

Market perspectives

Vanguard's monthly economic and market update

KEY HIGHLIGHTS

- **Inflation** is becoming more broad-based and **isn't going away easily.**
- We see a **25% chance of a U.S. recession in 2022** and a 65% chance in 2023.
- Europe is likely to enter a **mild recession around year-end.**

Asset-class return outlooks

Our 10-year, annualized, nominal return projections, as of June 30, 2022, are shown below. Please note that the figures are based on a 1.0-point range around the rounded 50th percentile of the distribution of return outcomes for equities and a 0.5-point range around the rounded 50th percentile for fixed income.

EQUITIES	RETURN PROJECTION	MEDIAN VOLATILITY	FIXED INCOME	RETURN PROJECTION	MEDIAN VOLATILITY
U.S. equities	4.1%–6.1%	17.2%	U.S. aggregate bonds	3.1%–4.1%	5.1%
U.S. value	4.4%–6.4%	19.5%	U.S. Treasury bonds	2.7%–3.7%	5.4%
U.S. growth	1.6%–3.6%	18.2%	U.S. credit bonds	3.7%–4.7%	5.0%
U.S. large-cap	4.0%–6.0%	16.8%	U.S. high-yield corporate bonds	5.7%–6.7%	10.2%
U.S. small-cap	4.3%–6.3%	22.5%	U.S. Treasury Inflation-Protected Securities	2.3%–3.3%	4.9%
U.S. real estate investment trusts	3.9%–5.9%	20.2%	U.S. cash	2.6%–3.6%	1.3%
Global equities ex-U.S. (unhedged)	6.6%–8.6%	18.6%	Global bonds ex-U.S. (hedged)	3.0%–4.0%	4.1%
Global ex-U.S. developed markets equities (unhedged)	6.5%–8.5%	16.7%	Emerging markets sovereign bonds	5.4%–6.4%	11.9%
Emerging markets equities (unhedged)	5.9%–7.9%	26.5%	U.S. inflation	2.0%–3.0%	2.4%

These probabilistic return assumptions depend on current market conditions and, as such, may change 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 June 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.



Region-by-region outlook

Growth worldwide, especially in the euro area, continues to be challenging

United States

The United States' GDP growth in the second quarter was upwardly revised but was still in negative territory with an annualized rate of -0.60% , according to a second estimate released by the Bureau of Economic Analysis. It did little to change our assessment that the U.S. would struggle to attain above-trend growth in the current and future quarters.

- Growth activity has stabilized through this quarter around the trend rate of 1.80% . We now expect full-year 2022 U.S. economic growth in the 0.25% – 0.50% range, with the upper end down from 0.75% last month. Recession looks unlikely this year given the strength of the labor market.
- Our expectations for recession are essentially the same, with a 25% chance of a recession in 2022 and a 65% chance in 2023.
- Persistent oil prices in the $\$130$ – $\$150$ range would present significant cycle risks.
- The spread between 10-year and 2-year Treasuries has been inverted—with the shorter-term yield higher than the longer-term yield—since early July.
- Vanguard would need to see the inversion continue in the weeks ahead to view it as a recession signal.
- We believe that the 10-year/3-month Treasury spread is a more reliable recession indicator. As of September 12, that spread was 20 basis points.

Euro area

We now expect a moderate recession in the euro area, with negative GDP for the last quarter of 2022 and the first quarter of 2023—followed by a period of stagnation, then a recovery. While we still expect 2022 growth to be in the 2% – 3% range, we have lowered our 2023 forecast to a range between -0.5% and 0.5% .

- Our Vanguard Leading Economic Indicator points to continued weakness. Consumer sentiment remains depressed.
- More important, Russia cut off the flow of natural gas through Nord Stream 1, which provides more than one-third of this commodity to Europe.
- The impact will be uneven among countries. Germany, as Europe's biggest economy and dependent on Russian gas, will be most affected.
- Some fiscal policies are in play to counter the geopolitical challenge. Euro countries are coordinating to find alternative sources of gas.
- Euro area GDP grew 0.6% on a seasonally adjusted basis in the second quarter compared with the first, according to an August 17 flash estimate by Eurostat.

China

As mentioned in last month's issue, we had downgraded our full-year GDP growth forecast to a range of 2.5% – 3.5% based on data indicating a flagging economic recovery so far this quarter. Consumer spending was much lower than expected.

- The Politburo all but acknowledged the challenged growth outlook by dropping the mention of the official growth target and settling for economic growth "within a reasonable range."
- Stimulus measures targeting the real estate sector, which seemed unlikely two months ago, have been announced by policy makers seeking to stem declining home prices.
- While our expectations for a second-half recovery are below consensus, we believe growth will be uneven over the two quarters.
- We expect the third quarter will be below expectations, but the fourth quarter will be more robust.
- It's unlikely that we will see anything like the V-shaped recoveries that China had in 2020 and 2021.

Emerging markets

For emerging markets, we remain below consensus on full-year 2022 economic growth with an estimate of about 3.0% . (The IMF, for example, projects growth of 3.6% .)

- The primary headwinds faced by emerging economies are widespread central bank tightening and the simultaneous slowing of growth in the United States, the euro area, and China.
- Emerging Europe is still most at risk of recession. The region's energy supply issues and accompanying high prices have necessitated interest rate increases that could dampen economic activity.
- Further out, markets are pricing interest rate cuts to counter slowed economies—most aggressively in emerging Europe but in Latin America as well.
- There are signs that inflation has peaked across emerging markets with core measures falling for two consecutive months across regional averages.



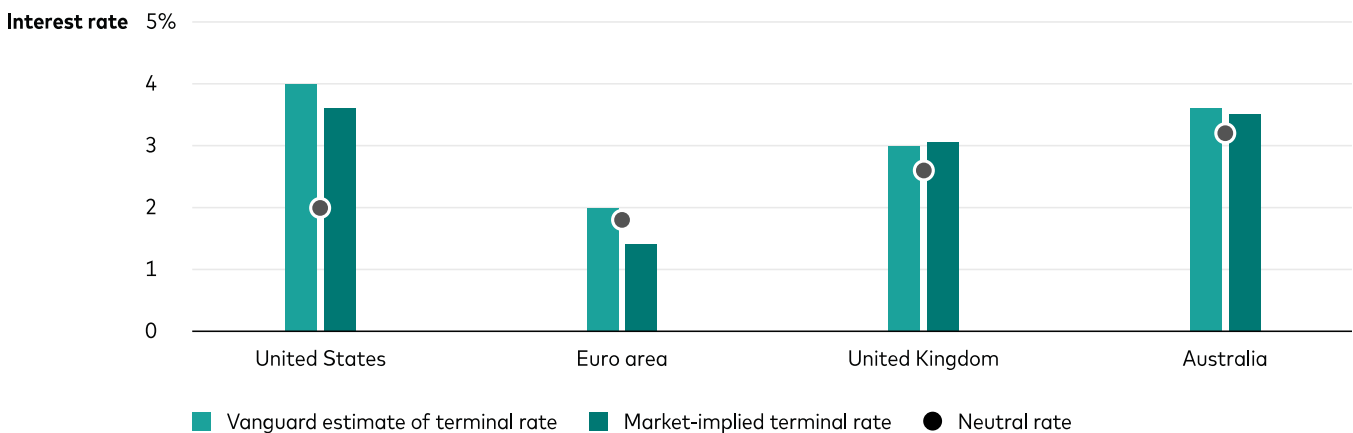
More rate hikes coming

Federal Reserve remains vigilant

We are more hawkish than consensus when it comes to U.S. monetary policy. We expect the Fed to continue ratcheting up rates until it reaches a range of 3.25% to 3.75% by the end of the year, and 4.25% by the second quarter of 2023.

- Rate cuts in 2023 are unlikely, given that wage inflation concerns and energy prices are key risk factors.
- In its September 21 meeting, the Fed raised the target for its federal funds rate by 75 basis points to a range of 3.0% to 3.25% to help tame inflation.
- Central banks will likely raise rates beyond neutral in the near term (see figure). Bringing down inflation is paramount because low and stable inflation is good for long-run economic growth.

Interest rates are likely to rise above the neutral rate to quell inflation



Notes: Vanguard's long-run, nominal, neutral rate forecast assumes 1.8% inflation for the euro area and 2.0% inflation for the remaining countries. The neutral rate is the level at which policy interest rates would neither stimulate nor restrict an economy. Market terminal rate is the maximum overnight indexed swap implied rate between 2022 and 2025.

Source: Vanguard calculations, based on Bloomberg data as of August 9, 2022.



Broad-based price increases frustrate inflation efforts

Core PCE expected to ease toward 4% by year-end

The consumer price index (CPI) in the United States resumed its upward climb, rising 0.1% in August on a seasonally adjusted basis, after staying flat in July. Over 12 months, headline CPI increased 8.3% (not seasonally adjusted).

- Excluding volatile food and energy prices, core CPI came higher than expected, rising 0.6% in August and 6.3% over 12 months. Gasoline prices fell 10.6%. Energy prices overall declined 5.0% for the month but are still 23.8% higher than a year ago.
- Food prices rose 0.8% in August and up 11.4% from the same period last year, making this the largest 12-month increase in food since May 1979.
- The report will give the Fed little pause in continuing with rate hikes this month.
- The price increases were broad-based, but shelter and medical care were the biggest drivers within services.
- The expected decline in used car prices was offset by new vehicle prices accelerating at 0.8%.
- Core personal consumption expenditures (PCE), the Federal Reserve's preferred inflation indicator in considering monetary policy, rose 0.1% in July. (Please note that PCE data lags CPI because of the release schedule.)
- Year-over-year core PCE rose 4.6%, but we still expect core PCE to ease toward 4.0% by year-end.



Job market remains strong

Wage pressures moderate somewhat

The labor market in the United States exceeded expectations in August, adding 315,000 jobs though the gains were modest compared with the more than half million new jobs created in July. The unemployment rate edged 0.2 percentage point higher, to 3.7%, matching the pre-pandemic levels of February 2020.

- The exceptionally strong labor market recovery is on track for an unemployment rate a bit above 3.0% by year-end.
- Wage pressures are moderating but year-over-year wage growth remains on a 5.0% pace for the remainder of 2022. We expect an average monthly job growth of 250,000 through the remainder of 2022.
- Much of the labor demand reflects a deep need for certain skills across a range of industries, and the labor supply remains insufficient for the jobs at hand, even with lower growth.

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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