SEPTEMBER 2022

Market perspectives

Vanguard's monthly economic and market update

KEY HIGHLIGHTS

- We place the likelihood of a **U.S. recession in the next 12 months at about 25%** and in the next 24 months at about 65%.
- Vanguard is **downgrading our China growth forecast** for full-year 2022 from 3.0%–4.0% to 2.5%–3.5%.
- We expect the Federal Reserve to increase its federal funds rate target to a range of **3.25%–3.75% by the end of the year**.

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
U.S. equities	**4.1%–6.1%**	17.2%
U.S. value	**4.4%–6.4%**	19.5%
U.S. growth	**1.6%–3.6%**	18.2%
U.S. large-cap	**4.0%–6.0%**	16.8%
U.S. small-cap	**4.3%–6.3%**	22.5%
U.S. real estate investment trusts	**3.9%–5.9%**	20.2%
Global equities ex-U.S. (unhedged)	**6.6%–8.6%**	18.6%
Global ex-U.S. developed markets equities (unhedged)	**6.5%–8.5%**	16.7%
Emerging markets equities (unhedged)	**5.9%–7.9%**	26.5%

FIXED INCOME	RETURN PROJECTION	MEDIAN VOLATILITY
U.S. aggregate bonds	**3.1%–4.1%**	5.1%
U.S. Treasury bonds	**2.7%–3.7%**	5.4%
U.S. credit bonds	**3.7%–4.7%**	5.0%
U.S. high-yield corporate bonds	**5.7%–6.7%**	10.2%
U.S. Treasury Inflation-Protected Securities	**2.3%–3.3%**	4.9%
U.S. cash	**2.6%–3.6%**	1.3%
Global bonds ex-U.S. (hedged)	**3.0%–4.0%**	4.1%
Emerging markets sovereign bonds	**5.4%–6.4%**	11.9%
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

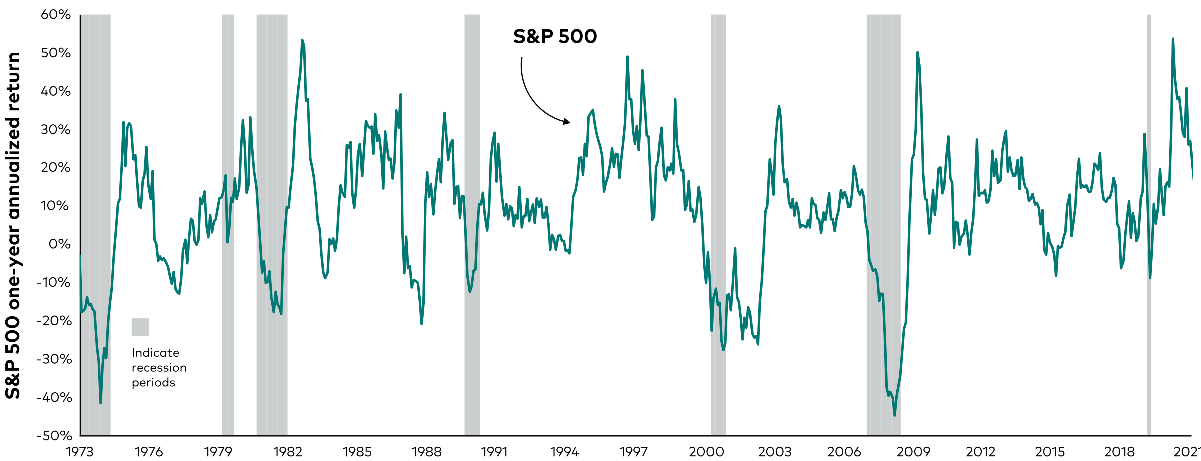
Vanguard downgrades growth forecasts for the United States and China

United States

Vanguard has downgraded our forecast for 2022 growth in the United States on the back of a second consecutive quarter of economic contraction.

- GDP decreased at an annual rate of 0.9% in the second quarter, according to an advance estimate by the Bureau of Economic Analysis. The report fell short across key categories, and we see it as softer than the headline number would suggest.
- We believe it likely that the United States will struggle to regain above-trend growth in the quarters ahead. Vanguard now expects full-year 2022 U.S. economic growth of 0.25%–0.75%, down from the estimate last month of about 1.50%.
- We place the likelihood of a U.S. recession in the next 12 months at about 25% and in the next 24 months at about 65%. (Whereas in some countries two consecutive quarters of contraction constitute a recession, U.S. recessions are determined by the private National Bureau of Economic Research (NBER). Key NBER recession drivers including the labor market and industrial production remain strong; we believe it unlikely that the NBER will declare a recession in the near term.)
- We're also watching the yield curve for signs of recession. 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; the spread was –43 basis points as of August 16. 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.
- When a recession occurs, we don't know how long it will last or precisely when equity markets will recover, making it virtually impossible to time the markets. But equity prices have frequently begun to fall prior to the start of a recession and hit their low point sometime during the recession. They have typically started to recover before the end of the recession (see chart).

Stocks start to recover before recessions end



Notes: This chart shows the one-year annualized returns for the S&P 500 Index from 1973 through 2021. The shaded areas represent months where the U.S. economy was in recession as defined by the National Bureau of Economic Research.

Sources: Vanguard calculations as of December 31, 2021, using data from Refinitiv.

Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Euro area

Vanguard maintains its estimate of full-year 2022 euro area economic growth of 2% to 3%, and our outlook for 2023 growth of 0.5% to 1.5%. But risks are skewed to the downside.

- Leading economic indicators suggest sharp downturns in Germany and Italy, and a European Commission reading of economic sentiment hit a 17-month low amid fears of energy shortages and concerns that a recession is nearing.
- In our base case, Vanguard sees a 50% chance of euro area recession in the next 12 months, growing to 60% over the next 24 months.

China

Economic data published for July showed a weaker-than-expected recovery from the second-quarter slump in China. Consumer spending remained particularly subdued. These data, in addition to the broadening property market downturn, lead us to downgrade our GDP call for full-year 2022 from 3%–4% to 2.5%–3.5%.

- Weakness is driven by a crisis in confidence, stemming from declining house prices (an important asset in Chinese household balance sheets) as well as continued "zero Covid-19" measures.
- Stimulus measures such as investment in infrastructure and credit easing are losing effectiveness as weak consumer demand weighs on the economy—a challenge not addressed by current stimulus measures.

Emerging markets

For the emerging markets, we maintain our full-year 2022 economic growth estimate of about 3.0%, down from around 5.5% at the start of the year. Our current view is below consensus; the International Monetary Fund, 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 most at risk of recession.
- Further out, markets are pricing interest rate cuts to counter slowed economies—most aggressively in emerging Europe but in Latin America as well.
- Although higher commodities prices do benefit some emerging economies, they're a negative in the aggregate.

Big Fed rate hike coming in September?

Expect a terminal rate of at least 4% in 2023

The Fed raised the target for its federal funds rate by 75 basis points on July 27, to a range of 2.25% to 2.50%, and said such an "unusually large" rate increase may be appropriate again in September to bring inflation under control.

- Vanguard expects the Fed to increase its federal funds rate target to a range of 3.25% to 3.75% by the end of the year, from a target of 0% to 0.25% at the start of the year.
- We continue to expect a terminal rate of at least 4% in 2023 to get inflation under control. That would put the policy rate well above the Fed's assessment of the neutral rate, which Fed Chair Jerome Powell said was around the Fed's new rate target. (The neutral rate is the theoretical monetary policy rate that would neither stimulate nor restrict economic activity.)

U.S. FEDERAL RESERVE

raised federal funds rate by

75 bps

to a range of 2.25% to 2.50% on July 27

Inflation continues at high levels

Core PCE expected to ease by year-end

Consumer prices in the United States, as measured by the Consumer Price Index (CPI), were unchanged on a seasonally adjusted basis in July. On a year-over-year basis, prices were up 8.5% in July, down from 9.1% the month before.

- Core CPI, which excludes food and energy prices, was 5.9% higher than in July 2021, matching its pace in June and 0.5 percentage point below its March peak.
- Core personal consumption expenditures (PCE), the Fed's preferred inflation indicator in considering monetary policy, rose 0.6% in June, ending a fourth-month run of 0.3% readings. It rose 4.8% compared with a year earlier, ending three straight months of deceleration.
- We expect core PCE to ease toward 4% by year-end.

Job numbers exceed expectations

Unemployment rate dips slightly

The labor market in the United States crushed expectations, adding 528,000 jobs in July.

- The unemployment rate edged 0.1 percentage point lower, matching the 3.5% pre-pandemic rate of February 2020.
- Vanguard believes that structural constraints on labor supply (such as an increased rate of retirements, decreased immigration, and changing job preferences) limit near-term risks to the labor market.

U.S. LABOR MARKET

added

528,000

new jobs in July 2022

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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