NDR 10-Year Capital Market Assumptions

The years to come: New (and old) risks and opportunities

A Special Report by
Ned Davis Research

VENETA DIMITROVA, SENIOR U.S. ECONOMIST
ALEJANDRA GRINDAL, CHIEF ECONOMIST

NDR
NED DAVIS RESEARCH

JANUARY 26, 2024

The years to come: New (and old) risks and opportunities

Special Report

Table of Contents

Executive summary

In NDR's inaugural long-term capital markets outlook, we discuss five major themes that will impact the global economy and the investment world. Demographics, receding globalization, and government debt sustainability risks temper the outlook. Potential productivity gains from new technologies and clean energy investment provide an offset.

These themes, incorporated into our econometric models, further refined by our strategists, and transformed into asset class returns, risk, and correlations, provide valuable insight for long-term asset allocators.

We project slower real GDP growth and somewhat higher inflation through 2033. This drives our forecast that global equity returns will decelerate over the next ten years.

U.S. equities should still outperform other developed markets. Expected continuation of the secular bull market for at least the next few years provides a tailwind to the returns outlook.

We expect emerging markets will deliver stronger equity returns than developed markets, driven by favorable growth differentials.

Fixed income returns should exceed those in the prior decade, due to higher starting bond yields. Average bond yields should remain elevated over the next decade, as inflation struggles to return to central banks' 2.0% target on a sustained basis. This view also implies that central banks will not be returning to zero or negative rate policies. Finally, this expectation implies higher cash returns than in the prior decade.

Toplines

Equities

- Global equity returns decelerating, driven by slower economic growth and elevated valuations mostly in the U.S.
- U.S. still outperforms other developed markets, in local currency terms.
- Emerging markets expected to deliver stronger returns than developed markets, due to favorable growth differentials.
- Stock price/bond yield correlation expected to return to positive territory, after being negative in 2023. Implies higher bond yields should not be a significant drag on stocks.

Fixed Income

- Higher bond yields across markets, due to higher inflation and fiscal challenges.
- We expect the U.S. 10-year Treasury yield to average 4.8% over the next decade.
- Higher fixed income returns through 2033 versus the prior decade, reflecting higher starting bond yields.

Cash

- Short-term interest rates expected to average below today's elevated levels but higher than post-GFC to pre-pandemic.

Alternative & Other Assets

- U.S. dollar expected to weaken, but still retain its dominant position in global transactions and foreign reserves.
- We expect gold to appreciate.
- Real assets, such as commodities and real estate, should provide an effective hedge against inflation.

Contributors:

Veneta Dimitrova,
Senior U.S. Economist

Alejandra Grindal,
Chief Economist

Ed Clissold, CFA,
Chief U.S. Strategist

Joe Kalish,
Chief Global Macro Strategist

Daniel Chin, PhD,
Senior Research Analyst

Patrick Ayers,
Senior Analyst

Tim Frazer,
Custom Research Analyst

2024 NDR 10-Year Capital Market Assumptions

Macro Expectations (2024-2033)

	Expected Annual Real GDP Growth (%)	Expected Annual Inflation (%)	Real GDP (2014-2023)	Inflation (2014-2023)
U.S.	2.1	2.6	2.3	2.5
U.K.	1.4	2.4	1.7	2.3
Eurozone	1.2	2.2	1.4	1.8
Japan	0.6	1.2	0.5	0.8
China	4.1	1.6	6.2	2.0
DM*	1.6	2.3	1.8	2.1

*GDP-weighted average of U.S., U.K., Eurozone, and Japan.

Asset Class Return Expectations (2024-2033)

Equities	TR Index (gross returns)	Expected Average Annual Returns (%)	2014-2023 Annualized Returns (%)	2014-2023 Annualized st. deviation (%)
U.S. Large Caps	S&P 500	8.8	11.9	15.2
U.S. Small Caps	Russell 2000	7.9	7.2	20.2
U.K.	MSCI U.K.	8.6	5.3	12.2
Eurozone	MSCI EMU	8.3	7.1	16.1
Japan	MSCI Japan	7.7	8.5	15.0
EM (local)	MSCI EM	9.2	5.6	13.5
Global (local)	MSCI World	8.6	10.1	14.0

Fixed Income	TR Index	Expected Average Annual Returns (%)	2014-2023 Annualized Returns (%)	2014-2023 Annualized st. deviation (%)	Expected Average Yield (%)
U.S.	Bloomberg Barclays U.S. Long-term Treasury	4.2	2.3	12.9	4.8
U.S. TIPS	Bloomberg Barclays U.S. TIPS	4.3	2.4	5.1	2.2
U.S. IG	Bloomberg Barclays U.S. Investment Grade	5.2	3.0	6.8	5.8
U.S. HY	Bloomberg Barclays U.S. High Yield	6.3	4.6	7.6	8.0
U.K.	Bloomberg Barclays U.K. Government Bond	3.6	1.1	8.7	3.8
Eurozone	Bloomberg Barclays German Government Bond	2.1	0.4	5.3	2.6
Japan	Bloomberg Barclays Japan Government Bond	0.6	0.5	2.3	1.5
EM debt	Bloomberg Barclays EM Aggregate (USD)	6.2	3.0	7.4	7.7

Cash	Proxy TR Index	Expected Average Annual Returns (%)	2014-2023 Annualized Returns (%)	2014-2023 Annualized st. deviation (%)	Expected Average Yield (%)
U.S.	3M U.S. Treasury Bill	2.8	1.3	0.5	2.8
U.K.	3M U.K. NDR Proxy	3.4	1.1	0.4	3.4
Eurozone	3M Eurozone NDR Proxy	2.2	0.2	0.4	2.2
Japan	3M Japan NDR Proxy	1.2	-0.1	0.0	1.2

Alternative & Other Assets	TR Index	Expected Average Annual Returns (%)	2014-2023 Annualized Returns (%)	2014-2023 Annualized st. deviation (%)
USD	Broad U.S. Dollar Index	-1.0	2.6	5.5
Gold	New York Spot Gold Bullion	6.5	5.5	13.6
Commodities	S&P GSCI	4.7	-3.6	22.5
U.S. Real Estate	NCREIF	6.2	7.1	4.8
U.S. REITS	NAREIT REITs	7.4	7.7	17.4

TR = Total Return

Source: Haver Analytics, MSCI, S&P Dow Jones Indexes, FTSE Russell, Federal Reserve Board, Bloomberg Finance L.P., S&P GSCI, NAREIT, NCREIF. com

Ned Davis Research   T_SP20240126.2

MAJOR THEMES

NDR sees five key themes that will impact the global economy and the investment world over the next decade, as outlined in the adjacent table. These themes, incorporated into our econometric models, further refined by our strategists, and transformed into asset class returns, risk, and correlations, provide valuable insight for long-term asset allocators.

Technological disruption – Is it all positive?

Technological advancements fuel productivity growth, which can boost potential output growth and keep a lid on inflation. The rapid development and adoption of Artificial Intelligence (AI) technology holds just such a promise for the global economy. It can augment the labor force, save on labor costs, and boost profit margins, particularly in the U.S., which has more dynamic labor markets than other developed economies.
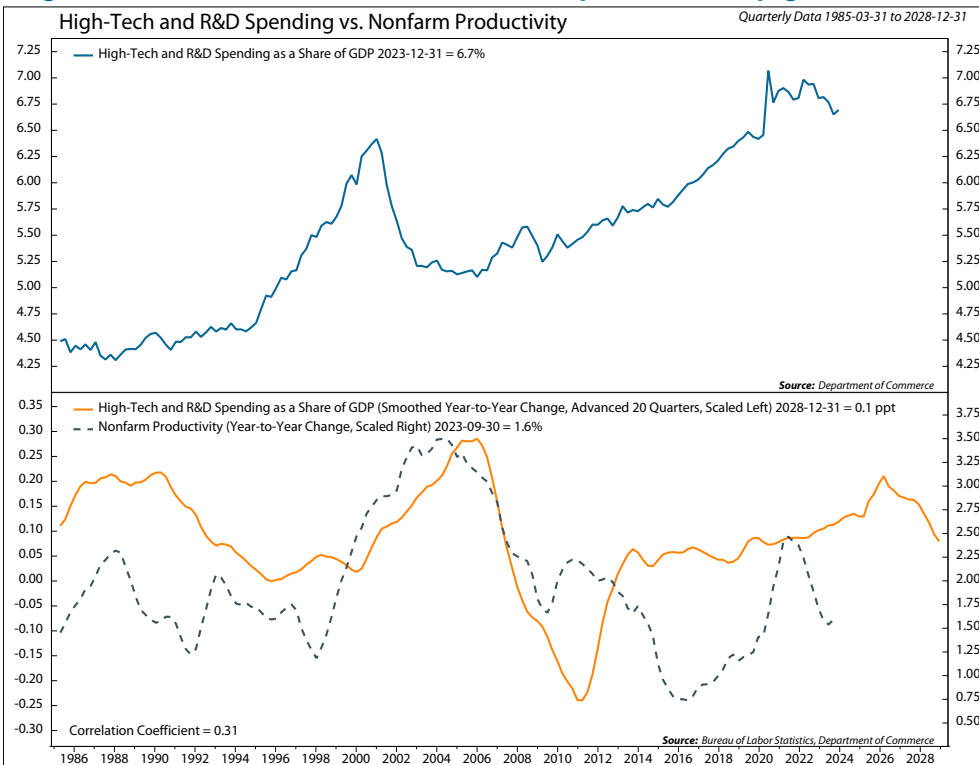
Global themes for the next decade

	Real GDP	Inflation	Potential impact
AI and innovation	↑	↓	• Increased investment and potential productivity gains • May take several years before economy-wide productivity boost • Starting in the U.S., but spillover to other economies
Deglobalization	↓	↑	• Reconfiguring supply chains, near-shoring, ally-shoring • Prioritizing security over efficiency • Reduced trade flows. Untapped comparative advantage => loss of productivity • Reduced foreign demand for financial assets, such as government bonds
Demographics	↓	↑↓	• Slower labor force growth • Tighter labor markets • Rising old-age dependency ratio • Reduced aggregate demand with aging
Fiscal challenges	↓	↑	• More burdensome debt service • Upward pressure on interest rates • Crowding out of private investment • Central banks may become more tolerant of higher inflation
Clean energy transition	↑↓	↑	• Reduced investment in fossil fuels • Increased demand for clean energy commodities, such as metals, used in EV batteries • Government incentives for clean energy development

Ned Davis Research   T_SP20240126.1

High-tech and R&D investment lead productivity growth

High-Tech and R&D Spending vs. Nonfarm Productivity — Quarterly Data 1985-03-31 to 2028-12-31

High-Tech and R&D Spending as a Share of GDP 2023-12-31 = 6.7%

Source: Department of Commerce

High-Tech and R&D Spending as a Share of GDP (Smoothed Year-to-Year Change, Advanced 20 Quarters, Scaled Left) 2028-12-31 = 0.1 ppt

Nonfarm Productivity (Year-to-Year Change, Scaled Right) 2023-09-30 = 1.6%

Correlation Coefficient = 0.31

Source: Bureau of Labor Statistics, Department of Commerce

SP202401251A_C

Global AI private investment has increased 18-fold over the past decade, as estimated by the Stanford Institute for Human-Centered Artificial Intelligence[1]. It suffered a cyclical drag in 2022, down more than 25% from the prior year, weighed down by higher interest rates and tightening credit conditions. But looking past the cyclical drag, the long-term trend of AI investment remains intact.

More broadly, high-tech and research and development spending tends to lead productivity growth by several years. In the U.S., this investment as a share of GDP has averaged 6.7% in 2023, up from 5.7% a decade ago. It is now higher than the peak share of 6.4% in 2000. A surge in investment in the 1990s led to a surge in productivity in the second half of that decade. Further

1.   Artificial Intelligence Index Report 2023, Stanford University Human-Centered Artificial Intelligence (HAI), https://aiindex.stanford.edu/report/

development and the adoption of AI technology across industries could lead to a similar productivity boost in the decade ahead. This is in addition to productivity gains that were already in the pipeline and were brought forward by the pandemic, changing the way we work, shop, entertain, etc.

Given that the U.S. is home to most of the leaders in AI development and the economy is highly services oriented (i.e., rapid AI adoption is possible), we expect the productivity benefits from AI to be felt sooner and be initially more material in the U.S. than in other countries. This is reflected in our 10-year assumptions for productivity and real GDP growth, which are higher in the U.S. than in other developed markets.

While we generally anticipate a net positive AI impact on the economy, the range of potential outcomes is broad. On the positive side, it could augment worker skills, free up labor and other resources to alternative uses, lift wages, improve access to services such as education and health care, and help reduce income inequality. Conversely, on the negative side, it could displace workers at a fast rate, cause structural unemployment, and erode job quality and earnings. Without sufficient control, it could potentially be used for a variety of nefarious purposes. Nevertheless, most private estimates give a net positive AI impact on productivity. For example, McKinsey estimates a 0.1-0.6 ppt per year productivity growth boost from generative AI through 2040.

For thematic updates and investment ideas, follow **NDR's Artificial Intelligence** topic.

Deglobalization or De-China-zation?

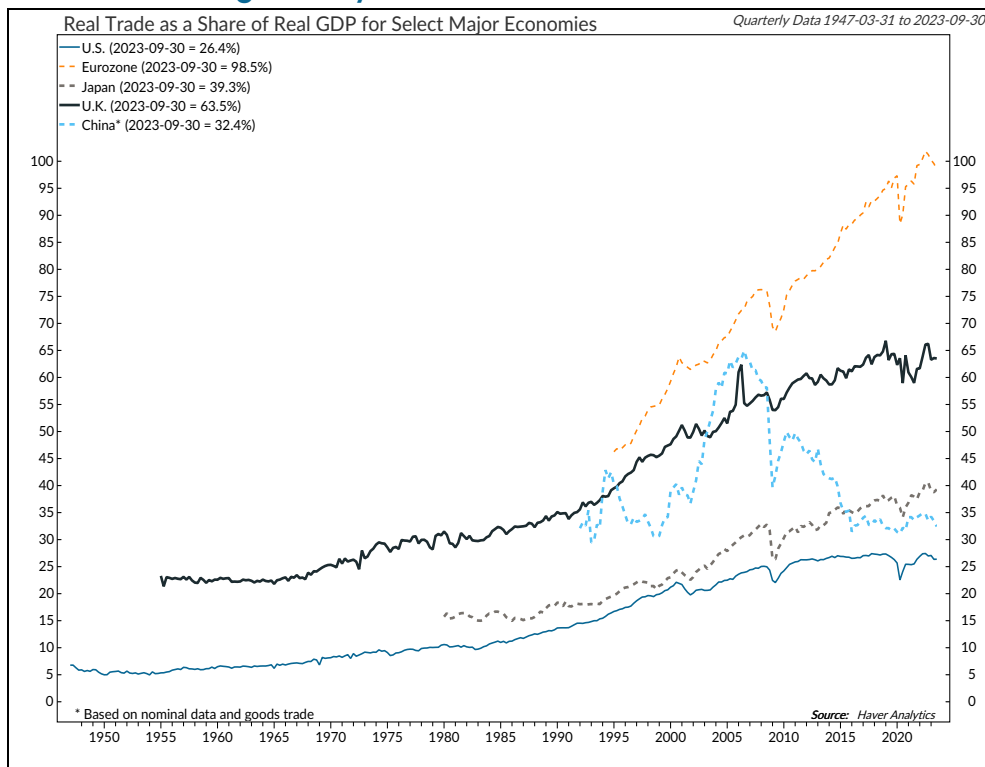Globalization, which allows economies to benefit from comparative advantage and access to cheaper labor and other resources, has been one of the most important secular drivers of disinflation over the past 30 years. It has not only reduced the cost of production but has also increased business access to foreign markets for sales. For instance, the share of U.S. profits from foreign sources has risen from an average of 13.1% in the 1980s to over 20% in the decade prior to the pandemic.

Integrated global supply chains, however, have left economies vulnerable to external shocks, a prime example of which was the Covid pandemic. It exposed the risks associated with just-in-time inventory management and the reliance on a single supplier for parts of the production process. The results were widespread shortages and a surge in inflation. To protect against future such episodes, countries will continue to diversify their supply chains.

So far, this has meant mostly reducing trade with China, which had become the factory of the world after joining the WTO in 2001. But even before Covid, trade tension between China and the West (primarily China and the U.S.) had started a trend toward ally-shoring, friend-shoring, de-risking, etc. Whatever the term to describe the re-shaping of global supply chains and trade relations, the end result involves higher costs and favors security over efficiency. More protectionism also means less foreign direct investment and therefore slower capital expenditure growth. All this implies a drag on productivity growth and tends to be inflationary.

The hefty Trump trade tariffs against China were largely left in place by the Biden Administration. There is little sign of change in this protectionist posture in the near future. Current policies will likely continue to shrink the U.S. goods trade deficit with China, which in 2023 fell below $300 billion for the first time since 2011. The U.S. trade gap with the rest of

Trade shrinking mostly for China

Real Trade as a Share of Real GDP for Select Major Economies — Quarterly Data 1947-03-31 to 2023-09-30

- U.S. (2023-09-30 = 26.4%)
- Eurozone (2023-09-30 = 98.5%)
- Japan (2023-09-30 = 39.3%)
- U.K. (2023-09-30 = 63.5%)
- China* (2023-09-30 = 32.4%)

* Based on nominal data and goods trade
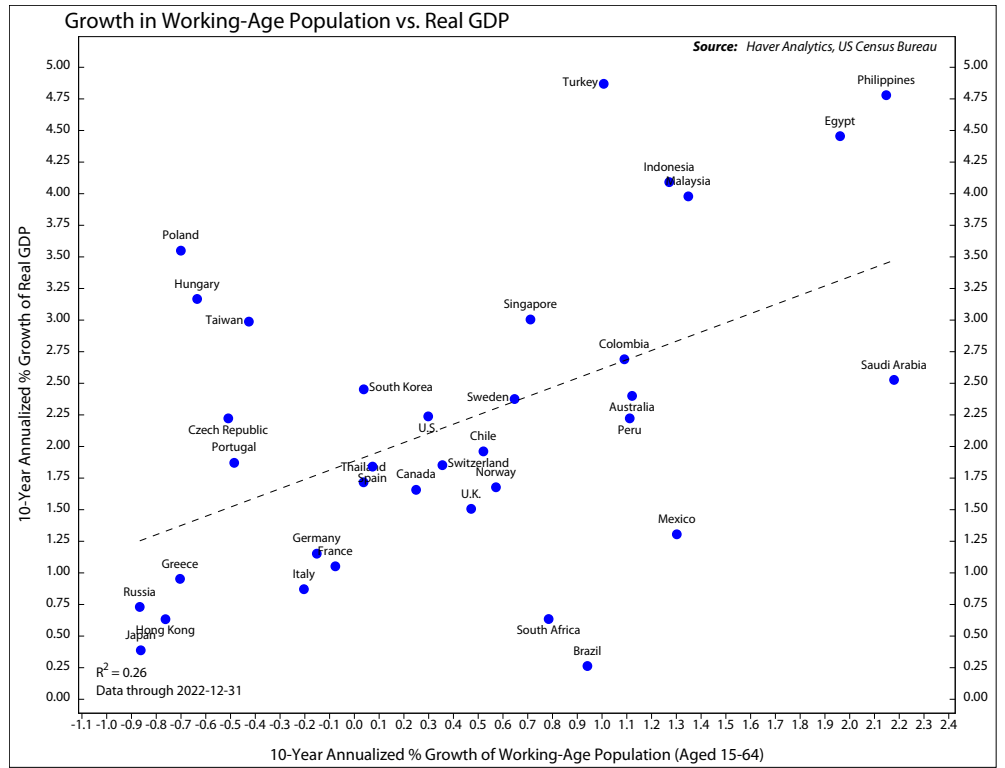
Source: Haver Analytics

IE450

the world continued to swell but is not making up for the declining trade with China. A more fragmented world generally increases the risk of geopolitical conflicts, as countries have less to lose in a direct confrontation. This by itself could complicate or sever global trade relations and be a drag on global growth. Furthermore, as countries spend more on national defense, it would likely cut into discretionary outlays and be a drag on aggregate demand in the next decade.

For more insights, see "Answering your questions about globalization" by Alejandra Grindal, and "The new world order" by Joe Kalish.

Aging demographics

The economic challenges of aging demographics are well understood and are expected to persist in the developed world, as well as in China, in the coming decade. Their

Working age population drives GDP growth

Growth in Working-Age Population vs. Real GDP

Source: Haver Analytics, US Census Bureau

$R^2 = 0.26$
Data through 2022-12-31

IE821D

© Copyright 2024 NDR, Inc. Further distribution prohibited without prior permission.
All Rights Reserved. See NDR Disclaimer at www.ndr.com/copyright.html
For data vendor disclaimers refer to www.ndr.com/vendorinfo/

Old-age dependency ratios rising globally

Old-Age Dependency Ratios by Country

Ratio of Population Age 65+ to Age 15-64
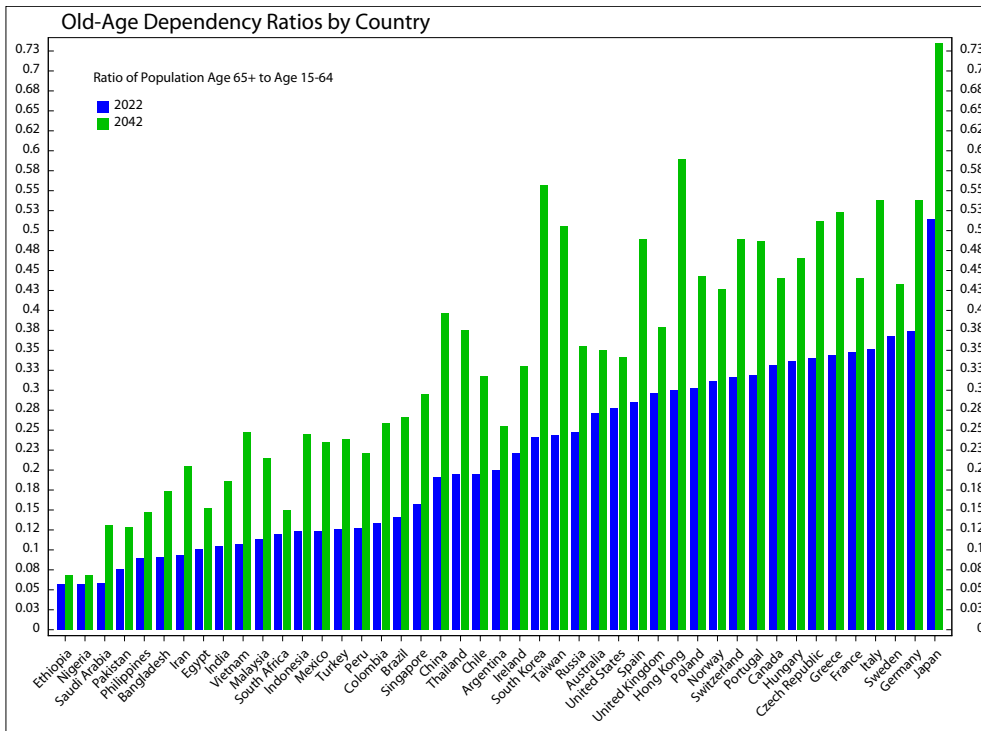- 2022
- 2042

Source: U.S. Census Bureau

IE814

© Copyright 2023 NDR, Inc. Further distribution prohibited without prior permission.
All Rights Reserved. See NDR Disclaimer at www.ndr.com/copyright.html
For data vendor disclaimers refer to www.ndr.com/vendorinfo/

most overlapping manifestation is slower labor force growth, which implies slower potential output growth.

The International Labor Organization projects 0.4%-0.5% annual labor force growth in the U.S., U.K., and the Eurozone through 2030, while Japan and China should see their labor force shrink by 0.6% and 0.7% per year, respectively. For the aging DMs, these projections are broadly in line with the pre-pandemic trend. For China, the projected demographic decline is a new, although not unforeseen, development. Its population declined in 2023 for the second consecutive year, as a result of the long-standing one-child policy in prior years, the impact of which cannot be easily reversed. We use these projections as inputs in our economic growth forecasts by country.
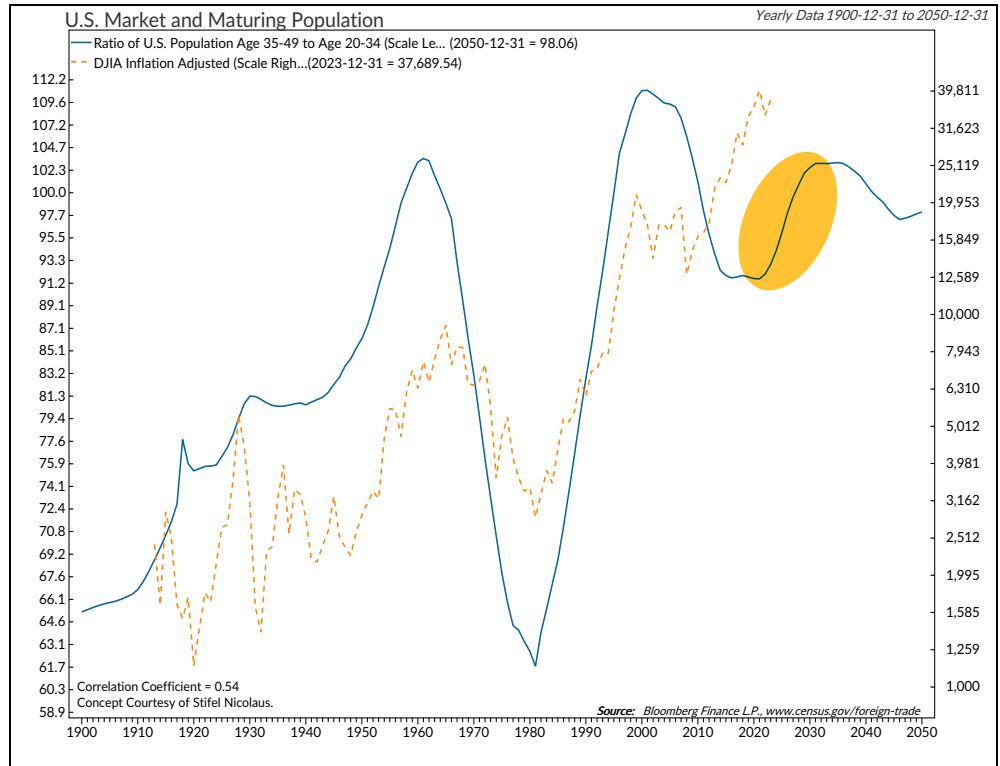
The old age dependency ratio (population age 65+/ages 15-64) is projected to increase

across the globe over the next two decades, potentially imposing strains on government budgets. The projected ratio for Japan, whose population size has been shrinking for over a decade, towers over other countries. The ratio for China is projected to more than double from its current level. The increases in the U.S., U.K., and Eurozone are more measured, but still significant.

The demographic outlook for the U.S. is relatively more favorable. Its old age dependency ratio is lower than in the U.K. and Eurozone countries, and its MY ratio (35-49 years old/20-34 years old) is projected to rise in the next decade by more than the MY ratio of other developed economies. This is a tailwind for U.S. equities in the years ahead.

Nevertheless, the U.S will still face economic and fiscal challenges related to aging demographics. Social Security and Medicare
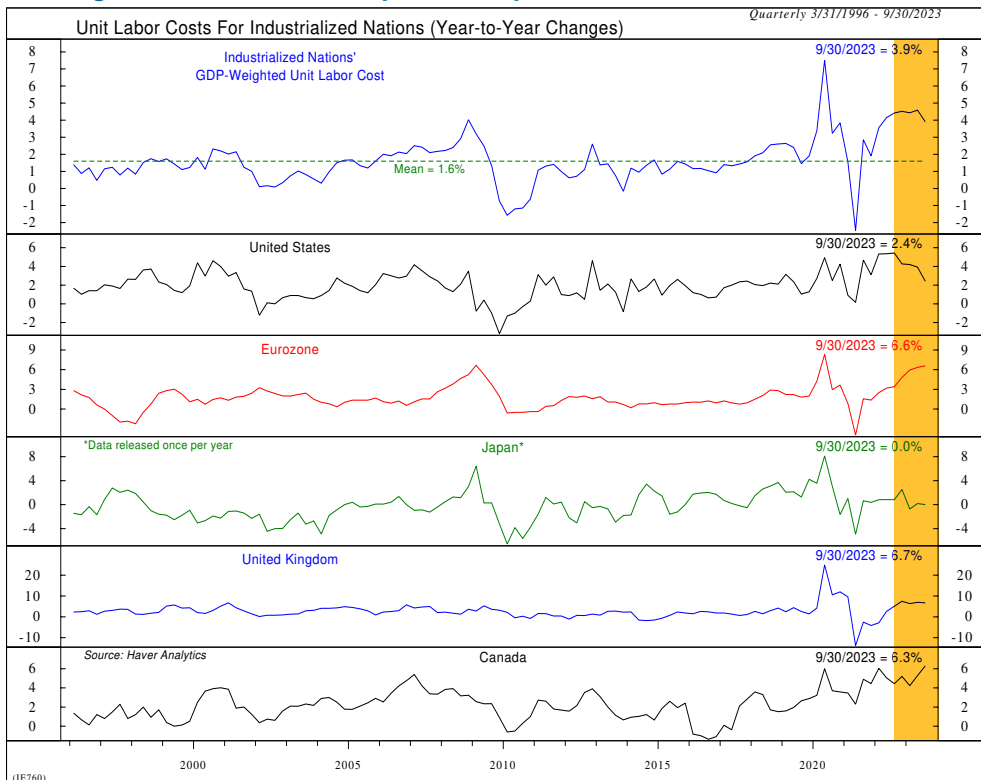
Demographic tailwind for U.S. equities through 2033

U.S. Market and Maturing Population

Yearly Data 1900-12-31 to 2050-12-31

— Ratio of U.S. Population Age 35-49 to Age 20-34 (Scale Le... (2050-12-31 = 98.06)
--- DJIA Inflation Adjusted (Scale Righ...(2023-12-31 = 37,689.54)

Correlation Coefficient = 0.54
Concept Courtesy of Stifel Nicolaus.

Source: Bloomberg Finance L.P., www.census.gov/foreign-trade

S01727

Divergent ULC trends by country

Unit Labor Costs For Industrialized Nations (Year-to-Year Changes)

Quarterly 3/31/1996 - 9/30/2023

Industrialized Nations' GDP-Weighted Unit Labor Cost
9/30/2023 = 3.9%
Mean = 1.6%

United States
9/30/2023 = 2.4%

Eurozone
9/30/2023 = 6.6%

*Data released once per year
Japan*
9/30/2023 = 0.0%

United Kingdom
9/30/2023 = 6.7%

Source: Haver Analytics
Canada
9/30/2023 = 6.3%

(IE760)

outlays, which currently account for 37% of government spending, are projected to approach 45% by 2033. The increased share of such mandatory spending suggests that it will be difficult for Congress to rein in the budget deficit without a decrease in social benefits, or an increase in taxes, or a combination of both. At the same time, increased borrowing implies an upward pressure on government bond yields. To the degree that this is a drag on aggregate demand, it implies slower output growth.

One of the risks of slower labor force growth is persistent upward pressure on unit labor costs (ULC), which tends to be inflationary. Driven by pandemic-related labor market dislocations and persistent shortages, ULC in most developed economies have spiked since 2019.

ULC growth has started to recede in 2023 in the U.S., but not in the U.K. or the Eurozone.

Projected productivity gains from AI and other technologies should offset some of the demographic pressures on unit labor costs and inflation, but it may take several years.
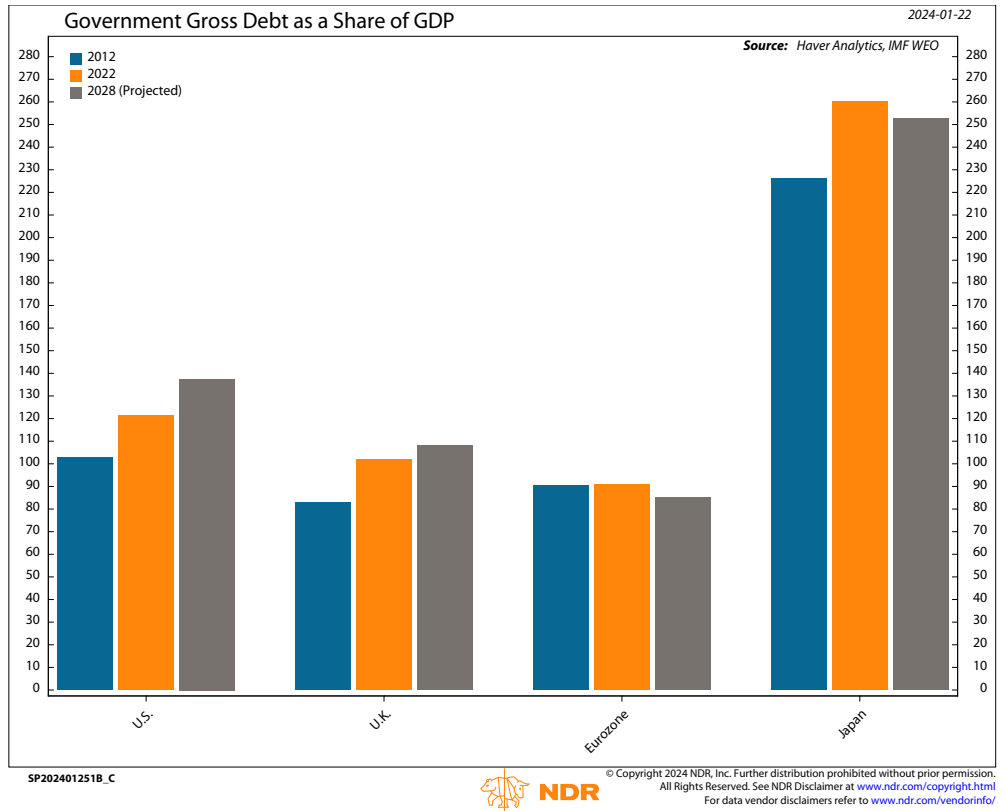
At the same time, aging demographics are associated with slower demand and changing patterns of consumption that are broadly disinflationary. On net, we expect this effect to dominate in the long-run, and we continue to see disinflationary forces from aging demographics beyond the 10-year horizon.

For more insights, see "Demographic demise or opportunity" by Alejandra Grindal.

Fiscal constraints on growth

The global economy recovered relatively quickly from the Covid pandemic largely as a result of active fiscal policy which supported household and business demand through direct stimulus, mostly in the developed world.

Debt-to-GDP to remain elevated across countries

Government Gross Debt as a Share of GDP

2012
2022
2028 (Projected)

Source: Haver Analytics, IMF WEO
2024-01-22

U.S. U.K. Eurozone Japan

SP202401251B_C

Debt service projected to continue to surge

Type of Spending as % of Total Outlays: Actual and Projected
FY 1970 - FY 2033

Mandatory
(Includes Offsetting Receipts)
FY 2022 = 57.8%
FY 2033 = 61.7%

Shaded areas represent CBO estimates.

Discretionary
FY 2022 = 26.5%
FY 2033 = 23.8%

Source: Congressional Budget Office

Interest
FY 2022 = 7.6%
FY 2033 = 14.5%

(E0352)
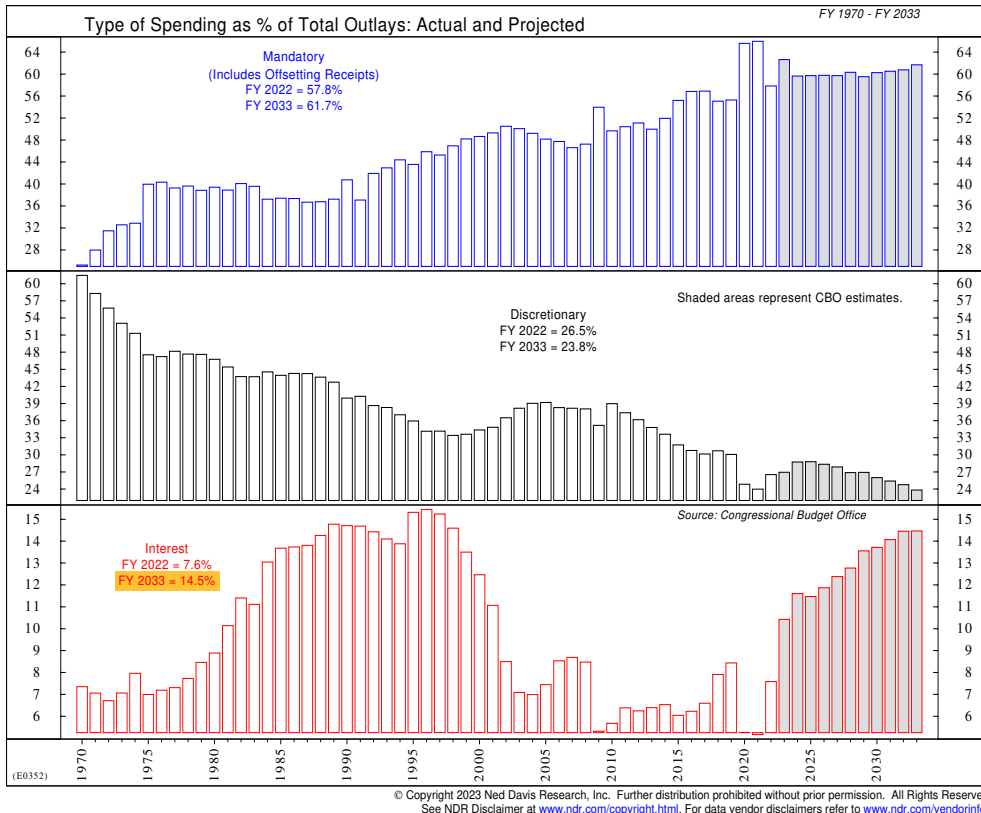
But as is well known in economics, there is no free lunch. The cost of ballooning government budget deficits and debt as a share of GDP is upward pressure on government bond yields. This pressure will be exacerbated by the step-back in globalization, which implies less foreign demand for government debt securities. This is reflected in our assumption for government bond yields over the next decade, which are meaningfully higher than average bond yields over the past ten years.

The IMF projects that government debt-to-GDP ratios will remain elevated and may even swell in some developed economies through 2028. We assume that the trend will persist through 2033. The expected debt runup is more pronounced in the U.S. where, despite frequent talk about debt sustainability, there is little political appetite for policies to contain the budget deficit and debt growth. Similar to the IMF, the Congressional Budget Office

(CBO) projects that the U.S. budget deficit will remain elevated, running near $2.0 trillion a year over the next decade.

Net interest payments on U.S. government debt have increased north of 40% year-over-year both in 2022 and 2023. They currently account for nearly 12% of government outlays, the most since 2001, and the CBO projects the share will rise to 14.5% by 2033. Some potential implications from this are: (1) reduced government spending, or (2) higher bond yields and an associated "crowding out" effect for private investment, and/or (3) higher inflation. Regardless, unchecked government debt growth eventually points to slower aggregate demand and economic growth.

For more insights, see "Who should have the long-term public debt problem?" by Alejandra Grindal.

Clean energy transition – a costly necessity

We expect the necessary transition from fossil fuels to renewable energy sources to continue over the coming decade, although it may be uneven across countries. This is vital for countries and regions, such as the Eurozone, that depend on imported oil and natural gas as their main energy sources. The transition period itself, however long, will likely be associated with higher oil and other commodity prices, stemming from reduced mining investment. Even though developed economies have become more

energy efficient over time, and clean energy industries, e.g., EVs, solar, etc., are benefitting from government support (such as the Inflation Reduction Act in the U.S.) to accelerate the transition, the interim period will likely be associated with higher energy prices and inflation.

Geopolitical conflicts, including the Russia/Ukraine war that started in 2022 and now the escalating conflict in the Red Sea, highlight the importance of diversified energy sources and/or energy independence and may ultimately hasten the development of alternative energy sources.

Rising renewables, but fossil fuel still an integral energy source

Total Energy: Production

quads
Case: Reference case

Legend: Crude Oil and Lease Condensate — Coal — Nuclear — Other Renewable Energy

Data source: U.S. Energy Information Administration
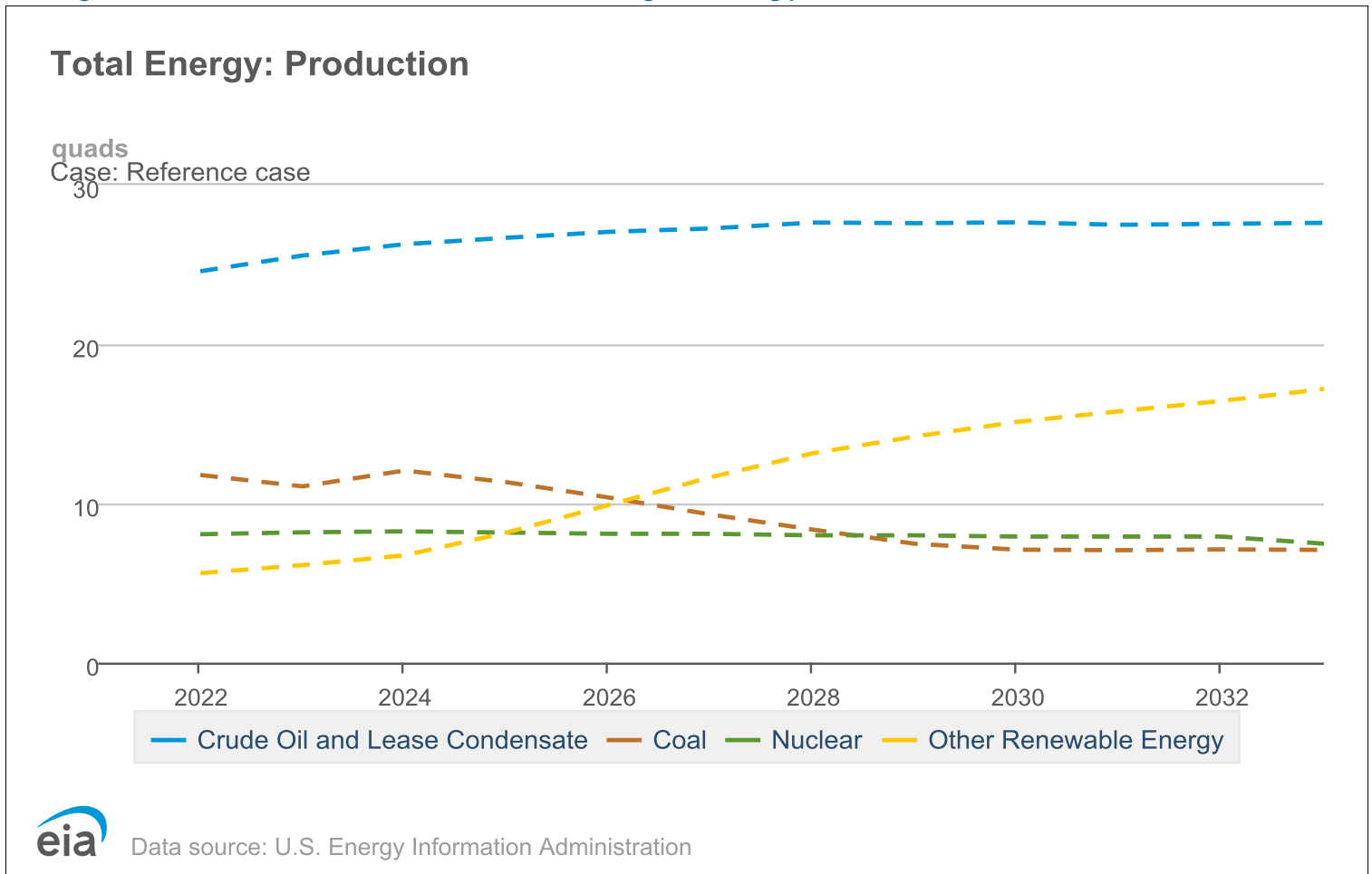
MACRO ASSUMPTIONS

Our macro assumptions for real output growth and inflation are the basis for our investment return assumptions across asset classes. We focus on four developed countries/regions, namely, the U.S., U.K., Eurozone, and Japan, as well as China. Together these countries account for about 70% of global GDP.

Broadly speaking, we anticipate slower real GDP growth and somewhat higher inflation through 2033 than over the previous decade.

Output growth

The outlook for slower real GDP growth largely reflects the demographic challenges that countries are facing. Labor force growth is projected to track at a 0.4%-0.5% annual pace in the U.S., U.K., and the Eurozone, while the labor force is projected to continue to shrink in Japan and China. More fragmented global trade is eroding some of the productivity gains from the past several decades. But productivity gains from technological advancements will likely provide an offset that can support economic growth beyond our 10-year projection horizon. Increased investment spending, both private and government, related to re-shoring or near-shoring of production and the clean energy transition, will boost aggregate demand in the coming years. At the same time, however, higher interest rates will act as a drag on growth, relative to the prior decade.
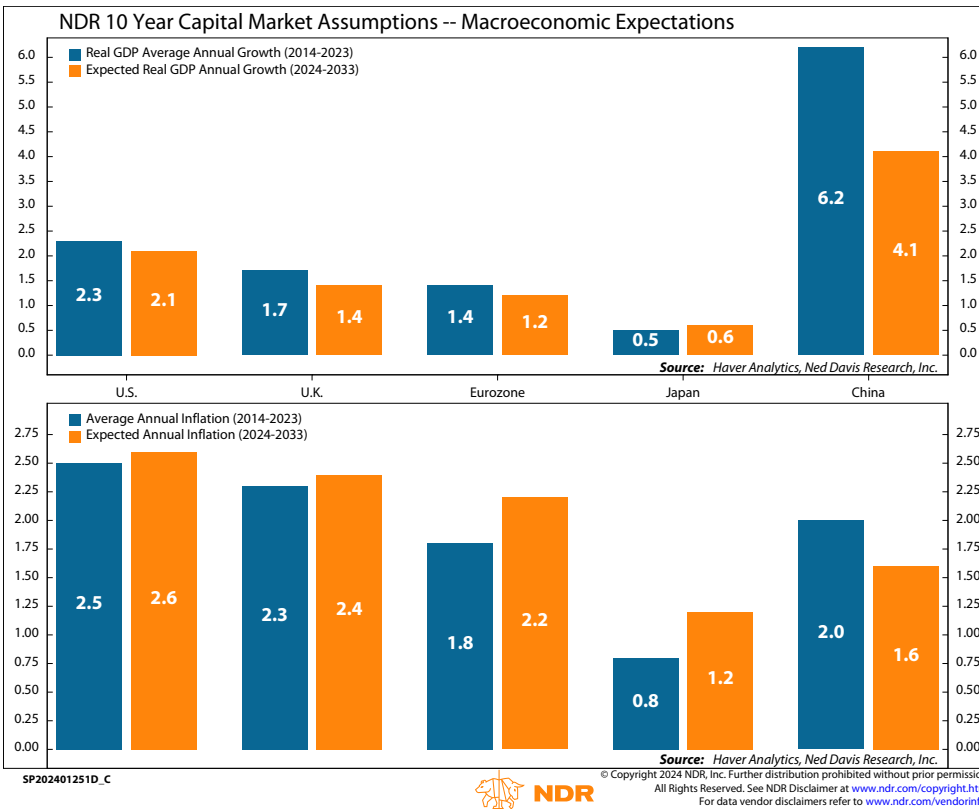
Our real GDP growth assumptions by country are based on a standard growth accounting framework, using a constant-returns-to-scale production function, real GDP = f(capital, labor). The transformation of the production function into rates of change implies that real output growth is the sum of productivity growth and labor force growth.

We model productivity growth using a distributed lag VAR system of equations that first forecasts capital spending (capex) growth, which is then used to forecast productivity growth. The capex model includes the following variables: capex, unit labor costs, capacity utilization, industrial production, national saving rate, and yield curve. The productivity model includes the following variables: productivity, capex, trade/GDP, R&D spending/GDP, R&D spending per worker.

For labor force growth, we used projections from the International Labor Organization through 2030 and extrapolated the growth rates through 2033.

Projected real GDP growth is the sum of productivity and labor force growth. Our final growth assumption for each country incorporates qualitative adjustments that account for near-term cyclical effects, as well as central bank and government policies that are not captured by this largely supply-driven model.

Inflation

The global economy continues to rebalance after the Covid pandemic. Inflation has peaked but remains elevated and higher than central banks' 2.0% target in most developed countries. Reaching the 2.0% target on a sustained basis will likely prove difficult, as a result of receding globalization, increased organized labor demands, ballooning government debt (especially in the U.S.), and more geopolitical conflicts that raise transportation costs and keep upward pressure on energy and other commodity prices. The clean energy transition is also likely to be inflationary over our 10-year projection horizon.

We expect 2.2%-2.6% average annual inflation in the U.S., U.K., and the Eurozone through 2033, modestly higher than 1.8%-2.5% range over the previous decade. We expect 1.2%

Slower growth and higher inflation through 2033

NDR 10 Year Capital Market Assumptions -- Macroeconomic Expectations

Real GDP Average Annual Growth (2014-2023); Expected Real GDP Annual Growth (2024-2033)

	U.S.	U.K.	Eurozone	Japan	China
Real GDP Average Annual Growth	2.3	1.7	1.4	0.5	6.2
Expected Real GDP Annual Growth	2.1	1.4	1.2	0.6	4.1

Source: Haver Analytics, Ned Davis Research, Inc.

Average Annual Inflation (2014-2023); Expected Annual Inflation (2024-2033)

	U.S.	U.K.	Eurozone	Japan	China
Average Annual Inflation	2.5	2.3	1.8	0.8	2.0
Expected Annual Inflation	2.6	2.4	2.2	1.2	1.6

Source: Haver Analytics, Ned Davis Research, Inc.

SP202401251D_C

NDR

average inflation in Japan, a pickup from 0.8% over the previous decade. Inflation in China, which is facing a faster economic deceleration than other countries, is projected to average 1.6% through 2033, down from 2.0% over the previous decade.
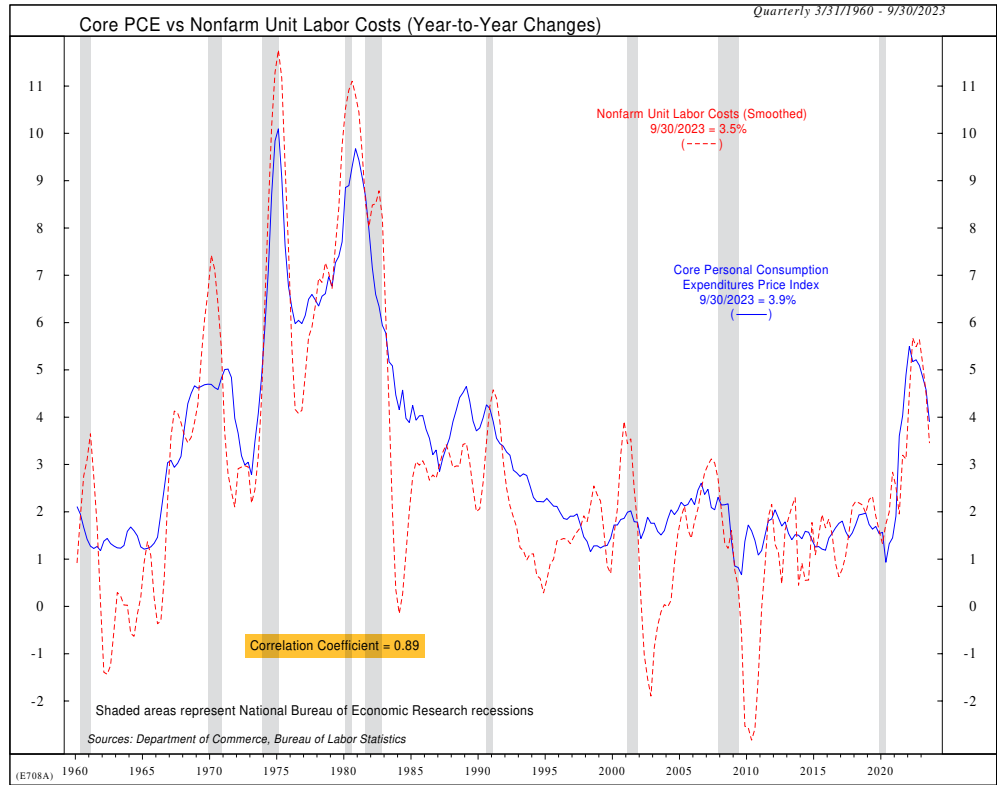
Similar to our growth forecast, the VAR model for forecasting inflation is also largely supply-driven, using the following variables: CPI inflation, unit labor costs, unemployment rate, and commodity prices.

To account for the demand-pull effect on inflation, we construct multiple regressions of CPI inflation on real GDP growth.

To account for inflation expectations, we take into account the 10-year inflation swap rate as of December 2023.

The weighted average of the VAR model

Underlying inflation and ULC move together

Core PCE vs Nonfarm Unit Labor Costs (Year-to-Year Changes) — Quarterly 3/31/1960 - 9/30/2023

Nonfarm Unit Labor Costs (Smoothed) 9/30/2023 = 3.5% (- - - -)

Core Personal Consumption Expenditures Price Index 9/30/2023 = 3.9% (——)

Correlation Coefficient = 0.89

Shaded areas represent National Bureau of Economic Research recessions

Sources: Department of Commerce, Bureau of Labor Statistics

(E708A)

Some secular disinflation drivers have eased
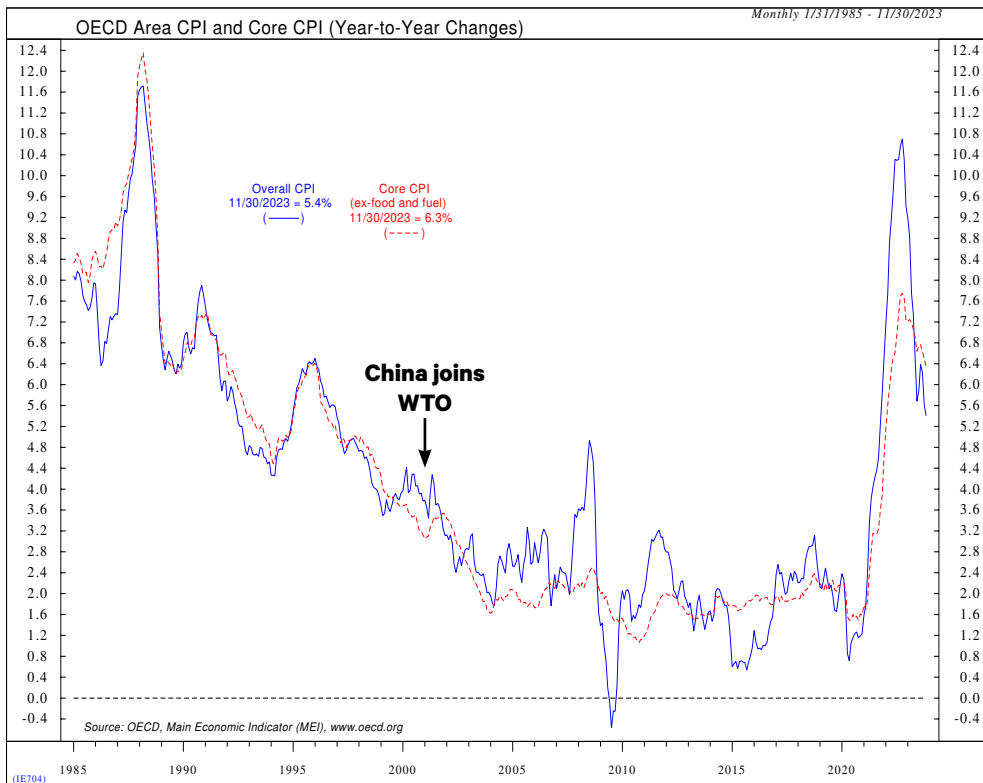
OECD Area CPI and Core CPI (Year-to-Year Changes) — Monthly 1/31/1985 - 11/30/2023

Overall CPI 11/30/2023 = 5.4% (——)

Core CPI (ex-food and fuel) 11/30/2023 = 6.3% (- - - -)

China joins WTO

Source: OECD, Main Economic Indicator (MEI), www.oecd.org

(IE704)

estimates, regression estimates, and market inflation expectations comprise our inflation assumption for the decade ahead.

EQUITIES

Despite five cyclical bear markets after the Global Financial Crisis, global equities remain in a secular uptrend that started in 2009. This makes the current secular bull market nearly 15 years old, slightly over the average age (~14 years) of U.S. secular bulls since 1900. Nevertheless, conditions that we have identified as consistent with secular bulls (e.g., fourth-quarter market strength, receding/low volatility, narrowing credit spreads, low/declining unemployment, rising consumer sentiment, contained economic growth slowdown) remain in place, which makes the current secular bull alive and well.

The S&P 500 Index has returned 13.5% per annum during secular bulls. In contrast, it

has declined 4.0% per annum during secular bears. Additionally, during secular bulls, the earnings yield tends to decline, which means that valuations tend to expand and contribute positively to equity returns.

Pushing against this tendency, however, is the rise in bond yields in the current business cycle, which is reducing the relative attractiveness of stocks. Furthermore, the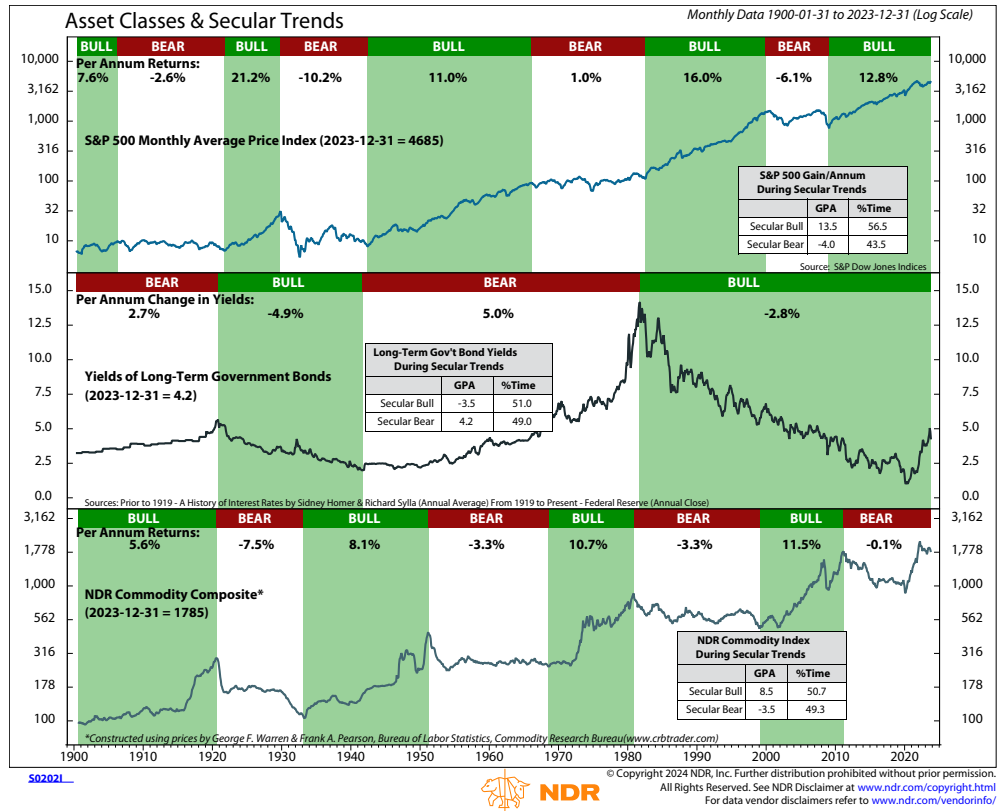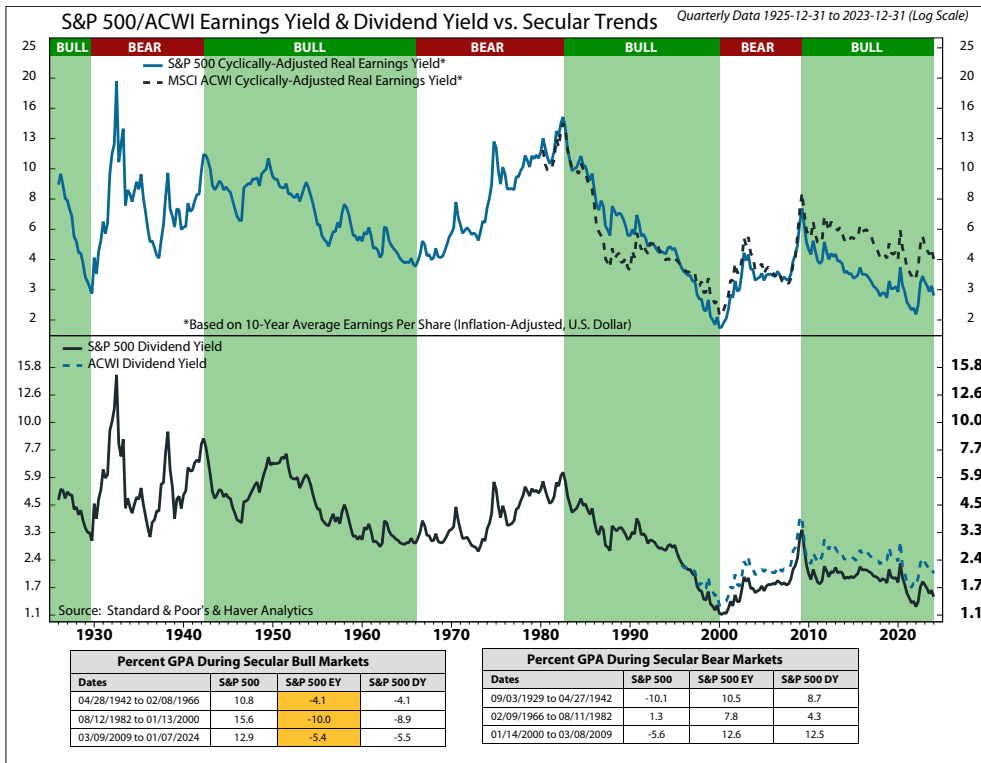 positive correlation between stock prices and bond yields, which has been in place since the late 1990s, has now flipped to negative.

At this juncture, we attribute the change in the stock-bond correlation to the spike in inflation and inflation volatility relative to pre-pandemic. Long-term inflation expectations, however, remain well-anchored, and our assumption is that inflation in the U.S. will average 2.6% over the next decade, down from 3.4% at the end of 2023 and only modestly higher than the 2.3%

Still a secular bull market for equities

Asset Classes & Secular Trends — Monthly Data 1900-01-31 to 2023-12-31 (Log Scale)

Per Annum Returns: BULL 7.6% | BEAR -2.6% | BULL 21.2% | BEAR -10.2% | BULL 11.0% | BEAR 1.0% | BULL 16.0% | BEAR -6.1% | BULL 12.8%

S&P 500 Monthly Average Price Index (2023-12-31 = 4685)

S&P 500 Gain/Annum During Secular Trends	GPA	%Time
Secular Bull	13.5	56.5
Secular Bear	-4.0	43.5

Source: S&P Dow Jones Indices

Per Annum Change in Yields: BEAR 2.7% | BULL -4.9% | BEAR 5.0% | BULL -2.8%

Yields of Long-Term Government Bonds (2023-12-31 = 4.2)

Long-Term Gov't Bond Yields During Secular Trends	GPA	%Time
Secular Bull	-3.5	51.0
Secular Bear	4.2	49.0

Sources: Prior to 1919 - A History of Interest Rates by Sidney Homer & Richard Sylla (Annual Average) From 1919 to Present - Federal Reserve (Annual Close)

Per Annum Returns: BULL 5.6% | BEAR -7.5% | BULL 8.1% | BEAR -3.3% | BULL 10.7% | BEAR -3.3% | BULL 11.5% | BEAR -0.1%

NDR Commodity Composite* (2023-12-31 = 1785)

NDR Commodity Index During Secular Trends	GPA	%Time
Secular Bull	8.5	50.7
Secular Bear	-3.5	49.3

*Constructed using prices by George F. Warren & Frank A. Pearson, Bureau of Labor Statistics, Commodity Research Bureau(www.crbtrader.com)

S0202I

NDR

EY tends to decline during secular bulls

S&P 500/ACWI Earnings Yield & Dividend Yield vs. Secular Trends — Quarterly Data 1925-12-31 to 2023-12-31 (Log Scale)

— S&P 500 Cyclically-Adjusted Real Earnings Yield*
-- MSCI ACWI Cyclically-Adjusted Real Earnings Yield*

*Based on 10-Year Average Earnings Per Share (Inflation-Adjusted, U.S. Dollar)

— S&P 500 Dividend Yield
-- ACWI Dividend Yield

Source: Standard & Poor's & Haver Analytics

Percent GPA During Secular Bull Markets			
Dates	S&P 500	S&P 500 EY	S&P 500 DY
04/28/1942 to 02/08/1966	10.8	-4.1	-4.1
08/12/1982 to 01/13/2000	15.6	-10.0	-8.9
03/09/2009 to 01/07/2024	12.9	-5.4	-5.5

Percent GPA During Secular Bear Markets			
Dates	S&P 500	S&P 500 EY	S&P 500 DY
09/03/1929 to 04/27/1942	-10.1	10.5	8.7
02/09/1966 to 08/11/1982	1.3	7.8	4.3
01/14/2000 to 03/08/2009	-5.6	12.6	12.5

S0202E

NDR

average over the prior decade. As a result, we assume that the stock-bond correlation will revert to being positive again over the coming years. This implies that our expectation of higher bond yields in the next decade should not be a significant drag on stock prices.

With that in mind, we used a building block approach to construct our equity return assumptions by country. The building blocks include our assumptions for dividend yield, revenue growth, margin change, valuation change, and net repurchases.

Dividends. Companies' dividend schedules tend to change infrequently, due to the potential adverse effect on price. For our estimates, we use the 2023 average dividend yield for each country.
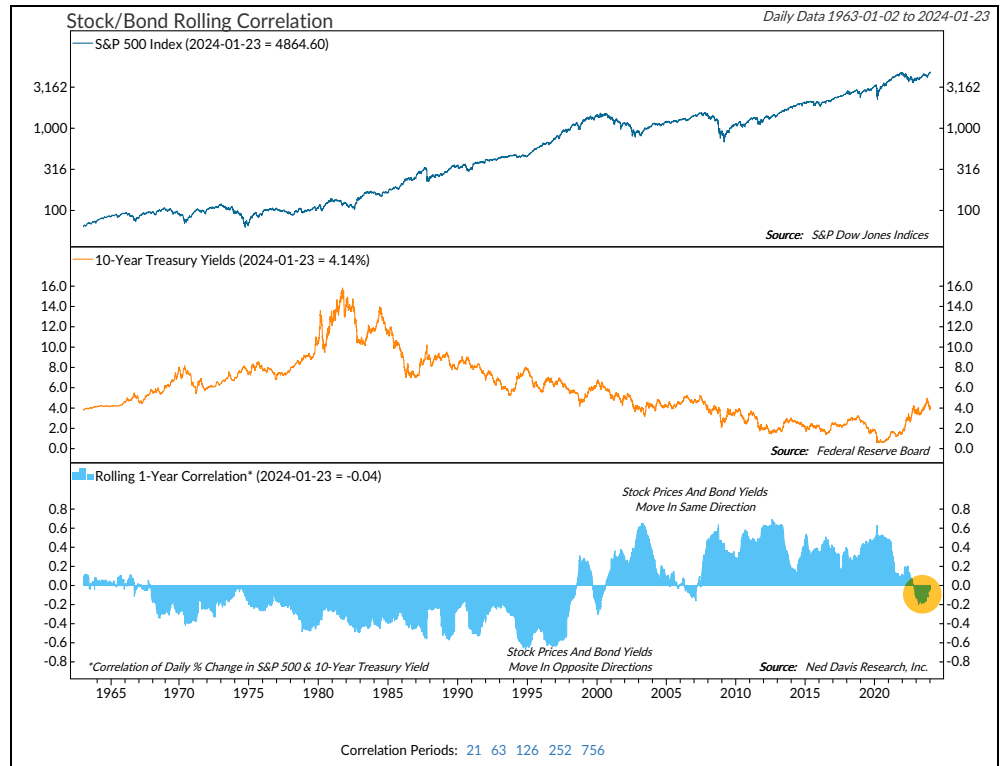
Revenue growth. Sales growth is approximated by nominal GDP growth,

adjusted for sales bias. On average, sales growth exceeds nominal GDP in the U.S., Eurozone, and Japan, necessitating an upward adjustment. In contrast, sales growth is typically weaker than nominal GDP growth in the U.K., necessitating a downward adjustment.

Margin change. In most countries, margins have compressed from their recent cyclical highs, but remain above their 10-year or full-history averages. We assume further margin compression in the U.K. and Eurozone. In the U.S. and Japan, however, margins have trended up over time. Assuming the trend persists in the next decade, we expect a modest margin expansion to contribute positively to equity returns in these countries.

Valuation change. Based on trailing P/E multiples, stocks appear modestly overvalued in the U.S. and undervalued in other countries. Cyclically-adjusted P/E multiples confirm this

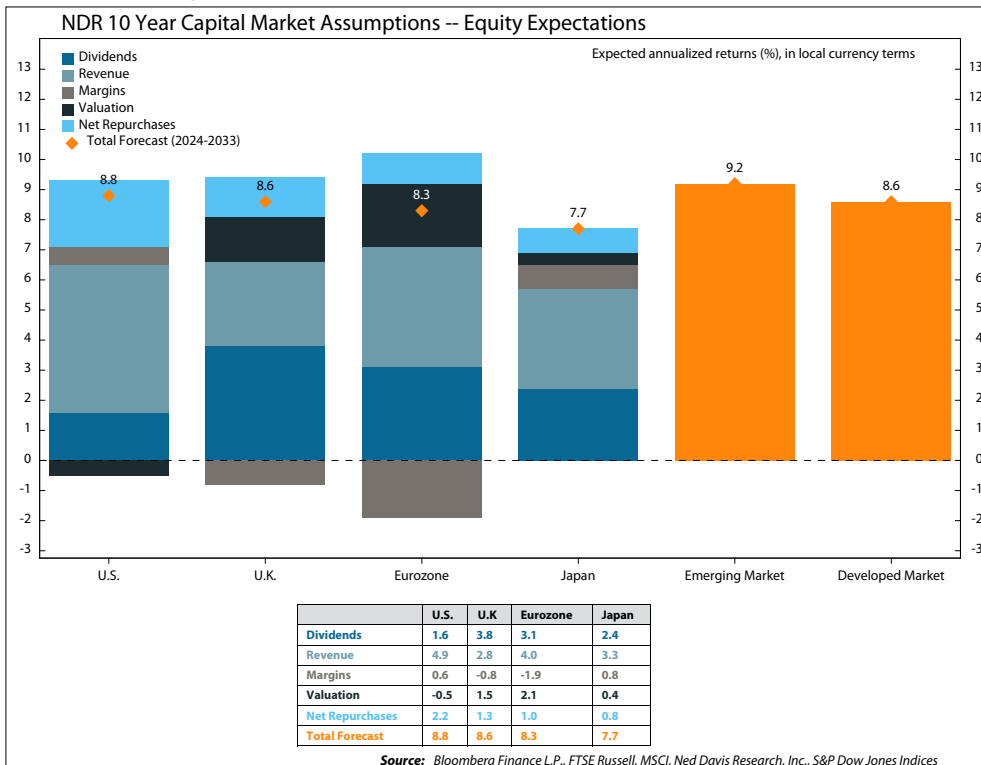## Stock/bond correlation should revert back to positive

Stock/Bond Rolling Correlation — Daily Data 1963-01-02 to 2024-01-23

S&P 500 Index (2024-01-23 = 4864.60) — Source: S&P Dow Jones Indices

10-Year Treasury Yields (2024-01-23 = 4.14%) — Source: Federal Reserve Board

Rolling 1-Year Correlation* (2024-01-23 = -0.04)

*Correlation of Daily % Change in S&P 500 & 10-Year Treasury Yield — Source: Ned Davis Research, Inc.

Correlation Periods: 21 63 126 252 756

S0947A

The building blocks of our equity assumptions

NDR 10 Year Capital Market Assumptions -- Equity Expectations

Expected annualized returns (%), in local currency terms

Legend: Dividends, Revenue, Margins, Valuation, Net Repurchases, Total Forecast (2024-2033)

U.S. 8.8, U.K. 8.6, Eurozone 8.3, Japan 7.7, Emerging Market 9.2, Developed Market 8.6

	U.S.	U.K	Eurozone	Japan
Dividends	1.6	3.8	3.1	2.4
Revenue	4.9	2.8	4.0	3.3
Margins	0.6	-0.8	-1.9	0.8
Valuation	-0.5	1.5	2.1	0.4
Net Repurchases	2.2	1.3	1.0	0.8
Total Forecast	8.8	8.6	8.3	7.7

Source: Bloomberg Finance L.P., FTSE Russell, MSCI, Ned Davis Research, Inc., S&P Dow Jones Indices

SP202401251C_C

assessment. Even so, considering the secular bull market framework, we assume only a modest valuation compression in the U.S. and continued multiple expansion in the other countries in our selection.

Repurchases. For the U.S., we use the 10-year average buyback yield as our assumption for the next decade. In the U.K., Eurozone, and Japan, although repurchases have increased in the past decade, dividends continue to dominate the payout to shareholders equation. We assume the repurchase yield in these countries over the next decade will be one-third of the dividend yield.

Our assumptions for the next decade imply that equity returns will decelerate in the U.S. relative to the previous decade and will accelerate in other developed markets. U.S. equity return growth will still exceed other developed market returns in local currency
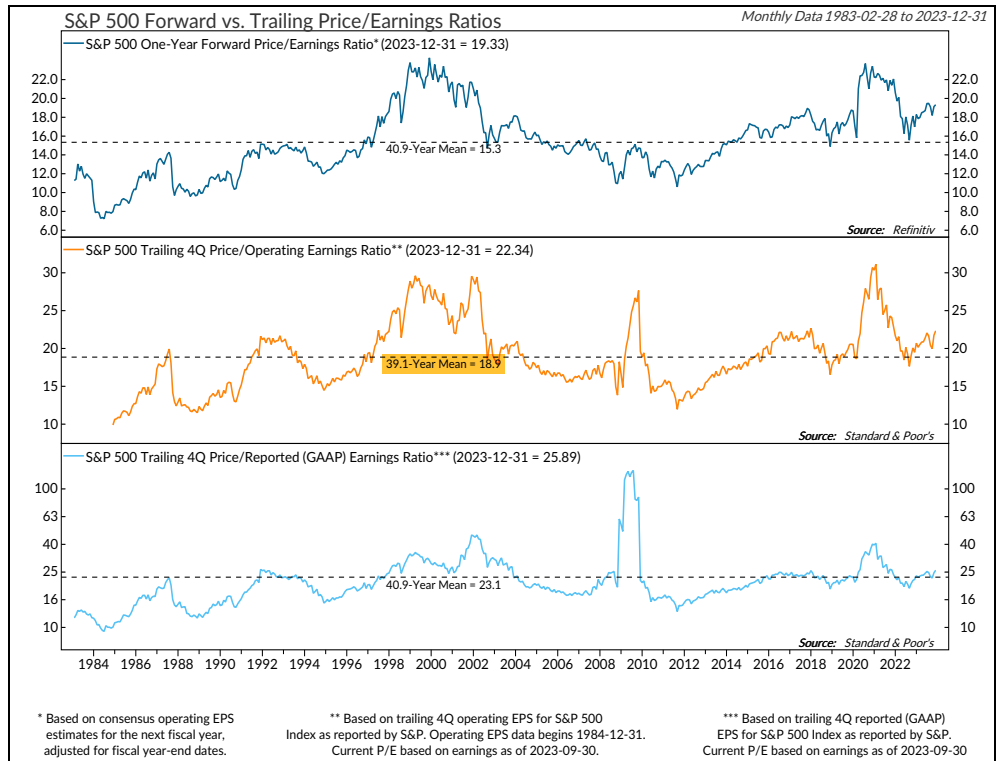
terms. However, after accounting for our bearish projection for the U.S. dollar, expected U.S. returns lose their edge. We assume emerging markets will deliver stronger returns than developed markets.

Why still bullish on U.S. equities?

As noted above, U.S. equities have been in a secular uptrend since 2009. Of three secular bull markets since 1900, the longest lasted 24 years. Given that the current secular bull is nearly 15 years old, history is against it lasting for another decade. Even so, a few more years of a secular bull could give the S&P 500 enough of a lead to reach our ten-year return assumption, even if a secular bear starts within the next ten years.

As is common during secular bull markets, the P/E ratio has risen since 2009. The 4Q-trailing P/E stood at 22.3 in December 2023, and
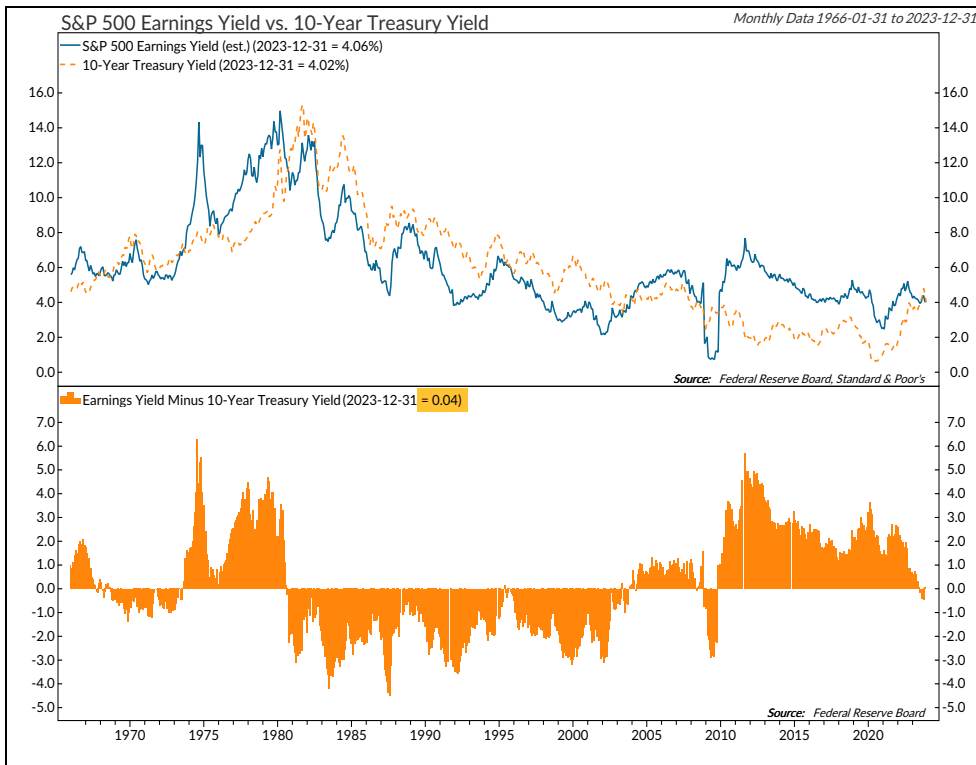
Some, but not excessive, overvaluation

S&P 500 Forward vs. Trailing Price/Earnings Ratios — *Monthly Data 1983-02-28 to 2023-12-31*

S&P 500 One-Year Forward Price/Earnings Ratio* (2023-12-31 = 19.33)
40.9-Year Mean = 15.3
Source: Refinitiv

S&P 500 Trailing 4Q Price/Operating Earnings Ratio** (2023-12-31 = 22.34)
39.1-Year Mean = 18.9
Source: Standard & Poor's

S&P 500 Trailing 4Q Price/Reported (GAAP) Earnings Ratio*** (2023-12-31 = 25.89)
40.9-Year Mean = 23.1
Source: Standard & Poor's

* Based on consensus operating EPS estimates for the next fiscal year, adjusted for fiscal year-end dates.

** Based on trailing 4Q operating EPS for S&P 500 Index as reported by S&P. Operating EPS data begins 1984-12-31. Current P/E based on earnings as of 2023-09-30.

*** Based on trailing 4Q reported (GAAP) EPS for S&P 500 Index as reported by S&P. Current P/E based on earnings as of 2023-09-30

S662

NDR

EY-BY spread expected to be positive

S&P 500 Earnings Yield vs. 10-Year Treasury Yield — *Monthly Data 1966-01-31 to 2023-12-31*

S&P 500 Earnings Yield (est.) (2023-12-31 = 4.06%)
10-Year Treasury Yield (2023-12-31 = 4.02%)
Source: Federal Reserve Board, Standard & Poor's

Earnings Yield Minus 10-Year Treasury Yield (2023-12-31 = 0.04)
Source: Federal Reserve Board

S798

NDR

averaged 21.1 over the course of the year. This is slightly higher than the 10-year average of 20.9 and the long-run average of 18.9 since 1985. It implies that U.S. equities are currently overvalued but not significantly so.

Alternatively, we considered the differential between the S&P 500 earnings yield and the 10-year Treasury note yield. Higher bond yields pushed the yield differential into negative territory in the second half of 2023, after being positive since 2009. Since bond yields have come off their cyclical high, the yield differential has now crossed back into positive territory. We expect it to settle near 0.5%, which was the five-year average prior to the Global Financial Crisis. Along with our average 10-year yield assumption of 4.8% for the next decade, this implies an average earnings yield of 5.3% and a P/E multiple of 18.9. Although coincidental, the return to the long-run P/E multiple implies some, but not excessive,
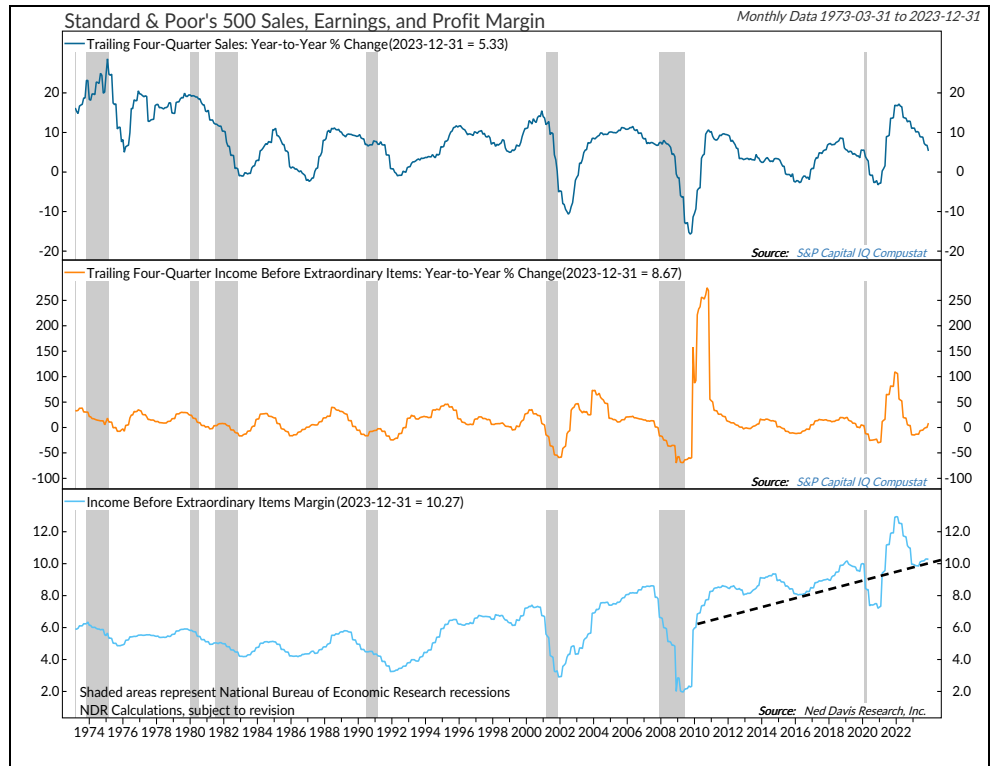
equity overvaluation at this time.

We assume that the multiple compression will subtract a relatively modest 0.5% from annualized returns over the next decade.

Additionally, we have observed that profit margins have trended up over time. While margins do still have mean-reverting qualities, these are more confined to the business cycle than to a long-term range. The long-term upward trend reflects productivity gains and better cost management. Subdued inflation and the eroding power of labor unions over the decades have also played a role.

In the current cycle, margins have already declined from their high in early 2022 and are now tracking in line with their post-GFC trend. Even though elevated wage pressures in recent years may persist in the future, we expect productivity gains from AI and other
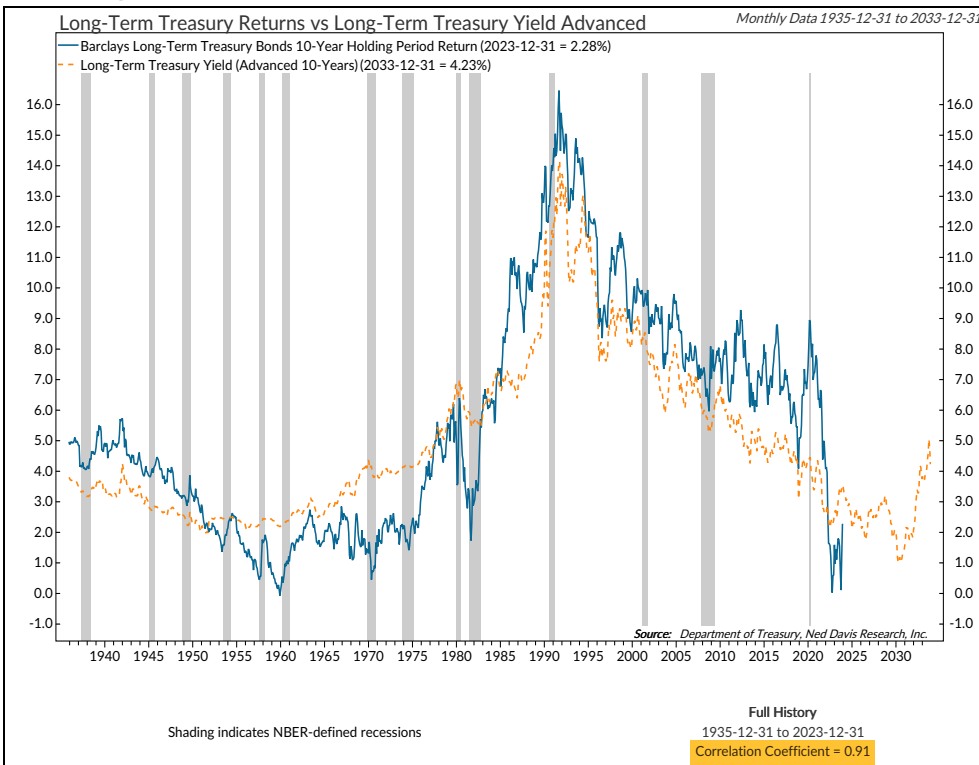
Margins have trended up over time

Standard & Poor's 500 Sales, Earnings, and Profit Margin — Monthly Data 1973-03-31 to 2023-12-31

Trailing Four-Quarter Sales: Year-to-Year % Change(2023-12-31 = 5.33)
Source: S&P Capital IQ Compustat

Trailing Four-Quarter Income Before Extraordinary Items: Year-to-Year % Change(2023-12-31 = 8.67)
Source: S&P Capital IQ Compustat

Income Before Extraordinary Items Margin (2023-12-31 = 10.27)
Shaded areas represent National Bureau of Economic Research recessions
NDR Calculations, subject to revision
Source: Ned Davis Research, Inc.

S0670A

Starting 10Y yield is the best predictor of next 10Y returns

Long-Term Treasury Returns vs Long-Term Treasury Yield Advanced — Monthly Data 1935-12-31 to 2033-12-31

Barclays Long-Term Treasury Bonds 10-Year Holding Period Return (2023-12-31 = 2.28%)
Long-Term Treasury Yield (Advanced 10-Years) (2033-12-31 = 4.23%)

Shading indicates NBER-defined recessions

Full History
1935-12-31 to 2023-12-31
Correlation Coefficient = 0.91

Source: Department of Treasury, Ned Davis Research, Inc.

B438D

technologies to provide an offset, keeping margins on a long-run upward trajectory. For the next decade, we assume margin expansion will add 0.6% to annualized returns.

FIXED INCOME

For our government bond total return assumptions, we rely on the strong empirical relationship between the initial 10-year bond yield and annualized total returns over the next ten years.

The return of inflation in the post-pandemic era, after a long hiatus, marked the end of a low interest rate period which started during the Global Financial Crisis (2008-2009). Yes, central banks are publicly committing to bringing inflation down to their 2% target over time, but we see plenty of factors that will make that difficult to achieve on a sustained basis. Three of the five macro themes discussed in this publication, namely shifting

globalization/re-shoring, government debt overhang, and clean energy transition, point to an upside risk to inflation over the coming decade. As a result, we expect government bond yields to be materially higher than over the previous decade.
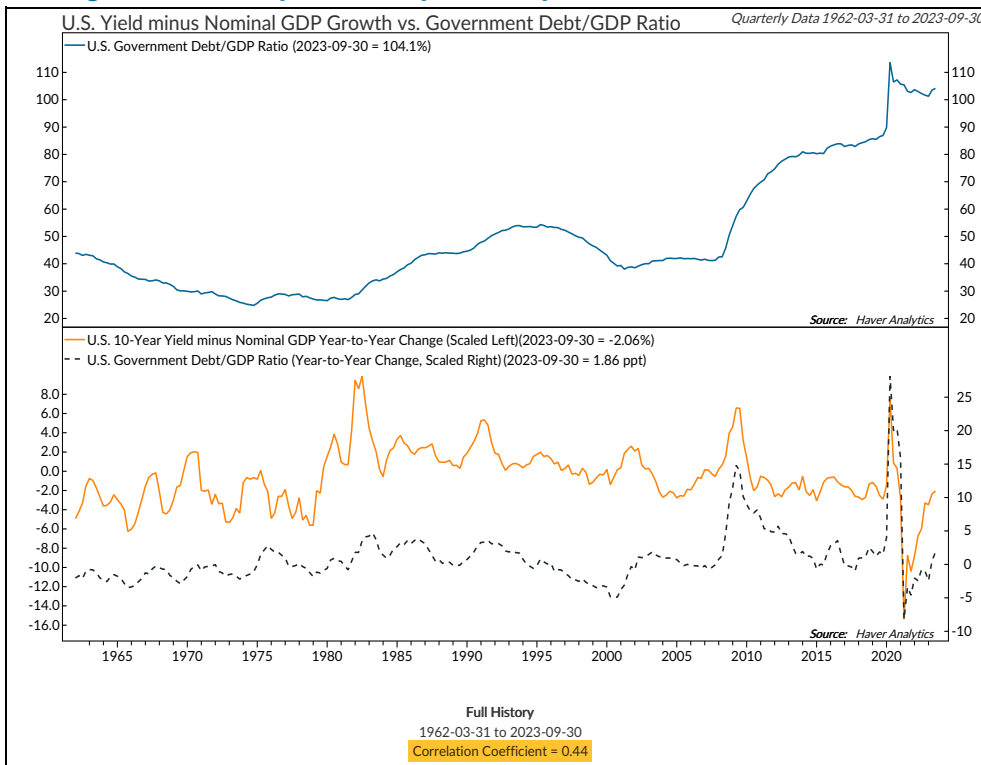
Our average bond yield assumption for each country is driven by our assumptions for real GDP growth and inflation, in other words, by nominal GDP growth. We use multiple regression equations to produce bond yield estimates for the next decade. We make adjustments for (1) the expected normalization of the gap between the real 10-year yield and potential GDP growth and (2) expected changes in the government debt/GDP ratios, based on IMF projections.

Our U.S. inflation and nominal 10-year bond yield assumptions imply a 10-year TIPS yield of 2.2% over the next decade. Our inflation

Better fixed income returns in the next decade

NDR 10 Year Capital Market Assumptions -- Fixed Income Expectations

- Annualized Returns (2014-2023)
- Expected Annual Returns (2024-2033)

	U.S.	U.S. TIPS	U.S. Investment Grade	U.S. High Yield	U.K.	Eurozone	Japan	Emerging Markets
Annualized Returns	2.2	2.4	3.0	4.6	1.1	0.4	0.5	3.0
Expected Annual Returns	4.2	4.3	5.2	6.3	3.6	2.1	0.6	6.2

Source: Bloomberg Barclays, Ned Davis Research, Inc.

SP202401251E_C

NDR

Rising debt/GDP pushes up bond yields

U.S. Yield minus Nominal GDP Growth vs. Government Debt/GDP Ratio

Quarterly Data 1962-03-31 to 2023-09-30

— U.S. Government Debt/GDP Ratio (2023-09-30 = 104.1%)

Source: Haver Analytics

— U.S. 10-Year Yield minus Nominal GDP Year-to-Year Change (Scaled Left) (2023-09-30 = -2.06%)
-- U.S. Government Debt/GDP Ratio (Year-to-Year Change, Scaled Right) (2023-09-30 = 1.86 ppt)

Source: Haver Analytics

Full History
1962-03-31 to 2023-09-30
Correlation Coefficient = 0.44

E0501D

NDR

outlook is moderately higher than market expectations, based on the 10-year inflation swap. For this reason, we expect TIPS to modestly outperform nominal bonds of similar duration. We assume 4.3% annual return for 10-year TIPS over the next decade.

Our Investment Grade (IG) and High Yield (HY) bond return assumptions are driven by their initial yield and our expectation that spreads with Treasuries will normalize to their historical means. Spreads are currently below their historical averages, with greater adjustment needed in HY. Our IG and HY return assumptions are 5.2% and 6.3%, respectively.

We expect Emerging Market (EM) bond yields and returns to track closely U.S. HY bonds over the next decade. Our assumption is for 6.2% EM bonds annualized return.
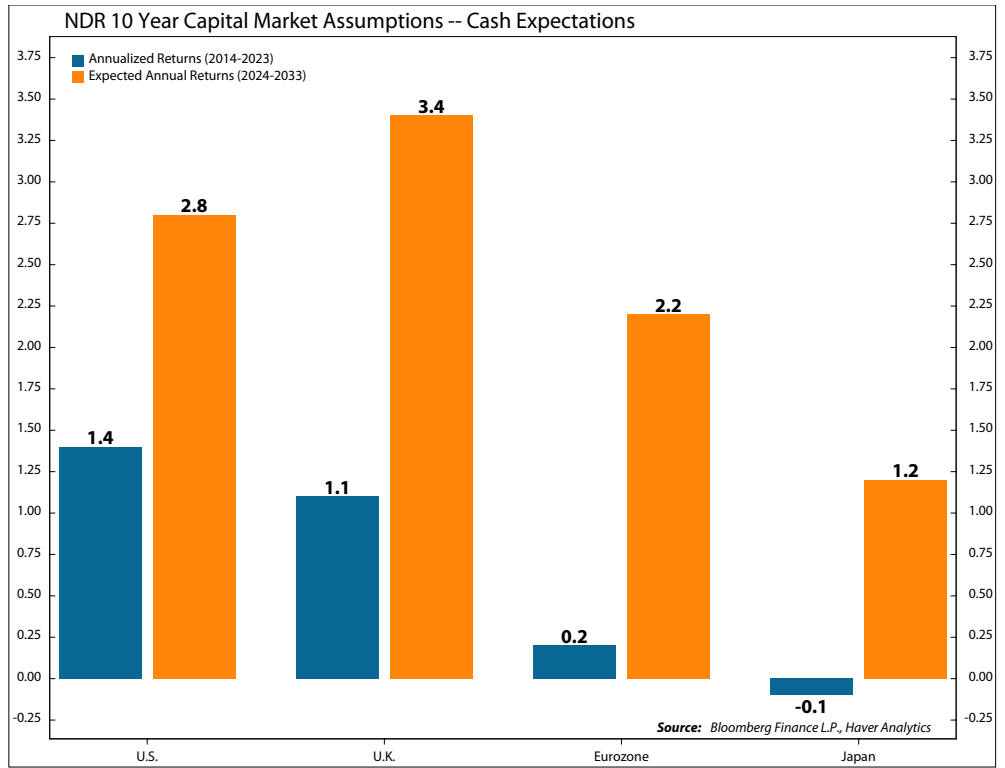
CASH

Short-term interest rates follow closely central bank rates, which have been rising over the past two years in an effort to tame inflation. As inflation has started to moderate, central banks will likely turn to an easing policy. As a result, short-term rates should decline from currently elevated levels, as well.

We use real central bank rates (nominal rates minus inflation) as an anchor for our short-term interest rates assumption for the next decade. A prolonged period of below-target inflation and below-trend real GDP growth after the Global Financial Crisis led to "easy" monetary policy and negative real central bank rates across most developed markets. With inflation returning during the pandemic and central banks raising rates aggressively, that period is now in the rearview mirror.

We expect real central bank rates over the

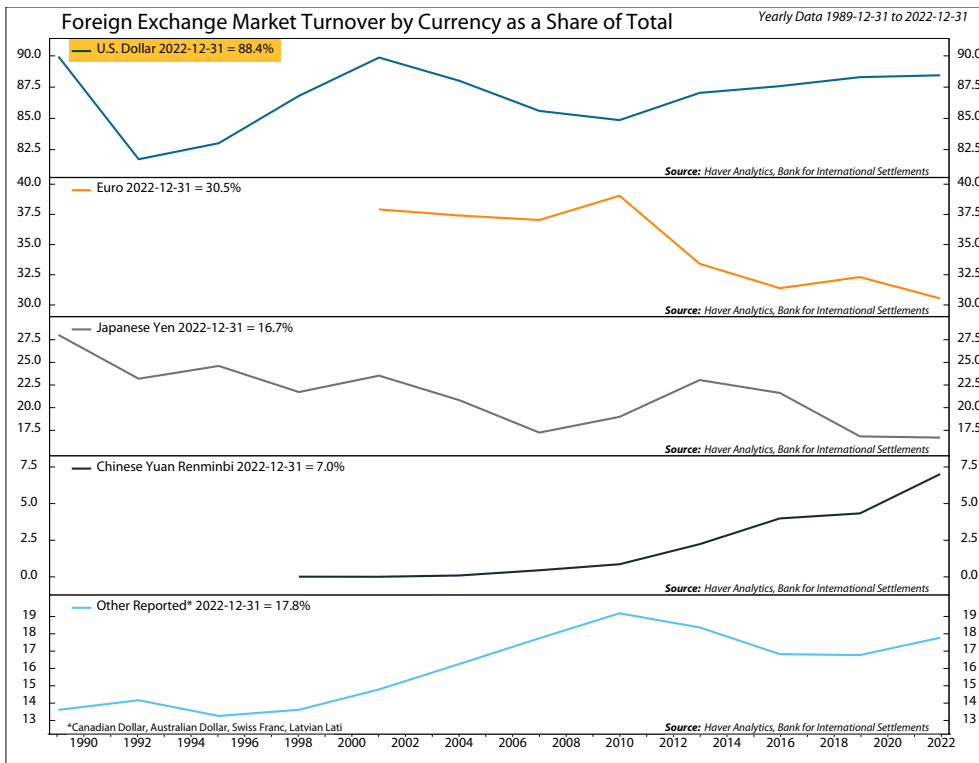## Higher short-term rates and returns through 2033

NDR 10 Year Capital Market Assumptions -- Cash Expectations

Annualized Returns (2014-2023)
Expected Annual Returns (2024-2033)

	U.S.	U.K.	Eurozone	Japan
Annualized Returns	1.4	1.1	0.2	-0.1
Expected Annual Returns	2.8	3.4	2.2	1.2

Source: Bloomberg Finance L.P., Haver Analytics

SP202401251F_C

coming decade to settle in modest positive territory, above the post-GFC negative real rates, below today's elevated rates, and likely below their average in the decade preceding the GFC. Adding our inflation assumptions produces our nominal short-term interest rate and cash return assumptions for each country.

ALTERNATIVE & OTHER ASSETS
U.S. Dollar

We maintain a bearish U.S. dollar outlook for the next decade and assume the broad dollar index will decline at a 1.0% annualized rate. Our long-term technical composite model on the dollar is firmly in negative territory, consistent with a downward trend in the value of the currency. The dollar is currently overvalued on a purchasing power parity basis. Our macro assumptions imply that real growth and real interest rate differentials between the U.S. and other developed markets will remain positive

U.S. dollar continues to dominate

Foreign Exchange Market Turnover by Currency as a Share of Total   Yearly Data 1989-12-31 to 2022-12-31

U.S. Dollar 2022-12-31 = 88.4%

Euro 2022-12-31 = 30.5%

Japanese Yen 2022-12-31 = 16.7%

Chinese Yuan Renminbi 2022-12-31 = 7.0%

Other Reported* 2022-12-31 = 17.8%

*Canadian Dollar, Australian Dollar, Swiss Franc, Latvian Lati

Source: Haver Analytics, Bank for International Settlements
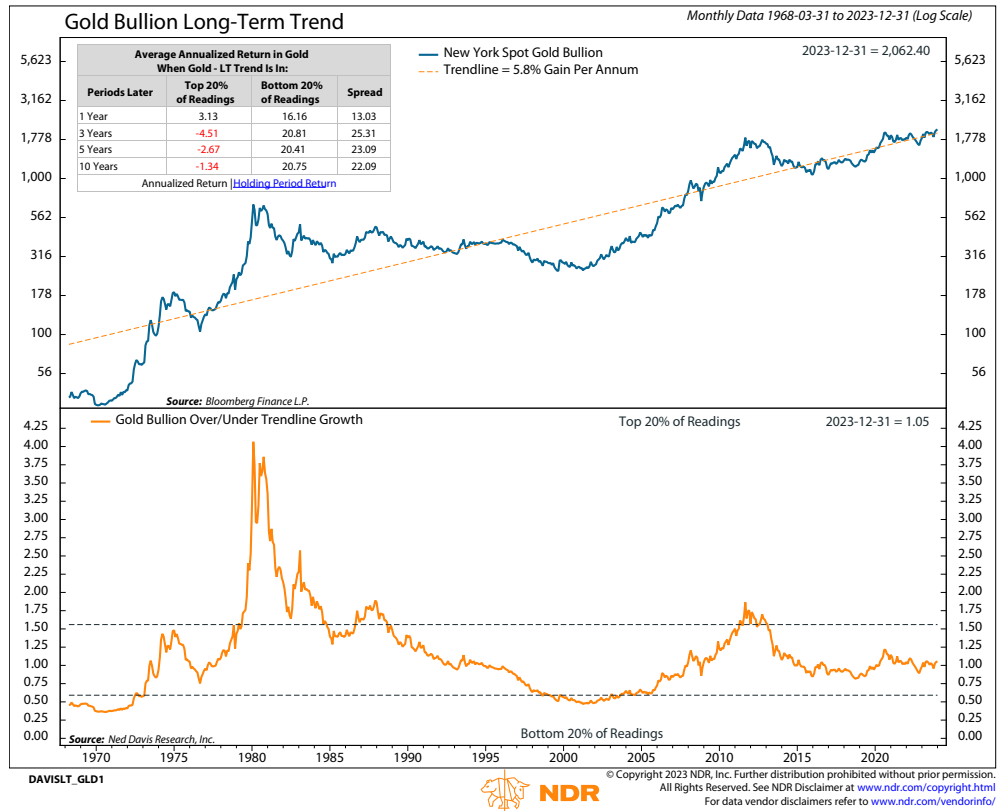
GO202304271B_C

but will narrow over the next decade, also pointing to a modest drag on the dollar.

The dollar is facing a myriad of structural challenges, including shifting global trade patterns, nascent attempts by China and other emerging markets at de-dollarization, and U.S. fiscal sustainability risks. Its share of official foreign exchange reserves has declined to about 60% today from over 70% two decades ago. Nevertheless, as of 2022, the dollar was still involved in nearly 90% of foreign exchange transactions, as it remains the dominant world currency. Despite our bearish assumption on its value for the next decade, the lack of any viable alternatives at this time suggests that the dollar will retain its dominant position as a global reserve and transaction currency.
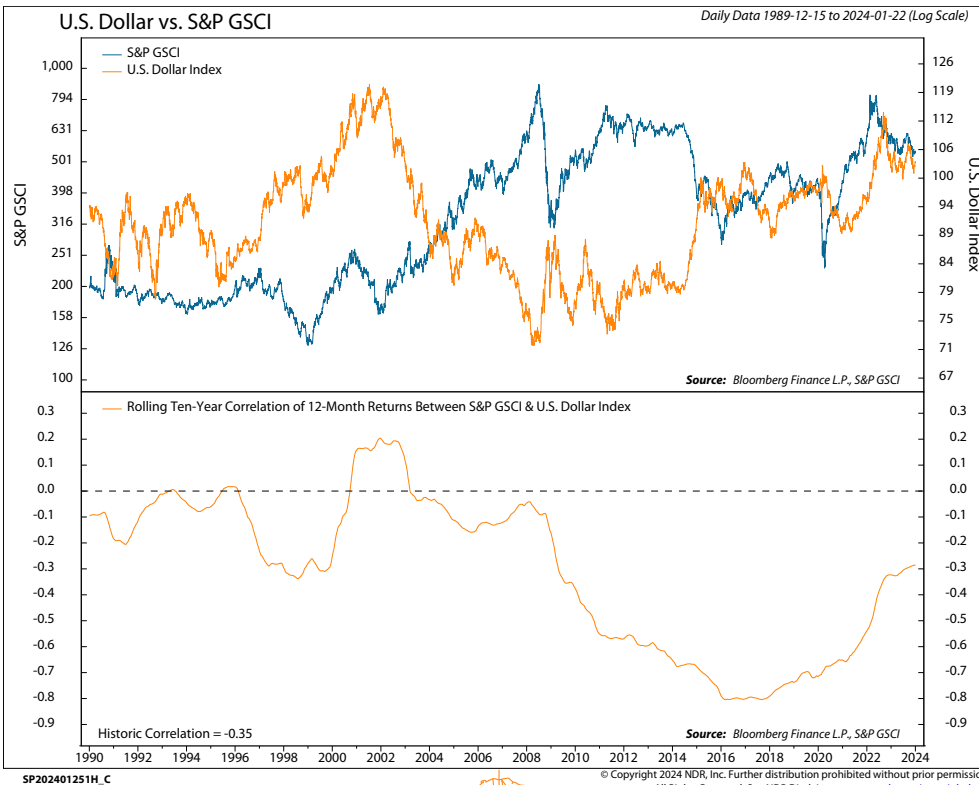
Gold

We assume 6.5% gain per annum in gold prices over the next decade. Gold prices are currently

Tracking trend growth

Gold Bullion Long-Term Trend

Monthly Data 1968-03-31 to 2023-12-31 (Log Scale)

Average Annualized Return in Gold When Gold - LT Trend Is In:			
Periods Later	Top 20% of Readings	Bottom 20% of Readings	Spread
1 Year	3.13	16.16	13.03
3 Years	-4.51	20.81	25.31
5 Years	-2.67	20.41	23.09
10 Years	-1.34	20.75	22.09

Annualized Return | Holding Period Return

New York Spot Gold Bullion
Trendline = 5.8% Gain Per Annum

2023-12-31 = 2,062.40

Source: Bloomberg Finance L.P.

Gold Bullion Over/Under Trendline Growth   Top 20% of Readings   2023-12-31 = 1.05

Bottom 20% of Readings

Source: Ned Davis Research, Inc.

DAVISLT_GLD1

NDR

Weaker dollar is a positive for commodities

U.S. Dollar vs. S&P GSCI

Daily Data 1989-12-15 to 2024-01-22 (Log Scale)

S&P GSCI
U.S. Dollar Index

Source: Bloomberg Finance L.P., S&P GSCI

Rolling Ten-Year Correlation of 12-Month Returns Between S&P GSCI & U.S. Dollar Index

Historic Correlation = -0.35

Source: Bloomberg Finance L.P., S&P GSCI

SP202401251H_C

NDR

tracking their long-term trendline, which implies 5.8% gain per annum. Our assumptions of higher inflation and a weaker dollar are tailwinds for gold prices.

Commodities

Our commodity return assumption for the next decade is 4.7% annualized growth.

Fundamentally, commodity prices and returns are driven by nominal GDP growth, which is a proxy for demand. Commodities are also inversely correlated with the U.S. dollar value. These relationships, combined with our macro assumptions for nominal GDP growth and our bearish outlook for the U.S. dollar, imply a modest low-single digit positive return for commodities over the next decade.
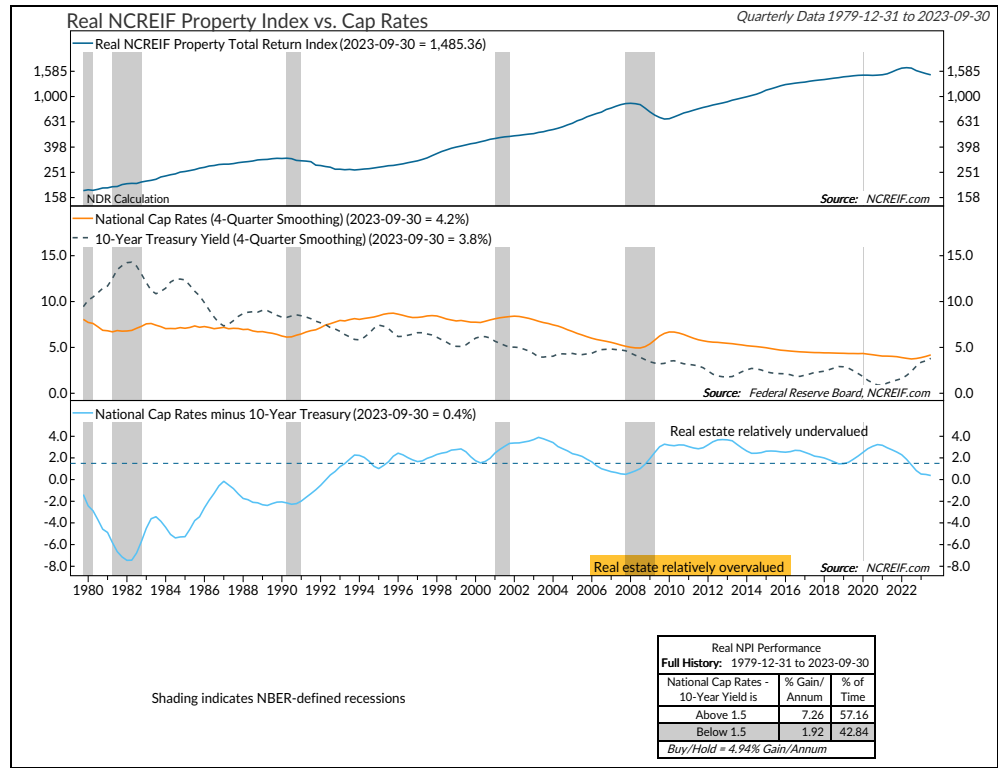
This, however, will be an improvement compared to the past decade, when commodity returns have fallen an annualized

3.5%, exacerbated by the wild swing in prices during the pandemic. Indeed, some of our main themes for the next decade imply an upward pressure to commodity prices and returns. Changing trade relations, increased protectionism, increased risk of geopolitical conflicts, and reduced mining investment to benefit the clean energy transition all point to an upside risk to commodity prices. We qualitatively add a premium to commodity returns to account for these risks.
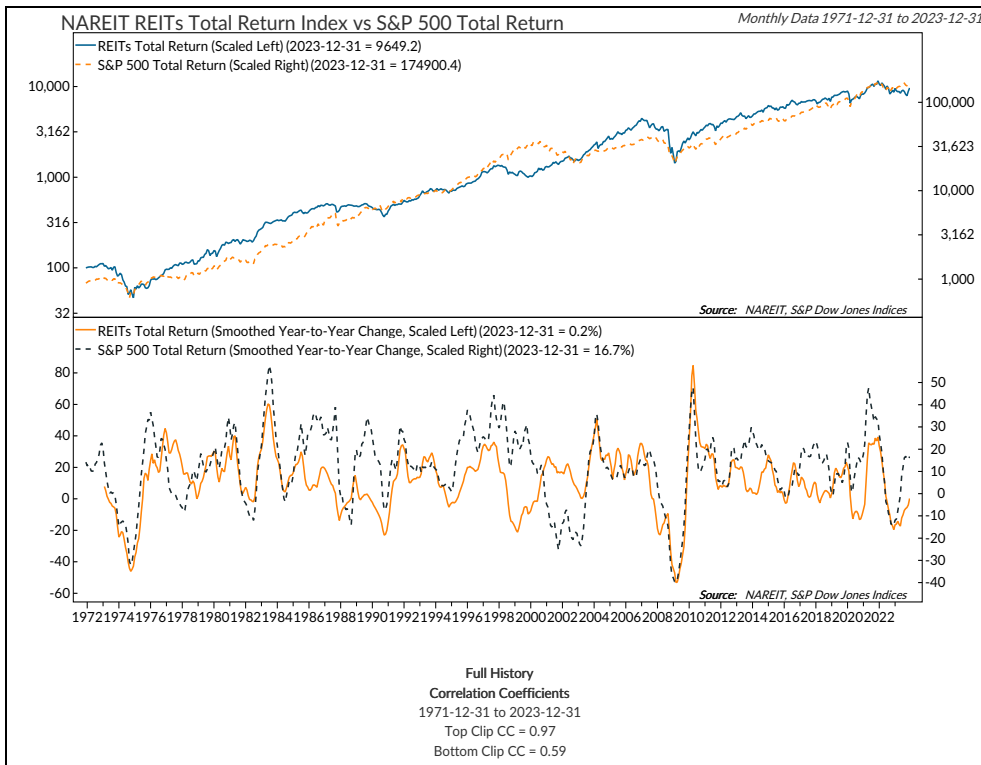
Real Estate and REITS

Commercial real estate is still reeling from the pandemic, with some of its sectors, e.g., Office, suffering deep negative returns. A cap rate that is below the 10-year bond yield implies that commercial real estate is still overvalued. We expect the normalization of market conditions to take several years and vary by property sector. As a result, we assume commercial real

CRE still overvalued

Real NCREIF Property Index vs. Cap Rates — Quarterly Data 1979-12-31 to 2023-09-30

Real NCREIF Property Total Return Index (2023-09-30 = 1,485.36)
NDR Calculation — Source: NCREIF.com

National Cap Rates (4-Quarter Smoothing) (2023-09-30 = 4.2%)
10-Year Treasury Yield (4-Quarter Smoothing) (2023-09-30 = 3.8%)
Source: Federal Reserve Board, NCREIF.com

National Cap Rates minus 10-Year Treasury (2023-09-30 = 0.4%)
Real estate relatively undervalued
Real estate relatively overvalued
Source: NCREIF.com

Shading indicates NBER-defined recessions

Real NPI Performance		
Full History: 1979-12-31 to 2023-09-30		
National Cap Rates - 10-Year Yield is	% Gain/ Annum	% of Time
Above 1.5	7.26	57.16
Below 1.5	1.92	42.84
Buy/Hold = 4.94% Gain/Annum		

E532V

REITs returns correlate with equities

NAREIT REITs Total Return Index vs S&P 500 Total Return — Monthly Data 1971-12-31 to 2023-12-31

REITs Total Return (Scaled Left) (2023-12-31 = 9649.2)
S&P 500 Total Return (Scaled Right) (2023-12-31 = 174900.4)
Source: NAREIT, S&P Dow Jones Indices

REITs Total Return (Smoothed Year-to-Year Change, Scaled Left) (2023-12-31 = 0.2%)
S&P 500 Total Return (Smoothed Year-to-Year Change, Scaled Right) (2023-12-31 = 16.7%)
Source: NAREIT, S&P Dow Jones Indices

Full History
Correlation Coefficients
1971-12-31 to 2023-12-31
Top Clip CC = 0.97
Bottom Clip CC = 0.59

GIX6055A

estate returns over the next decade will be below historical norms, at 6.2% annualized growth rate. In our assumption, we have taken into account that historically, commercial real estate returns have exceeded nominal GDP growth, but have underperformed large cap stocks.

Historically, U.S. REITS have performed better than commercial real estate, but have come short of the S&P 500 returns. We expect these relationships to hold over the next decade and expect 6.9% annualized return in REITS.

For more on CRE, see "The CRE market has yet to clear" by Joe Kalish.

Select Cross Asset Expected Correlations

	S&P 500	Russell 2000	MSCI EMU	MSCI China	MSCI EM	Bloomberg Barclays U.S. Long-term Treasury	Bloomberg Barclays U.S. TIPS	Bloomberg Barclays U.S. Investment Grade	Bloomberg Barclays U.S. High Yield	Bloomberg Barclays EM Aggregate (USD)	3M U.S. Treasury Bill	Broad U.S. Dollar Index	New York Spot Gold Bullion	S&P GSCI	NCREIF	NAREIT REITs
S&P 500	1.00	0.84	0.83	0.53	0.74	-0.13	0.17	0.36	0.69	0.56	-0.06	-0.57	0.06	0.34	-0.05	0.67
Russell 2000	0.84	1.00	0.78	0.45	0.72	-0.18	0.11	0.31	0.68	0.53	-0.03	-0.51	0.06	0.36	-0.03	0.68
MSCI EMU	0.83	0.78	1.00	0.45	0.72	-0.20	0.03	0.28	0.64	0.53	0.01	-0.41	-0.05	0.29	-0.03	0.57
MSCI EM	0.74	0.72	0.72	0.78	1.00	-0.10	0.19	0.39	0.69	0.65	0.00	-0.63	0.24	0.40	-0.04	0.52
Bloomberg Barclays U.S. Long-term Treasury	-0.13	-0.18	-0.20	-0.06	-0.10	1.00	0.64	0.63	-0.04	0.27	0.02	-0.03	0.26	-0.27	-0.12	0.11
Bloomberg Barclays U.S. TIPS	0.17	0.11	0.03	0.16	0.19	0.64	1.00	0.73	0.37	0.55	0.04	-0.41	0.43	0.18	-0.20	0.35
Bloomberg Barclays U.S. Investment Grade	0.36	0.31	0.28	0.30	0.39	0.63	0.73	1.00	0.60	0.73	0.02	-0.47	0.32	0.11	-0.16	0.49
Bloomberg Barclays U.S. High Yield	0.69	0.68	0.64	0.45	0.69	-0.04	0.37	0.60	1.00	0.75	-0.05	-0.57	0.15	0.36	-0.16	0.66
Bloomberg Barclays EM Aggregate (USD)	0.56	0.53	0.53	0.44	0.65	0.27	0.55	0.73	0.75	1.00	0.04	-0.63	0.36	0.28	-0.13	0.58
3M U.S. Treasury Bill	-0.06	-0.03	0.01	0.00	0.00	0.02	0.04	0.02	-0.05	0.04	1.00	-0.04	0.03	0.05	0.04	0.00
Broad U.S. Dollar Index	-0.57	-0.51	-0.41	-0.55	-0.63	-0.03	-0.41	-0.47	-0.57	-0.63	-0.04	1.00	-0.45	-0.48	0.03	-0.52
New York Spot Gold Bullion	0.06	0.06	-0.05	0.24	0.24	0.26	0.43	0.32	0.15	0.36	0.03	-0.45	1.00	0.21	-0.07	0.15
S&P GSCI	0.34	0.36	0.29	0.29	0.40	-0.27	0.18	0.11	0.36	0.28	0.05	-0.48	0.21	1.00	0.05	0.22
NCREIF	-0.05	-0.03	-0.03	-0.07	-0.04	-0.12	-0.20	-0.16	-0.16	-0.13	0.04	0.03	-0.07	0.05	1.00	-0.03
NAREIT REITs	0.67	0.68	0.57	0.36	0.52	0.11	0.35	0.49	0.66	0.58	0.00	-0.52	0.15	0.22	-0.03	1.00

Source: NDR. Data as of December 30, 2023. Full correlation matrix available upon request.

Ned Davis Research

T_SP20240126.3

NED DAVIS RESEARCH

NDRsales@ndr.com
www.ndr.com
(800) 241-0621

SARASOTA

3665 Bee Ridge Road Suite 306

Sarasota, FL 34233

United States

800 241 0621 (U.S. & Canada)

941 412 2300

NEW YORK

1270 Avenue of the Americas

11th Floor

New York, NY 10020

(800) 241-0621

LONDON

4 Bouverie Street

Temple, London

EC4Y 8AX

+44 (0) 22 7779.8455

HONG KONG

12/F, 8 Queen's Road East

Wan Chai

Hong Kong

+852 3416 6676

See the signals.™

Founded in 1980, Ned Davis Research Group is a leading independent research firm with clients around the globe. With a range of products and services utilizing a 360° methodology, we deliver award-winning solutions to the world's leading investment management companies. Our clients include professionals from global investment firms, banks, insurance companies, mutual funds, hedge funds, pension and endowment funds, and registered investment advisors.
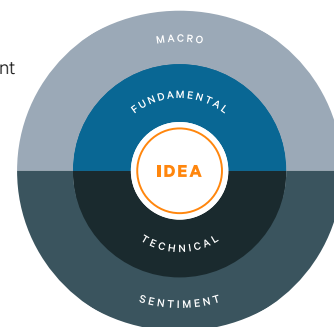
Important Information and Disclaimers

NDR (Ned Davis Research) uses the weight of the evidence and a 360-degree approach to build up to market insights. When we say "evidence," we mean processing millions of data series to fuel a historical perspective, build proprietary indicators and models, and calm investors in a world full of bull/bear news hype and hysteria. We believe that no client is too big or too small to benefit from NDR's insights.

The data and analysis contained in NDR's publications are provided "as is" and without warranty of any kind, either expressed or implied. The information is based on data believed to be reliable, but it is not guaranteed. **NDR DISCLAIMS ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY, SUITABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE.**

NDR's reports reflect opinions of our analysts as of the date of each report, and they will not necessarily be updated as views or information change. All opinions expressed therein are subject to change without notice, and you should always obtain current information and perform due diligence before trading. NDR or its affiliated companies or their respective shareholders, directors, officers and/or employees, may have long or short positions in the securities discussed in NDR's publications and may purchase or sell such securities without notice.

NDR uses and has historically used various methods to evaluate investments which may, at times, produce contradictory recommendations with respect to the same securities. When evaluating the results of prior NDR recommendations or NDR performance rankings, one should also consider that **NDR may modify the methods it uses to evaluate investment opportunities from time to time, that model results do not impute or show the compounded adverse effect of transaction costs or management fees or reflect actual investment results, that other less successful recommendations made by NDR are not included with these model performance reports, that some model results do not reflect actual historical recommendations, and that investment models are necessarily constructed with the benefit of hindsight. Unless specifically noted on a chart, report, or other device, all performance measures are purely hypothetical, and are the results of back-tested methodologies using data and analysis over time periods that pre-dated the creation of the analysis and do not reflect tax consequences, execution, commissions, and other trading costs. For these and for many other reasons, the performance of NDR's past recommendations and model results are not a guarantee of future results.**

Using any graph, chart, formula, model, or other device to assist in deciding which securities to trade or when to trade them presents many difficulties and their effectiveness has significant limitations, including that prior patterns may not repeat themselves continuously or on any particular occasion. In addition, market participants using such devices can impact the market in a way that changes the effectiveness of such devices. NDR believes no individual graph, chart, formula, model, or other device should be used as the sole basis for any investment decision and suggests that all market participants consider differing viewpoints and use a weight of the evidence approach that fits their investment needs. Any particular piece of content or commentary may or may not be representative of the NDR House View, and may not align with any of the other content or commentary that is provided in the service. Performance measures on any chart or report are not intended to represent the performance of an investment account or portfolio, as some formulas or models may have superior or inferior results over differing time periods based upon macro-economic or investment market regimes. NDR generally provides a full history of a formula or model's hypothetical performance, which often reflects an "all in" investment of the represented market or security during "buy", "bullish", or similar recommendations. This approach is not indicative of the intended usage of the recommendation in a client's portfolio, and for this reason NDR does not typically display returns as would be commonly stated when reporting portfolio performance. Clients seeking the usage of any NDR content in a simulated portfolio back-test should contact their account representative to discuss testing that NDR can perform using the client's specific risk tolerances, fees, and other constraints.

NDR's reports are not intended to be the primary basis for investment decisions and are not designed to meet the particular investment needs of any investor. The reports do not address the suitability of any particular investment for any particular investor. The reports do not address the tax consequences of securities, investments, or strategies, and investors should consult their tax advisors before making investment decisions. Investors should seek professional advice before making investment decisions. The reports are not an offer or the solicitation of an offer to buy or to sell a security.

Further distribution prohibited without prior permission. Full terms of service, including copyrights, terms of use, and disclaimers are available at https://www.ndr.com/web/ndr/terms-of-service.