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INVESTMENT PARTNERS

Minds Over Markets

A Behavioral Guide to Investing

This guide strives to help you achieve better long-term financial outcomes.

Its main message is that doing so is more about setting the right goals and controlling your own behavior than it is "beating the market."

We provide plenty of historical perspective on markets, but only in the service of confronting our natural tendencies to make poor decisions about money. Nowadays, those decisions have become even harder in light of overwhelming information and choices.

We strongly advocate for the need for education, planning, and advice across an investor's lifetime.

THE INVESTOR'S DILEMMA

Investing in the capital markets gives us a fighting chance to enjoy a comfortable life and a dignified retirement. But we are faced with a dilemma. We must take risk to meet our financial needs, yet we are psychologically ill-equipped to do so. Our brains have developed over eons with features that can impede good decision making. Ironically, our ancient and powerful survival instincts can sometimes drive poor outcomes in the modern world.

"The investor's chief problem — and even his worst enemy — is likely to be himself."

Benjamin Graham

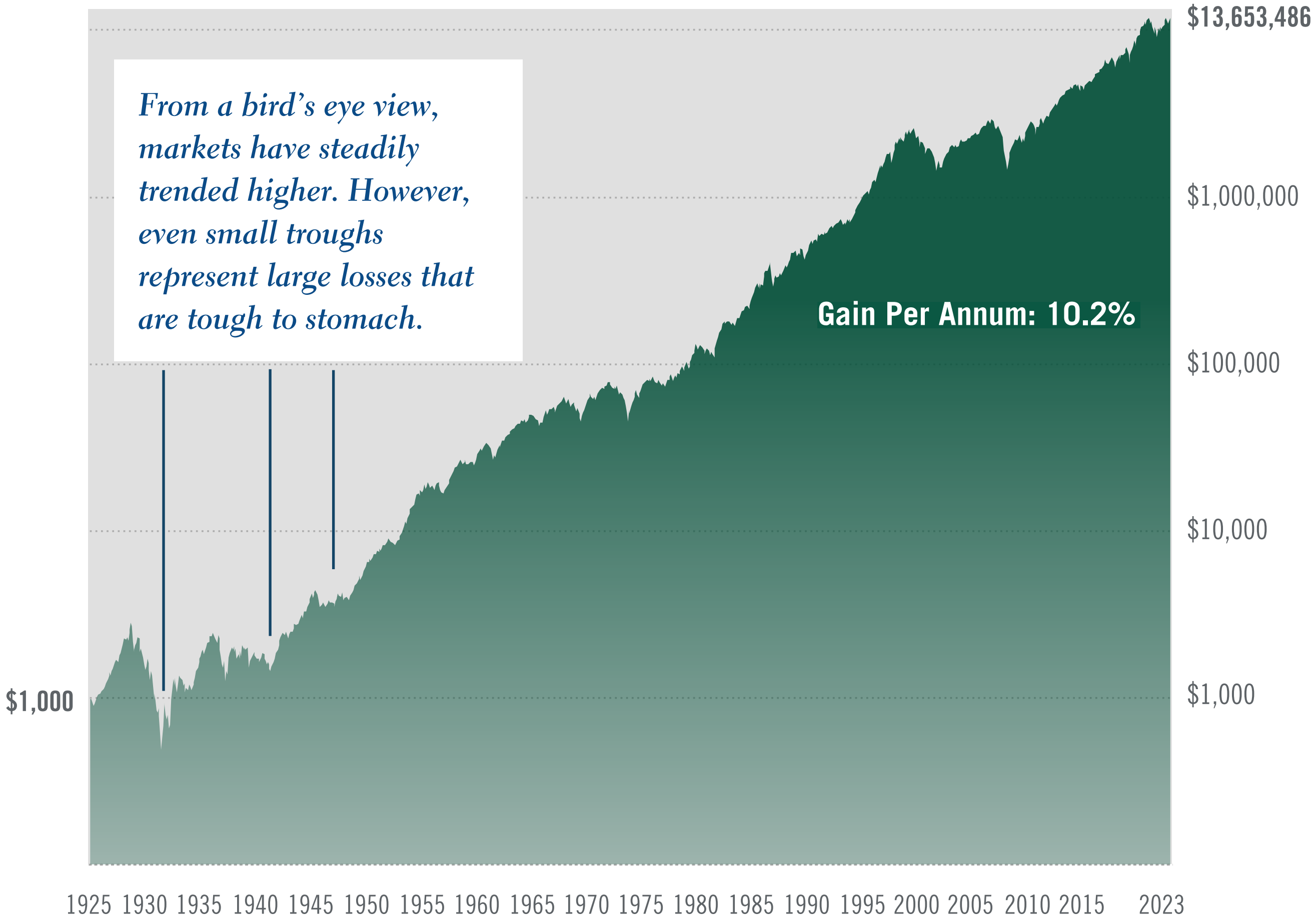
▶ **Investor behavior trumps market savvy in driving long-term outcomes.**

IT'S NOT AS EASY AS IT LOOKS

Investors are often told to "invest for the long run." Instructions like "buy and hold," "ignore the noise," and "stick to the plan" sound great, but fail to recognize that market volatility disrupts even the best laid plans.

Growth of $1,000 Invested in the S&P 500® Index

Monthly Data 12/31/1925-12/31/2023 (Log Scale)



▶ **"Invest for the long run" is the right advice, but it ignores basic human nature.**

Past performance is not indicative of future results. Source: Ned Davis Research. © 2024 Ned Davis Research, Inc. See full Ned Davis Research disclosure on page 17. The S&P 500® Index is a free-float market capitalization-weighted index of 500 of the largest U.S. companies. The index is calculated on a total return basis with dividends reinvested. It is unmanaged and not available for direct investment.

THE IMPORTANCE OF BEHAVIOR

Availability bias
We use the most easily accessible information to make decisions, even when that might not be the most important information.

Overconfidence
We think we know more than we do and are better at tasks than we actually are.

Anchoring
We stubbornly rely on a small amount of available information to make a decision rather than considering other facts.

Pattern seeking
We see order where there is only randomness.

Hindsight
We believe we knew what an outcome would have been, even though before the fact, we didn't. We are "Monday morning quarterbacks."

Confirmation bias
We seek out information that corroborates what we already believe. We find ways to prove that we are right.

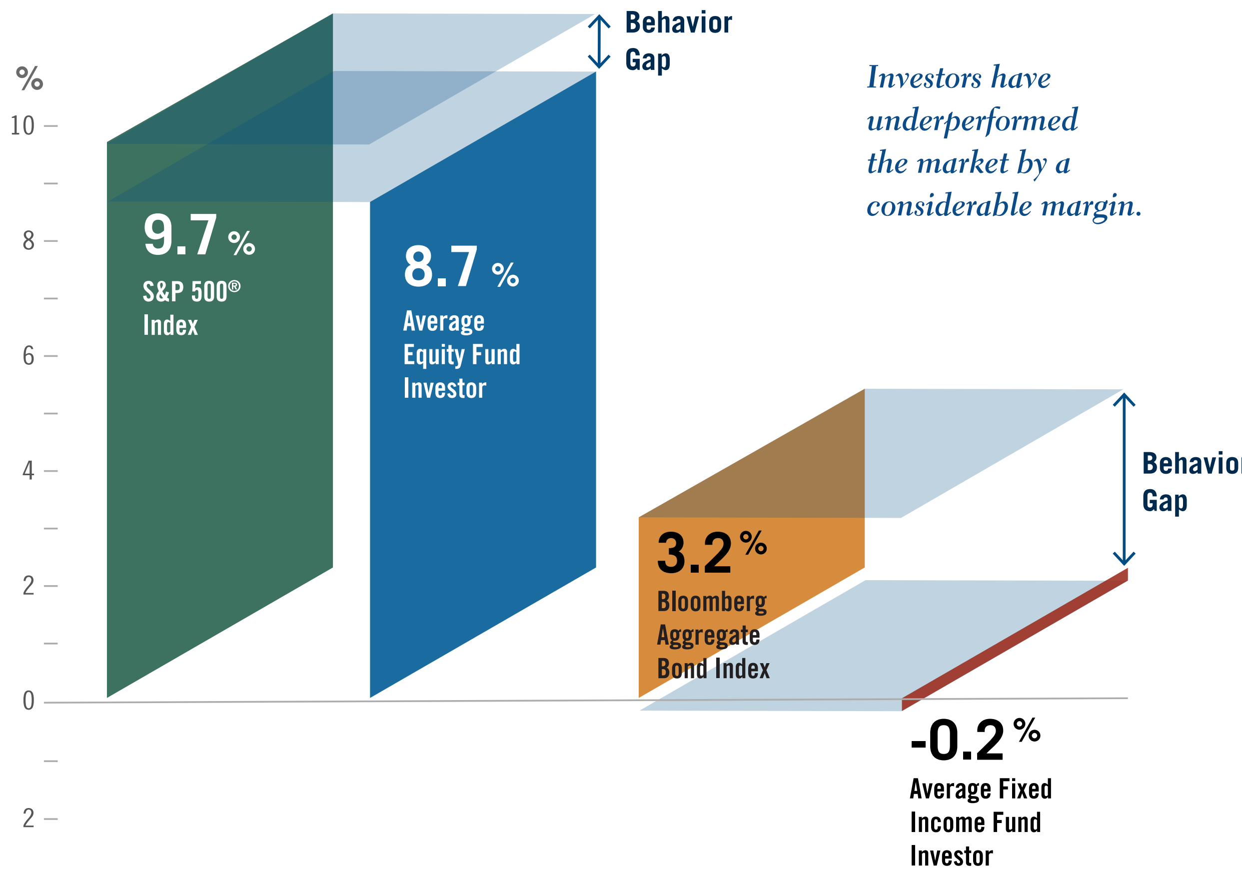
▶ **We're not irrational. We're human.**

THE BEHAVIOR GAP

The first rule of investing is to "buy low, sell high." However, when markets grow choppy and valuations improve, we tend not to buy more and will often sell. When markets are calm, we grow more confident in our portfolios. It's at those times we're likely to invest more.

20-Year Average Index vs. Investor Returns

Period ended 12/31/23



▶ **The fear and greed cycle leads investors to buy high and sell low.**

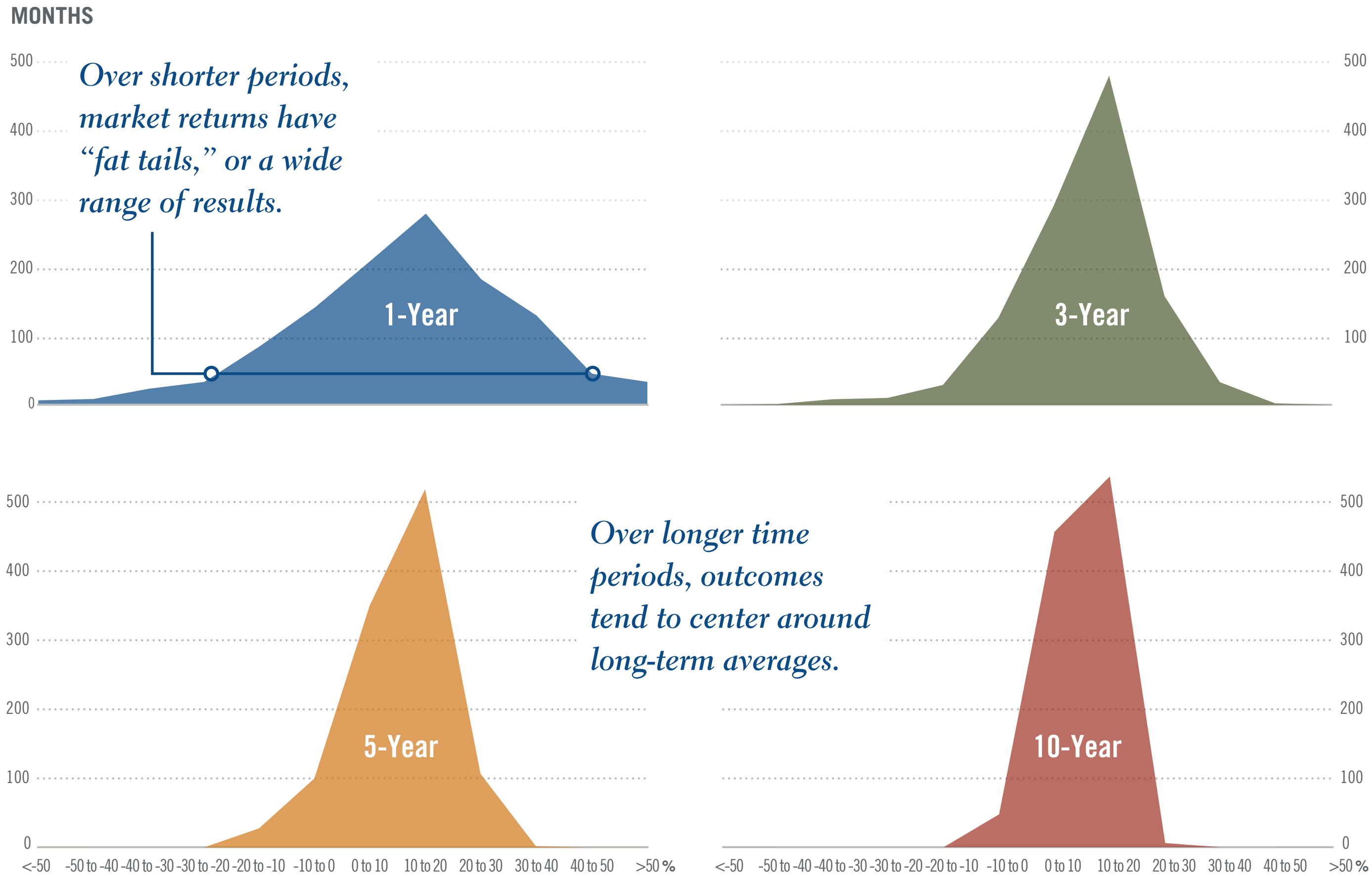
Past performance is not indicative of future results. Source: *Quantitative Analysis of Investor Behavior, 2024*, DALBAR, Inc., www.dalbar.com. See full DALBAR disclosure on page 17.

SETTING REALISTIC EXPECTATIONS

Conventional wisdom says that stocks return “about 10% per year.” There’s a grain of truth to that, but it doesn’t account for what investors really experience in the market. Stocks can be very volatile in the short term, producing large performance swings. It’s only over multi-year periods that the distribution of stock market outcomes narrows and we approach long-term historical averages.

Rolling Returns of the S&P 500® Index

12/31/1926–12/31/2023



▶ Maintain realistic expectations for how markets actually behave over time.

Past performance is not indicative of future results. Source: Ned Davis Research. © 2024 Ned Davis Research, Inc. Rolling return performance illustrated. Data set begins at 12/31/1925. First rolling 1-year period illustrated at 12/31/1926. Rolling returns are annualized average returns for a period, ending with the listed year.

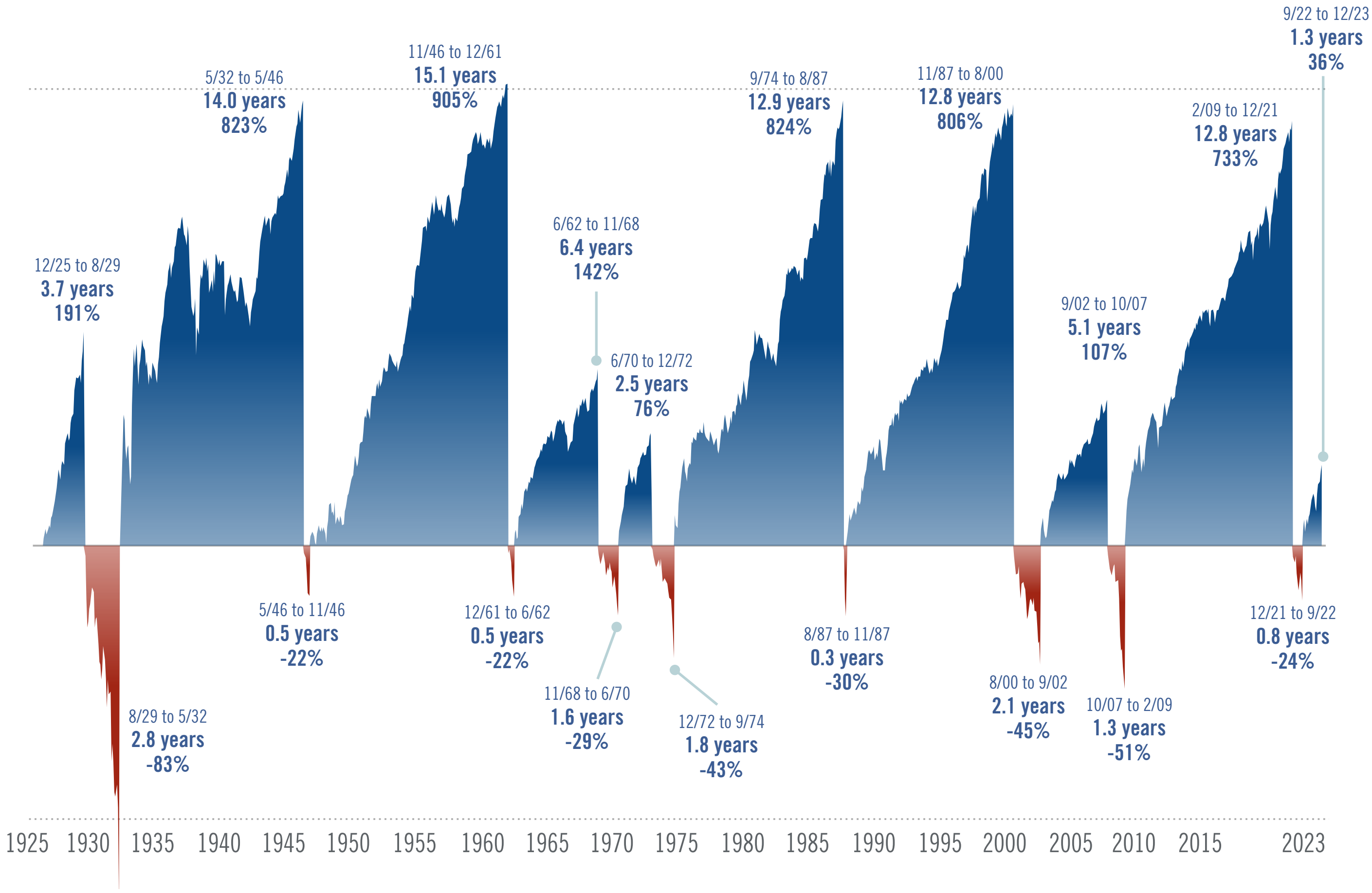
THE SHAPE OF MARKETS

Stock markets trend up over time, when measured in decades or centuries. Over shorter periods, however, investing can feel like a roller coaster. When markets decline 20%, 30%, or even 50%, it becomes very difficult to maintain a long-term mindset.

As the image shows, bull markets tend to climb slowly over time, while bear markets occur abruptly and without warning. Even long-run investors must be prepared to endure significant market declines.

History of U.S. Bull and Bear Markets

Based on S&P 500® Index Returns 12/31/1925-12/31/2023



▶ **Understanding the ride matters.**

Past performance is not indicative of future results. Source: S&P Dow Jones Indices, Ned Davis Research. Bull markets are defined from the lowest close reached after the market has fallen 20% or more to the next market high. Bear markets are defined from the last market high prior to the market closing down at least 20% to the lowest close after it's down 20% or more.

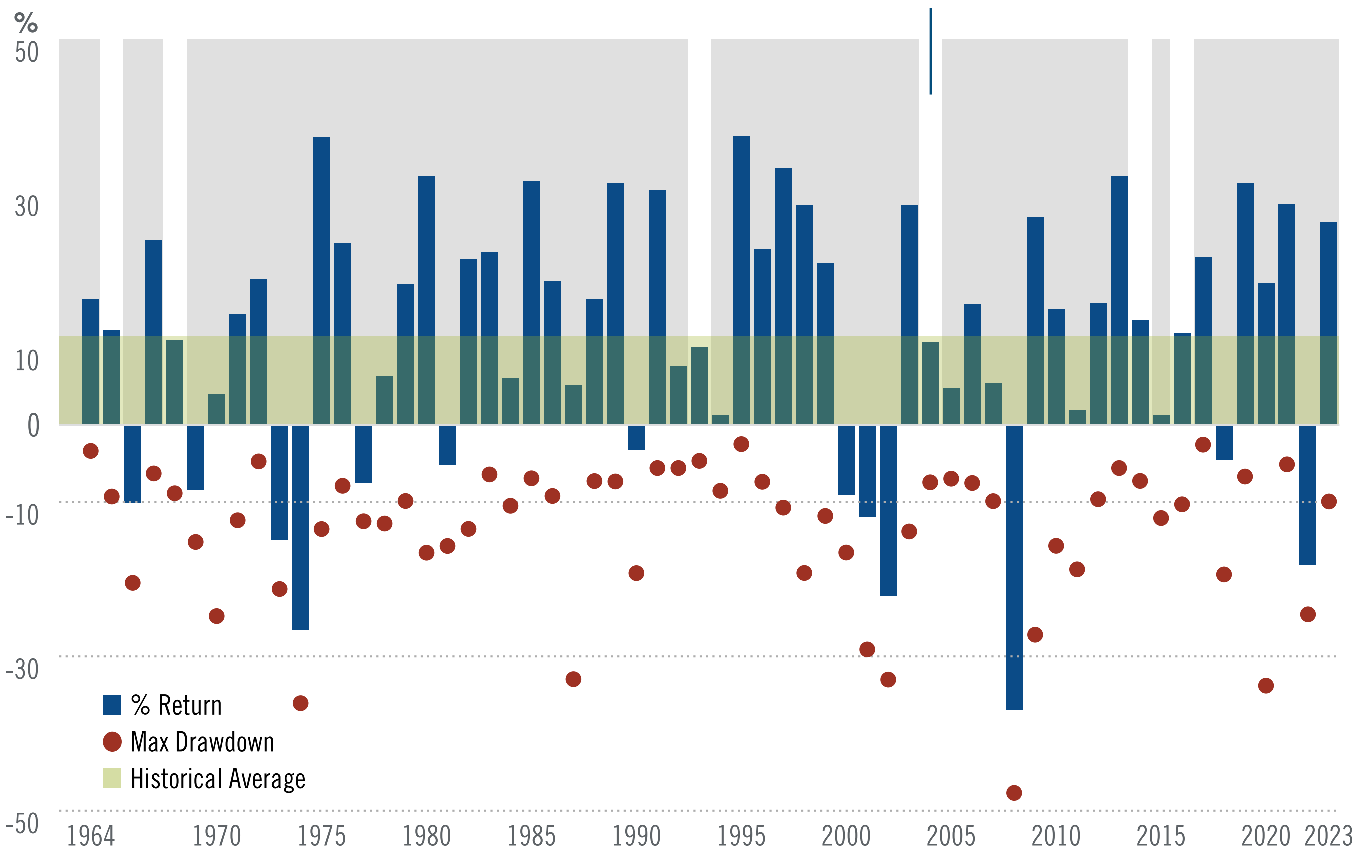
UPS AND DOWNS

Calendar year market returns are random. Often up, sometimes down, we almost never experience an "average" year. As the chart shows, rarely a year goes by when there's not a meaningful drawdown. In years when there's only a shallow drawdown, it becomes easy to quickly forget the emotional angst associated with market declines.

Calendar year returns of the U.S. stock market have been within 2% of its long-term average in only six out of the past 60 years.

S&P 500® Index Annual Returns and Intra-Year Drawdowns

1964-2023



▶ **Big drawdowns in the stock market have been a common occurrence.**

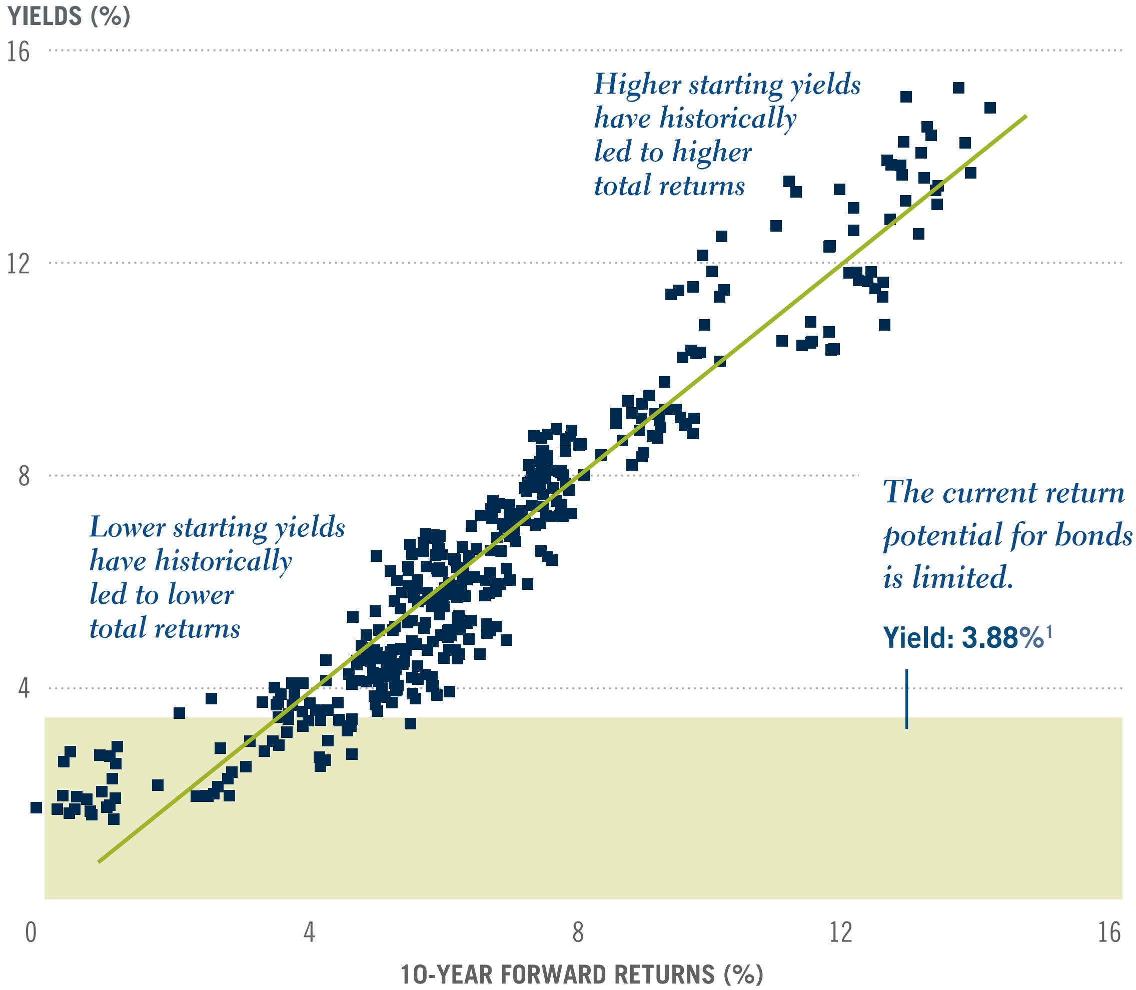
Past performance is not indicative of future results. Source: Ned Davis Research. 60-year period used to illustrate multiple market cycles.

BONDS THEN AND NOW

The direction of interest rates has a strong influence on bond prices. As rates decline, prices tend to go up, and vice versa. The interest rate and bond market environment has been remarkable in recent decades. As rates declined from high teens to low single digits, bonds earned historically unprecedented returns. History is not likely to repeat itself in the decades to come, as the Fed has implemented a tightening policy to combat inflation in recent years and rates are expected to remain higher for longer.

A Bond's Starting Yield Has Historically Been a Good Predictor of Its Total Return

10-Year Treasury Returns and Starting Yields 12/31/1980–12/31/2013



▶ **Have grounded expectations for future bond market returns.**

Past performance is not indicative of future results. Source: Ned Davis Research.

[1] As of 12/31/23. U.S. Department of the Treasury. "Daily Treasury Yield Curve Rates." http://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yield (accessed 4/19/24).

THREE KEY ENGINES

Smart investing requires the right mindset and the right plan. A combination of steady investing, occasional rebalancing, and enjoying the benefits of positive compounding are likely to stand investors in good stead.

Dollar Cost Averaging

A plan to make regular investments, in both climbing and falling markets, provides the opportunity to take advantage of market volatility and create a sound long-term discipline.

Rebalancing

Periodically take stock of your investments as market movements can sometimes cause imbalances. Adjust to stay in line with your financial plan.

Compounding

Einstein once referred to compounding as the most powerful force in the universe. Allowing something to grow organically, including our investments, can produce great results.

▶ **Discipline drives success.**

Dollar Cost Averaging: Periodic investment plans do not assure a profit and do not protect against investment loss in declining markets. As dollar cost averaging involves continuous investment in securities, regardless of fluctuating price levels of those securities, the investor should consider his or her financial ability to continue purchasing through periods of low price levels.

DIVERSIFICATION IS IMPORTANT

Don’t put all your eggs in one basket. This common sense notion of spreading your bets underlies diversification, the most important principle we have for building robust portfolios. The alternative is a much riskier proposition: We can take large bets on specific securities, markets, or themes. But if we’re wrong, our long-term finances can be imperiled. Thus, because we can’t predict the future, we diversify.

Asset Class Performance 2014-2023

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
REITS 30.1	Large-Cap Growth 5.7	Small-Cap Value 31.7	Emerging Markets 37.3	Fixed Income 0.0	Large-Cap Growth 36.4	Large-Cap Growth 38.5	REITS 43.2	Large-Cap Value -7.5	Large-Cap Growth 42.7
Mid-Cap Value 14.7	REITS 3.2	Mid-Cap Value 20.0	Large-Cap Growth 30.2	Large-Cap Growth -1.5	Mid-Cap Growth 35.5	Mid-Cap Growth 35.6	Mid-Cap Value 28.3	Mid-Cap Value -12.0	Mid-Cap Growth 25.9
Large-Cap Value 13.5	Fixed Income 0.5	Large-Cap Value 17.3	Mid-Cap Growth 25.3	REITS -4.6	Small-Cap Growth 28.5	Small-Cap Growth 34.6	Small-Cap Value 28.3	Fixed Income -13.0	Small-Cap Growth 18.7
Large-Cap Growth 13.0	Mid-Cap Growth -0.2	Small-Cap Growth 11.3	Int’l 25.0	Mid-Cap Growth -4.8	Mid-Cap Value 27.1	Emerging Markets 18.3	Large-Cap Growth 27.6	Int’l -14.5	Int’l 18.2
Mid-Cap Growth 11.9	Int’l -0.8	Emerging Markets 11.2	Small-Cap Growth 22.2	Large-Cap Value -8.3	Large-Cap Value 26.5	Int’l 7.8	Large-Cap Value 25.2	Small-Cap Value -14.5	Small-Cap Value 14.6
Fixed Income 6.0	Small-Cap Growth -1.4	REITS 8.5	Large-Cap Value 13.7	Small-Cap Growth -9.3	REITS 26.0	Fixed Income 7.5	Mid-Cap Growth 12.7	Emerging Markets -20.1	REITS 13.7
Small-Cap Growth 5.6	Large-Cap Value -3.8	Mid-Cap Growth 7.3	Mid-Cap Value 13.3	Mid-Cap Value -12.3	Small-Cap Value 22.4	Mid-Cap Value 5.0	Int’l 11.3	REITS -24.4	Mid-Cap Value 12.7
Small-Cap Value 4.2	Mid-Cap Value -4.8	Large-Cap Growth 7.1	Small-Cap Value 7.8	Small-Cap Value -12.9	Int’l 22.0	Small-Cap Value 4.6	Small-Cap Growth 2.8	Small-Cap Growth -26.4	Large-Cap Value 11.5
Emerging Markets -2.2	Small-Cap Value -7.5	Fixed Income 2.6	REITS 5.2	Int’l -13.8	Emerging Markets 18.4	Large-Cap Value 2.8	Fixed Income -1.5	Mid-Cap Growth -26.7	Emerging Markets 9.8
Int’l -4.9	Emerging Markets -14.9	Int’l 1.0	Fixed Income 3.5	Emerging Markets -14.6	Fixed Income 8.7	REITS -8.0	Emerging Markets -2.5	Large-Cap Growth -29.1	Fixed Income 5.5

▶ **Spreading your bets is wise.**

Source: Virtus Performance Analytics. **Past performance is not indicative of future results.** Diversification does not assure a profit or protect against losses. See page 17 for index definitions and important risk considerations.

DIVERSIFICATION IS HARD

True diversification means holding underperforming assets. If everything is "working," it means you're not actually diversified. Because of the behavioral bias of loss aversion, we find losses more painful than gains pleasing. The math behind diversification makes sense, but its psychology is troubling.

"In investing, what is comfortable is rarely profitable."

Rob Arnott

Every year has a different diversification "experience." In some years, like 2019, the spread among asset classes is tight, lessening the stress of pursuing diversification.

2019	2021
Large-Cap Growth 36.4	REITS 43.2
Mid-Cap Growth 35.5	Mid-Cap Value 28.3
Small-Cap Growth 28.5	Small-Cap Value 28.3
Mid-Cap Value 27.1	Large-Cap Growth 27.6
Large-Cap Value 26.5	Large-Cap Value 25.2
REITS 26.0	Mid-Cap Growth 12.7
Small-Cap Value 22.4	Int'l 11.3
Int'l 22.0	Small-Cap Growth 2.8
Emerging Markets 18.4	Fixed Income -1.5
Fixed Income 8.7	Emerging Markets -2.5

In other years, like 2021, for example, REITS outperformed emerging markets by more than 45%. Investors sometimes feel regret when they own a weak corner of the market, while preferring exposure to recent winners.

▶ **Diversification feels lousy.**

Source: Virtus Performance Analytics. **Past performance is not indicative of future results.** Diversification does not assure a profit or protect against losses. See page 17 for index definitions and important risk considerations.

THE LUCK OF THE DRAW

Sometimes it's better to be lucky than good. Some generations are enriched by strong market tailwinds. Others endure long periods of lackluster returns.

20-Year Stock Market Returns, Ranked from Best to Worst

Start Date	End Date	%Gain / Year
1980	1999	**17.74**
1979	1998	**17.60**
1942	1961	**16.68**
1978	1997	**16.49**
1981	2000	**15.56**
1982	2001	**15.13**
1943	1962	**15.03**
1944	1963	**14.89**
1949	1968	**14.75**
1945	1964	**14.72**
1941	1960	**14.58**
1948	1967	**14.44**
1976	1995	**14.42**
1975	1994	**14.41**
1977	1996	**14.39**
1940	1959	**13.95**
1946	1965	**13.61**
1947	1966	**13.50**
1950	1969	**13.31**
1939	1958	**13.25**
1985	2004	**13.12**
1933	1952	**13.01**
1935	1954	**12.93**
1984	2003	**12.88**
1938	1957	**12.85**
1983	2002	**12.60**
1974	1993	**12.59**

Start Date	End Date	Gain / Year
1936	1955	**12.28**
1951	1970	**12.05**
1986	2005	**11.84**
1932	1951	**11.75**
1972	1991	**11.72**
1988	2007	**11.71**
1987	2006	**11.70**
1953	1972	**11.59**
1952	1971	**11.57**
1970	1989	**11.39**
1973	1992	**11.16**
1937	1956	**11.06**
1971	1990	**10.98**
1954	1973	**10.76**
1934	1953	**10.50**
1967	1986	**10.04**
1995	2014	**9.78**
2003	2022	**9.71**
2004	2023	**9.61**
2002	2021	**9.44**
1969	1988	**9.39**
1994	2013	**9.15**
1968	1987	**9.14**
1991	2010	**9.10**
1966	1985	**8.52**
1989	2008	**8.34**
1961	1980	**8.19**

Start Date	End Date	Gain / Year
1963	1982	**8.17**
1964	1983	**8.16**
1990	2009	**8.16**
1993	2012	**8.16**
1996	2015	**8.12**
1958	1977	**8.02**
1957	1976	**7.82**
1992	2011	**7.76**
1965	1984	**7.67**
1997	2016	**7.62**
1931	1950	**7.47**
2001	2020	**7.39**
1926	1945	**7.26**
1998	2017	**7.13**
1956	1975	**7.03**
1955	1974	**6.79**
1960	1979	**6.72**
1962	1981	**6.63**
1959	1978	**6.42**
1927	1946	**6.24**
2000	2019	**5.98**
1999	2018	**5.55**
1928	1947	**4.83**
1930	1949	**4.54**
1929	1948	**3.21**

▶ **Your timing in history matters.**

Past performance is not indicative of future results. Source: Ned Davis Research.
Rolling returns for the S&P 500® Index. Rolling returns are annualized average returns for a period ending with the listed year.

THE FOLLY OF MARKET TIMING

The idea that investors can participate in good markets and sidestep the bad has a long history. Unfortunately, it's mostly a history of poor decisions and weak results.

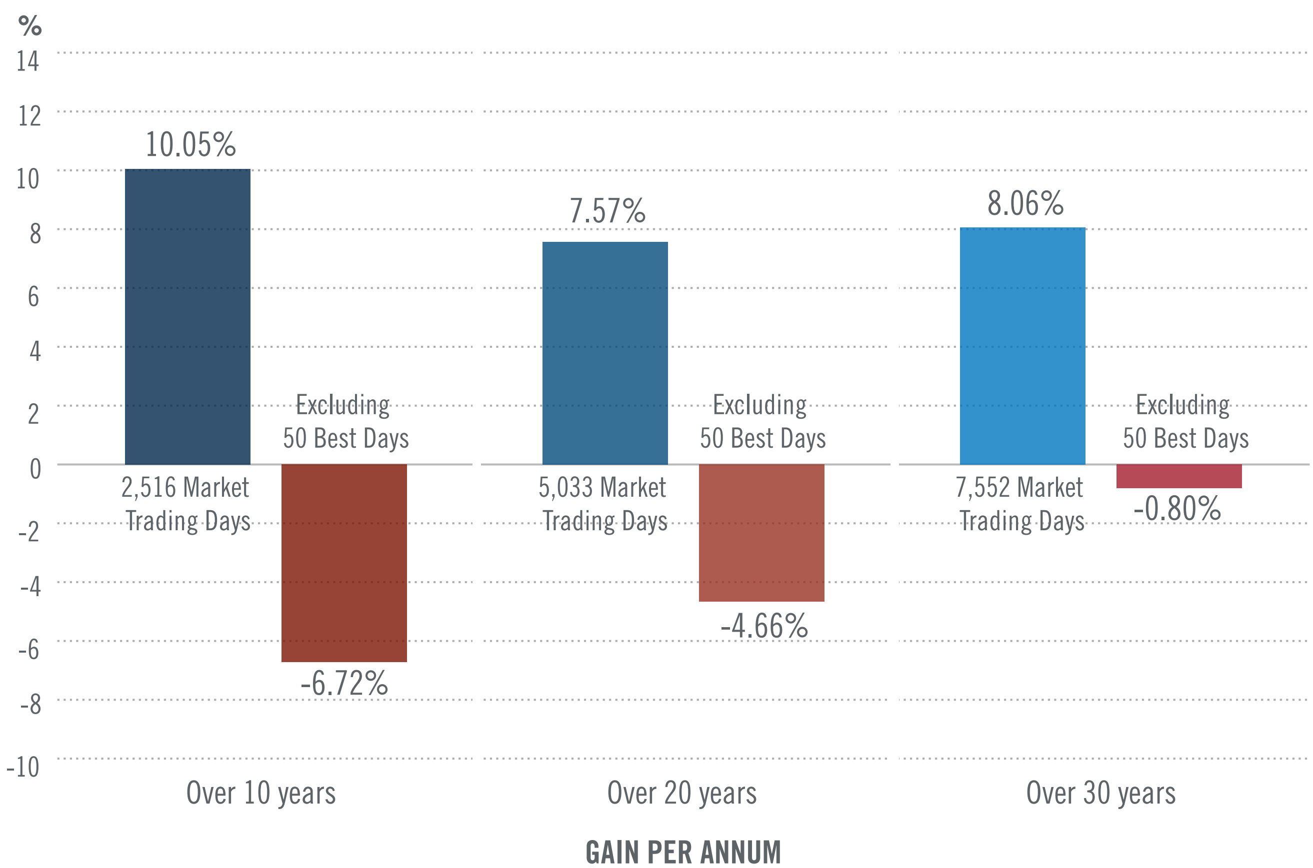
The stock market is too unpredictable to duck in and out with accuracy. As these data show, investors need consistent exposure to the market. Missing only a small number of the market's best days has produced extreme underperformance.

"Our track record in figuring out significant rare events is not close to zero; it is zero."

Nassim Taleb

Average Annual Return of the S&P 500® Index

Periods ended 12/31/23



▶ **Market timing doesn't work.**

Past performance is not indicative of future results. Source: Ned Davis Research.

STARTING EARLY

In investing, like in other walks of life, the early bird gets the worm. One of the most proven ways to accumulate wealth is to start investing as early as possible.

In this basic example, assuming a 7% rate of return, John invested a smaller sum earlier in life and reached the same level as his friend Sally, who started later in life, and had to invest much more.

Year	John Contributions ($)	Sally Contributions ($)
1	3000	0
2	3000	0
3	3000	0
4	3000	0
5	3000	0
6	3000	0
7	3000	0
8	3000	0
9	3000	0
10	900	2122
11	0	3000
12	0	3000
13	0	3000
14	0	3000
15	0	3000
16	0	3000
17	0	3000
18	0	3000
19	0	3000
20	0	3000
21	0	3000
22	0	3000
23	0	3000
24	0	3000
25	0	3000
26	0	3000
27	0	3000
28	0	3000
29	0	3000
30	0	3000
31	0	3000
32	0	3000
33	0	3000
34	0	3000
35	0	3000
36	0	3000
37	0	3000
38	0	3000
39	0	3000
40	0	3000
	320,505	320,505

J S

John invested $27,900 to achieve the result; Sally invested $92,122 to reach the same place.

▶ **Get ahead by starting early.**

Past performance is not indicative of future results. For illustrative purposes only. Not a representation of any Virtus portfolio. Source: Ned Davis Research. © 2019 Ned Davis Research, Inc.

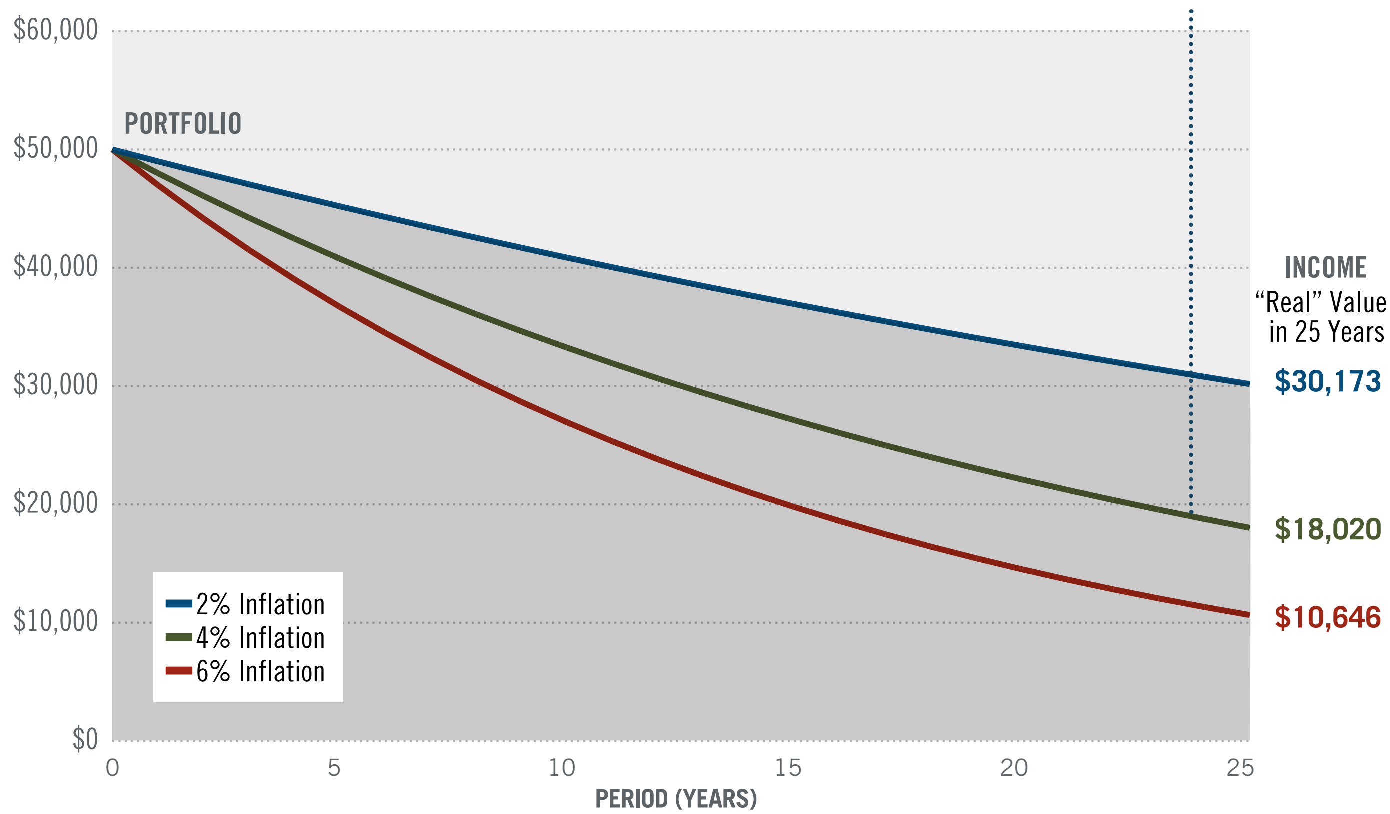
A SOUND RETIREMENT REQUIRES INVESTING

Inflation is a quiet but dangerous enemy of long-term wealth creation. It erodes your purchasing power slowly but surely, even when the figures sound small.

At 4% inflation, after 25 years, your capital has less than half the purchasing power than it does today.

Effect of Inflation

$50,000 Portfolio over a 25-Year Period



▶ **Your plan must account for inflation.**

Past performance is not indicative of future results. Source: Virtus Performance Analytics. For illustrative purposes only. Calculations based on hypothetical inflation rates of 2%, 4%, and 6% to demonstrate the impact of inflation over time. Actual inflation rates will vary and may be more or less than shown.

WHAT REALLY MATTERS

Too many investors focus on “beating the market” or hot investment trends because it’s easier to focus on daily market activity than on long-term goals. Planning requires us to look far into the future, make decisions about the life we want to lead, and then step back to allow for the plan to work. Thinking long-term and doing nothing are not easy! Beating an arbitrary index or outpacing other investors is not relevant to achieving the things that really matter to us—a new home, a college education, or a comfortable retirement.

Growth

Grow your wealth, but do so without taking excessive risk.

Income

Fund your spending needs, but beware of chasing higher yields.

Protection

Keep yourself prepared for sharp market drawdowns and the harmful impact of inflation.

▶ **Stay focused on what matters. And enjoy the ride.**

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Virtus Investment Partners is committed to delivering educational content to help clients understand changing markets and make better investment decisions.

To learn more about our insights and tools, please contact us at 800-243-4361 or visit virtus.com.

Ned Davis

DALBAR

Average investor performance results are based on a DALBAR study, "*Quantitative Analysis of Investor Behavior (QAIB), 2024*." DALBAR is an independent financial research firm. The Average Equity Fund Investor is comprised of a universe of both domestic and world equity mutual funds. It includes growth, sector, alternative strategy, value, blend, emerging markets, global equity, international equity, and regional equity funds. The Average Fixed Income Fund Investor is comprised of a universe of fixed income mutual funds, which includes investment grade, high yield, government, municipal, multi-sector, and global bond funds. It does not include money market funds. Using monthly fund data supplied by the Investment Company Institute, QAIB calculates investor returns as the change in assets after excluding sales, redemptions, and exchanges. This method of calculation captures realized and unrealized capital gains, dividends, interest, trading costs, sales charges, fees, expenses, and any other costs. After calculating investor returns in dollar terms, two percentages are calculated for the period examined: Total investor return rate and annualized investor return rate. Total return rate is determined by calculating the investor return dollars as a percentage of the net of the sales, redemptions, and exchanges for the period. The equity market is represented by the Standard & Poor's 500 Index. The fixed income market is represented by the Bloomberg Aggregate Bond Index. 20-year period ended 12/31/23.

The S&P 500® Index is a free-float market capitalization-weighted index of 500 of the largest U.S. companies. The index is calculated on a total return basis with dividends reinvested. The index is unmanaged, its returns do not reflect any fees, expenses, or sales charges, and is not available for direct investment.

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Maximum Drawdown: The peak to trough decline for an investment during a time period.

Pages 10-11

Fixed Income is represented by the Bloomberg Capital U.S. Aggregate Index which measures the U.S. investment grade fixed rate bond market.

REITs are represented by the FTSE Nareit Equity REITs Index, a free-float market capitalization-weighted index which measures equity tax-qualified REITs that meet minimum size and liquidity criteria and are listed on the New York Stock Exchange, the American Stock Exchange, and the Nasdaq National Market System.

International is represented by the MSCI EAFE® Index, a free float-adjusted market capitalization index that measures developed foreign market equity performance, excluding the U.S. and Canada.

Emerging Markets are represented by the MSCI Emerging Markets Index (net), a free float-adjusted market capitalization-weighted index designed to measure equity market performance in the global emerging markets.

Large-Cap Growth is represented by the Russell 1000® Growth Index, a market capitalization-weighted index of growth-oriented stocks of the 1,000 largest companies in the Russell Universe, which comprises the 3,000 largest U.S. companies.

Large-Cap Value is represented by the Russell 1000® Value Index, a market capitalization-weighted index of value-oriented stocks of the 1,000 largest companies in the Russell Universe, which comprises the 3,000 largest U.S. companies.

Small-Cap Growth is represented by the Russell 2000® Growth Index, a market capitalization-weighted index of growth-oriented stocks of the smallest 2,000 companies in the Russell Universe, which comprises the 3,000 largest U.S. companies.

Small-Cap Value is represented by the Russell 2000® Value Index, a market capitalization-weighted index of value-oriented stocks of the smallest 2,000 companies in the Russell Universe, which comprises the 3,000 largest U.S. companies.

Mid-Cap Growth is represented by the Russell Midcap® Growth Index, a market capitalization-weighted index of medium capitalization, growth-oriented stocks of U.S. companies.

Mid-Cap Value is represented by the Russell Midcap® Value Index, a market capitalization-weighted index of medium-capitalization, value-oriented stocks of U.S. companies.

Indexes are unmanaged, their returns do not reflect any fees, expenses, or sales charges, and are not available for direct investment.

Important Asset Class Risk Considerations: **Credit & Interest:** Debt securities are subject to various risks, the most prominent of which are credit and interest rate risk. The issuer of a debt security may fail to make interest and/or principal payments. Values of debt securities may rise or fall in response to changes in interest rates, and this risk may be enhanced with longer-term maturities. **Equity Securities:** The market price of equity securities may be adversely affected by financial market, industry, or issuer-specific events. Focus on a particular style or on small- or medium-sized companies may enhance that risk. **Foreign & Emerging Markets:** Investing internationally, especially in emerging markets, involves additional risks such as currency, political, accounting, economic, and market risk. **Real Estate Investments:** Investing in real estate investment trusts (REITs) may be negatively affected by factors specific to the real estate market, including interest rates, leverage, property, and management.

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