain abandoning the gold standard, Glass-Steagall, widespread debt defaults, the New Deal and the beginning of World War II.
- Annual US GDP growth averaged -0.2% and inflation -2%...the "deflationary" 1930s.
- Winners: bonds and notably growth stocks.
- Losers: commodities, value stocks, real estate, utilities stocks.

Asset & sector returns in the 1940s

Chart 103: 1940s: war and defense spending
US asset & equity returns – 1940s



Prior to 1990 Energy = Oil, Gas & Consumable Fuels; Telecoms = Integrated Telecoms
Source: BofA Global Investment Strategy, Bloomberg, Ibbotson, Fama-French growth/value series, Case-Shiller, Bureau of Economic Analysis, Homer & Sylla, *A History of Interest Rates*

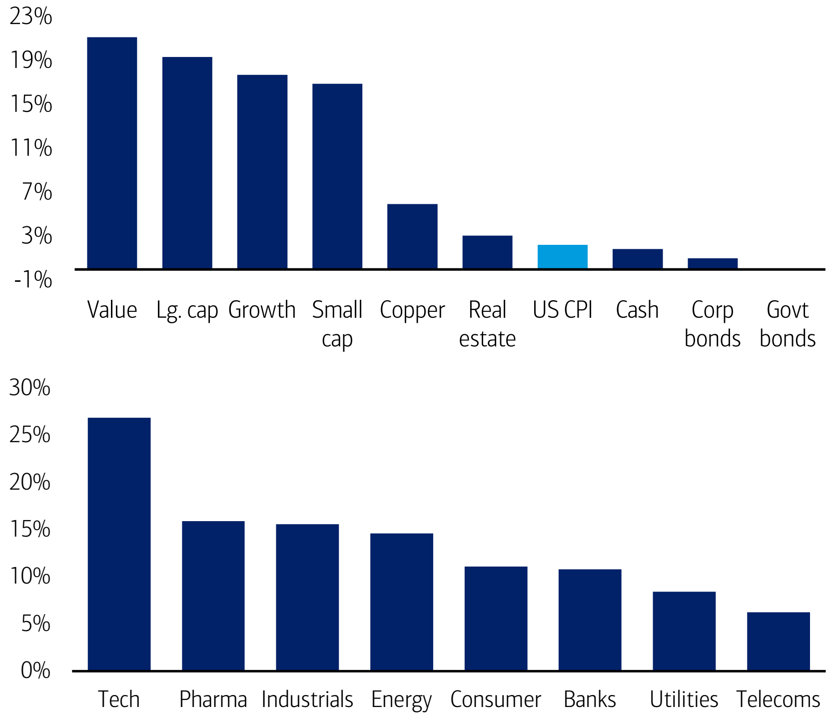
BofA GLOBAL RESEARCH

- The decade of World War II, substantial defense spending, Pearl Harbor, atomic bombs, the Marshall Plan, nationalization and restoration of collective bargaining and the beginning of the Cold War.
- There was a surge in nominal economic growth; annual US GDP growth averaged 11.7% and inflation jumped to a rate of 5.4% per annum.
- Winners: equities, especially small-cap, value and tech stocks.
- Losers: cash, bonds, telecom stocks.

Asset & sector returns in the 1950s

Chart 104: 1950s: economic recovery and lower inflation

US asset & equity returns – 1950s



Prior to 1990 Energy = Oil, Gas & Consumable Fuels; Telecoms = Integrated Telecoms

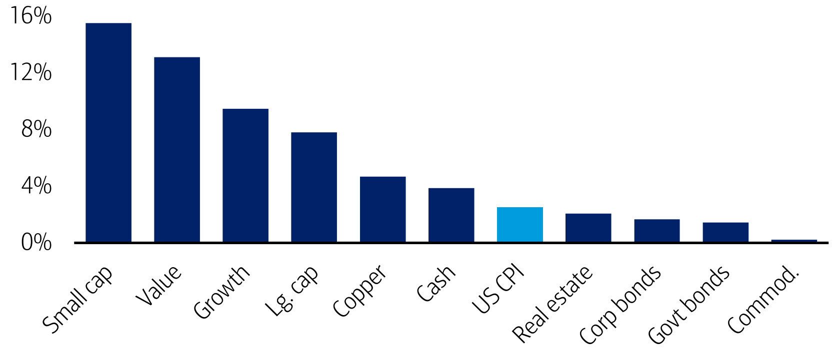
Source: BofA Global Investment Strategy, Bloomberg, Ibbotson, Fama-French growth/value series, Case-Shiller, Bureau of Economic Analysis, Homer & Sylla, *A History of Interest Rates*

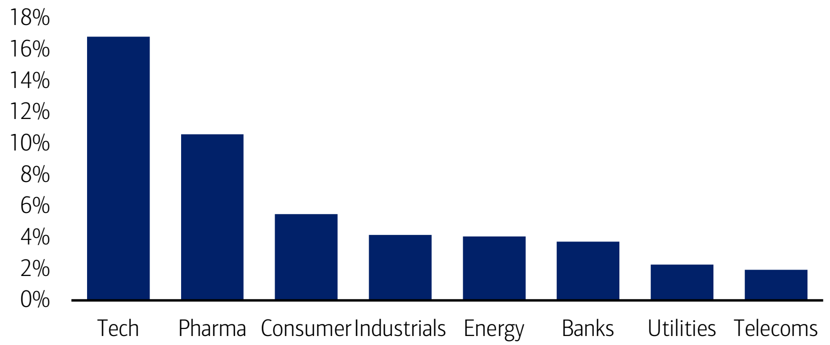
BofA GLOBAL RESEARCH

- The decade of the Korean War, the Warsaw Pact, the formation of the EEC (European Economic Community), and the economic recovery of a war-torn Europe.
- There was a very favorable economic climate with strong average annual US GDP growth of 6.7% and much lower inflation of 2.2% per annum.
- Winners: equities, especially large-cap, value and tech stocks and copper.
- Losers: cash, bonds, bond-like stocks.

Asset & sector returns in the 1960s

Chart 105: 1960s: US preeminence to dissent and instability
US asset & equity returns – 1960s





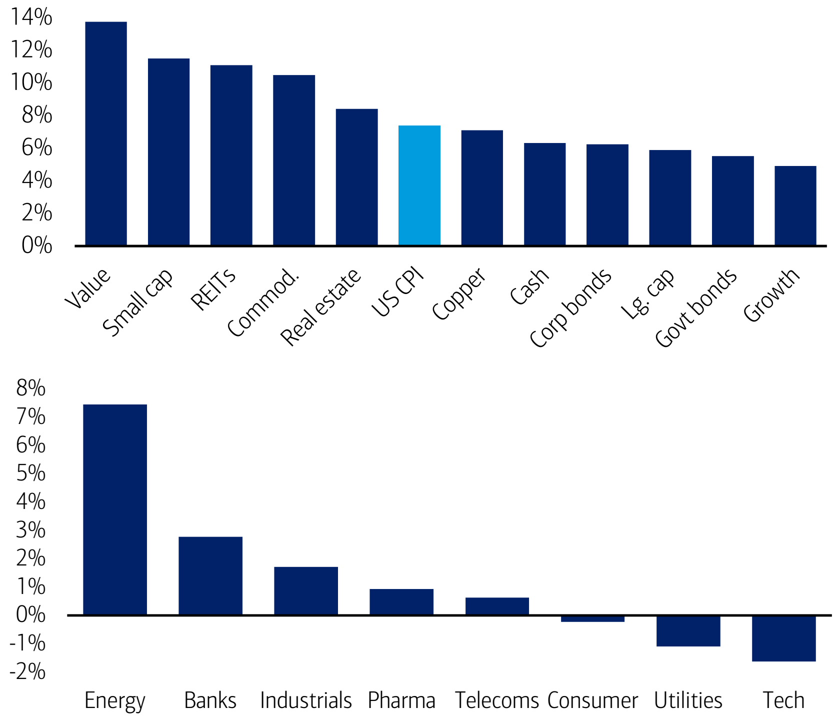
Prior to 1990 Energy = Oil, Gas & Consumable Fuels; Telecoms = Integrated Telecoms
Source: BofA Global Investment Strategy, Bloomberg, Ibbotson, Fama-French growth/value series, Case-Shiller, Bureau of Economic Analysis, Homer & Sylla, *A History of Interest Rates*

BofA GLOBAL RESEARCH

- A decade which began with US political and economic preeminence and ended with the "American Century" unraveling with Vietnam, social dissent and monetary instability.
- Annual US GDP growth averaged a strong 6.9% and inflation averaged a low 2.5%; but from 1965 onward a dangerous inflationary spiral began.
- Winners: equities, especially small-cap, value and tech stocks.
- Losers: commodities, bonds, bond-like stocks, real estate.

Asset & sector returns in the 1970s

Chart 106: 1970s: great inflation
US asset & equity returns – 1970s



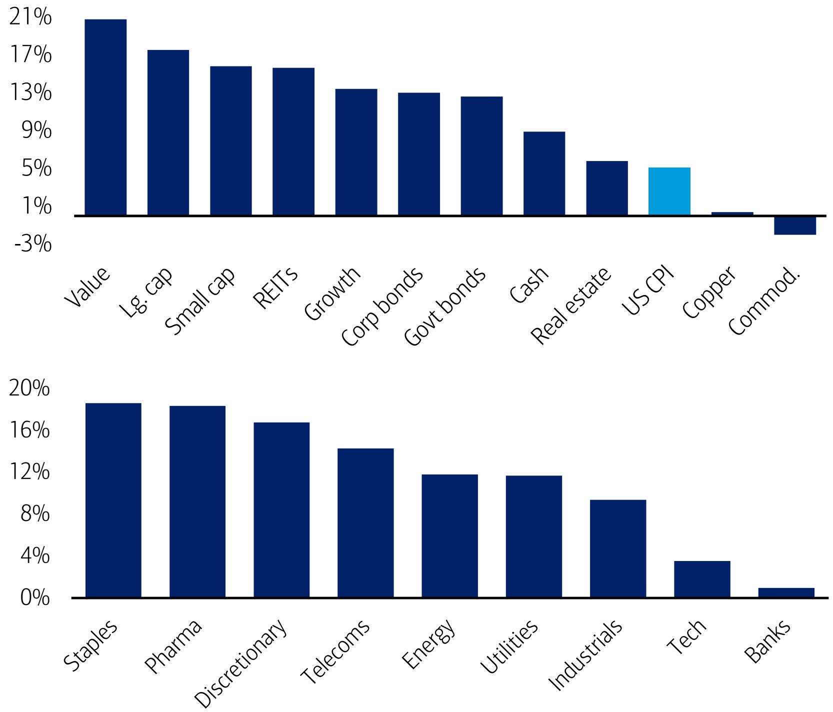
Prior to 1990 Energy = Oil, Gas & Consumable Fuels; Telecoms = Integrated Telecoms
Source: BofA Global Investment Strategy, Bloomberg, Ibbotson, Fama-French growth/value series, Case-Shiller, Bureau of Economic Analysis, Homer & Sylla, *A History of Interest Rates*

BofA GLOBAL RESEARCH

- The decade of great and protracted inflation, monetary instability, large budget and trade deficits, wage and price controls, OPEC-induced spikes in oil prices, Watergate and the Soviet invasion of Afghanistan.
- "Stagflation" arrived with average annual US GDP growth of 10.1% and inflation of 7.4%.
- Winners: small-cap, value & energy stocks, commodities, REITS, real estate.
- Losers: large-cap, growth, tech & utilities stocks.

Asset & sector returns in the 1980s

Chart 107: 1980s: peak in inflation to economic expansion
US asset & equity returns – 1980s



Prior to 1990 Energy = Oil, Gas & Consumable Fuels; Telecoms = Integrated Telecoms
Source: BofA Global Investment Strategy, Bloomberg, Ibbotson, Fama-French growth/value series, Case-Shiller, Bureau of Economic Analysis, Homer & Sylla, *A History of Interest Rates*

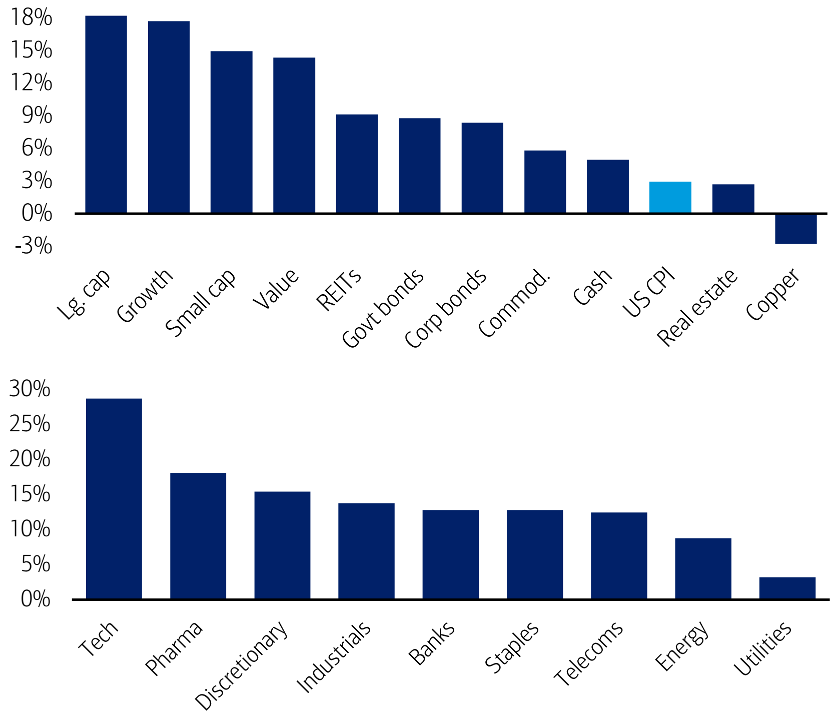
BofA GLOBAL RESEARCH

- The decade started with a second oil shock and the LatAm debt crisis, ended with the savings and loan crisis, Black Monday, the fall of the Berlin Wall and an asset bubble in Japan. But critically, the 1980's saw a major peak in global inflation and interest rates and thereafter a sustained economic expansion.
- Annual US GDP growth averaged 7.9% and an era of disinflation began with inflation rates declining sharply to average 5.1% for the decade.
- Winners: equities, particularly large-caps, value stocks, staples and pharma, REITs, bonds.
- Losers: commodities, bank and tech stocks.

Asset & sector returns in the 1990s

Chart 108: 1990s: Bubble introduction

US asset & equity returns – 1990s



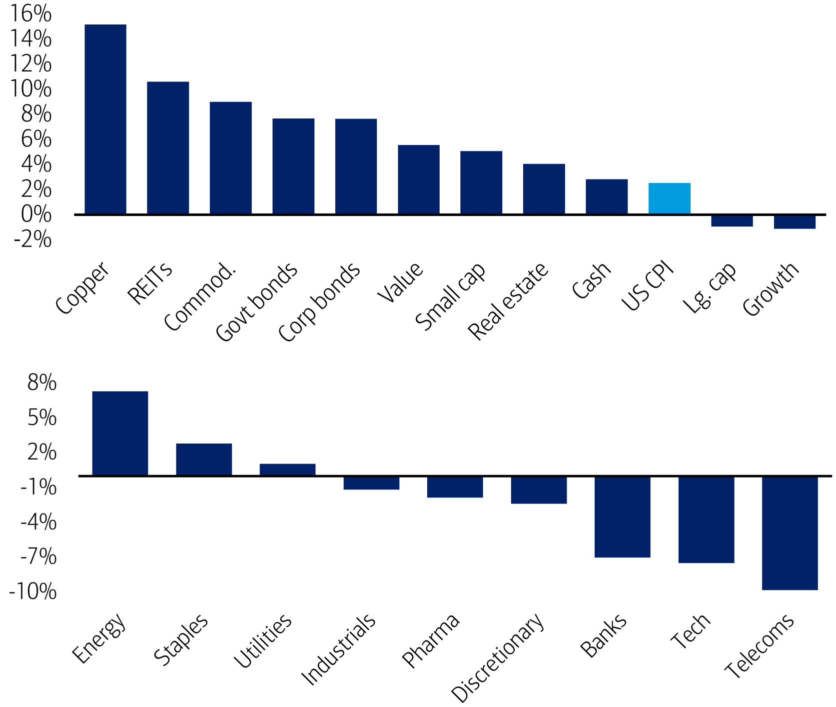
Source: BofA Global Investment Strategy, Bloomberg, Ibbotson, Fama-French growth/value series, Case-Shiller, Bureau of Economic Analysis, Homer & Sylla, *A History of Interest Rates*

BofA GLOBAL RESEARCH

- The decade in which the Japan bubble burst, the Maastricht Treaty, NAFTA, (North America Free Trade Agreement) and Uruguay Round of GATT (General Agreement on Tariffs and Trade) were all signed, balanced budgets, the Tequila and Asian financial crises, the introduction of the Euro and the Tech Bubble.
- Annual US GDP growth averaged a healthy 5.5% and inflation was a low and stable 2.9%.
- Winners: equities, especially large-cap, growth, tech and pharma stocks, REITS & bonds.
- Losers: real estate, commodities, utilities and energy stocks.

Asset & sector returns in the 2000s

Chart 109: 2000s: Bubble bursts
US asset & equity returns – 2000s



Source: BofA Global Investment Strategy, Bloomberg, Ibbotson, Fama-French growth/value series, Case-Shiller, Bureau of Economic Analysis, Homer & Sylla, *A History of Interest Rates*

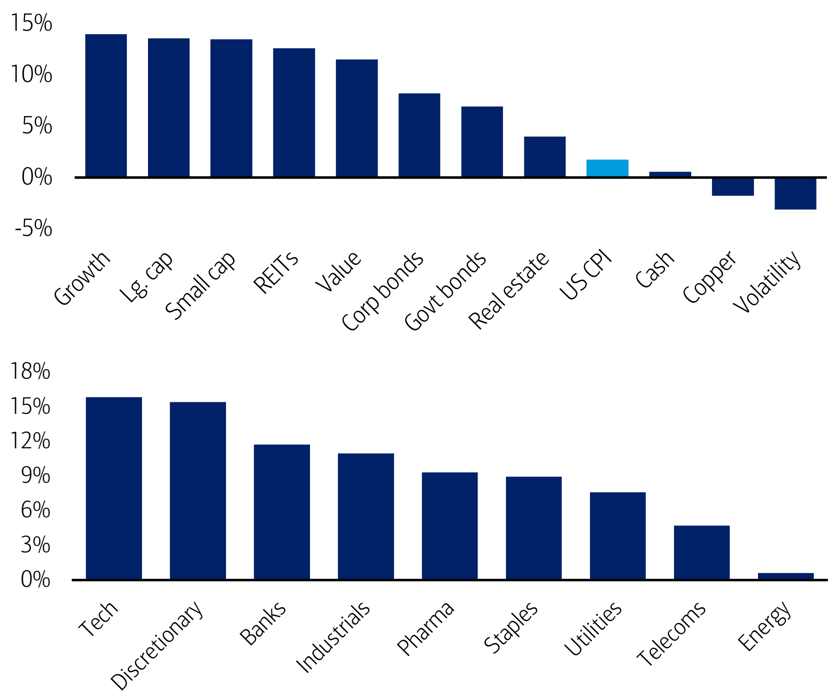
BofA GLOBAL RESEARCH

- The decade of the Tech Bubble burst, the 9/11 terrorist attacks, China becoming a WTO member, wars in Afghanistan and Iraq, China's equity market bubble and burst, the subprime mortgage crisis and the global financial crisis.
- US GDP growth averaged 4.1%, the weakest since the 1930s, and inflation declined, averaging 2.5% (CPI turned negative in 2009).
- Winners: copper, REITS, bonds, commodities, energy stocks.
- Losers: equities, especially large-caps, growth stocks, tech and telecoms.

Asset & sector returns in the 2010s

Chart 110: 2010s: strong returns across most asset classes

US asset & equity returns – 2010s



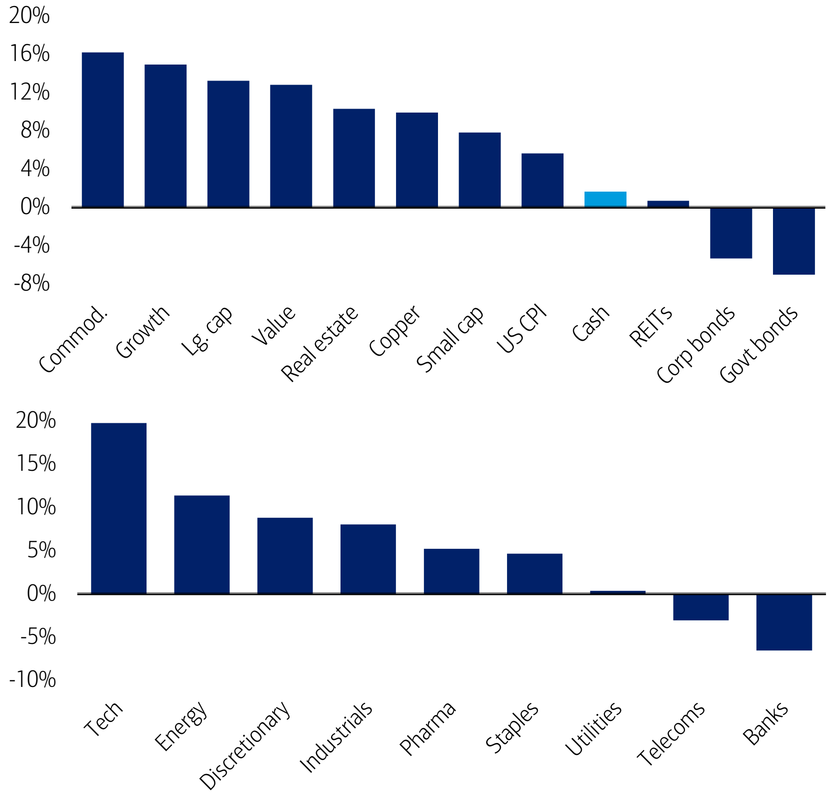
Source: BofA Global Investment Strategy, Bloomberg, Ibbotson, Fama-French growth/value series, Case-Shiller, Bureau of Economic Analysis, Homer & Sylla, *A History of Interest Rates*

BofA GLOBAL RESEARCH

- The decade of unfettered, revolutionary monetary policies of QE, ZIRP, NIRP, YCC, of European debt crises, setbacks to globalization (TPP, BREXIT, Trump).
- The 2010s was a period of very strong returns for most asset classes.
- With the notable exception of commodities, assets have been "inflated" by central bank quantitative easing and zero/negative rate policies.
- Winners: small and large cap stocks, growth stocks, technology, discretionary and bank sectors.
- Losers: cash, commodities, copper and energy.

Asset & sector returns in the 2020s

Chart 111: 2020s: an era of higher interest rates and volatility
US asset & equity returns – 2020s



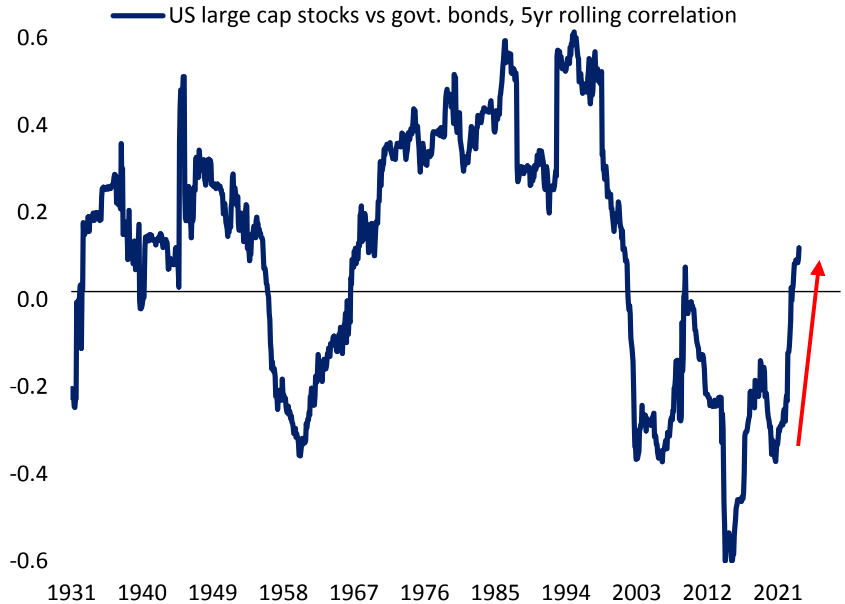
Source: BofA Global Investment Strategy, Bloomberg, Ibbotson, Fama-French growth/value series, Case-Shiller, Bureau of Economic Analysis, Homer & Sylla, *A History of Interest Rates*

BofA GLOBAL RESEARCH

- A decade of pandemic, wars, fiscal excess, the end of QE, the return of inflation and a historic outperformance of commodities vs. government bonds.
- Winners: commodities, growth stocks, large cap, technology & energy.
- Losers: bonds, banks REITs.

Correlation between bonds & equities

Chart 112: US bond and equity returns now positively correlated
5yr rolling correlation of US equities & government bonds



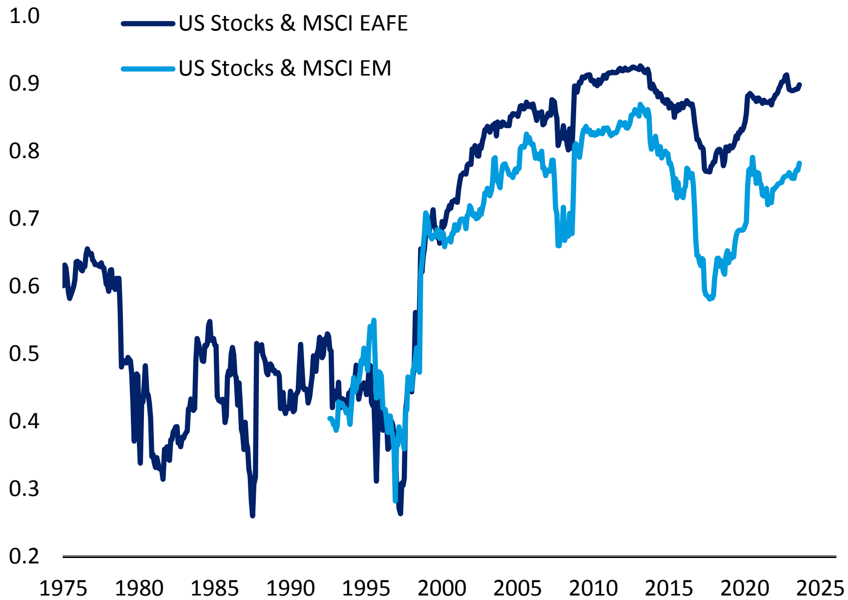
5 year correlation of monthly returns
Source: BofA Global Investment Strategy, Bloomberg, Ibboston

BofA GLOBAL RESEARCH

- While the correlation between US equity and US Treasury returns had been negative for almost 14 years, it has now flipped to positive for the first time since Mar 2009.
- The correlation between US equity and US Treasury returns is now the highest since September 2001.
- In the 1970s, 1980s and 1990s higher bond prices went hand-in-hand with higher equity prices.
- In the 1950s-1960s and the past 20 years, government bond prices have moved in the opposite direction to equity prices.

Correlation of US, EAFE & EM equities

Chart 113: US and international equities positively correlated
5yr rolling correlation US & international equities



5 year rolling correlations of monthly returns
Source: BofA Global Investment Strategy, Bloomberg, Ibbotson

BofA GLOBAL RESEARCH

- The returns from US and international equities have always been positively correlated but the correlation was relatively low between 1980 and 1997.
- Through the Asia Crisis of the late-90s and the internet bubble the correlation rose sharply; the correlation has been 78% in the past 5 years.

Correlation matrix with S&P 500 index

Table 8: Correlation with S&P 500 by asset class
Correlation with S&P 500

	Small cap	Govt bonds	Corp bonds	Cash	Copper	Commodities	Real Estate	REITs
1930s	89%	15%	23%	-7%	13%	96%	93%	23%
1940s	86%	36%	24%	16%	-8%	96%	91%	2%
1950s	76%	-16%	-1%	-28%	8%	91%	83%	1%
1960s	84%	7%	21%	-13%	-9%	93%	89%	8%
1970s	79%	41%	52%	-10%	-20%	93%	86%	-19%
1980s	84%	31%	29%	-17%	-12%	94%	91%	7%
1990s	68%	36%	45%	1%	-30%	88%	84%	-12%
2000s	72%	-15%	12%	-9%	4%	87%	85%	29%
2010s	88%	-45%	-16%	0%	9%	94%	89%	54%
2020s	87%	20%	61%	-12%	-11%	92%	81%	59%

***1970s data based on years 1971-1979**
****2020s based on Jan 2020-Present**
Source: BofA Global Investment Strategy, Bloomberg, Ilbotson, Case-Shiller

BofA GLOBAL RESEARCH

- This table shows the correlation of various asset class total returns with the S&P 500 since the 1930s.
- Over this period, equity and bond returns were mostly positively correlated. The correlation between equities and govt bonds turned negative in the 2000s-2010s, but is now once again positive in the 2020s.

The great US equity bull markets

Table 9: The great US equity bull markets
History of US equity bull markets

History of US equity bull markets					
Start	End	Total price return	Annualized price return	Duration (months)	Prior Bear Market
6/1/1932	3/5/1937	323%	35%	57	-86%
4/29/1942	5/29/1946	153%	26%	49	-54%
6/14/1949	8/2/1956	265%	20%	86	-30%
10/22/1957	12/12/1961	86%	16%	50	-22%
6/27/1962	2/9/1966	79%	17%	44	-28%
10/7/1966	11/29/1968	48%	20%	25	-22%
5/26/1970	1/11/1973	74%	23%	32	-36%
10/3/1974	11/28/1980	126%	14%	73	-48%
8/12/1982	8/25/1987	229%	27%	60	-27%
12/4/1987	7/16/1990	65%	21%	31	-34%
10/11/1990	3/24/2000	417%	19%	113	-20%
10/9/2002	10/9/2007	101%	15%	60	-49%
3/9/2009	2/19/2020	401%	16%	131	-57%
3/23/2020	1/3/2022	114%	53%	22	-34%
Average		**177%**	**23%**	**60**	**-39%**

Source: BofA Global Investment Strategy, Ibbotson, Bloomberg

BofA GLOBAL RESEARCH

- 2020 marked the end of the longest equity bull market in US history (131 months vs an average of 60 months) and saw a return of 401% (vs. an average of 182%).
- The last bull market following the COVID-19 crash ended in Jan 2022 after 22 months and a 114% return.
- Recently, the S&P 500 rose 28% from the low in Oct 2022 to the high in Jul 2023 (9 months).

The great US equity bear markets

Table 10: The great US equity bear markets
History of US equity bear markets

Peak	Trough	Decline	Event (s)	2-Year Returns (vs Trough)
11/1886	03/1888	-22.0%	Depression, Railroad strikes	12.6%
05/1890	07/1891	-20.1%	Barings Brothers Crisis	-4.7%
10/1892	07/1893	-27.3%	Silver Agitation	23.7%
08/1897	03/1898	-21.1%	Outbreak of Boer War	43.9%
4/1899	06/1900	-30.4%	Cornering of Northern Pacific Stock	54.2%
04/1903	09/1903	-21.7%	Rich Man's Panic	54.5%
01/1906	10/1907	-34.2%	Panic of 1907	69.6%
09/1909	07/1910	-20.6%	Enforcement of Sherman Anti-Trust Act	22.4%
11/1916	12/1917	-27.9%	WWI	51.5%
09/1929	06/1932	-86.2%	Crash of 1929, 1st part of Great Depression	113.2%
03/1937	04/1942	-60.0%	2nd part of Great Depression, WWII	58.9%
05/1946	06/1949	-29.6%	Post-war Bear Market	59.0%
12/1961	06/1962	-28.0%	Height of Cold War, Cuban Missile Crisis	55.7%
11/1968	05/1970	-36.1%	Start of Inflationary Bear Market	59.7%
01/1973	10/1974	-48.2%	Inflationary Bear Market, Vietnam, Watergate	67.3%
08/1987	10/1987	-33.2%	Black Monday	54.4%
03/2000	10/2002	-49.1%	Dot-com bubble burst	44.5%
10/2007	03/2009	-56.8%	Global Financial Crisis	95.1%
02/2020	03/2020	-33.9%	COVID-19 Crash of 2020	99.2%
01/2022	10/2022	-25.4%	Great Bond Bear Market	-
Average		**-35.6%**		**54.5%**

Source: BofA Global Investment Strategy, Ibbotson, SBBI Yearbook, Bloomberg

BofA GLOBAL RESEARCH

- Peak to trough SPX fell 33.9% or $9.8tn market cap loss in 2020.
- Average decline in the past 20 US equity bear markets in the past 140 years is 35.6% and average duration is 289 days…
- Past performance is no guide to future performance, but most recent bear market fell right in line with historical average…Great Bond Bear Market of 2022 saw S&P 500 fall -25.4% and lasted 282 days.

The great global equity bear markets

Table 11: The great global equity bear markets
History of global equity bear markets

ACWI peak	ACWI trough	ACWI	S&P 500	ACWI xUS	Europe	Japan	USD	Duration (months)
Mar-73	Oct-74	(47%)	(46%)	(46%)	(43%)	(45%)	2%	19
Jan-81	Aug-82	(25%)	(26%)	(29%)	(28%)	(19%)	36%	19
Aug-87	Oct-87	(22%)	(31%)	(17%)	(20%)	(17%)	(1%)	2
Jul-90	Sep-90	(22%)	(17%)	(24%)	(20%)	(29%)	(5%)	2
Mar-00	Oct-02	(51%)	(49%)	(51%)	(52%)	(54%)	2%	30
Oct-07	Mar-09	(60%)	(56%)	(62%)	(64%)	(51%)	16%	16
May-11	Oct-11	(24%)	(17%)	(29%)	(32%)	(12%)	9%	5
May-15	Feb-16	(20%)	(14%)	(25%)	(25%)	(18%)	0%	9
Jan-18	Dec-18	(21%)	(18%)	(23%)	(22%)	(32%)	9%	11
Feb-20	Mar-20	(34%)	(34%)	(34%)	(36%)	(26%)	3%	1
Nov-21	Oct-22	(27%)	(24%)	(31%)	(31%)	(30%)	18%	11
Avg		**(32%)**	**(30%)**	**(34%)**	**(34%)**	**(30%)**	**8%**	**11**

Source: BofA Global Investment Strategy, MSCI, S&P, Datastream
Note: price return in USD terms; ACWI & ACWI xUS prior to 1987 based on full-float equity index
BofA GLOBAL RESEARCH

- There have been 11 bear markets in global equities since 1970.
- The longest (2000-2002) lasted 30 months while the shortest (2020) lasted 1 month.
- Japan (-30%) saw the lowest average drawdown during global bear markets while Europe and ACWI ex-US (-34%) fared the worst.

The great equity market crashes

Chart 114: The great equity market crashes
The great equity market crashes

Bubble	Index	Peak	Rise	Decline	Valuation at peak (P/E)	Bond yield	Policy rate	Speed of rise
Mississippi Co.	CAC All-Tradeable	01/1720	2955%	-95%	n/a	↑	↑	73%
South Sea Co.	South Sea Co.	06/1720	707%	-89%	n/a	↓		188%
Roaring 20s	DJ Industrial Average	8/30/1929	101%	-89%	19	↑	↑	20%
Black Monday	DJ Industrial Average	8/21/1987	103%	-34%	19	↑	↑	20%
Japan 1980s	Nikkei 225	12/29/1989	72%	-59%	67	↑	↑	10%
Nasdaq Dot-com	Nasdaq 100	3/10/2000	189%	-76%	205	↑	↑	52%
US Homebuilders	DJ US Select Builders	7/22/2005	155%	-83%	12	→	↑	29%
Saudi Arabia	Tadawul All-Share	2/28/2006	305%	-68%	123	↑	↑	22%
China	Shanghai Composite	10/1/2007	445%	-60%	49	↑	→	37%
EM Technology	EMQQ Emerging Markets	1/26/2018	118%	-39%	100	↑	↑	23%
Tech Disruptors	ARKK	2/12/2021	351%	-81%	n/a	→	→	62%
Big Tech	NYSE FANG	11/4/2021	211%	-49%	37	→	→	15%
Cryptocurrency	Bitcoin	11/9/2021	1281%	-77%	n/a	→	→	49%
Magnificent 7 US Tech*	AAPL, MSFT, GOOGL, AMZN, NVDA, META, TSLA	7/18/2023	86%	-	38	↑	↑	32%

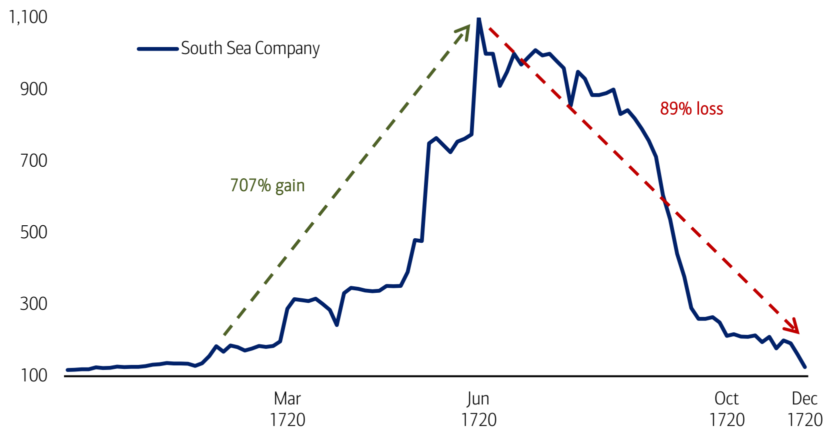
Source: BofA Global Investment Strategy, Frehen (2012), Bloomberg, Global Financial Data;
rise & decline measured approx. 2 years from peak; speed of rise = % distance from 200-day moving average at peak

BofA GLOBAL RESEARCH

- The greatest equity bubbles of all time were in 1720, when the South Sea and Mississippi companies grew rapidly and then failed.
- Rich valuations often precede equity crashes, as was the case with the Dotcom (205x price/earnings) and Saudi Arabian (123x) crashes.
- Crashes are also often preceded by fast rallies (rightmost column), though the Nikkei in 1989 stands out as an exception.

Crashes

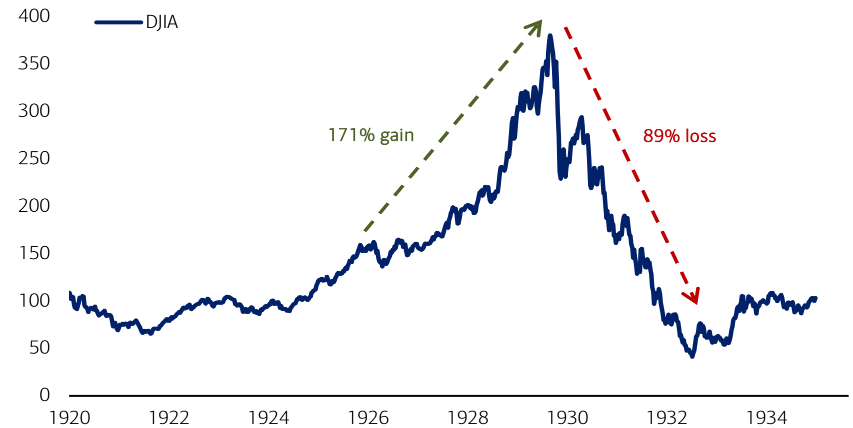
Chart 115: The South Sea Bubble
South Sea Company



Source: BofA Global Investment Strategy, Frehen et al. (2012)

BofA GLOBAL RESEARCH

Chart 116: Great Crash of 1929
Dow Jones Industrial Average



Source: BofA Global Investment Strategy, Global Financial Data

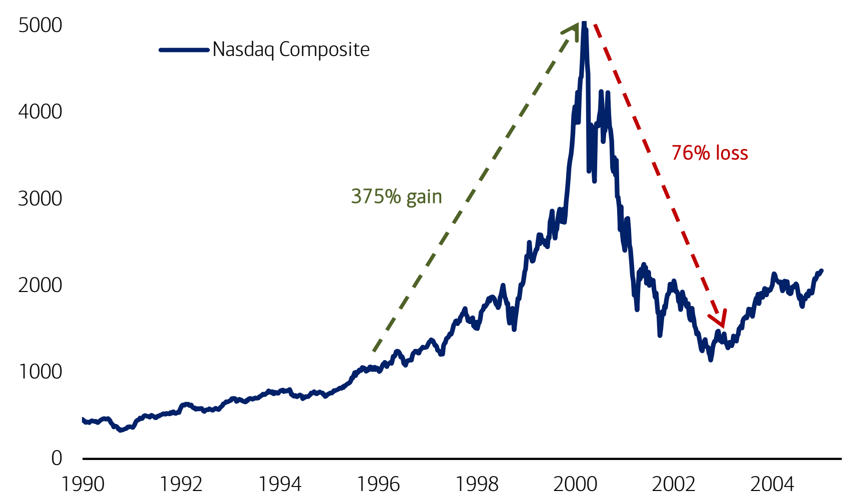
BofA GLOBAL RESEARCH

Chart 117: Japanese real estate & equity bubble
Nikkei 225

Source: BofA Global Investment Strategy, Bloomberg

BofA GLOBAL RESEARCH

Chart 118: Dot-com bubble
Nasdaq Composite



Source: BofA Global Investment Strategy, Bloomberg

BofA GLOBAL RESEARCH

Crashes

Chart 119: China SHCOMP
Shanghai Stock Exchange Composite Index

Source: BofA Global Investment Strategy, Bloomberg

BofA GLOBAL RESEARCH

Chart 120: Saudi Arabia
Tadawul All Share Index

Source: BofA Global Investment Strategy, Bloomberg

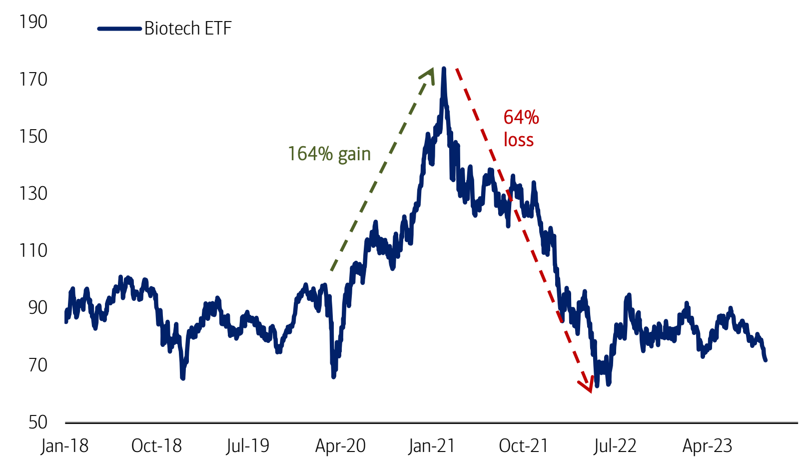
BofA GLOBAL RESEARCH

Chart 121: Crypto
Bitcoin

Source: BofA Global Investment Strategy, Bloomberg

BofA GLOBAL RESEARCH

Chart 122: Biotech
Biotech ETF



Source: BofA Global Investment Strategy, Bloomberg

BofA GLOBAL RESEARCH

US Treasury bond bear markets

Table 12: US Treasury bond bear markets
History of US Treasury bond bear markets

Date of Market Peak	Date of Market Trough	Peak to Trough Performance	Recovery One Year from Trough	Duration of Bear Market (mos)
7/31/2020	-	-25.8%	-	-
06/30/1860	05/31/1861	-18.7%	32.4%	12
05/31/1835	12/31/1839	-16.1%	19.0%	56
06/30/1979	02/29/1980	-15.8%	8.2%	9
05/31/1931	01/31/1932	-15.4%	18.5%	9
06/30/1980	09/30/1981	-14.6%	43.1%	16
09/30/1833	03/31/1834	-13.7%	16.5%	7
05/31/1811	03/31/1813	-11.3%	6.8%	23
02/28/1987	09/30/1987	-10.5%	14.7%	8
10/31/1993	11/30/1994	-10.2%	25.1%	14
7/31/2012	12/31/2013	-10.1%	10.8%	18

Source: BofA Global Investment Strategy, Global Financial Data;
"bond bear market" = total return decline of 10% or more

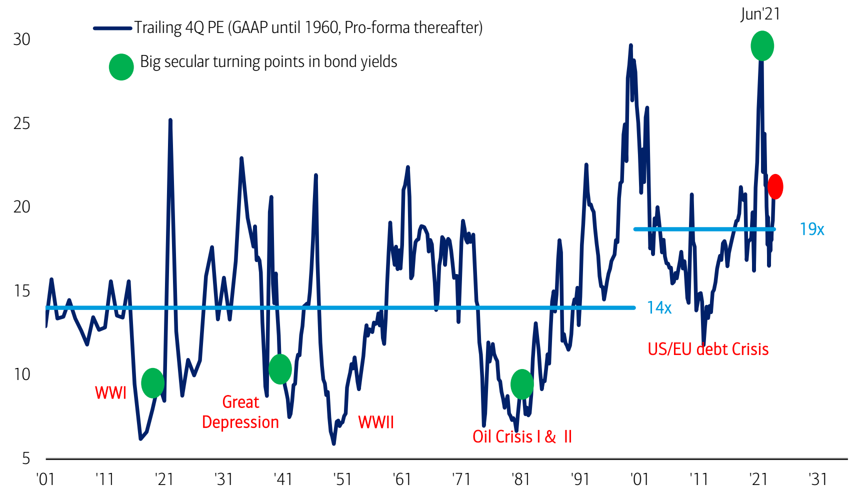
BofA GLOBAL RESEARCH

- There have been 10 bear markets in US Treasury bonds since 1811; only 5 of them in the last 50 years.
- The longest (1835-1839) lasted 56 months while the shortest (1833-34) lasted 7 months.
- The rally from a bear market low tends to be extremely powerful, as column 4 illustrates.
- Note that the ongoing correction in US Treasury bonds since 2020…the 10-year Treasury has seen a -26% loss (as of October 2023).

Valuation Trends

US price-earnings ratio since 1901

Chart 123: US price-earnings ratio since 1901
S&P 500 Trailing 4Q Price-to-Earnings Ratio



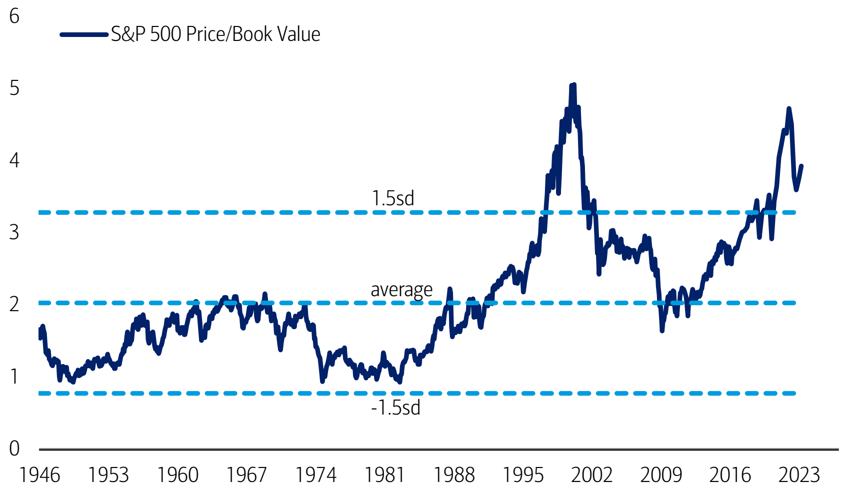
*As of 1Q17. Annual data through 1935, quarterly thereafter
Source: BofA US Equity & Quant Strategy

BofA GLOBAL RESEARCH

- This chart shows the trailing price-to-earnings ratio of the S&P 500 since 1900.
- The S&P500 trailing PE rose to 30x in Jun 2021, the highest in 100 years (vs average of 15x).
- The all-time low was 5.9x in Jun 1949.
- The cheapest years to buy equities were 1916 to 1917, 1948 to 1950, 1974 and 1980. During these years the S&P 500 could have been bought for a trailing P/E ratio of less than 7x.
- Currently drivers of high 21st century US PE of 19-20x all reversing…QE, fiscal austerity, free movement of trade, people, capital, geopolitical peace.
- New regime of inflation of energy, workers, rent, food, raw materials, infrastructure & deflation of government debt, CRE, monopolistic tech profits…20th century PE of 14-15x more credible.

US price-book ratio since 1946

Chart 124: US price-book ratio since 1946
S&P 500 Price-to-Book Value Ratio



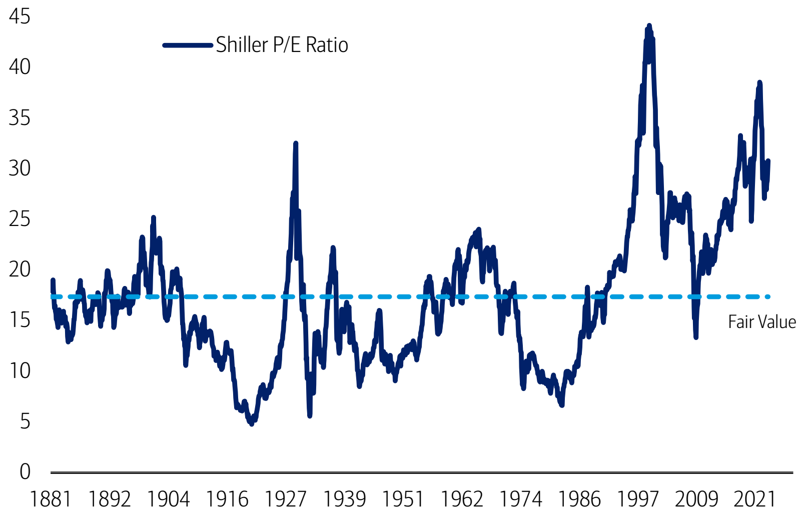
Source: BofA Global Investment Strategy, Global Financial Data

BofA GLOBAL RESEARCH

- This chart shows the price-to-book value ratio of the S&P 500 since 1946.
- The average P/B ratio since 1946 is 2.0, the all-time P/B high was 5.1 in Mar 2000.
- The all-time low was 0.9 in Sep 1974. The ratio fell to 1.6 in Feb 2009.
- The latest ratio of 3.9 (Mar 2023) is +2.3SD above the long-run average, down from the 4.7 high in Dec 2021.

Shiller price-earnings ratio since 1881

Chart 125: Shiller price-earnings ratio since 1881
CAPE Price-to-Earnings ratio



Note 1: Shiller PE or CAPE = Cyclically Adjusted Price-Earnings ratio
Source: BofA US Equity & Quant Strategy

BofA GLOBAL RESEARCH

- This chart shows the cyclically-adjusted price-to-earnings (CAPE) ratio for the S&P 500 since 1881.
- Robert Shiller calculates the CAPE P/E by adjusting S&P 500 price levels and EPS for inflation using CPI.
- The all-time P/E high was 44x in December 1999.
- The all-time low was 4.8x in December 1920.
- The Fair Value (FV) line uses the LT avg P/E of 17.4x; stocks are rich when they trade above FV (as they are today); below the line stocks are relatively cheap vs. history.
- Note some academics argue that CAPE is now permanently higher by several points as a result of US accounting changes in 2001.
- Today's ratio is 31x vs. the average of 17.4x since 1881 and down from the high of 38.6x in November 2021.

US vs. World ex-US price-earnings ratio since 1969

Chart 126: US vs World ex-US price earnings ratio since 1969
US vs. World ex-US price-earnings ratio since 1969

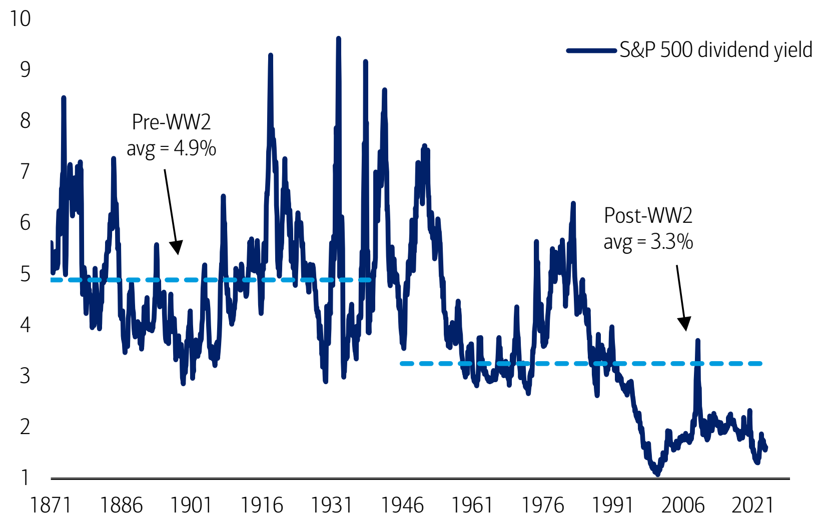
Source: BofA US Equity & Quant Strategy, Factset, Datastream, Global Financial Data

BofA GLOBAL RESEARCH

- This chart shows the P/E ratio of US equities vs. the rest of the world ex-US.
- US equities historically traded at a lower earnings multiple than global equities, reflecting the willingness of investors to pay more for higher anticipated growth.
- In recent years, the US market traded 1.5stdev above the long term average vs the rest of the world; this valuation disconnect has only been seen before during prior market peaks; 2000 dotcom bubble and the GFC.
- Currently US equities are trading 1.5stdev above the long term average vs the rest of the world.

US dividend yield since 1871

Chart 127: US dividend yield since 1871
Dividend yield, %



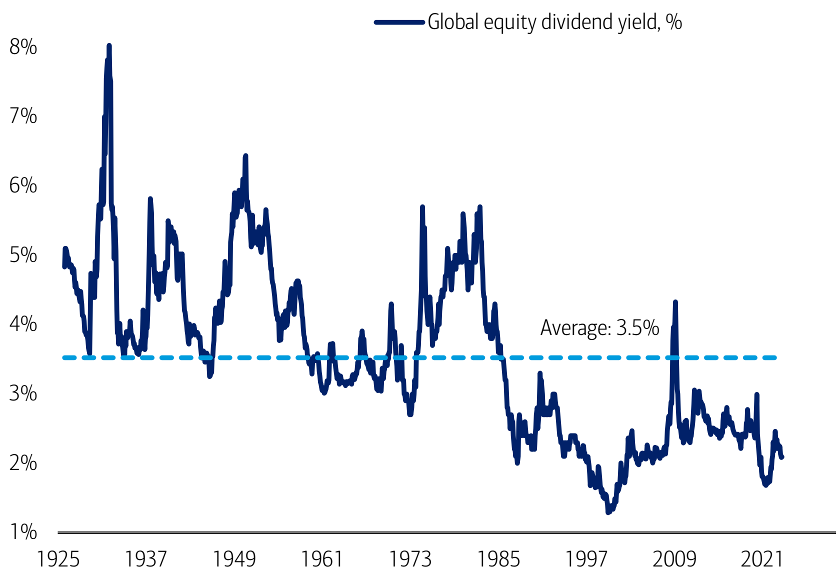
Monthly data. Nominal dividend yield
Source: BofA US Equity & Quant Strategy, Global Financial Data, Bloomberg

BofA GLOBAL RESEARCH

- Dividend yields are an important source of return for investors and would be higher in the US were it not for the modern fashion of stock buybacks.
- The US dividend yield was much higher in the period before WW2 (average was 4.9%) than in the post-war era (when the average has been 3.3%) and peaked at 9.6% in 1932.
- The S&P 500 dividend yield hit an all-time low near 1.1% in 2000; it is currently 1.6%.

Global dividend yield since 1926

Chart 128: Global dividend yield since 1926
Global equity dividend yield, %



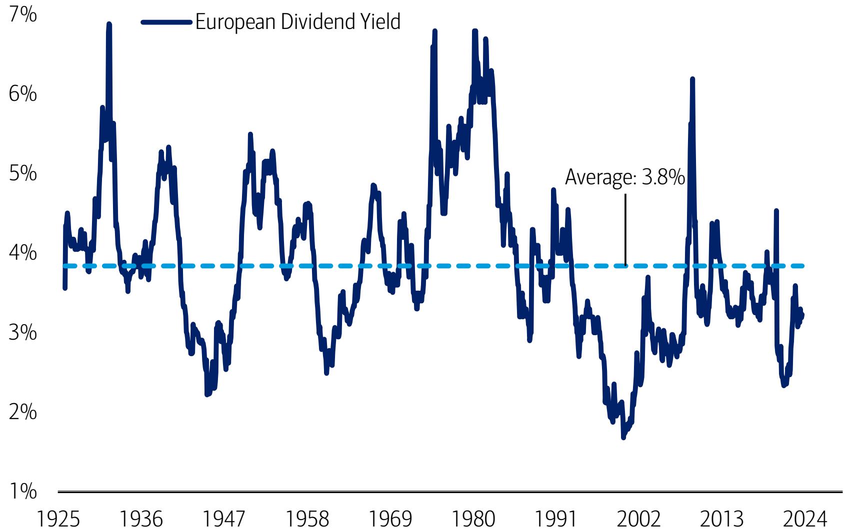
Monthly data. Dividend yields from GFD prior to Oct-1995; from MSCI Datastream thereafter
Source: BofA US Equity & Quant Strategy, Global Financial Data, Datastream

BofA GLOBAL RESEARCH

- The dividend yield on global equities fell to an all-time low of 1.3% in 2000 during the Tech bubble.
- Since then, dividend yields have remained below their long-term average of 3.5%; the global dividend yield is now at 2.1%.

European dividend yield since 1925

Chart 129: European dividend yield since 1925
European equity dividend yield, %



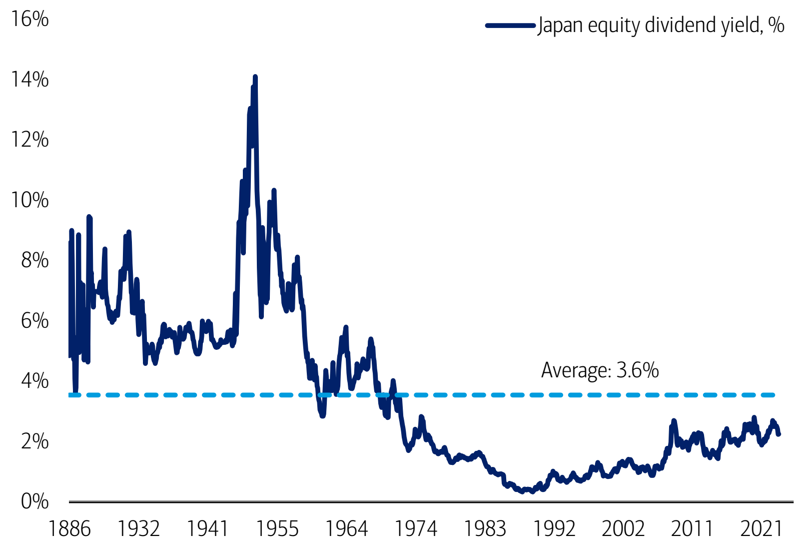
Monthly data. Dividend yields from GFD prior to Dec-1969, MSCI Europe thereafter
Source: BofA US Equity & Quant Strategy, Global Financial Data, Datastream

BofA GLOBAL RESEARCH

- European equity dividend yields have been fairly volatile over the past 85 years, but have risen steadily post the dotcom bubble lows of 1.7%.
- As of August 2023, European equities yielded 3.2%, below the long-term average of 3.8%.

Japanese dividend yield since 1886

Chart 130: Japanese dividend yield since 1886
Japan equity dividend yield, %



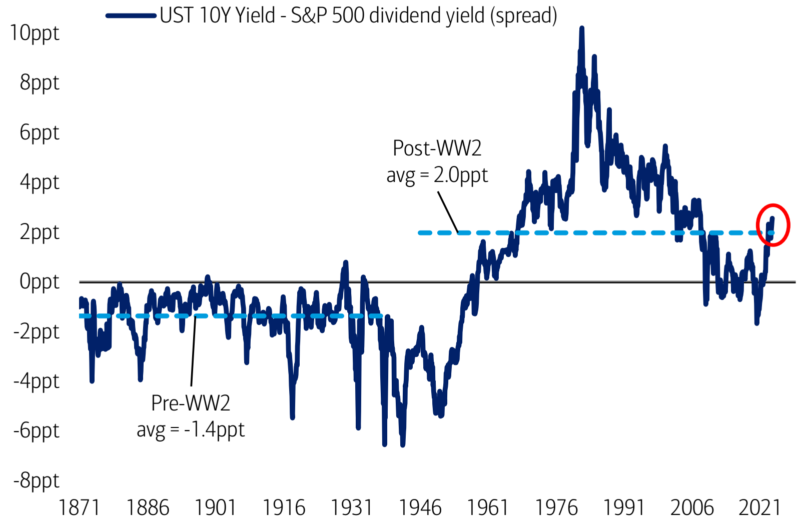
Annual data through 1925, monthly thereafter
Source: BofA Global Investment Strategy, Tokyo stock exchange, Global Financial Data

BofA GLOBAL RESEARCH

- Dividend yields in Japan fell close to zero in 1988, and were relatively flat for well over a decade.
- The Japanese dividend yield was 2.3% in Jul 2023, low vs. its historic average of 3.6%, but above US and global dividend yields.

Bond & dividend yield spread: US

Chart 131: Bond & dividend yield spread: US
Spread of 10-year US Treasury yields over US equity dividend yield (ppt)



Monthly data
Source: BofA Global Investment Strategy, Bloomberg, Global Financial Data

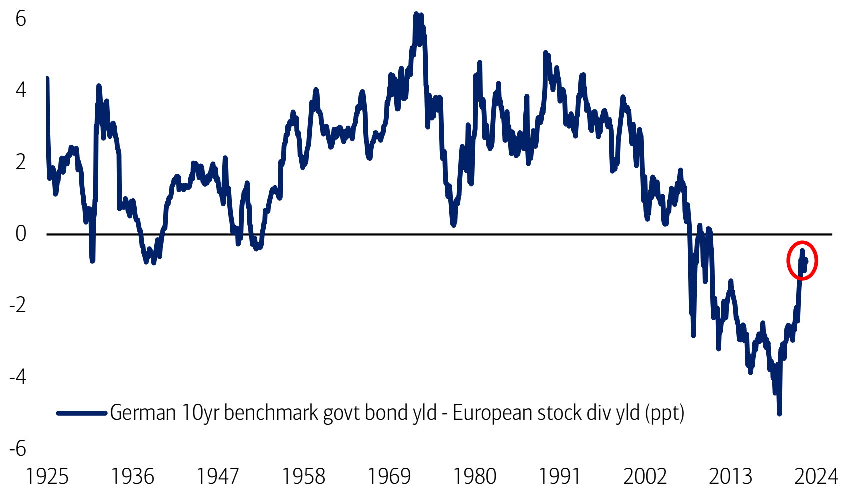
BofA GLOBAL RESEARCH

- Equities are historically more attractive when equity dividend yields exceed Treasury bond yields.
- Before WW2, S&P 500 dividend yields were in excess of the 10-year Treasury yield, with an average premium of 136bps.
- In the post war period, 10-year Treasuries on average yielded 199bps more than equity dividends, though the spread has narrowed in recent years.
- The widest spread of Treasuries over dividend yields was 1,023bps in 1981.
- In 2020, equity dividend yields rose to a premium of 167bp over Treasury yields, the widest since 1954.
- The current spread between Treasury yields and equity dividend yields is 257bps, the widest spread of Treasury bond yields over equity dividend yields since 2007.

Bond & dividend yield spread: Europe

Chart 132: Bond & dividend yield spread: Europe

Spread of European equity dividend yield over 10-year German Bund yields (ppt)



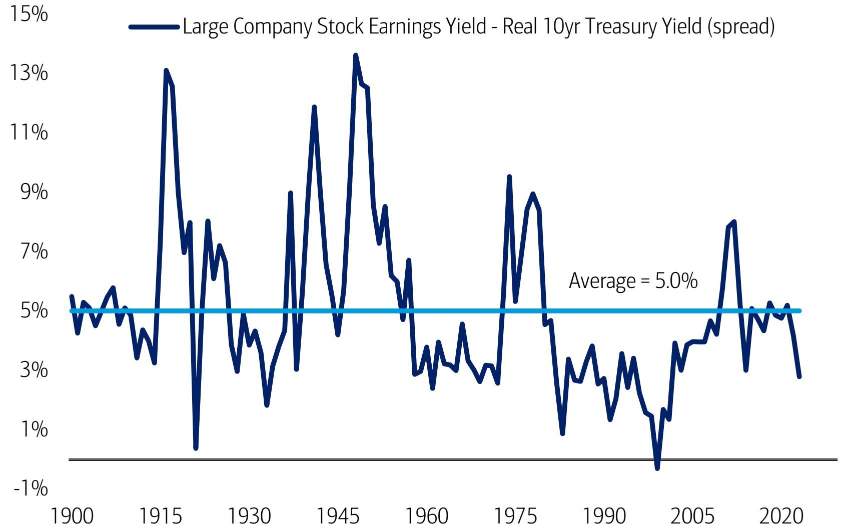
Monthly data. Dividend yield data from Global Financial Data prior to Dec-1969, MSCI Europe thereafter
German bund yield data not available from Aug-1931 to Mar-1932, & Dec-1943 to Dec-1945
Source: BofA Global Investment Strategy, Global Financial Data, Bloomberg, Datastream

BofA GLOBAL RESEARCH

- The spread of the 10-year German bund yield over European equity dividend yield fell to an all-time low during COVID of -501bp.
- 10-year German bund yields have risen to levels not seen since 2011. The spread of equity dividend yields over bund yields is currently at the narrowest level since 2011.

Equity risk premium since 1900

Chart 133: Equity risk premium since 1900
Spread of US earnings yield over real 10-year Treasury yields



Annual data
Source: BofA Global Research, Cowles Commission Indices, Livingston Survey

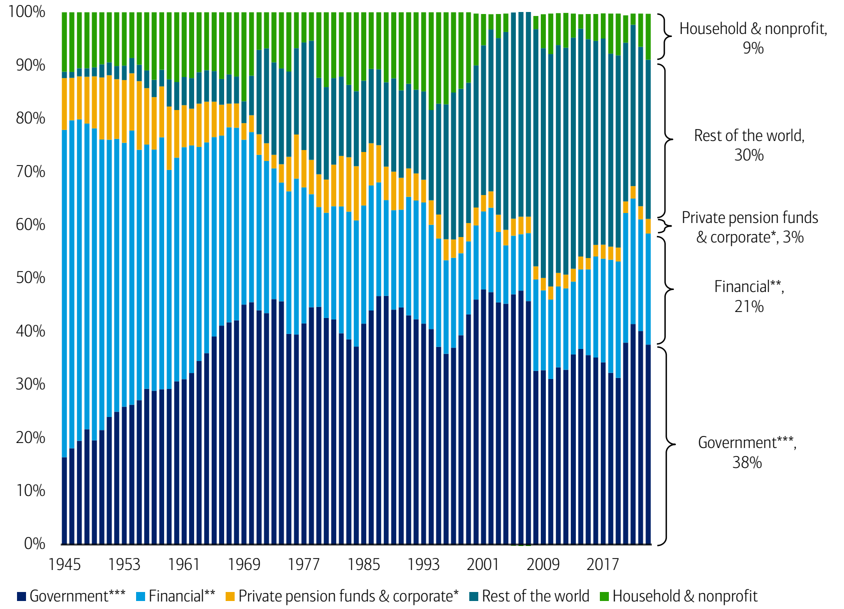
BofA GLOBAL RESEARCH

- The Equity Risk Premium (ERP) is the difference between earnings and bond yields, and represents the return demanded by investors to hold equities over Treasuries.
- At 2.8%, the return demanded by investors to hold equities over Treasuries is the lowest since 2001 (and below the long-term average of 5.0%).

Ownership Trends

US Treasury ownership since 1945

Chart 134: Largest share of the US Treasury market is owned by the government
US Treasury Ownership since 1945



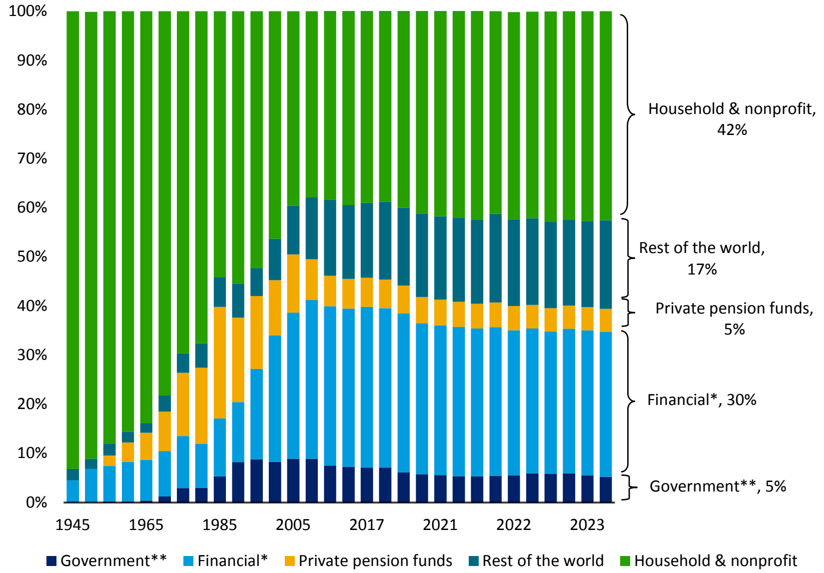
Note: Excludes savings bonds. Households are calculated as residuals in the FoF data, and thus includes data such as domestic hedge funds, private equity funds & personal trusts
*Private pension funds & nonfinancial corporate business
**Financial: Depository institutions, Fgn banking offices in US, Banks in US affiliated areas, Credit unions, Insurance companies, Money mkt mutual funds, Mutual funds, CEFs, ETFs, ABS issuers, Brokers & dealers, Holding companies
***Government: S&L govts, Monetary authority, Federal and S&L retirement funds, govt sponsored entities (GSE)
Source: BofA Global Investment Strategy, Flow of Funds, Factset, Haver

BofA GLOBAL RESEARCH

- Who owns the $25 trillion US Treasury market?
- The government holds the largest share of the US Treasury market at 38% (includes state & local governments, monetary authority, government retirement funds, GSEs).
- In 1945 foreigners owned 1% of the US Treasury market; today foreigners own 30% down from a record high of 45% in 2011.
- In contrast, the holdings of the financial and household sectors have shrunk from 73% to 30%.

US equity ownership since 1945

Chart 135: The financial sector has become one of the top owners of US equities
US Equity ownership since 1945



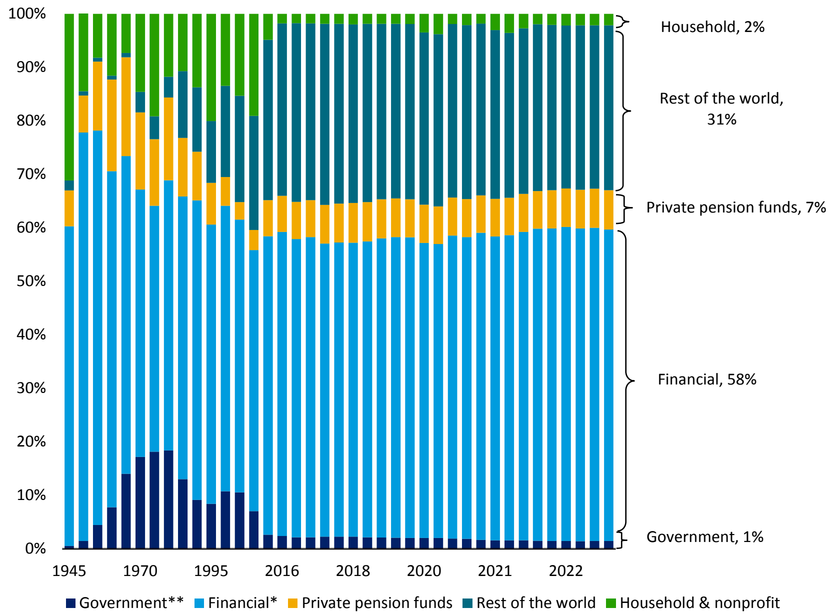
Note: Households are calculated as residuals in the FoF data, and thus includes data such as domestic hedge funds, private equity funds & personal trusts
**State & Local governments, Federal government, Monetary authority, Federal retirement funds, State & local retirement funds
*Insurance, Mutual funds, Commercial & savings banks, CEFs, ETFs, brokers & dealers, funding corporations.
Source: BofA Global Investment Strategy, Flow of Funds, Factset, Haver

BofA GLOBAL RESEARCH

- Who owns the $73 trillion US equity market?
- In 1945, over 90% of equities were owned by households; in the Q2'23 it was down to 42%.
- Over time the financial sector has become one of the largest owners of US equities.
- Since 1980 the share of equities owned by foreigners has risen to a new high of 17%, surpassing the prior peak in Q3'15.

US corporate bond ownership since 1945

Chart 136: The financial sector is the largest owner of US corporate bonds
US Corporate bond ownership since 1945



Note: Includes bonds issued by US corporations both in the US and in foreign countries. Households are calculated as residuals in the FoF data, and thus includes data such as domestic hedge funds, private equity funds & personal trusts
*Financial: Depository institutions, Fgn banking offices in US, Banks in US affiliated areas, Credit unions, Insurance companies, Money mkt mutual funds, Mutual funds, CEFs, ETFs, Finance companies, ABS issuers, Brokers & dealers, Holding companies, Funding corporations
**Government: S&L govts, Monetary authority, Federal and S&L retirement funds, GSEs
Source: BofA Global Investment Strategy, Flow of Funds, Factset, Haver

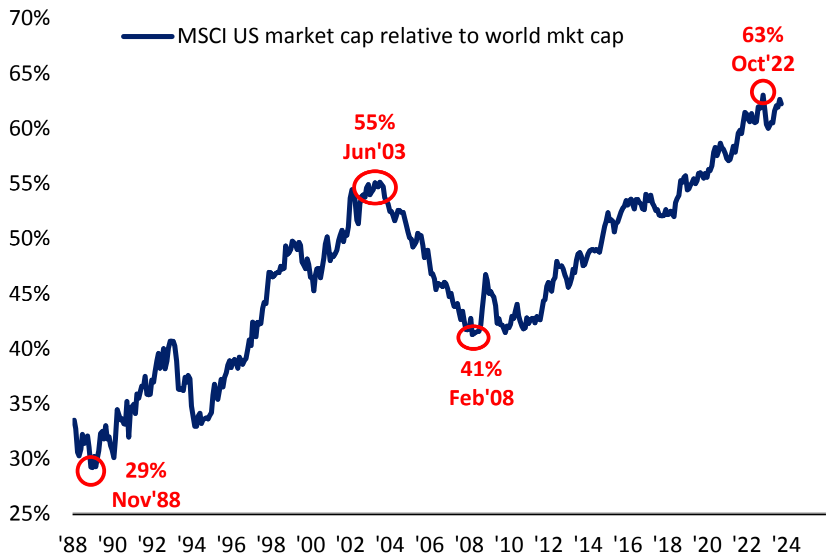
BofA GLOBAL RESEARCH

- Who owns the $15.4 trillion US corporate bond market?
- The financial sector is the largest owner, accounting for 58% of the outstanding value.
- The rest of the world is now the second largest owner of US corporate bonds, accounting for 31%, up from 2% in 1945, and close to prior peak of 33% in Q2'18.

Market Share Trends

US equities as % of world

Chart 137: US share of world market cap remains near all-time highs
US as a % of world market capitalization



Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- Finally a look at the recent market share trends of equity regions and global sectors.
- The US share of world market capitalization rose sharply from a low of 29% in November 1988 to a peak of 55% in 2003 before slipping to a low of 41% during the GFC.
- Since 2009 the US has expanded its global share boosted by a strong US dollar, the outsized US tech sector and relatively small financial sector, as well as its high-quality corporations.
- The share of the global equity market accounted for by US stocks is currently at a record high 63% boosted in 2023 almost exclusively by the narrow boom in the "Magnificent Seven" (AAPL, AMZN, GOOGL, META, MSFT, NVDA, TSLA).

Japan equities as % of world

Chart 138: Japan share of world market cap near all-time low
Japan as a % of world market capitalization

Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- In 1988 Japan's equity market was the largest in the world, with a market cap that represented 44% of the MSCI All Country World Index.
- Japan's share began its epic collapse in 1990; its share of world market capitalization fell to below 10% in less than ten years.
- Japan's share of the world market capitalization hit a low of 5.2% in Oct'22, and has since edged higher to 5.5%.

Europe equities as % of world

Chart 139: Europe share of world market capitalization near all-time low
Europe as a % of world market cap

Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- Back in 1988, Europe's share of world market capitalization was 21%.
- Europe's high-water mark in terms of market cap (35%) came in Aug'98, at the height of the Asia crisis, just months before the euro was introduced.
- From 2007, Europe's share has steadily declined from 31% to an all-time low of 15% in Aug'22; it's currently 16%.

EM & Asia Pacific equities as % of world

Chart 140: EM & Asia's share of global markets continues to stagnate
Emerging Markets and Asia Pac ex-Japan as a % of world market capitalization

Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- In 1988, the market cap of equities in the Emerging Markets and Asia Pacific ex-Japan was a mere 3%; it reached a record high of 19% at the end of 2010.
- The secular rise of Emerging Markets and Asia Pacific has been marred by three brutal bear markets: 1997-98, 2008, and 2011-2016.
- The share of EM & Asia in global markets declined to 12% in Nov 2015, recovered to 17% in Jan 2021, but EM & Asian markets are now threatening to drop to 2007 lows.

Financials as % of world

Chart 141: Financials as % of world remain below GFC low
Financials as a % of world market capitalization

Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- This chart shows a nearly 30-year snapshot of the global financial sector share of world equity market cap.
- Financials have undergone big swings in capitalization, falling to 16% of the world total as the Tech Bubble peaked in 2000, and peaking at 26% in 2007 with the global real estate market, before the Global Financial Crisis caused the sector's share to plunge back to 16%.
- Financials made a significant recovery from their financial crisis low of 16% to 22% in the early to mid-2010s.
- During COVID, financials fell to an all-time low of 13% of the global equity market cap before recovering to 15% as of Feb 2023.
- In Mar 2023, the US regional bank crisis saw financials' share of global equity market cap dip once again to 14%; financials are now 16% of global equity market cap.

Technology as % of world

Chart 142: Double-top in tech's share of world market cap
Technology as a % of world market capitalization

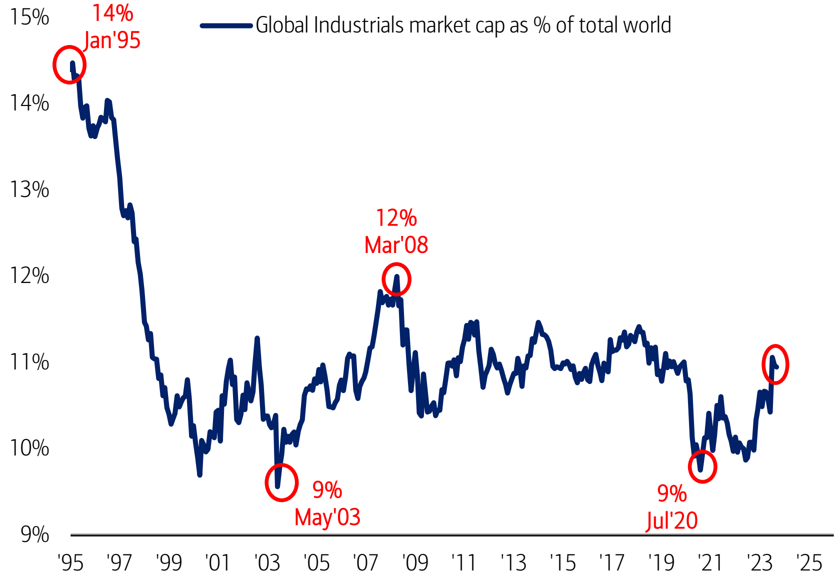
Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- From a mere 6% in 1994, tech rose rapidly to a high of 24% in 2000, making it the largest sector in the world at the time.
- After the tech bubble burst, tech's market share fell to 11%.
- Tech as a share of world market cap swelled to 20% by 2018, its largest share since 2000 (note in September 2018, S&P reorganized the Global Industry Classification Standard or GICS which impacted the tech sector).
- Tech was one of the biggest winners of the post-COVID QE era...its share of the world market cap climbed to a high of 24% in late 2021 before falling to 20% at the end of 2022.
- In 2023, the AI driven rally tech stocks helped push the sector's share of the global equity market up to an all-time high of >24%.
- Currently, tech's share of world equity market cap is 22%.

Industrials as % of world

Chart 143: Industrial share of world market cap nearing long-term average
Industrials as a % of world market capitalization



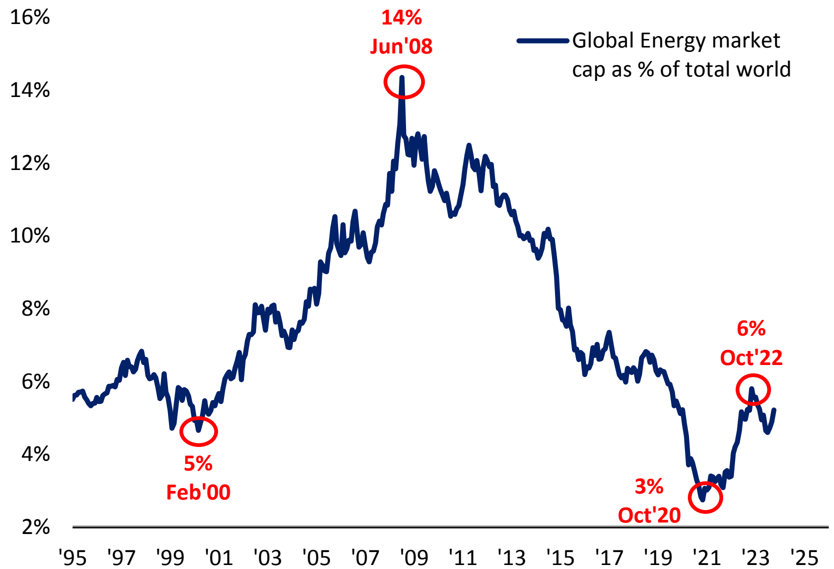
Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- In 1995, industrials were 14% of world equity market capitalization, and represented the world's 3rd largest sector.
- Industrials fell to a low of 9% of world equity market cap in 2003, and since then they moderately rose to 11%, just above the long-term average.
- In Jul 2020, industrials fell to 9% of world market cap, lowest since 2003.
- In Jun 2023, industrials' share of global equity market cap recovered to 10.6%, the largest share since 2019; it has since pulled back slightly to 10.4% of global equity market cap.

Energy as % of world

Chart 144: Energy share of world market cap well below long-term average
Energy as a % of world market capitalization



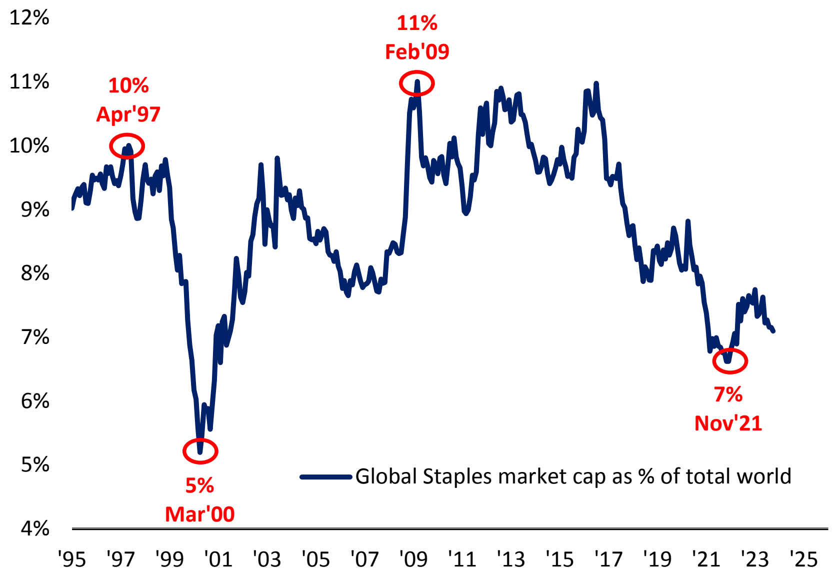
Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- The global energy sector's market cap rose from 5% in 2000 to 14% in 2008, reflecting the boom in commodity prices and Emerging Markets in the past decade.
- Energy's share of global market cap has slumped since the 2008 peak amid the slowdown in Chinese growth and the end of the commodity super-cycle.
- In 2020 amid COVID lockdowns, energy's share of the global equity market fell to an all-time low of 3%. Reopening and rising yields boosted energy's share up to 6% by late 2022.
- Energy's share of global market cap has moderated back down to 5% today (vs long-term average of 8%).

Staples as % of world

Chart 145: Staples' share of world market cap remains low
Consumer staples as a % of world market capitalization



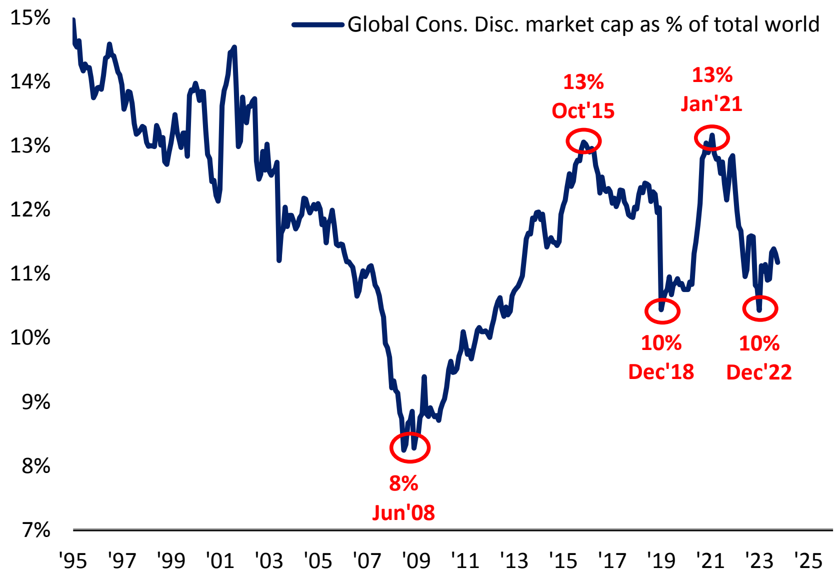
Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- During the tech bubble, investors rapidly moved out of defensive sectors causing the global consumer staples sector to drop from 10% to 5% of world market capitalization.
- In contrast, the Global Financial Crisis caused staples to rise to a high of 11% of market capitalization in 2008-2009.
- In recent years, the share of the classic "defensive growth" sector of staples has remained low below the long-term average of 9%.
- In late 2021, staples' share of world market capitalization fell below 7%, the lowest since 2001. Currently, the share is 7.1%.

Consumer Discretionary as % of world

Chart 146: Consumer discretionary share up modestly from 10-year low
Consumer discretionary as a % of world market capitalization



Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- Back in 1994 consumer discretionary was the world's second largest sector, accounting for 15% of total equity market cap. Fourteen years later the share of consumer discretionary stocks fell to a low of nearly 8%, reflecting higher oil prices and the end of a housing and consumer credit boom.
- In 2015, the share of consumer discretionary rose dramatically to 13%, one of the highest levels since 2002, and above its long-term average of 12%.
- Consumer discretionary as a share of reached 13% in Jan 2021, the highest since 2002. The sector's share of the global equity market fell to 10% by end-2022, a 10-year low.
- The share of consumer discretionary has risen back above 11% in recent months; the sector has also benefitted from the contribution from Amazon and Tesla to sector performance.

Materials as % of world

Chart 147: Materials share of global market cap remains under pressure
Materials as a % of world market capitalization

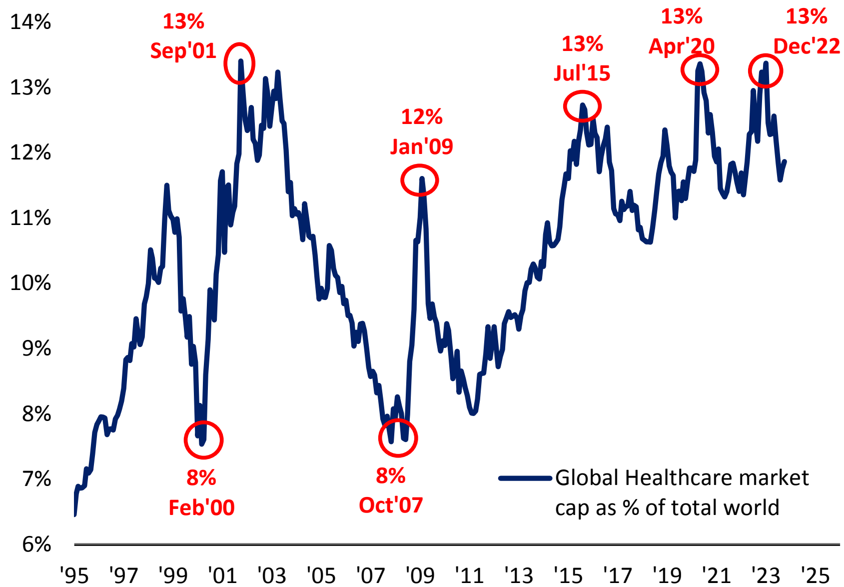
Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- Materials stocks have been one of the biggest victims of weak growth in Emerging Markets and US dollar strength.
- The materials share of global market capitalization was just 4.4% in Mar 2020, lowest since 2015.
- Currently, materials' share of global equity market cap is 4.5%.

Healthcare as % of world

Chart 148: Healthcare share of world market cap see-saws back down
Healthcare as a % of world market capitalization



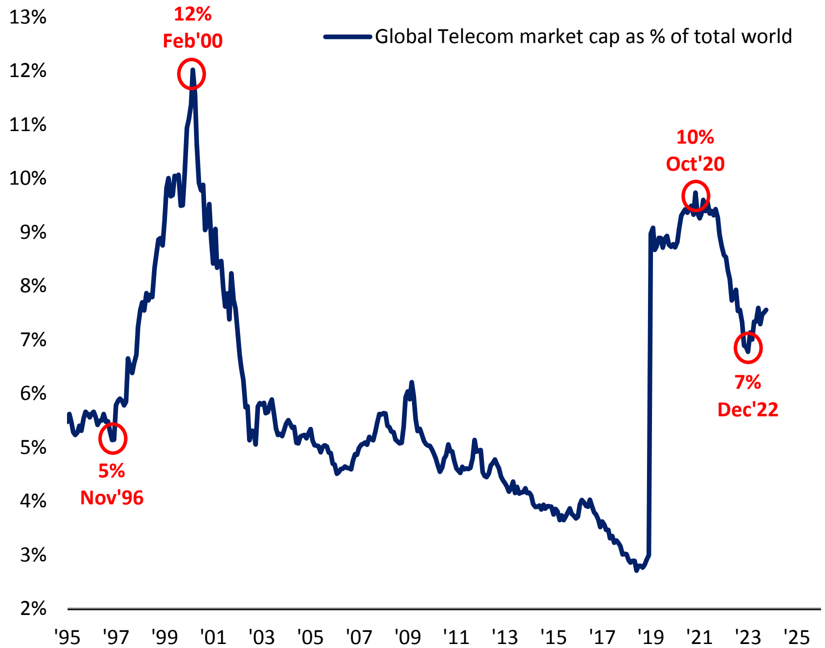
Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- Similar to financials, the market capitalization of the global healthcare sector has see-sawed since 1994.
- The peak was roughly 13%, reached in 2001-03. The sector's share surged during the Global Financial Crisis, reflecting its defensive posture.
- In recent years, healthcare has once again been in vogue thanks to the sector's "growth" characteristics, despite the drop after Jul 2016.
- The sector reached new highs in Apr 2020 at 13.4% of world equity market capitalization, highest since 2001, on the back of healthcare concerns amid the COVID-19 pandemic.
- Healthcare as a share of world market cap rose again in 2022 as sentiment turned more bearish and investors shift defensive.
- In 2023, healthcare's share of global equity market cap has fallen back down below 12% on fading recession fears.

Telecom as % of world

Chart 149: Telecom as a share of market cap down from pandemic highs
Telecom as a % of world market capitalization



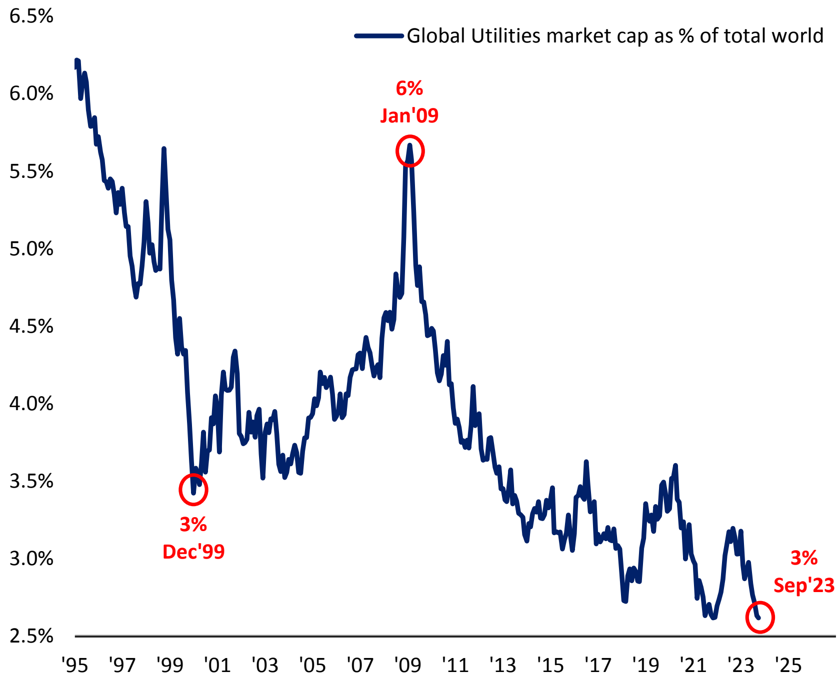
Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- Like technology, telecom has demonstrated a classic bubble pattern over the past 17 years; but unlike tech, the sector has not recovered ground in recent years.
- Telecom grew from just over 5% in 1994 to 12% in 2000. Since then its market capitalization has tumbled.
- Note in 2018, the telecom sector broadened and was renamed to 'communication services' as Google was added into the sector.
- The share of telecom stocks as a percentage of world market cap rose to 10% by late-2020.
- Currently, telecom stocks are just 7.6% of world equity market cap.

Utilities as % of world

Chart 150: Utilities as % of market at all-time low
Utilities as a % of world market capitalization



Monthly data
Source: BofA Global Investment Strategy, MSCI, DataStream

BofA GLOBAL RESEARCH

- During the GFC, utilities' share of world equity market capitalization rose to 6% before falling to less than 3% by 2018.
- Utilities rose as a share of world equity market cap during COVID-19 to a high of 4% in Mar 2020 before falling back down below 3%.
- Currently utilities are less than 3% of global equity market cap, near all-time lows reached at the end of 2021.

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Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster[R1]
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

[R1] Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

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