

# Minds Over Markets

## A Behavioral Guide to Investing

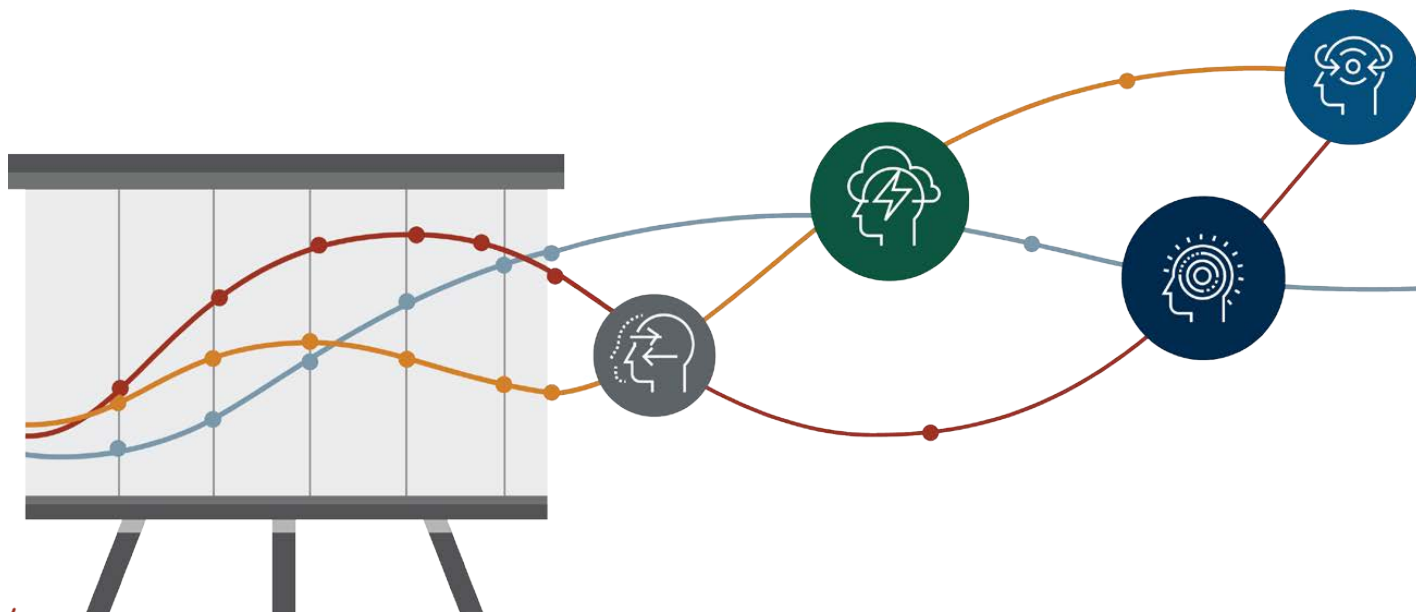


This presentation was created for educational and informational purposes only and is not intended as ERISA, tax, legal or investment advice. If you are seeking investment advice specific to your needs, such advice services must be obtained on your own separate from this educational presentation.

# The investor's dilemma

**“The investor’s chief problem — and even his worst enemy — is likely to be himself.”**

Benjamin Graham

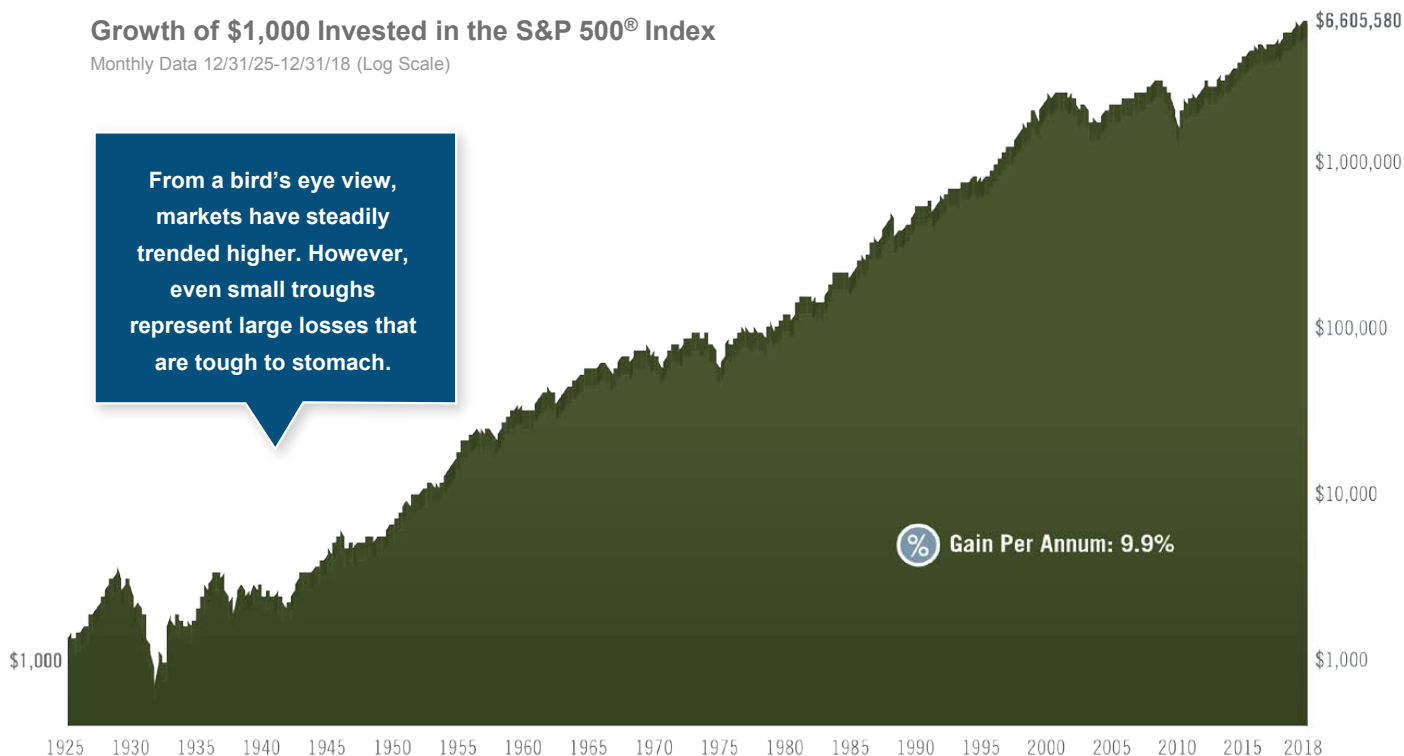


**Investor behavior trumps market savvy in driving great long-term outcomes.**

# It's not as easy as it looks

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

Monthly Data 12/31/25-12/31/18 (Log Scale)

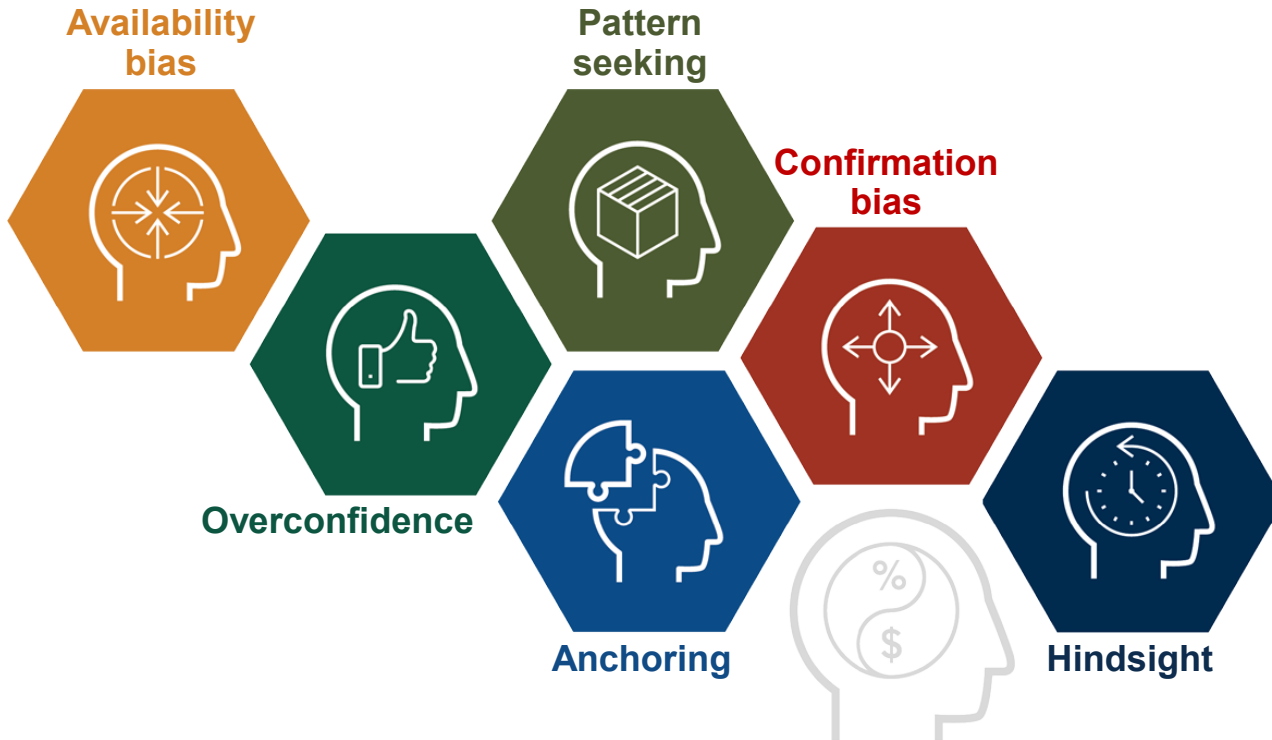


**“Invest for the long run” is the right advice, but it ignores basic human nature.**

Past performance is not indicative of future results.

Source: Ned Davis Research. © 2019 Ned Davis Research, Inc. See full Ned Davis Research disclosure on page 20. 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

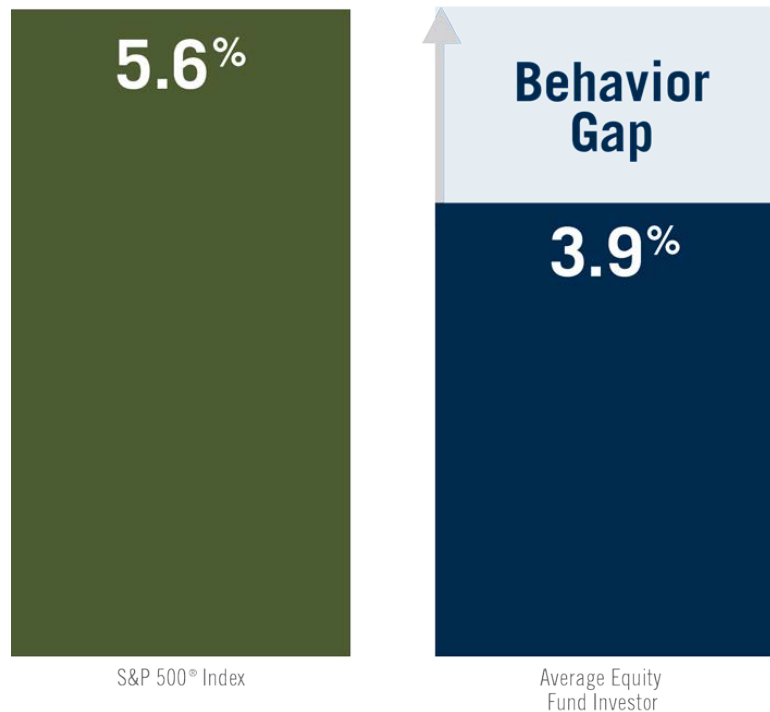


**We're not irrational. We're human.**

# The behavior gap

## 20-Year Average Index vs. Investor Returns

Period ended 12/31/18



Investors have underperformed the market by a sizeable margin.



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

Past performance is not indicative of future results.

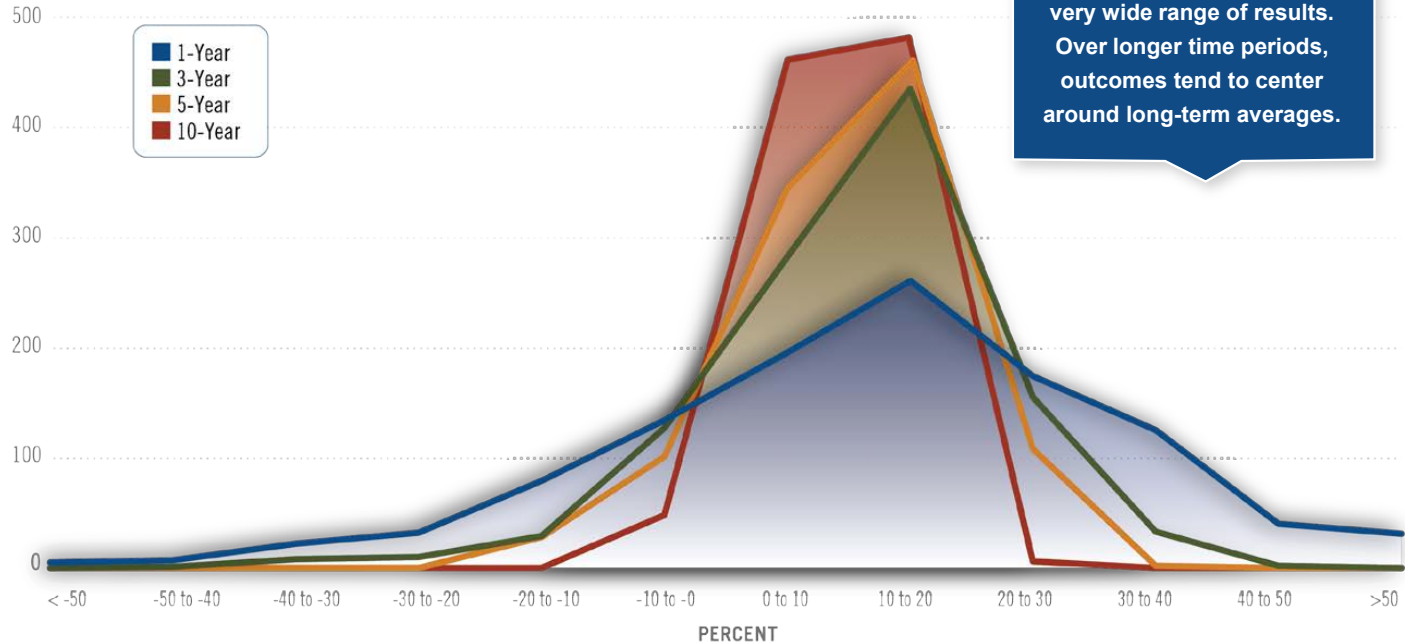
Source: Quantitative Analysis of Investor Behavior, 2019, DALBAR, Inc., [www.dalbar.com](http://www.dalbar.com). See full DALBAR disclosure on page 20.

# Setting realistic expectations

## Rolling Returns of the S&P® 500 Index

12/31/26–12/31/18

MONTHS



**Maintain realistic expectations for how markets actually behave.**

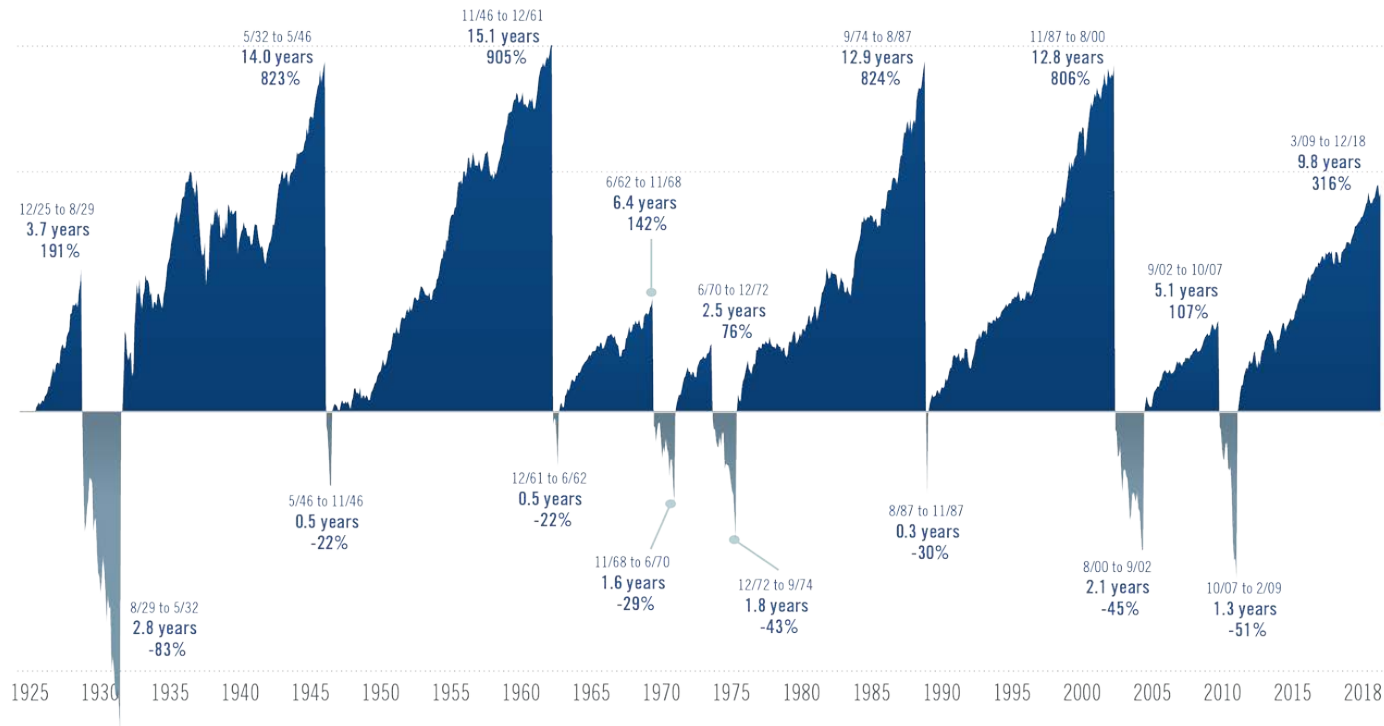
Past performance is not indicative of future results.

Source: Ned Davis Research. © 2019 Ned Davis Research, Inc. Rolling returns performance illustrated. Data set begins at 12/31/25. First rolling 1-year period illustrated at 12/31/26. Rolling returns are annualized average returns for a period, ending with the listed year.

# The shape of markets

## History of U.S. Bull and Bear Markets

Based on S&P 500® Index Returns 12/31/25-12/31/18 (Log Scale)



**The ride matters.**

Past performance is not indicative of future results.

Source: S&P Dow Jones Indices

Ned Davis Research. © 2019 Ned Davis Research, Inc.



Bull markets are defined from the lowest close reached after the market has fallen 20% or more to the next market high.

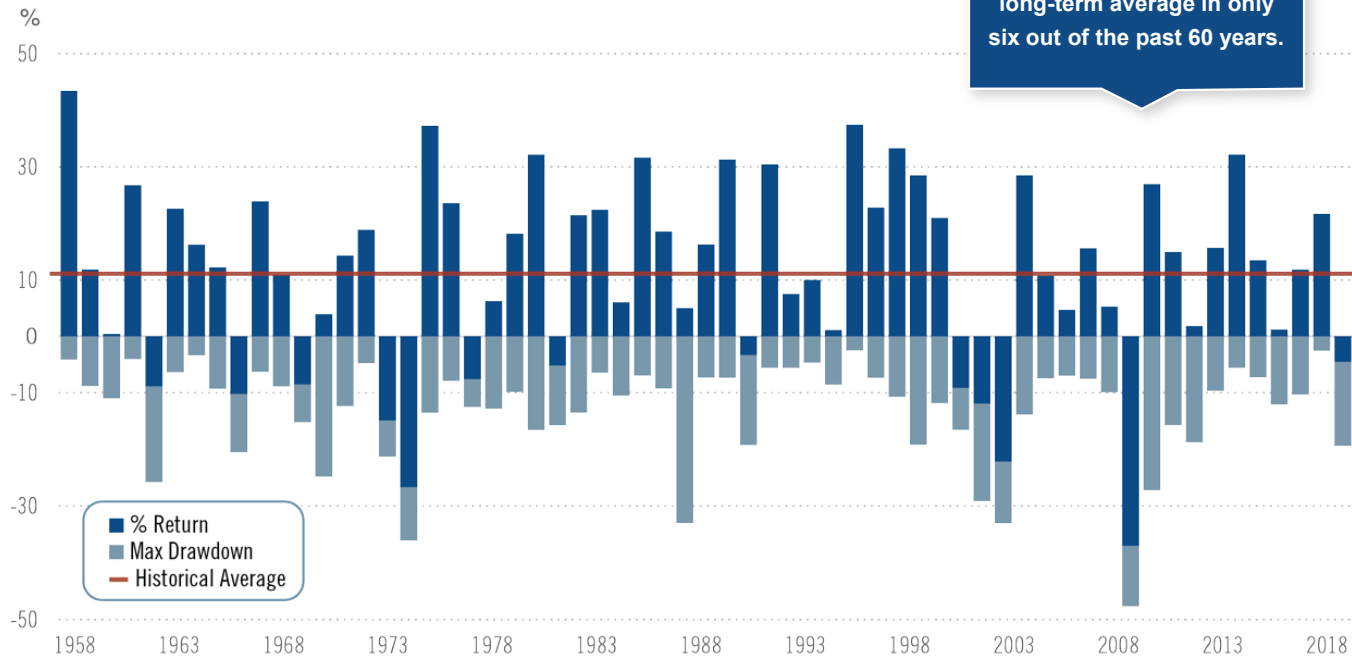


Bear markets are defined from the last market high prior to the market closing down at least 20% to the lowest close after it's down 20% or more.

# Ups and downs

S&P 500® Index Annual Returns and Intra-Year Drawdowns 1958-2018

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.



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

Past performance is not indicative of future results.

Source: Ned Davis Research. © 2019 Ned Davis Research, Inc. 60-year period used to illustrate multiple market cycles.

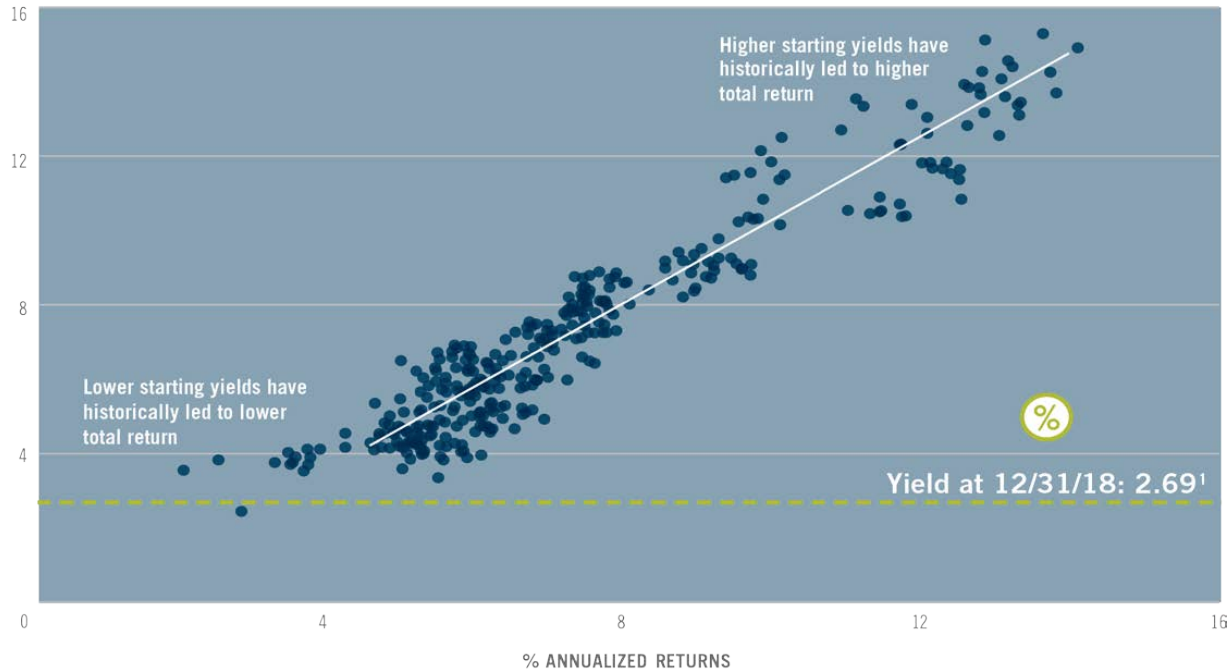


# Bonds then and now

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

10-Year Treasury Returns and Starting Yields 12/31/08–12/31/18

% YIELD



**Have reasonable expectations for future bond market returns.**

Past performance is not indicative of future results.

Source: Ned Davis Research. © 2019 Ned Davis Research, Inc.

<sup>1</sup> As of December 31, 2018. U.S. Department of the Treasury. "Daily Treasury Yield Curve Rates." 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 1/15/19).

# Three key engines

## Dollar Cost Averaging



## Rebalancing



## Compounding

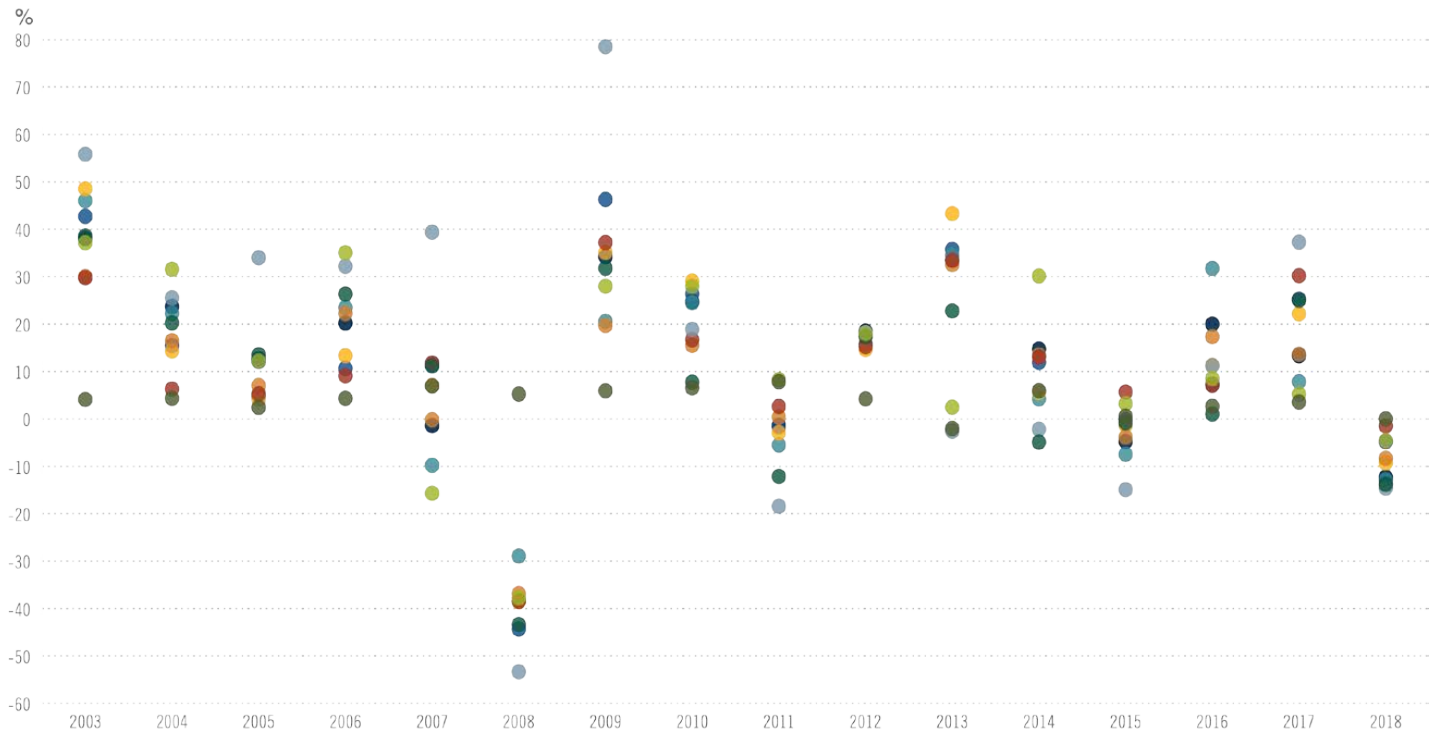


**Discipline drives success.**

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

Asset Class Performance 2003-2018



**Spreading your bets is wise.**

● Fixed Income    ● International    ● Large-Cap Growth    ● Small-Cap Growth    ● Mid-Cap Growth  
 ● REITs    ● Emerging Markets    ● Large-Cap Value    ● Small-Cap Value    ● Mid-Cap Value

Past performance is not indicative of future results.

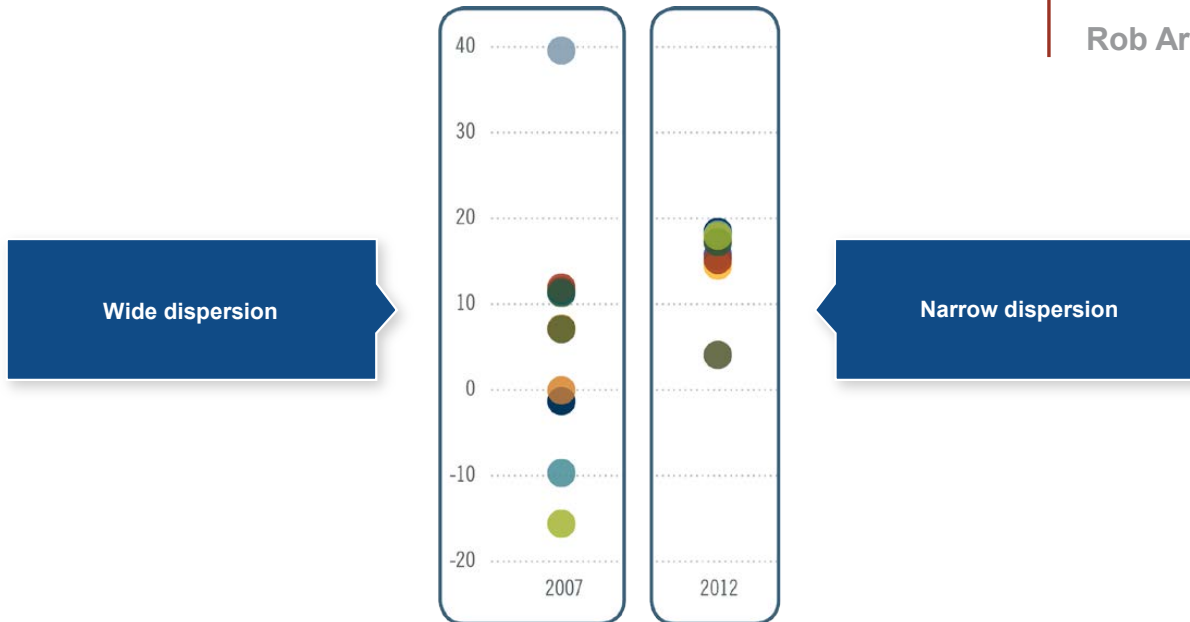
Diversification does not assure a profit or protect against losses.

Source: Virtus Performance Analytics. See page 20 for index definitions and important risk considerations.

# Diversification is hard

**“In investing, what is comfortable is rarely profitable.”**

**Rob Arnott**



**Diversification feels lousy.**

Past performance is not indicative of future results.

Diversification does not assure a profit or protect against losses.

Source: Virtus Performance Analytics. See page 20 for index definitions and important risk considerations.

# The luck of the draw

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

Start Date	End Date	%Gain / Year	Start Date	End Date	%Gain / Year	Start Date	End Date	%Gain / Year
1980	1999	17.74	1938	1957	12.85	1966	1985	8.52
1979	1998	17.60	1983	2002	12.60	1989	2008	8.34
1942	1961	16.68	1974	1993	12.59	1961	1980	8.19
1978	1997	16.49	1936	1955	12.28	1963	1982	8.17
1981	2000	15.56	1951	1970	12.05	1964	1983	8.16
1982	2001	15.13	1986	2005	11.84	1990	2009	8.16
1943	1962	15.03	1932	1951	11.75	1993	2012	8.16
1944	1963	14.89	1972	1991	11.72	1996	2015	8.12
1949	1968	14.75	1988	2007	11.71	1958	1977	8.02
1945	1964	14.72	1987	2006	11.70	1957	1976	7.82
1941	1960	14.58	1953	1972	11.59	1992	2011	7.76
1948	1967	14.44	1952	1971	11.57	1965	1984	7.67
1976	1995	14.42	1970	1989	11.39	1997	2016	7.62
1975	1994	14.41	1973	1992	11.16	1931	1950	7.47
1977	1996	14.39	1937	1956	11.06	1998	2017	7.13
1940	1959	13.95	1971	1990	10.98	1956	1975	7.03
1946	1965	13.61	1954	1973	10.76	1955	1974	6.79
1947	1966	13.50	1934	1953	10.50	1960	1979	6.72
1950	1969	13.31	1967	1986	10.04	1962	1981	6.63
1939	1958	13.25	1995	2014	9.78	1959	1978	6.42
1985	2004	13.12	1969	1988	9.39	1999	2018	5.55
1933	1952	13.01	1994	2013	9.15	1928	1947	4.83
1935	1954	12.93	1968	1987	9.14	1930	1949	4.54
1984	2003	12.88	1991	2010	9.10	1929	1948	3.21



**History matters.**

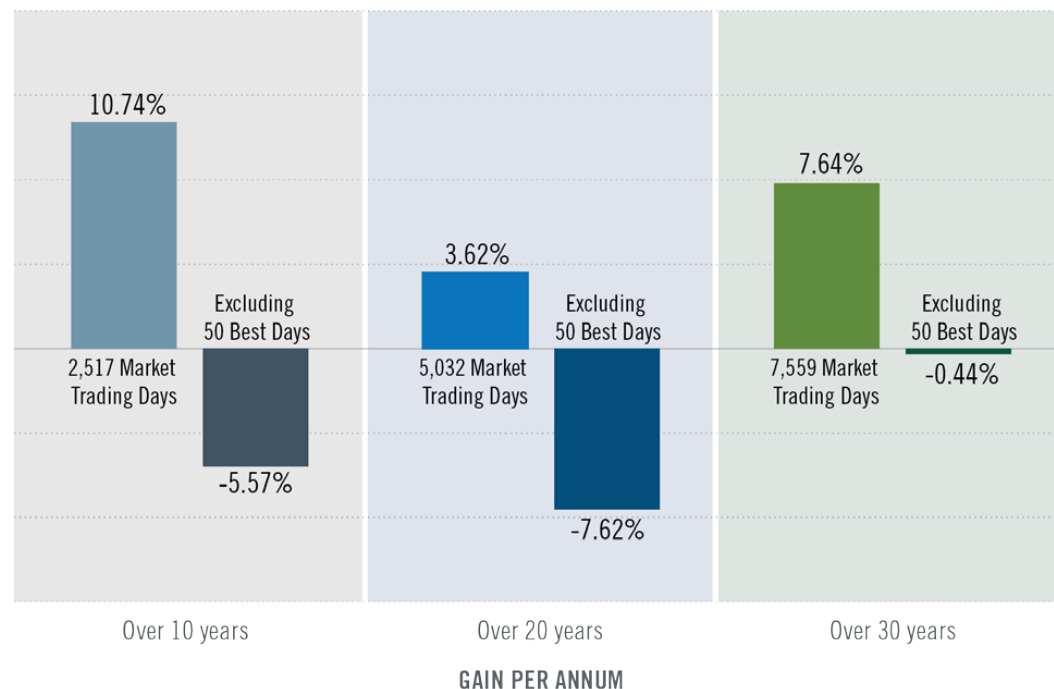
Past performance is not indicative of future results.

Source: Ned Davis Research. ©2019 Ned Davis Research, Inc.

# The folly of market timing

## Average Annual Return of the S&P 500® Index

Periods ended 12/31/18



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

**Nassim Taleb**



**Market timing doesn't work.**

Past performance is not indicative of future results.

Source: Ned Davis Research. © 2019 Ned Davis Research, Inc.

# Starting early

Year	Contributions (\$)	
	Mortimer	Randolph
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

Year	Contributions (\$)	
	Mortimer	Randolph
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

Outcome (\$)	
320,505	320,505

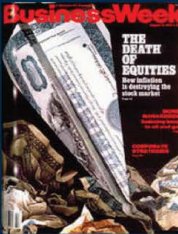


**Get ahead by starting early.**

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.

# Prognostication is for show



## “The Death of Equities”

BusinessWeek  
August 1979

Over the next 20 years,  
the S&P 500® Index  
rose nearly 2,400%.



## “Drowning in Oil”

The Economist  
February 1999

Despite concerns of  
massive over-supply,  
the price of oil climbed  
more than 600% over  
the next decade.



## “Everyone’s Getting Rich But Me!”

Newsweek  
July 1999

Investors who jumped into  
the tech-heavy Nasdaq  
saw their investment  
fall by nearly 50%  
over the next three years.



## “The New Hard Times”

TIME Magazine  
October 2008

Following the great  
market crash of 2008-09,  
stocks rallied more than  
300% over the  
next eight years.



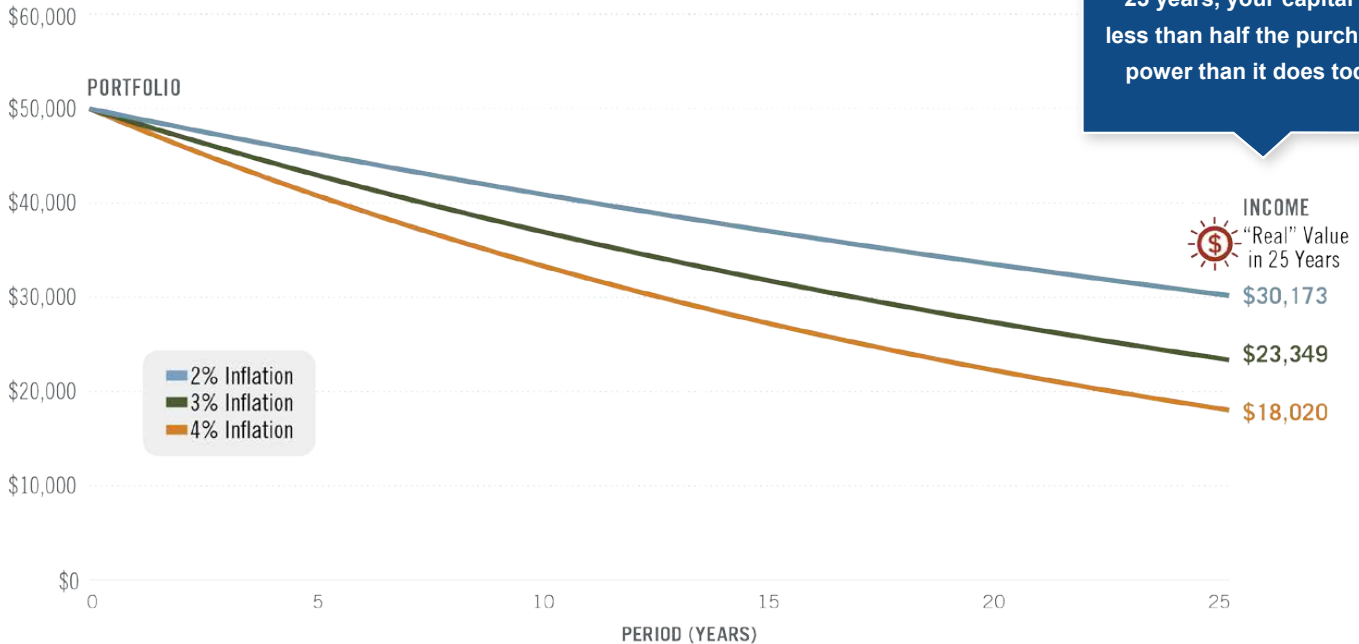
**Prepare. Don’t predict.**



# A sound retirement requires investing

## 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%, 3%, and 4% to demonstrate the impact of inflation over time. Actual inflation rates will vary and may be more or less than shown.

# What really matters

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Growth

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

Income

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

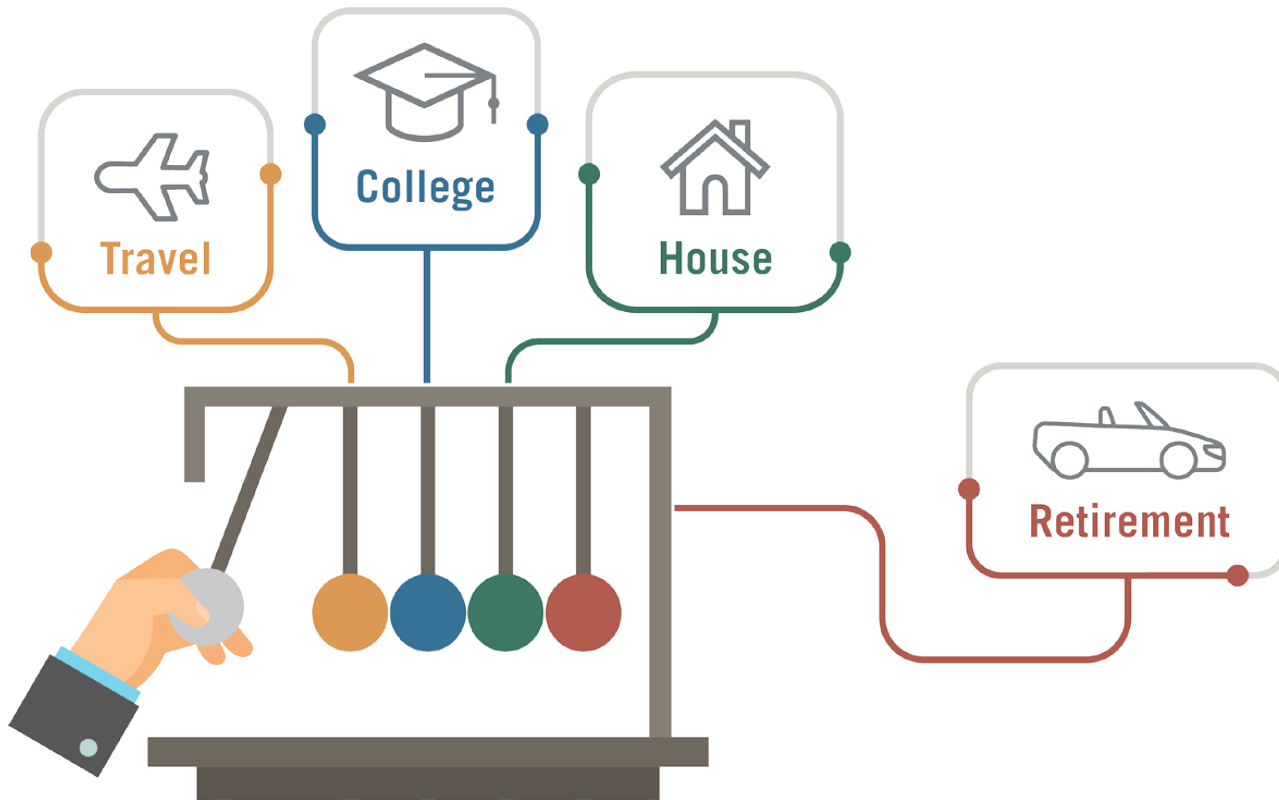
Protection

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



**Don't over complicate: Investors have three main objectives.**

# Achieving your goals



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

# Definitions and disclosures

## Ned Davis

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DALBAR average equity investor performance results are calculated using data supplied by the Investment Company Institute. Investor returns are represented by the change in total mutual fund 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 each period. 20-year period ended 12/31/18.

## Page 8

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

## Pages 11-12

Fixed Income is represented by the Bloomberg Barclays 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 security may fail to make payments in a timely manner. Values of debt securities may rise and fall in response to changes in interest rates. This risk may be enhanced with longer-term maturities. **Equity Securities:** The market price of equity securities may be affected by financial market, industry, or issue-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 rate, leverage, property, and management.



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