

Market perspectives

Vanguard's monthly economic and market update

KEY HIGHLIGHTS

- Next year, Vanguard expects a **U.S. recession and growth of 0.25% to 0.50%**.
- In the **euro area, look for a mild recession** in the fourth quarter of 2022 and first quarter of 2023.
- Vanguard foresees the federal funds rate target climbing to a range of **4.50% to 4.75% by the end of the first quarter** and staying there for the rest of 2023.
- Vanguard expects the **Federal Reserve's rate-hiking cycle will begin to curb employment growth** in the first quarter of 2023.

Asset-class return outlooks

Our 10-year annualized nominal return projections are shown below. The projections listed below are based on the September 30, 2022, running of the Vanguard Capital Markets Model® (VCMM). Please note the figures are based on a 2-point range around the 50th percentile of the distribution of return outcomes for equities and a 1-point range around the 50th percentile for fixed income.

EQUITIES	RETURN PROJECTION	MEDIAN VOLATILITY	FIXED INCOME	RETURN PROJECTION	MEDIAN VOLATILITY
U.S. equities	4.7%–6.7%	17.4%	U.S. aggregate bonds	4.1%–5.1%	5.6%
U.S. value	4.7%–6.7%	19.8%	U.S. Treasury bonds	3.7%–4.7%	5.8%
U.S. growth	3.1%–5.1%	18.6%	U.S. credit bonds	4.7%–5.7%	5.3%
U.S. large-cap	4.7%–6.7%	17.1%	U.S. high-yield corporate bonds	6.6%–7.6%	10.4%
U.S. small-cap	5.0%–7.0%	22.9%	U.S. Treasury Inflation-Protected Securities	3.2%–4.2%	5.0%
U.S. real estate investment trusts	4.9%–6.9%	20.1%	U.S. cash	3.4%–4.4%	1.4%
Global equities ex-U.S. (unhedged)	7.4%–9.4%	18.8%	Global bonds ex-U.S. (hedged)	4.0%–5.0%	4.4%
Global ex-U.S. developed markets equities (unhedged)	7.2%–9.2%	17.0%	Emerging markets sovereign bonds	6.4%–7.4%	11.0%
Emerging markets equities (unhedged)	7.0%–9.0%	26.4%	U.S. inflation	2.0%–3.0%	2.3%

The probabilistic return assumptions depend on market conditions at the time of the running of the VCMM and, as such, change with each running over time.

IMPORTANT: The projections or other information generated by the Vanguard Capital Markets Model® regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Distribution of return outcomes from the VCMM are derived from 10,000 simulations for each modeled asset class. Simulations are as of September 30, 2022. Results from the model may vary with each use and over time. For more information, see page 4.

Source: Vanguard Investment Strategy Group.

Note: The points in this issue represent the house view of Vanguard's global economics and markets team as of November 16, 2022.



Region-by-region outlook

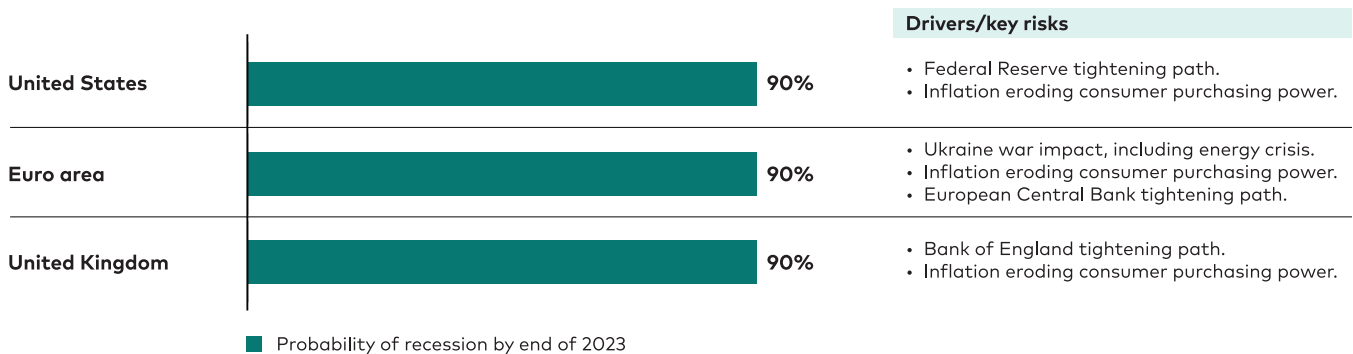
United States

The economy in the United States grew by an annual rate of 2.6% in the third quarter, the Bureau of Economic Analysis (BEA) reported October 27, a solidly positive number but one that Vanguard believes overstates the strength of the U.S. economy.

- Trade dynamics that we wouldn't expect to persist overwhelmingly drove the growth. Rather, the underlying data composition confirms that growth has slowed considerably in 2022 amid a dramatically changed interest rate environment.
- An important forward-looking signal, final sales to private domestic purchasers, grew by just 0.1% compared with the second quarter, down from 0.5% and 2.1% in the two preceding quarters. (That category is the sum of personal consumption, housing, and capital expenditures.) Housing was especially weak.
- Vanguard expects below-trend growth of around 1.7% in the fourth quarter, allowing the economy to eke out a gain for the full year, and growth of 0.25% to 0.50%.
- The euro area, United Kingdom, and U.S. are the most likely to see a recession by the end of 2023 as the effects of the Ukraine war and policy tightening weigh heavily on growth and consumers.
- The path to a soft landing almost exclusively relies on a quick resolution to the conflict in Ukraine and a sharp decline in job openings and wages (but not a rise in unemployment) in the U.S.

Recession in 2023 is now Vanguard's base case

Near-term recession risk is elevated across major developed markets



Source: Vanguard, as of September 30, 2022.

Euro area

The euro area and its four largest economies appear to have avoided recession in the third quarter, but the outlook has deteriorated in recent weeks.

- Key indicators continue to decline, including purchasing managers' indexes (below a contractionary level region-wide for a fourth straight month) and new orders minus inventories.
- We continue to expect a mild recession in the fourth quarter of 2022 and first quarter of 2023, with full-year 2023 GDP in a range of -0.5% to 0.5%.

China

A delayed GDP release revealed a surprisingly strong pickup in economic activity in China in the third quarter. GDP grew by 3.9% in the third quarter on both a year-on-year and a quarter-on-quarter basis, the National Bureau of Statistics reported.

- That number was well above the consensus estimate of economists surveyed by Bloomberg for 3.3% quarter-on-quarter growth and in sharp contrast to a contraction of -2.7% in a second quarter besieged by COVID-19-related lockdowns on activity.
- It left China well behind its target for full-year 2022 growth of 5.5%.

- With the data release, we have lowered our forecast for fourth-quarter GDP growth to 2.7% year-on-year, compared with 3.3% previously.
- For full-year 2023, we now foresee growth of 4.5%, a downgrade from our most recent view of 5.0% growth given a slowing fourth-quarter 2022 momentum and considering National Party Congress developments seemingly at odds with private enterprise.

Emerging markets

We foresee GDP growth of 3.3% in emerging markets in 2023, far stronger than the 0.3% growth rate we see for developed markets. But we expect the pace of growth to vary significantly across regions.

- We expect emerging Asia to lead the way, given an anticipated cyclical rebound in China, with regional growth exceeding 4%. We foresee marginal growth around 1% in Latin America, restrained by a slowdown in the United States.
- We expect economies in emerging Europe to reflect the continent's developed markets challenges, with GDP likely to be flat in 2023.



The Fed's next steps will hinge on inflation data

Look for the federal funds target rate to climb

The Fed raised its federal funds target rate by 75 basis points (bps) on November 2 and emphasized that it has more work to do to bring inflation under control. The new target is within a range of 3.75% to 4%.

- Fed Chair Jerome Powell suggested that how high the Fed's target rate climbs and how long it stays at that level have become more important questions than how fast it gets there and that forthcoming inflation data—more so than labor market data—will help answer those questions.
- In our baseline case, Vanguard foresees the federal funds target rate climbing to a range of 4.50% to 4.75% by the end of the first quarter and staying there for the rest of 2023, though we ascribe a 40% chance to the prospect of the target rate's needing to be moved beyond that.

FEDERAL RESERVE

raised federal funds
target rate by

75 bps

▶ **to a range of 3.75%
to 4% on November 2**



Inflation risks remain

Services prices accelerate even as goods prices come down

An anticipated decline in goods prices materialized in the United States in October in a consumer price inflation report that financial markets reacted to enthusiastically. (Market participants saw the report as evidence that the Fed could slow its pace of rate hikes at its next meeting, on December 14.)

- Core goods prices fell by 0.4% compared with September, with both durable and nondurable goods prices falling. Headline inflation rose by a less-than-expected 0.4% from a month earlier and by a less-than-expected 7.7% from a year earlier.
- Core inflation, which removes volatile food and energy prices, slowed to 0.3% compared with September and to 6.3% compared with October 2021, down from a 40-year high of 6.6% in September.
- Vanguard sees inflation risks remaining to the upside as services prices (up 7.2% year-on-year and 7.8% on a three-month annualized basis) accelerate even as goods prices come down.
- The Fed's preferred inflation indicator in considering monetary policy, the core personal consumption expenditures (PCE) index, rose by 0.5% in September, the same as a revised 0.5% in August, the Bureau of Economic Analysis reported on October 28.
- Compared with a year earlier, core PCE reached 5.1%, higher than August's 4.9% reading.



Look for employment growth to decline in the first quarter

Expect the unemployment rate to rise to 4.4% by the end of 2023

The unemployment rate in the United States rose to 3.7% from 3.5% in October, an early sign that Fed interest rates may be starting to take hold.

- October's jobs report was generally strong amid growing economic headwinds.
- The economy added 261,000 jobs in October, based on the jobs report's survey of employers. (A separate survey of households that produces the unemployment rate estimated that 328,000 jobs were lost in October compared with September.)
- We believe that headwinds driven by the Fed's rate-hiking cycle will begin to curb employment growth in the first quarter of 2023, with the unemployment rate rising to 4.4% by the end of 2023.

UNEMPLOYMENT RATE

rose to
3.7%

**in October 2022
from 3.5%**

All investing is subject to risk, including possible loss of principal.

Diversification does not ensure a profit or protect against a loss.

Investments in bonds are subject to interest rate, credit, and inflation risk.

Investments in stocks or bonds issued by non-U.S. companies are subject to risks including country/regional risk and currency risk. These risks are especially high in emerging markets.

IMPORTANT: The projections and other information generated by the Vanguard Capital Markets Model regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. VCMM results will vary with each use and over time.

The VCMM projections are based on a statistical analysis of historical data. Future returns may behave differently from the historical patterns captured in the VCMM. More important, the VCMM may be underestimating extreme negative scenarios unobserved in the historical period on which the model estimation is based.

The Vanguard Capital Markets Model is a proprietary financial simulation tool developed and maintained by Vanguard's primary investment research and advice teams. The model forecasts distributions of future returns for a wide array of broad asset classes. Those asset classes include U.S. and international equity markets, several maturities of the U.S. Treasury and corporate fixed income markets, international fixed income markets, U.S. money markets, commodities, and certain alternative investment strategies. The theoretical and empirical foundation for the Vanguard Capital Markets Model is that the returns of various asset classes reflect the compensation investors require for bearing different types of systematic risk (beta). At the core of the model are estimates of the dynamic statistical relationship between risk factors and asset returns, obtained from statistical analysis based on available monthly financial and economic data from as early as 1960. Using a system of estimated equations, the model then applies a Monte Carlo simulation method to project the estimated interrelationships among risk factors and asset classes as well as uncertainty and randomness over time. The model generates a large set of simulated outcomes for each asset class over several time horizons. Forecasts are obtained by computing measures of central tendency in these simulations. Results produced by the tool will vary with each use and over time.

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