

Prepared for

Episcopal Foundation of Dallas

November 2022

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Agenda

- I. Performance review
- II. Markets and economy
- III. Prior bear markets
- IV. Appendix

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Performance review

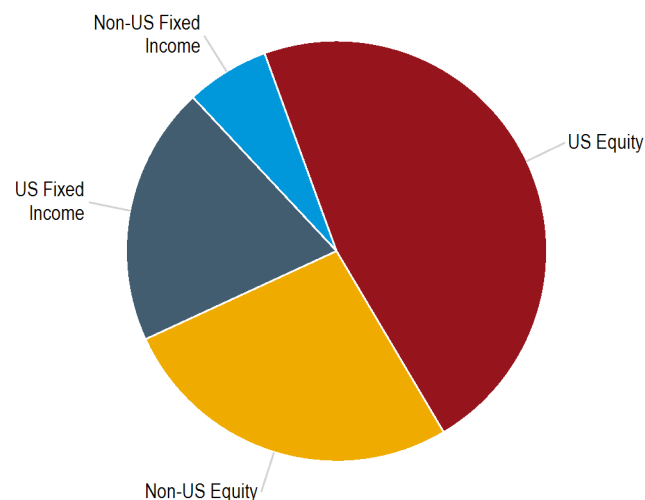
Total Portfolio Performance & Asset Allocation

Performance Summary ending September 30, 2022

	Market Value (\$)	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
EPISCOPAL FOUNDATION OF DALLAS	36,896,244	-7.96	-6.29	-22.10	-18.90	2.83	3.93	--	5.31	Jun-15
EPISCOPAL FOUNDATION OF DALLAS (Net)		-7.96	-6.32	-22.17	-18.98	2.72	3.82	--	5.20	
Composite Benchmark		-8.16	-5.82	-22.65	-18.94	2.20	3.82	--	5.09	Jun-15

- Composite Benchmark = 47% Spliced Total Stock Market Index / 28% Spliced Total International Stock Index / 19% Spliced Bloomberg Barclays US Aggregate Float Adjusted Index / 6% Bloomberg Barclays Global Aggregate ex-USD Float Adjusted RIC Capped Hedged

Current Allocation as of September 30, 2022



	Current \$	Current %	Policy	Difference*
US Equity	\$17,355,367	47.0%	47.0%	0.0%
Non-US Equity	\$9,827,215	26.6%	28.0%	-1.4%
US Fixed Income	\$7,358,491	19.9%	19.0%	0.9%
Non-US Fixed Income	\$2,355,172	6.4%	6.0%	0.4%
Total	\$36,896,244	100.0%	100.0%	

*Difference between Policy and Current Allocation

Gross of Advisory Fee returns reflect the deduction of fund expense ratios and any other security-level expenses.

Net of Fee returns reflect the deduction of fund expense ratios, any purchase or redemption fees, and VIAS advisory fee applied to the client portfolio.

Returns greater than one year represent annualized returns. Returns less than one year represent cumulative returns.

Episcopal Foundation of Dallas - Aggregated Performance Summary								
as-of September 30, 2022								
	Market Value*	Portfolio Allocation	Three-Month	Year-to-Date	One-Year	Three-Year	Five-Year	Since Inception
Vanguard	\$36,896,244	100.00%	-6.32%	-22.17%	-18.98%	2.72%	3.82%	5.20%
Vanguard Composite Benchmark			-5.82%	-22.65%	-18.94%	2.20%	3.82%	5.09%
Aggregate Portfolio (net of EFD fee)*	\$36,896,244	100.00%	-6.46%	-22.51%	-19.45%	2.16%	3.28%	6.41%
Aggregate Composite Benchmark*			-5.82%	-22.65%	-18.94%	2.20%	3.82%	7.14%
<p>Notes: Return data achieved before February 2016 provided by client. All returns are net of fund-level fees and the Vanguard advisory fee. Aggregate portfolio returns are net of the EFD administrative fee. Vanguard Composite provides a comparison for Vanguard portfolio return and constitutes 42% Spliced Total Stock Market Index/28% Spliced Total International Stock Index/18% Spliced Barclays U.S. Agg Flt-Adj. Index/6% Barclays GA ex-USD Flt-Adj. RIC Capped Index Hedged/6% REIT Spliced Index and has been calculated as-of September 30, 2022. Performance effective date for Vanguard Composite as-of December 31, 2015. Aggregate Composite provides a comparison for Episcopal Foundation of Dallas portfolio and constitutes a weighted average of the Vanguard Composite and HFRI Fund of Funds Composite. Since inception date is January 1, 2010.</p> <p>*Aggregate portfolio performance and Aggregate composite performance include hedge fund and HFRI performance, respectively, through February 29, 2016 for the Five-Year and Since Inception time periods.</p>								

Performance Summary (Gross of Advisory Fees) ending September 30, 2022

	Market Value (\$)	% of Portfolio	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
EPISCOPAL FOUNDATION OF DALLAS	36,896,244	100.00	-7.96	-6.29	-22.10	-18.90	2.83	3.93	--	5.31	Jun-15
EPISCOPAL FOUNDATION OF DALLAS (Net)			-7.96	-6.32	-22.17	-18.98	2.72	3.82	--	5.20	
Composite Benchmark			-8.16	-5.82	-22.65	-18.94	2.20	3.82	--	5.09	Jun-15
Total Equity	27,182,582	73.67	-9.37	-7.08	-24.74	-20.51	5.12	5.19	--	6.65	Jun-15
Equity Domestic	17,355,367	47.04	-8.97	-5.27	-22.14	-15.53	7.96	8.18	--	9.15	Jun-15
Spliced Total Stock Market Index			-9.27	-4.44	-24.86	-17.98	7.60	8.56	11.34	9.32	Jun-15
Equity International	9,827,215	26.63	-10.08	-10.12	-28.99	-28.38	0.37	0.43	--	2.68	Jun-15
Spliced Total International Stock Index			-10.10	-9.66	-26.49	-25.20	-0.93	-0.50	3.41	1.67	Jun-15
Total Fixed Income	9,713,662	26.33	-3.76	-3.99	-13.85	-14.07	-3.10	0.00	--	0.96	Jun-15
Fixed Income Domestic	7,358,491	19.94	-4.05	-4.20	-14.15	-14.38	-2.72	0.00	--	0.93	Jun-15
Spliced Bloomberg Barclays US Aggregate Float Adjusted Index			-4.23	-4.68	-14.65	-14.61	-3.22	-0.23	0.91	0.73	Jun-15
Fixed Income International	2,355,172	6.38	-2.85	-3.31	-12.92	-13.10	-4.22	-0.02	--	1.05	Jun-15
Bloomberg Barclays Global Aggregate ex-USD Float Adjusted RIC Capped Hedged			-2.87	-3.09	-12.79	-12.89	-4.06	0.17	--	1.26	Jun-15

Gross of Advisory Fee returns reflect the deduction of fund expense ratios and any other security-level expenses.

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Returns greater than one year represent annualized returns. Returns less than one year represent cumulative returns.

Performance Summary (Gross of Advisory Fees) ending September 30, 2022

	Market Value (\$)	% of Portfolio	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
EPISCOPAL FOUNDATION OF DALLAS	36,896,244	100.00	-7.96	-6.29	-22.10	-18.90	2.83	3.93	--	5.31	Jun-15
Composite Benchmark			-8.16	-5.82	-22.65	-18.94	2.20	3.82	--	5.09	Jun-15
Total Equity	27,182,582	73.67	-9.37	-7.08	-24.74	-20.51	5.12	5.19	--	6.65	Jun-15
Equity Domestic	17,355,367	47.04	-8.97	-5.27	-22.14	-15.53	7.96	8.18	--	9.15	Jun-15
Spliced Total Stock Market Index			-9.27	-4.44	-24.86	-17.98	7.60	8.56	11.34	9.32	Jun-15
Vanguard® Total Stock Market Index Fund Institutional Shares	9,706,837	26.31	-9.28	-4.46	-24.89	-18.01	7.60	8.56	11.34	9.31	Jun-15
Spliced Total Stock Market Index			-9.27	-4.44	-24.86	-17.98	7.60	8.56	11.34	9.32	Jun-15
Multi-Cap Core Funds Average			-8.67	-4.59	-23.96	-17.61	5.79	6.40	9.28	6.92	Jun-15
Vanguard® PRIMECAP Fund Admiral™ Shares	3,845,286	10.42	-7.94	-6.34	-22.77	-17.19	7.37	8.25	13.27	10.22	Jun-15
Russell 1000 Growth			-9.72	-3.60	-30.66	-22.59	10.67	12.16	13.70	12.39	Jun-15
Multi-Cap Growth Funds Average			-9.34	-2.35	-34.08	-31.33	5.10	7.67	10.37	7.95	Jun-15
Vanguard® Windsor™ Fund Admiral™ Shares	3,803,245	10.31	-9.22	-6.23	-14.66	-7.75	9.17	7.25	10.74	7.60	Jun-15
Russell 1000 Value			-8.77	-5.62	-17.75	-11.36	4.36	5.29	9.17	6.56	Jun-15
Multi-Cap Value Funds Average			-8.67	-5.61	-17.35	-11.15	4.56	4.48	8.33	5.65	Jun-15
Equity International	9,827,215	26.63	-10.08	-10.12	-28.99	-28.38	0.37	0.43	--	2.68	Jun-15
Spliced Total International Stock Index			-10.10	-9.66	-26.49	-25.20	-0.93	-0.50	3.41	1.67	Jun-15
Vanguard® Total International Stock Index Fund Inst Shares	5,060,790	13.72	-10.02	-10.52	-26.76	-25.20	-1.15	-0.68	3.33	1.55	Jun-15
Spliced Total International Stock Index			-10.10	-9.66	-26.49	-25.20	-0.93	-0.50	3.41	1.67	Jun-15
International Funds Average			-9.51	-10.07	-28.98	-27.38	-1.66	-1.18	3.20	1.01	Jun-15
Vanguard® International Value Fund	2,566,809	6.96	-9.11	-9.27	-23.69	-22.20	-0.78	-0.62	3.62	1.27	Jun-15
Spliced International Index			-9.99	-9.91	-26.50	-25.17	-1.52	-0.81	3.01	1.35	Jun-15
International Funds Average			-9.51	-10.07	-28.98	-27.38	-1.66	-1.18	3.20	1.01	Jun-15
Vanguard® International Growth Fund Admiral™ Shares	2,199,615	5.96	-11.30	-10.16	-38.55	-40.24	3.65	3.12	7.27	5.96	Jun-15
Spliced International Index			-9.99	-9.91	-26.50	-25.17	-1.52	-0.81	3.01	1.35	Jun-15
International Funds Average			-9.51	-10.07	-28.98	-27.38	-1.66	-1.18	3.20	1.01	Jun-15

Performance Summary (Gross of Advisory Fees) ending September 30, 2022

	Market Value (\$)	% of Portfolio	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fixed Income	9,713,662	26.33	-3.76	-3.99	-13.85	-14.07	-3.10	0.00	--	0.96	Jun-15
Fixed Income Domestic	7,358,491	19.94	-4.05	-4.20	-14.15	-14.38	-2.72	0.00	--	0.93	Jun-15
Spliced Bloomberg Barclays US Aggregate Float Adjusted Index			-4.23	-4.68	-14.65	-14.61	-3.22	-0.23	0.91	0.73	Jun-15
Vanguard® Total Bond Market Index Institutional Shares	3,881,116	10.52	-4.17	-4.65	-14.58	-14.65	-3.26	-0.24	0.86	-14.65	Sep-21
Spliced Bloomberg Barclays US Aggregate Float Adjusted Index			-4.23	-4.68	-14.65	-14.61	-3.22	-0.23	0.91	-14.61	Sep-21
Spliced Intermediate-Term Investment-Grade Debt Funds Average			-4.42	-4.58	-15.02	-15.17	-3.10	-0.34	0.84	-15.17	Sep-21
Vanguard® Inter-Term Investment-Grade Fund Adm™ Shares	2,312,220	6.27	-4.88	-4.60	-16.69	-17.02	-2.91	0.04	1.51	1.24	Jun-15
Bloomberg US Credit 5-10 Yr TR			-4.91	-4.69	-16.76	-17.07	-3.18	0.21	1.84	1.57	Jun-15
Spliced Core Bond Funds Average			-4.42	-4.58	-15.02	-15.17	-3.10	-0.34	0.84	0.61	Jun-15
Vanguard® Short-Term Investment-Grade Fund Adm™ Shares	1,165,154	3.16	-2.01	-1.87	-7.35	-7.98	-0.74	0.75	1.34	1.23	Jun-15
Bloomberg US Credit 1-5 Yr TR			-2.07	-1.99	-7.22	-7.85	-0.72	0.88	1.42	1.30	Jun-15
1-5 Year Investment-Grade Debt Funds Average			-1.71	-3.53	-8.10	-8.57	-1.33	0.16	0.67	0.59	Jun-15
Fixed Income International	2,355,172	6.38	-2.85	-3.31	-12.92	-13.10	-4.22	-0.02	--	1.05	Jun-15
Bloomberg Barclays Global Aggregate ex-USD Float Adjusted RIC Capped Hedged			-2.87	-3.09	-12.79	-12.89	-4.06	0.17	--	1.26	Jun-15
Vanguard® Total International Bond Index Fund Adm™ Shares	2,355,172	6.38	-2.85	-3.31	-12.92	-13.10	-4.22	-0.02	--	1.05	Jun-15
Bloomberg Barclays Global Aggregate ex-USD Float Adjusted RIC Capped Hedged			-2.87	-3.09	-12.79	-12.89	-4.06	0.17	--	1.26	Jun-15
International Income Funds Average			-4.98	-6.14	-18.69	-19.54	-6.22	-3.00	-1.26	-0.98	Jun-15

Cash Flow Summary

	Last Month	Last Three Months	Year-To-Date	One Year
Beginning Market Value	\$40,120,296	\$39,501,276	\$49,540,398	\$42,783,888
Net Cash Flow	-\$32,214	-\$132,907	-\$1,977,141	\$2,910,233
Capital Appreciation	-\$3,285,017	-\$2,604,022	-\$11,090,643	-\$9,663,052
Income	\$93,179	\$131,897	\$423,629	\$865,175
Ending Market Value	\$36,896,244	\$36,896,244	\$36,896,244	\$36,896,244

Month Ending September 30, 2022

	Beginning Market Value	Net Cash Flow	Capital Appreciation	Income	Ending Market Value
Vanguard® Inter-Term Investment-Grade Fund Adm™ Shares	\$2,430,790	\$0	-\$125,093	\$6,524	\$2,312,220
Vanguard® International Growth Fund Admiral™ Shares	\$2,479,706	\$0	-\$280,091	\$0	\$2,199,615
Vanguard® International Value Fund	\$2,824,056	\$0	-\$257,247	\$0	\$2,566,809
Vanguard® PRIMECAP Fund Admiral™ Shares	\$4,177,014	\$0	-\$331,728	\$0	\$3,845,286
Vanguard® Short-Term Investment-Grade Fund Adm™ Shares	\$1,219,895	-\$30,168	-\$26,770	\$2,197	\$1,165,154
Vanguard® Total Bond Market Index Institutional Shares	\$4,049,956	\$0	-\$177,340	\$8,500	\$3,881,116
Vanguard® Total International Bond Index Fund Adm™ Shares	\$2,425,211	-\$2,046	-\$70,361	\$2,368	\$2,355,172
Vanguard® Total International Stock Index Fund Inst Shares	\$5,624,651	\$0	-\$594,579	\$30,719	\$5,060,790
Vanguard® Total Stock Market Index Fund Institutional Shares	\$10,699,719	\$0	-\$1,035,754	\$42,872	\$9,706,837
Vanguard® Windsor™ Fund Admiral™ Shares	\$4,189,297	\$0	-\$386,052	\$0	\$3,803,245
Total	\$40,120,296	-\$32,214	-\$3,285,017	\$93,179	\$36,896,244

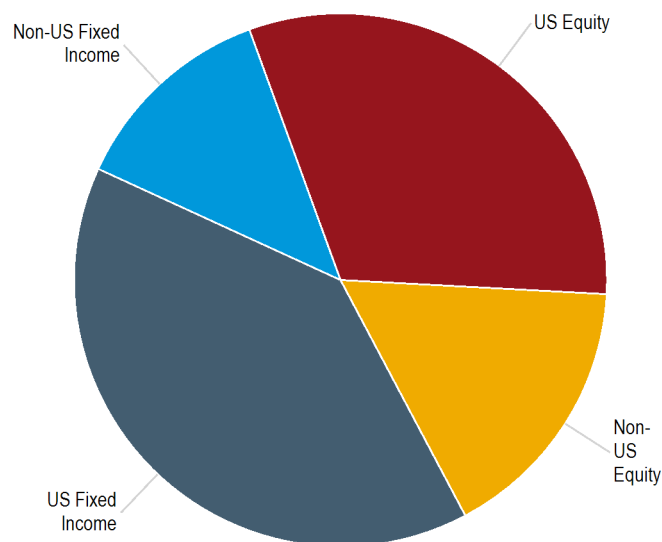
Total Portfolio Performance & Asset Allocation

Performance Summary ending September 30, 2022

	Market Value (\$)	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Episcopal Foundation of Dallas - SJES OPERATING RESERVES	2,208,103	-6.52	-5.44	-19.35	-17.19	--	--	--	-16.04	Jul-21
Episcopal Foundation of Dallas - SJES OPERATING RESERVES (Net)		-6.52	-5.47	-19.41	-17.28	--	--	--	-16.11	
Composite Benchmark		-6.74	-5.30	-19.85	-17.30	--	--	--	-16.00	Jul-21

- Composite Benchmark = 31% Spliced Total Stock Market Index / 19% Spliced Total International Stock Index / 38% Spliced Bloomberg Barclays US Aggregate Float Adjusted Index / 12% Bloomberg Barclays Global Aggregate ex-USD Float Adjusted RIC Capped Hedged

Current Allocation as of September 30, 2022



	Current \$	Current %	Policy	Difference*
US Equity	\$693,546	31.4%	31.0%	0.4%
Non-US Equity	\$362,090	16.4%	19.0%	-2.6%
US Fixed Income	\$875,236	39.6%	38.0%	1.6%
Non-US Fixed Income	\$277,230	12.6%	12.0%	0.6%
Total	\$2,208,103	100.0%	100.0%	

*Difference between Policy and Current Allocation

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Returns greater than one year represent annualized returns. Returns less than one year represent cumulative returns.

Cash Flow Summary

	Last Month	Last Three Months	Year-To-Date	One Year
Beginning Market Value	\$2,361,915	\$2,338,740	\$2,751,227	\$2,680,140
Net Cash Flow	\$0	-\$3,836	-\$12,528	-\$13,024
Capital Appreciation	-\$159,071	-\$136,620	-\$559,974	-\$513,624
Income	\$5,259	\$9,819	\$29,377	\$54,610
Ending Market Value	\$2,208,103	\$2,208,103	\$2,208,103	\$2,208,103

	Month Ending September 30, 2022				
	Beginning Market Value	Net Cash Flow	Capital Appreciation	Income	Ending Market Value
Vanguard® Intermediate-Term Investment-Grade Fund Admiral™ Shares	\$282,762	\$0	-\$14,552	\$759	\$268,969
Vanguard® International Growth Fund Admiral™ Shares	\$80,037	\$0	-\$9,040	\$0	\$70,996
Vanguard® International Value Fund	\$101,535	\$0	-\$9,249	\$0	\$92,286
Vanguard® PRIMECAP Fund Admiral™ Shares	\$153,963	\$0	-\$12,227	\$0	\$141,736
Vanguard® Short-Term Investment-Grade Fund Admiral™ Shares	\$147,859	\$0	-\$3,233	\$267	\$144,892
Vanguard® Total Bond Market Index Institutional Shares	\$481,446	\$0	-\$21,082	\$1,010	\$461,375
Vanguard® Total International Bond Index Fund Admiral™ Shares	\$285,225	\$0	-\$8,274	\$279	\$277,230
Vanguard® Total International Stock Index Fund Institutional Shares	\$220,959	\$0	-\$23,357	\$1,207	\$198,808
Vanguard® Total Stock Market Index Fund Institutional Shares	\$433,550	\$0	-\$41,968	\$1,737	\$393,318
Vanguard® Windsor™ Fund Admiral™ Shares	\$174,580	\$0	-\$16,088	\$0	\$158,492
Total	\$2,361,915	\$0	-\$159,071	\$5,259	\$2,208,103

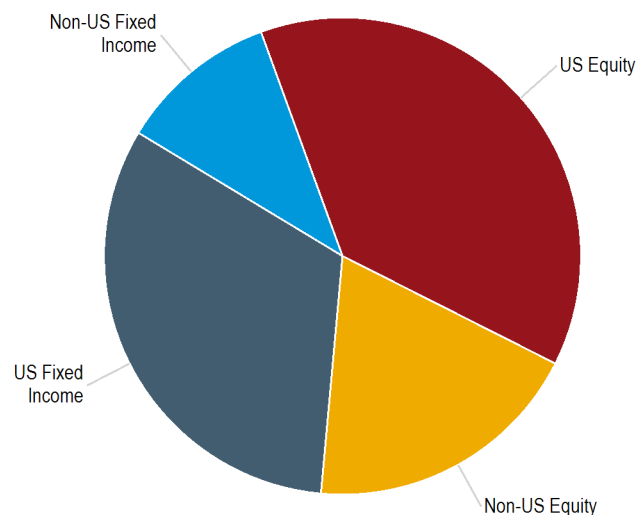
Total Portfolio Performance & Asset Allocation

Performance Summary ending September 30, 2022

	Market Value (\$)	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
EPISCOPAL FOUNDATION OF DALLAS - ST. THOMAS THE APOSTLE	285,077	-7.03	-5.72	-20.31	-17.70	--	--	--	-17.70	Sep-21
EPISCOPAL FOUNDATION OF DALLAS - ST. THOMAS THE APOSTLE (Net)		-7.03	-5.74	-20.37	-17.77	--	--	--	-17.77	
Composite Benchmark		-7.30	-5.47	-20.95	-17.89	--	--	--	-17.89	Sep-21

- Composite Benchmark = 38% Spliced Total Stock Market Index / 22% Spliced Total International Stock Index / 30% Spliced Bloomberg Barclays US Aggregate Float Adjusted Index / 10% Bloomberg Barclays Global Aggregate ex-USD Float Adjusted RIC Capped Hedged

Current Allocation as of September 30, 2022



	Current \$	Current %	Policy	Difference*
US Equity	\$108,329	38.0%	38.0%	0.0%
Non-US Equity	\$54,163	19.0%	22.0%	-3.0%
US Fixed Income	\$91,746	32.2%	30.0%	2.2%
Non-US Fixed Income	\$30,839	10.8%	10.0%	0.8%
Total	\$285,077	100.0%	100.0%	

*Difference between Policy and Current Allocation

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Cash Flow Summary

	Last Month	Last Three Months	Year-To-Date	One Year
Beginning Market Value	\$306,616	\$302,824	\$363,208	\$351,710
Net Cash Flow	\$0	-\$497	-\$5,305	-\$5,329
Capital Appreciation	-\$22,219	-\$18,416	-\$76,385	-\$68,202
Income	\$680	\$1,166	\$3,560	\$6,900
Ending Market Value	\$285,077	\$285,077	\$285,077	\$285,077

Month Ending September 30, 2022

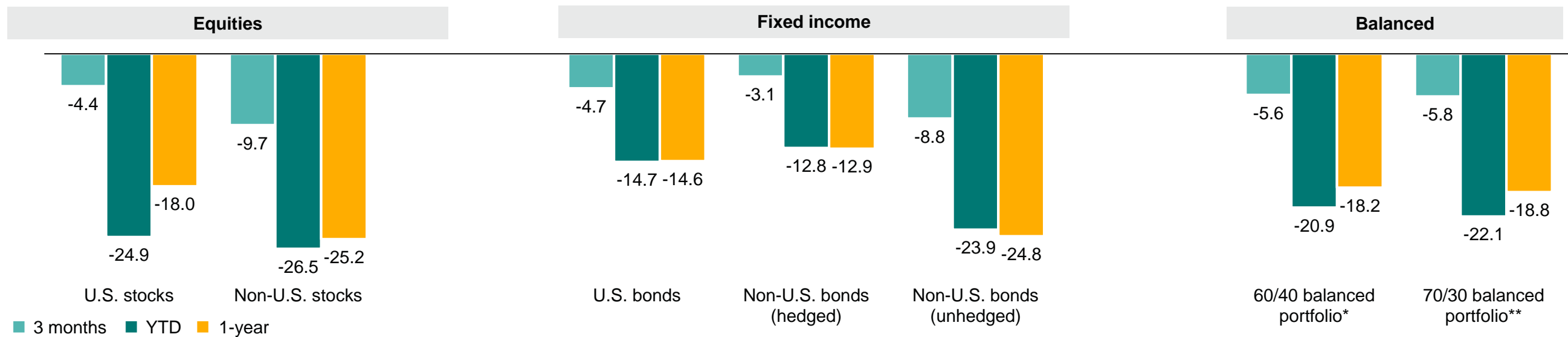
	Beginning Market Value	Net Cash Flow	Capital Appreciation	Income	Ending Market Value
Vanguard® Intermediate-Term Investment-Grade Fund Admiral™ Shares	\$31,421	\$0	-\$1,617	\$84	\$29,888
Vanguard® International Growth Fund Admiral™ Shares	\$12,345	\$0	-\$1,394	\$0	\$10,951
Vanguard® International Value Fund	\$16,370	\$0	-\$1,491	\$0	\$14,879
Vanguard® PRIMECAP Fund Admiral™ Shares	\$26,188	\$0	-\$2,080	\$0	\$24,108
Vanguard® Short-Term Investment-Grade Fund Admiral™ Shares	\$12,904	\$0	-\$282	\$23	\$12,645
Vanguard® Total Bond Market Index Institutional Shares	\$51,353	\$0	-\$2,249	\$108	\$49,213
Vanguard® Total International Bond Index Fund Admiral™ Shares	\$31,728	\$0	-\$920	\$31	\$30,839
Vanguard® Total International Stock Index Fund Institutional Shares	\$31,491	\$0	-\$3,329	\$172	\$28,334
Vanguard® Total Stock Market Index Fund Institutional Shares	\$65,265	\$0	-\$6,318	\$262	\$59,209
Vanguard® Windsor™ Fund Admiral™ Shares	\$27,551	\$0	-\$2,539	\$0	\$25,012
Total	\$306,616	\$0	-\$22,219	\$680	\$285,077

Markets and economy

Market volatility continues, with inflation and interest rates top concern for investors

- Global performance was marked with volatility in September. Central banks across the globe balance hiking interest rates to tame inflation with the possibility of triggering a recession.
- In the U.S., the Fed raised interest rates by 75bps in September. Powell affirms he will do “whatever it takes” to decrease inflation.
- Mortgage rates topped 7% in September, more than doubling since the start of the year.
- The British pound hit the lowest level ever after proposed tax cuts and increased borrowing by the government were announced.

Global market returns as of September 30, 2022 (%)



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.

Sources: Bloomberg, FTSE, MSCI, Russell, CRSP and Dow Jones.

US Stocks (CRSP US Total Market Index), Non-US Stocks (FTSE Global All-Cap ex-US Index), US Bonds (Bloomberg US Aggregate Float Adjusted Index), Non-US Bonds hedged (Bloomberg Global Aggregate ex-USD Float Adjusted RIC Capped Index hedged), Non-US Bonds unhedged (Bloomberg Global Aggregate Index ex-USD).

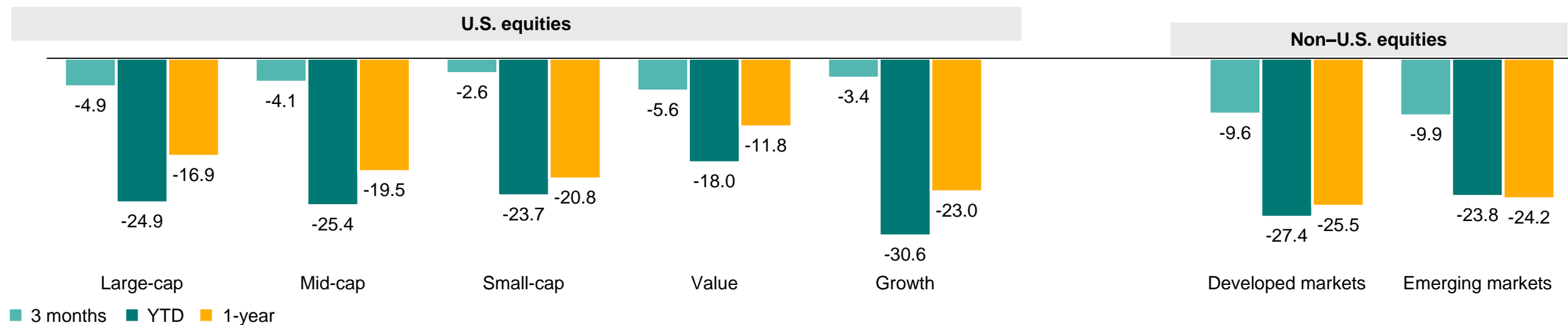
* 60/40 balanced portfolio Static Composite (36% U.S. stocks, 24% international stocks, and 28% investment-grade U.S. bonds, 12% investment-grade international bonds).

** 70/30 balanced portfolio Static Composite (42% U.S. stocks, 28% international stocks, and 21% investment-grade U.S. bonds, 9% investment-grade international bonds).

Equity markets hit new lows over inflation concerns

- Equities continued to hit new lows after the CPI announcement of 8.3% and following Fed rate hike.
- Growth domestic stocks remain the largest detractor YTD in the US, down -30.6%, followed by Developed markets down -27.4%.
- The S&P 500 and Dow Jones were in Bear Market territory with the close of September, recording the worst September market returns since 2008.

Global equity market returns as of September 30, 2022 (%)



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.

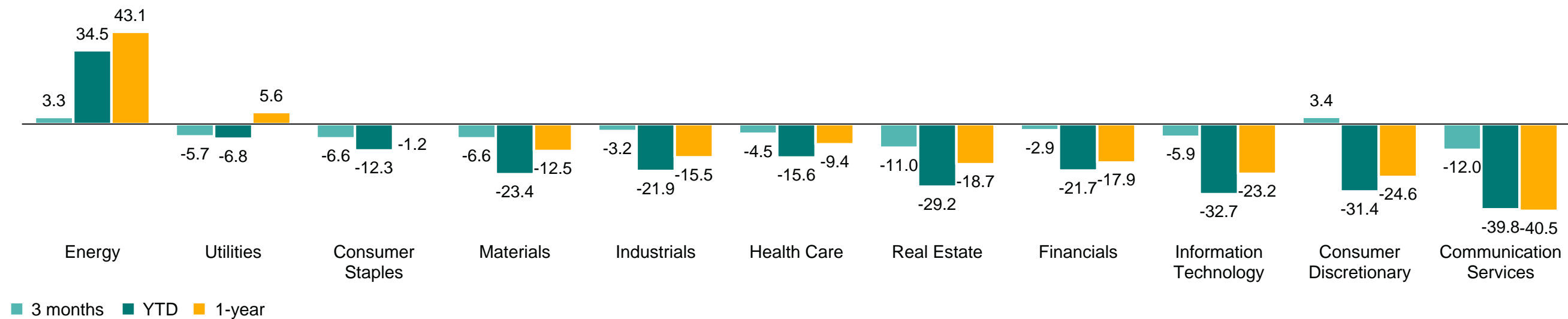
Sources: CRSP, FTSE, and Russell.

Large-cap (CRSP U.S. Mega Cap Index), mid-cap (CRSP U.S. Mid Cap Index), small-cap (CRSP U.S. Small Cap Index); value (Russell 3000 Value Index), growth (Russell 3000 Growth Index); developed markets (FTSE Developed All Cap ex-U.S. Index), emerging markets (FTSE Emerging Markets All Cap China A Inclusion Index).

The struggle for all sectors continues

- Consumer Discretionary continues its 3-month positive performance, but returns are still down -31% YTD on recession expectations and a decline in public markets.
- Energy continues to remain the highest performing sector YTD due to surging oil prices and supply shocks stemming from the Russian-Ukraine conflict.
- Utilities continue to fair better than most sectors, although rising interest rates weigh on this highly leveraged industry.

U.S. equity sector returns as of September 30, 2022 (%)



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.

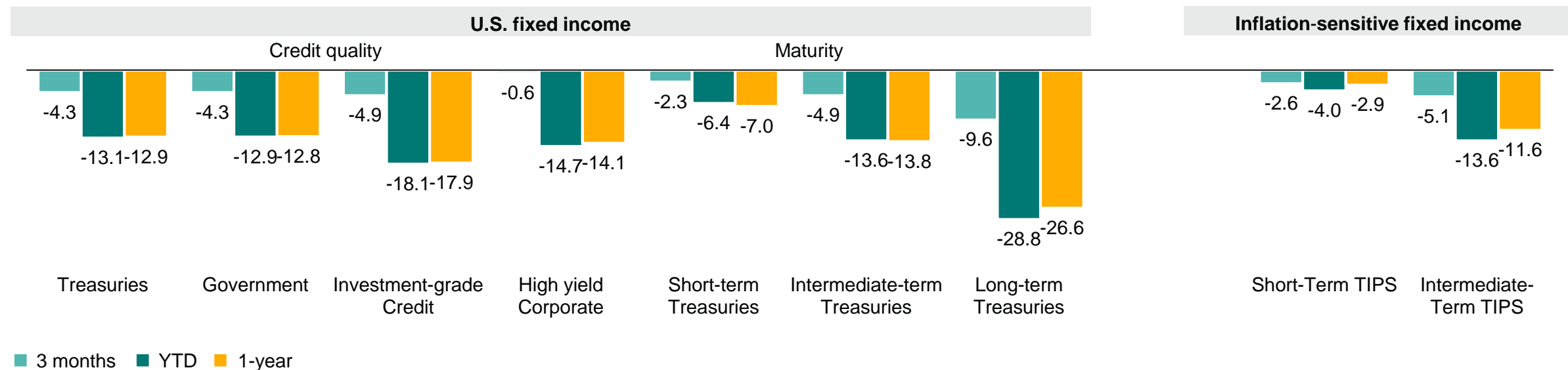
Source: FactSet.

U.S. markets measured by CRSP U.S. Total Market Index.

Fixed income continues to face headwinds going forward

- Bond prices continue to fall in the month of September. Inflation pressures and higher yields, triggered by higher rates on government bonds globally, have contributed to lower prices overall.
- We continue to see longer-term bonds being hit the hardest both in the three-month and the YTD. While lower prices may signal an alert to investors, the higher yields per dollar invested may result in higher income returns through interest payments in the longer run.
- TIPS returns remain negative even though inflation continues to remain high. Expected inflation is now lower than current inflation and the rise in interest rates have contributed to current performance.

Domestic fixed income market returns as of September 30, 2022 (%)

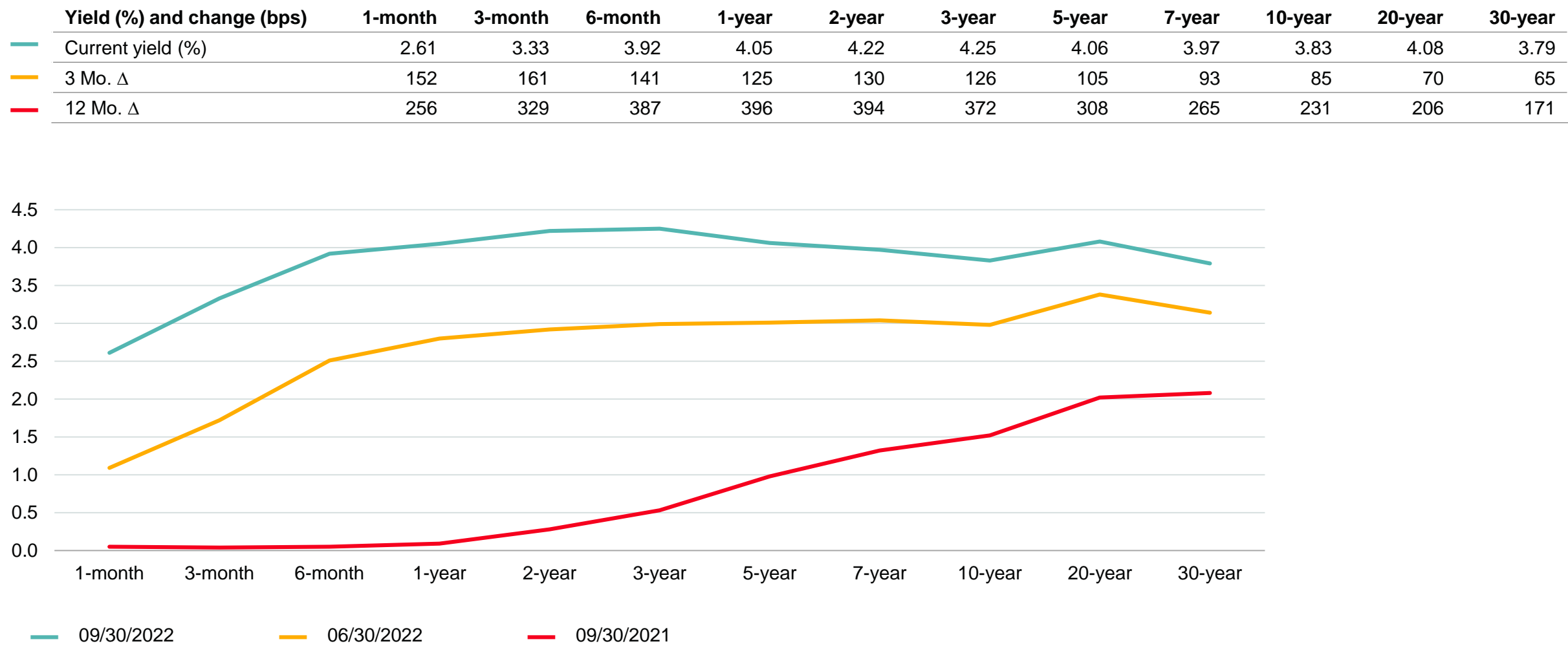


Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Source: Bloomberg.

Treasuries, government, investment-grade credit; high-yield (Bloomberg U.S. Treasury/Government/Credit/Corporate High-Yield Indices); short-inter-long-term Treasuries (Bloomberg U.S. 1-5/5-10/Long Treasury Indices); short-term TIPS (Bloomberg U.S. Treasury 0-5 Year Inflation-Protected Index); intermediate-term TIPS (Bloomberg U.S. Treasury Inflation-Protected Index).

U.S. Treasury yield curve—yields rise for the short term



Source: Morningstar.

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Market leadership changes

- Emerging markets equities appears at both the top and bottom multiple times, illustrating the relatively high volatility of single asset classes
- The balanced composite generally falls near the middle, demonstrating the volatility dampening effect of high-grade fixed income and the consistency resulting from holding a broadly diversified portfolio
- U.S. stock returns exceeded non-U.S. stock returns by a significant amount over the past ten years, yet it's important to remember that recent outperformance by a sub-asset class or market segment does not imply future outperformance

Source: Vanguard. Last observation: December 31, 2021; 10-year average performance from December 31, 2011 through December 31, 2021.

* Source: Hedge Fund Research, Inc.

** U.S. stocks: MSCI U.S. Broad Market Index.

† International Stocks: FTSE Global All Cap ex-US Index.

†† Bonds: Bloomberg US Aggregate Bond Index and Bloomberg Global Aggregate ex-USD Index Hedged.

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	10-year Average
Emg 18.1	Sml 38.8	REIT 30.4	Grw 5.1	Sml 21.3	Emg 31.1	IB 3.2	Grw 35.8	Grw 38.3	REIT 43.1	Grw 19.4
REIT 17.8	Grw 34.2	Lrg 13.2	REIT 2.5	Val 18.4	Grw 29.6	T-Bill 1.9	Lrg 31.4	Lrg 21.0	Cmd 27.1	Lrg 16.5
Val 17.5	Lrg 33.1	Val 12.7	IB 1.4	HY 17.1	Dev 26.3	Bnd 0.0	Val 26.3	Sml 20.0	Lrg 26.5	Sml 13.2
Dev 17.4	Val 32.7	Grw 12.4	Lrg 0.9	Lrg 12.1	Lrg 21.7	HY -2.1	REIT 25.8	Emg 15.5	Grw 25.8	Val 12.9
Lrg 16.4	Dev 20.5	IB 8.8	Bnd 0.5	Cmd 11.4	Bal 16.5	Grw -2.1	Sml 25.5	Bal 13.4	Val 25.4	REIT 11.3
Sml 16.4	Bal 16.8	Bal 6.4	T-Bill 0.0	Emg 10.3	Sml 14.6	REIT -4.6	Dev 22.3	Dev 10.0	Sml 14.8	Bal 9.7
HY 15.8	HY 7.4	Bnd 6.0	Bal -0.6	REIT 8.6	Val 13.2	Lrg -4.8	Bal 20.7	Bnd 7.5	Bal 12.0	Dev 8.3
Grw 15.2	HF 6.7	Sml 4.9	Dev -1.8	Grw 7.4	HY 7.5	Bal -5.5	Emg 20.4	HY 7.1	Dev 11.6	HY 6.8
Bal 12.7	REIT 2.5	Emg 2.6	HF -3.6	Bal 7.3	HF 6.0	HF -6.7	HY 14.3	HF 6.8	HY 5.3	Emg 5.8
IB 6.5	IB 1.2	HY 2.5	Val -4.1	IB 4.9	REIT 5.1	Val -8.6	Bnd 8.7	IB 3.9	HF 3.7	IB 3.8
Bnd 4.2	T-Bill 0.1	T-Bill 0.0	Sml -4.4	Dev 3.1	Bnd 3.5	Sml -11.0	HF 8.6	Val 2.9	Emg 1.5	Bnd 2.9
HF 3.5	Bnd -2.0	HF -0.6	HY -4.5	Bnd 2.6	IB 2.5	Cmd -13.0	IB 7.6	T-Bill 0.6	T-Bill 0.0	HF 2.6
T-Bill 0.1	Emg -3.2	Dev -4.4	Emg -13.5	HF 2.5	T-Bill 0.8	Emg -14.8	Cmd 5.4	Cmd -3.5	IB -1.4	T-Bill 0.6
Cmd -1.1	Cmd -9.6	Cmd -17.0	Cmd -24.7	T-Bill 0.3	Cmd 0.7	Dev -14.8	T-Bill 2.3	REIT -7.6	Bnd -1.5	Cmd -3.4

Val	Value oriented U.S. based stocks (Russell 3000 Value Index)
Grw	Growth oriented U.S. based stocks (Russell 3000 Growth Index)
Lrg	Large U.S. based stocks (Russell 1000 Index)
Sml	Small U.S. based stocks (Russell 2000 Index)
Dev	International stocks from developed countries (FTSE Developed All Cap ex US Index)
Emg	International stocks from emerging countries (FTSE Emerging ACap CN A Inclus Idx)
Bnd	Investment-grade U.S. bonds (Bloomberg US Aggregate Bond Index)
HY	High-yield U.S. bonds (Bloomberg US Corp High Yield Index)
IB	Investment-grade international bonds (Bloomberg GA ex-USD Index Hedged)
T-Bill	Short-term Treasury rates (Citigroup 3-Month US T-Bill Index)
REIT	U.S. public equity real estate (REIT) (MSCI US REIT Index)
Cmd	Commodities (Bloomberg Commodity Index)
HF	Hedge funds (HFRX Global Hedge Fund Index*)
Bal	Balanced Static Composite (39% U.S. stocks**, 26% Int'l stocks [†] , 24.5% Invest-grade U.S. bonds ^{††} , 10.5% Invest-grade Int'l bonds ^{††})

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.

Headwinds for active equity mutual fund managers

Percentage of actively managed funds underperforming their style benchmarks*

Ten-year: September 30, 2022

	Value	Blend	Growth
Large	95%	94%	93%
Mid	96%	94%	78%
Small	92%	91%	68%

International

76%	86%	66%
Emerging	Developed	Global

Vanguard active equity funds versus their primary and peer group benchmarks**

Ten-year: September 30, 2022

	Below benchmark	Above benchmark
Above peer group average	16%	70%
Below peer group average	8%	5%

Key

≥ 75%	≥ 50%	< 50%	≥ 25%	< 25%
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The competitive performance data shown represent past performance, which is not a guarantee of future results, and all investments are subject to risks. For the most recent Vanguard fund performance, visit our website at www.vanguard.com/performance.

Note: Performance data reflect periods ending September 30, 2022. Sources: Vanguard calculations, using data from ViFi and Morningstar.

* Style benchmarks are represented by the following indexes—large blend: MSCI US Prime Market 750 Index through January 30, 2013, CRSP US Large Cap Index thereafter; large growth: MSCI US Prime Market Growth Index through April 16, 2013, CRSP US Large Cap Growth Index thereafter; large value: MSCI US Prime Market Value Index through April 16, 2013, CRSP US Large Cap Value Index thereafter; mid blend: MSCI US Mid Cap 450 Index through January 30, 2013, CRSP US Mid Cap Index thereafter; mid growth: MSCI US Mid Cap Growth Index through April 16, 2013, CRSP US Mid Cap Growth Index thereafter; mid value: MSCI US Mid Cap Value Index through April 16, 2013, CRSP US Mid Cap Value Index thereafter; small blend: MSCI US Small Cap 1750 Index through January 30, 2013, CRSP US Small Cap Index thereafter; small growth: MSCI US Small Cap Growth Index through April 16, 2013, CRSP US Small Cap Growth Index thereafter; small value: MSCI US Small Cap Value Index through April 16, 2013, CRSP US Small Cap Value Index thereafter. International and global benchmarks are represented by the following indexes—Emerging: MSCI Emerging Markets Index; Developed: MSCI World Index; Global: MSCI All Country World Index.

** Performance measured relative to each Vanguard fund's respective primary benchmark and current Lipper category average.

Headwinds for active fixed income mutual fund managers

Percentage of actively managed fixed income funds underperforming their style benchmarks*

Ten-year: September 30, 2022

	Short	Inter- mediate	Long
Government	94%	89%	100%
Corporate	96%	99%	43%

	Inflation- Core-Plus	Protected	Ultrashort	GNMA	High Yield
	69%	89%	57%	69%	94%

	World Bond	EM Bond
	80%	94%

Vanguard active fixed income funds versus their primary and peer group benchmarks **

Ten-year: September 30, 2022

	Below benchmark	Above benchmark
Above peer group average	59%	36%
Below peer group average	5%	0%

Key

≥ 75%	≥ 50%	< 50%	≥ 25%	< 25%
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The competitive performance data shown represent past performance, which is not a guarantee of future results, and all investments are subject to risks. For the most recent Vanguard fund performance, visit our website at www.vanguard.com/performance.

Note: Performance data reflect periods ending September 30, 2022. Sources: Vanguard calculations, using data from ViFi and Morningstar.

* Style benchmarks are represented by the following indexes—short government: Bloomberg U.S. 1-5 Year Government Bond Index; intermediate government: Bloomberg U.S. Government Bond Index; long government: Bloomberg U.S. Government Long Index; short corporate: Bloomberg U.S. 1-5 Year Corporate Bond Index; intermediate corporate: Bloomberg U.S. Intermediate Corporate Index; long corporate: Bloomberg U.S. Long Government/Credit Index; core-plus: Bloomberg U.S. Universal Index; inflation-protected: Bloomberg U.S. Treasury Inflation Protected Securities Index; ultrashort: Bloomberg Government/Corporate 1 Year Duration Index; GNMA: Bloomberg U.S. GNMA Bond Index; high yield: Bloomberg U.S. Corporate High Yield Bond Index; world bond: Bloomberg Global Aggregate Bond Index Hedged USD; emerging markets bond: JP Morgan Emerging Markets Bond Index Global Diversified.

** Performance measured relative to each Vanguard fund's respective primary benchmark and current Lipper category average.

Vanguard October 2022 market and economic outlook

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.

	Return projection	Median volatility
Equities		
U.S. equities	4.1%–6.1%	17.20%
Global equities ex-U.S. (unhedged)	6.6%–8.6%	18.60%

Fixed income	Return projection	Median volatility
U.S. aggregate bonds	3.1%–4.1%	5.1%
U.S. credit bonds	3.7%–4.7%	5.0%
Global bonds ex-U.S. (hedged)	3.0%–4.0%	4.1%
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 Important information page.

Source: Vanguard Investment Strategy Group.

Vanguard October 2022 market and economic outlook



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

Vanguard October 2022 market and economic outlook



Region-by-region outlook

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.

Vanguard October 2022 market and economic outlook



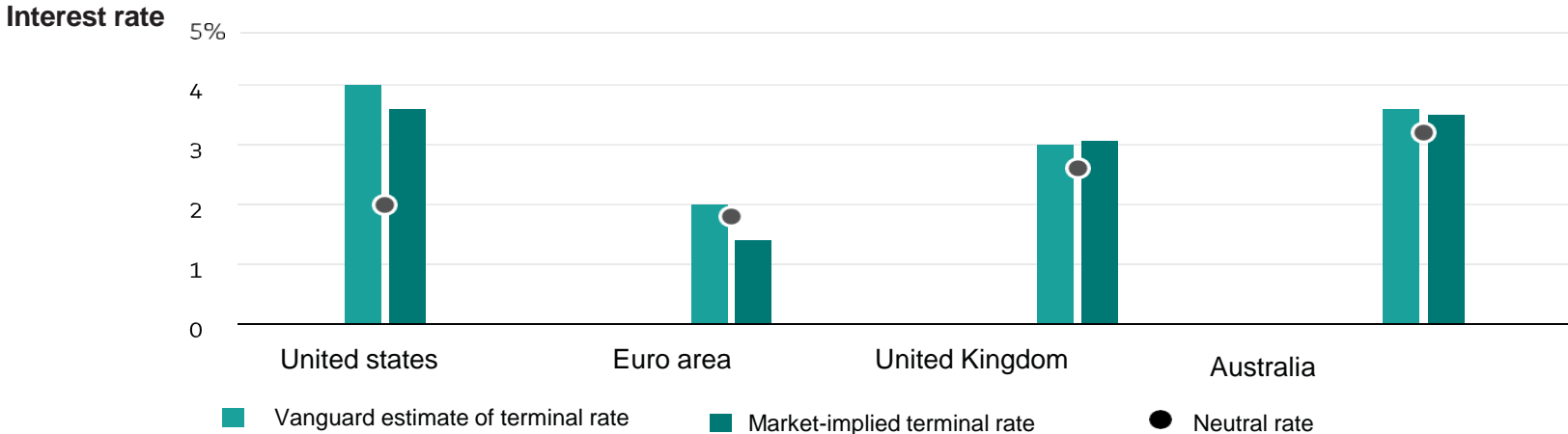
More rate hikes coming

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.

Vanguard October 2022 market and economic outlook



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

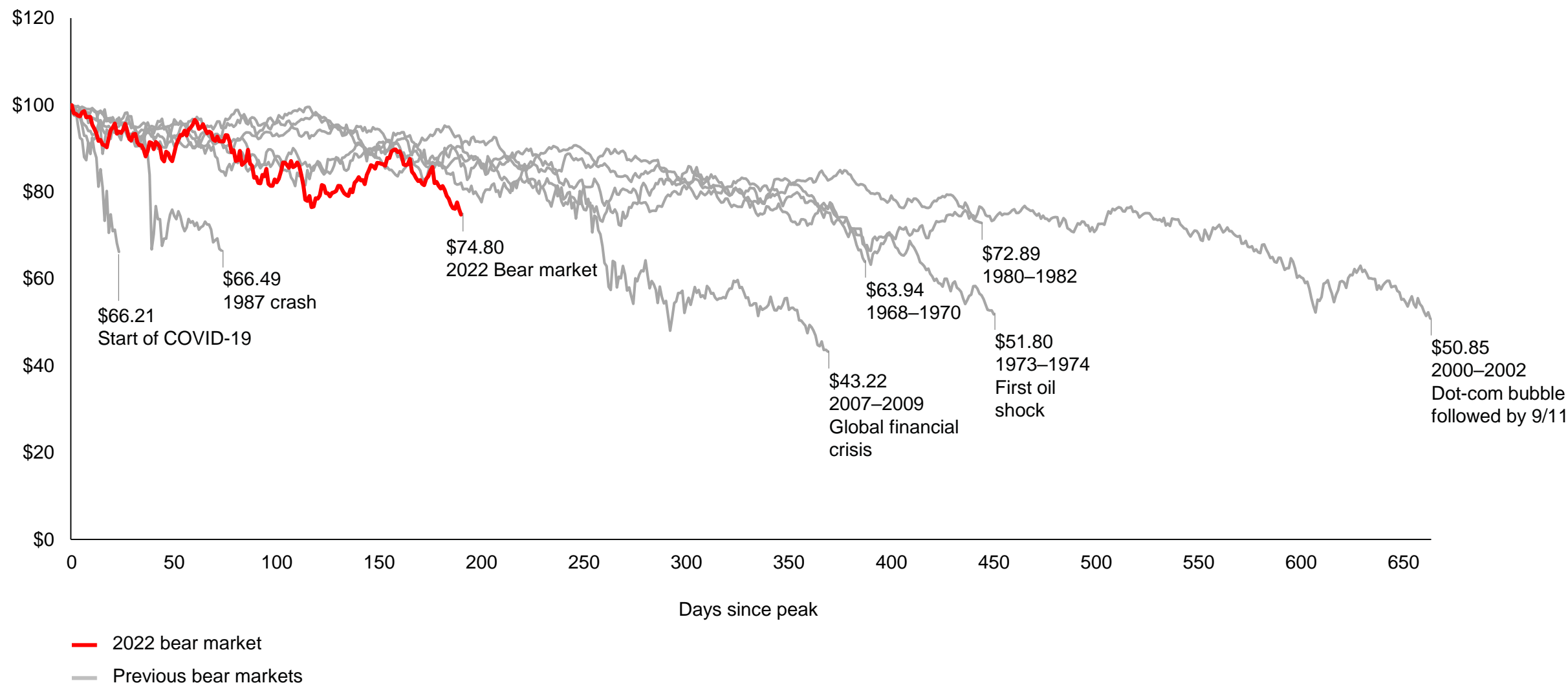
Wage pressures moderate somewhat

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.

Prior bear markets

Length and magnitude of previous bear markets



S&P 500 daily price from peak to trough, indexed at \$100. As of September 30, 2022.
Source: Factset.

Past bear markets and the 12 months that followed the bottom

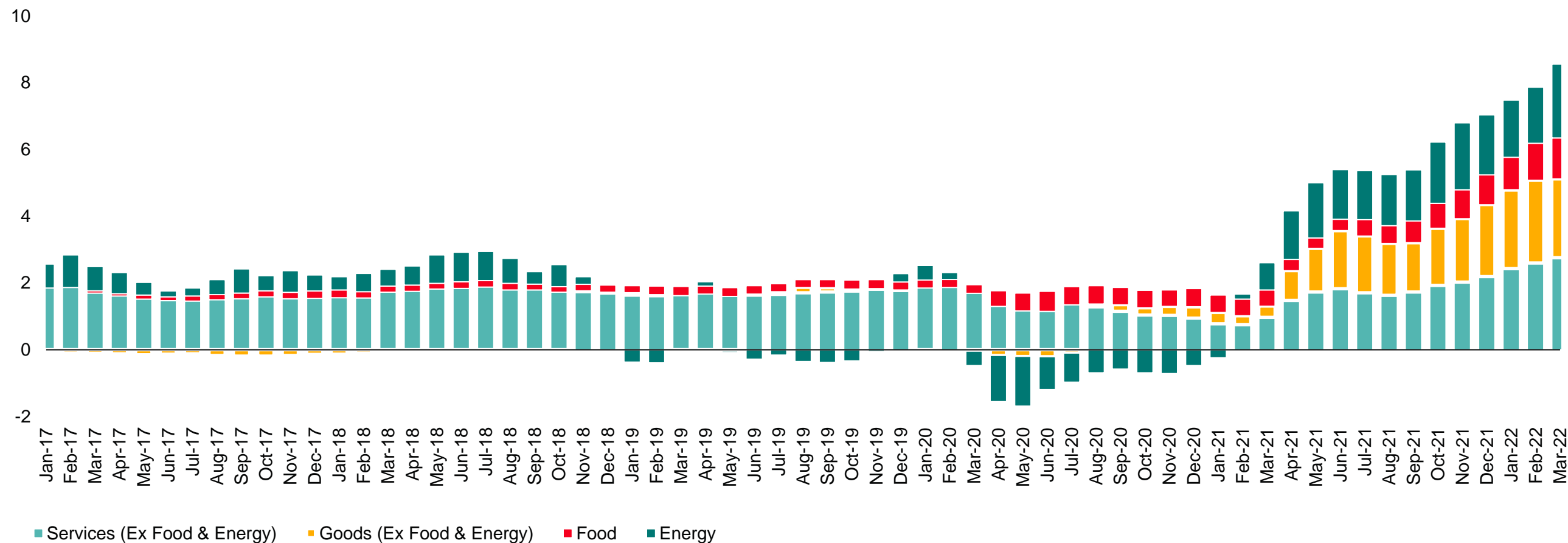
Event	S&P 500 price decline	Duration	12 months after
First oil shock	−48.20%	1/11/1973–10/3/1974	37.87%
1987 crash	−33.51%	8/25/1987–12/4/1987	22.78%
Asian currency crisis	−9.80%	10/1/1997–10/27/1997	21.79%
Dot-com 9/11	−49.14%	3/23/2000–10/9/2002	29.12%
Global financial crisis	−56.80%	10/9/2007–3/9/2009	68.57%
Euro (PIIG) crisis 1	−18.80%	7/7/2011–10/3/2011	32.00%
2018 fed shock	−19.60%	10/3/2018–12/24/2018	37.10%
COVID-19	−33.79%	2/19/2020–3/23/2020	77.80%
2022 Bear Market	−25.20%	1/4/2022-9/30/2022	Pending
Average	−32.76%		40.88%

S&P 500 daily price returns. Source: Factset.

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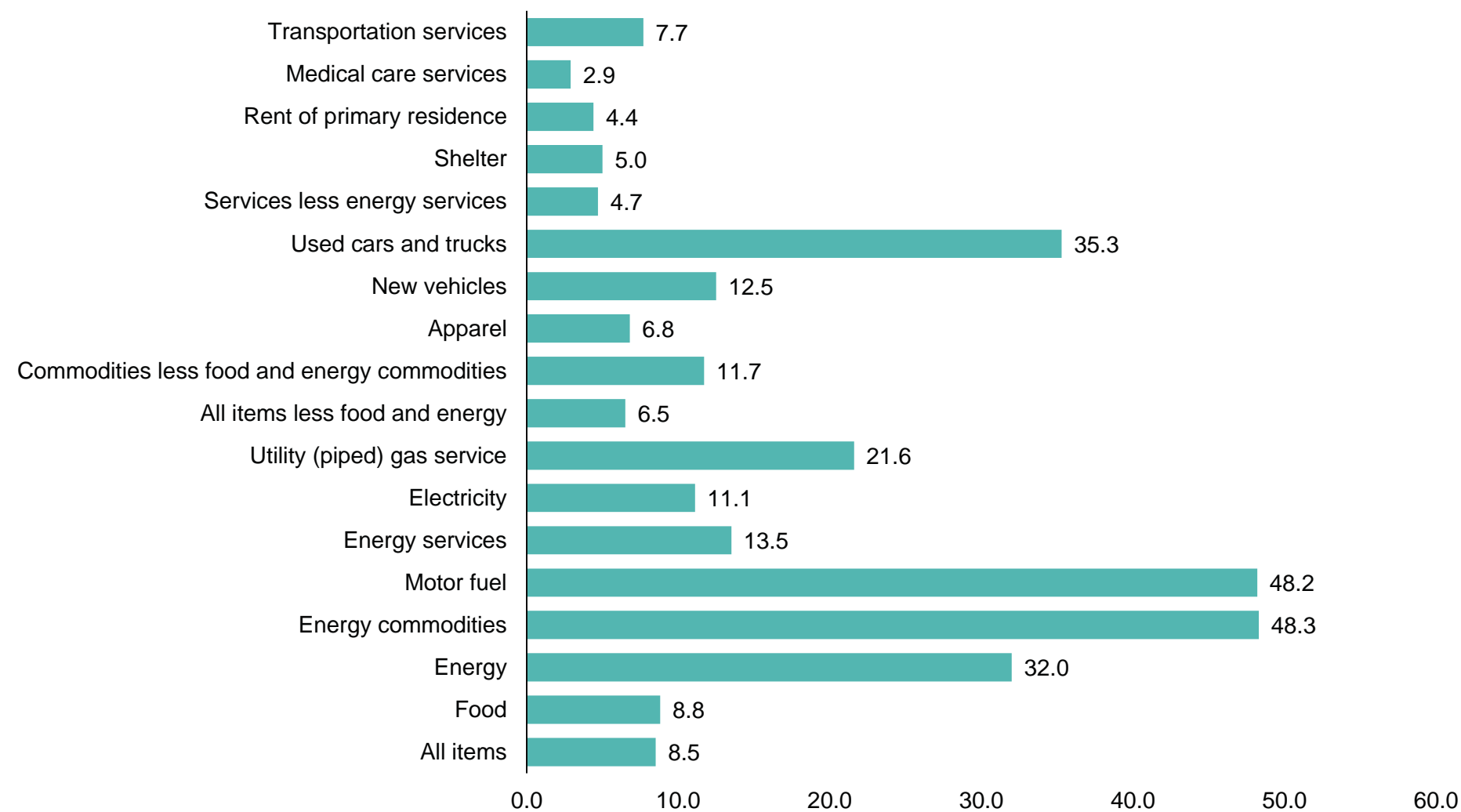
Appendix

Changes in year over year CPI components



Notes: 12-month CPI as of March 2022; CPI Inflation not seasonally adjusted.
Source: Bloomberg.

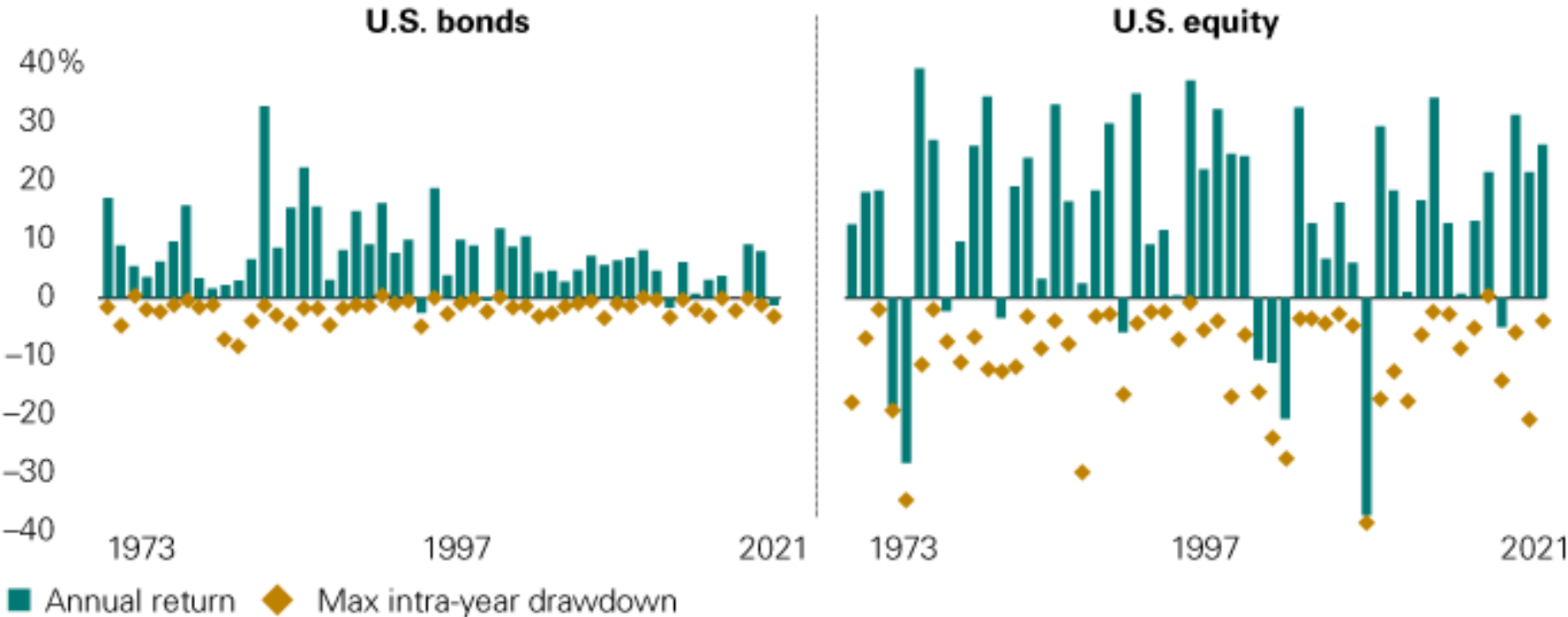
Annual change in CPI contributors



Notes: 12-month CPI as of March 2022; CPI Inflation not seasonally adjusted.
Source: U.S. Bureau of Labor Statistics.

Stocks exhibit exponentially more drawdown risk than bonds

Annual returns and max intra-year drawdown



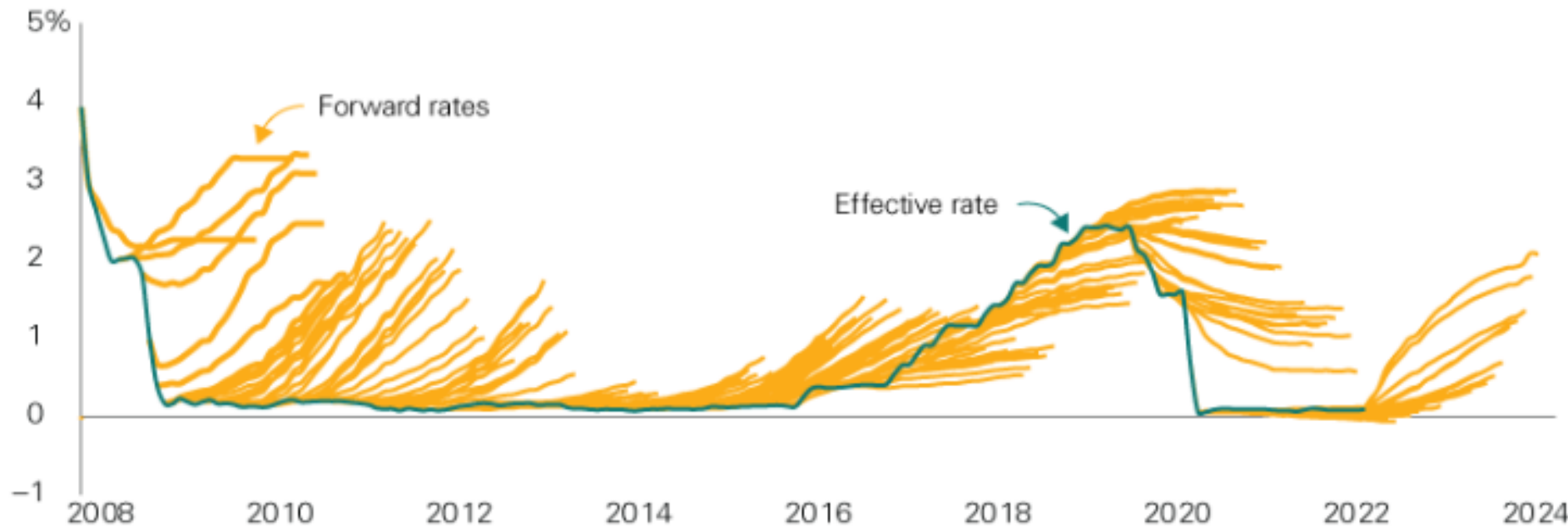
Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Note: U.S. bonds as represented by IA SBBI U.S. Intermediate-Term Government Bond Index from January 1, 1970, to December 31, 1972; Bloomberg U.S. Government/Credit Intermediate-Term Index from January 1, 1973, to December 31, 1975; Bloomberg U.S. Aggregate Bond Index from January 1, 1976, to June 30, 2009; and Bloomberg U.S. Aggregate Bond Index Float Adjusted thereafter. U.S. equity as represented by the FT Wilshire 5000 Index from April 1, 1972, to June 30, 1994; MSCI USA Investable Market Index from July 1, 1994, to June 30, 2001; and CRSP US Total Market Index thereafter.

Sources: Vanguard analysis of Morningstar Direct data, as of March 31, 2022.

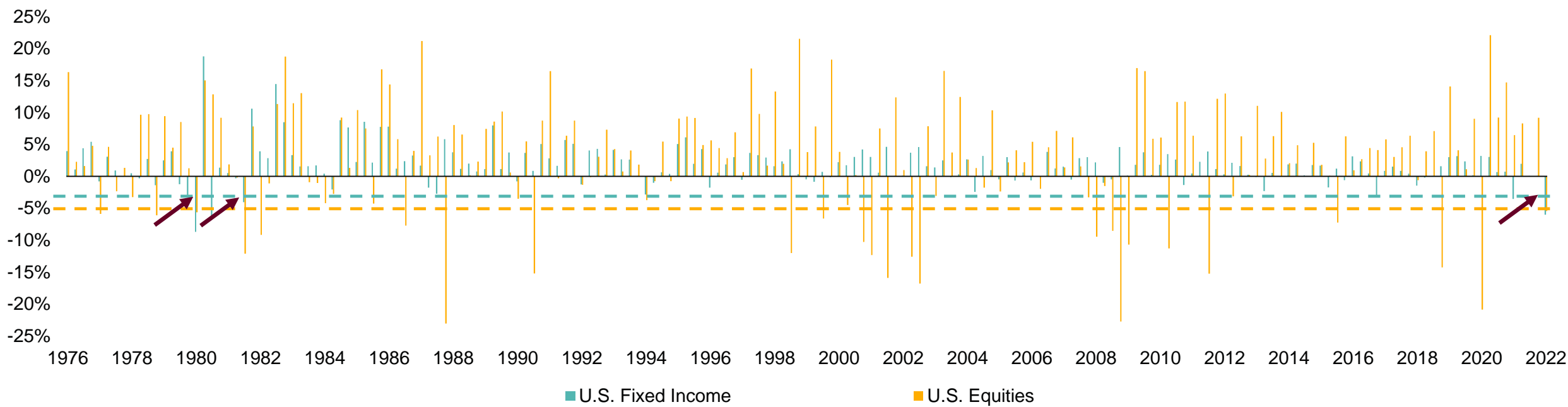
Making the right call on rates has proven difficult

U.S. federal funds effective rate and forward rates



Notes: Monthly data are from January 31, 2008, to February 28, 2022. The federal funds effective rate is annualized. Forward rates are based on futures contracts with tenor up to 2 years.
Source: Bloomberg.

There have only been three quarters since 1976 when U.S. fixed income decreased by more than 2.5% and U.S equities decreased by more than 5%



Period	Fixed Income Return	Equity Return	Subsequent three quarter	
			Fixed Income Return	Equity Return
March 1980	-8.71%	-5.63%	12.50%	41.65%
September 1981	-4.06%	-12.13%	18.14%	-3.22%
March 2022	-6.01%	-5.44%	?	?

Past performance is no guarantee of future results. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.
Note: Quarterly total return data as of 3/31/2022. U.S. fixed income represented by US Bond Bloomberg US Aggregate Bond Index; U.S. Equities represented by the US Equity Spliced Total Stock Market Index (Dow Jones Wilshire 5000 Index (BM ID 19) through April 22, 2005; MSCI US Broad Market Index(BM ID 11598) through June 2, 2013; CRSP US Total Market Index thereafter.)
Source: Vanguard.

Important information

IMPORTANT: The projections or other information generated by the Vanguard Capital Markets Model® (VCMM) 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 importantly, 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.

Important information

For more information about any fund, visit institutional.vanguard.com or call 866-499-8473 to obtain a prospectus or, if available, a summary prospectus. Investment objectives, risks, charges, expenses, and other important information are contained in the prospectus; read and consider it carefully before investing.

Vanguard ETF® Shares are not redeemable with the issuing fund other than in very large aggregations worth millions of dollars. Instead, investors must buy or sell Vanguard ETF Shares in the secondary market and hold those shares in a brokerage account. In doing so, the investor may incur brokerage commissions and may pay more than net asset value when buying and receive less than net asset value when selling.

Mutual funds and all investments are subject to risk, including the possible loss of the money you invest. Prices of mid- and small-cap stocks often fluctuate more than those of large-company stocks. 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. Funds that concentrate on a relatively narrow sector face the risk of higher share-price volatility. It is possible that tax-managed funds will not meet their objective of being tax-efficient. Because company stock funds concentrate on a single stock, they are considered riskier than diversified stock funds.

Investments in bond funds are subject to the risk that an issuer will fail to make payments on time and that bond prices will decline because of rising interest rates or negative perceptions of an issuer's ability to make payments. High-yield bonds generally have medium- and lower-range credit quality ratings and are therefore subject to a higher level of credit risk than bonds with higher credit quality ratings. Although the income from a municipal bond fund is exempt from federal tax, you may owe taxes on any capital gains realized through the fund's trading or through your own redemption of shares. For some investors, a portion of the fund's income may be subject to state and local taxes, as well as to the federal Alternative Minimum Tax. Diversification does not ensure a profit or protect against a loss. There is no guarantee that any particular asset allocation or mix of funds will meet your investment objectives or provide you with a given level of income.

While U.S. Treasury or government agency securities provide substantial protection against credit risk, they do not protect investors against price changes due to changing interest rates. Unlike stocks and bonds, U.S. Treasury bills are guaranteed as to the timely payment of principal and interest.

Investments in Target Retirement Funds and Trusts are subject to the risks of their underlying funds. The year in the fund or trust name refers to the approximate year (the target date) when an investor in the fund or trust would retire and leave the workforce. The fund/trust will gradually shift its emphasis from more aggressive investments to more conservative ones based on its target date. The Income Trust/Fund and Income and Growth Trust have fixed investment allocations and are designed for investors who are already retired. An investment in a Target Retirement Fund or Trust is not guaranteed at any time, including on or after the target date.

Vanguard is responsible only for selecting the underlying funds and periodically rebalancing the holdings of target-date investments. The asset allocations Vanguard has selected for the Target Retirement Funds are based on our investment experience and are geared to the average investor. Investors should regularly check the asset mix of the option they choose to ensure it is appropriate for their current situation.

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Important information

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