



NORTHERN TRUST

ASSET MANAGEMENT

Challenging and Volatile Markets

A HISTORICAL PERSPECTIVE

Introduction

Recent market turmoil driven by a confluence of events—the Fed raising rates and removing liquidity from the market, a global pandemic and subsequent recovery, the tragic war unfolding in Ukraine, lockdowns in China, supply chain issues, high inflation and midterm elections—is unprecedented in nature. As a result, investors have suffered significant losses from stocks and bonds.

Fear, frustration and pessimism are abundant, making it difficult for investors to put the current bear market in perspective and reflect upon the lessons that history affords. After any large drawdown, once the initial shock wears off, the actual impact becomes clearer and uncertainty begins to decrease. Typically, a market recovery begins—sometimes quicker than seemed possible. While this market turmoil is unique, volatile markets themselves are not. Even in the face of major dislocations, long-term opportunities exist, as evidenced by the stock market’s resiliency since its inception.

Investors are being inundated with negative information and are experiencing significant valuation declines in their equity portfolios. While negative information is readily available via the media, putting the current market in context does not receive nearly as much attention. The following exhibits are intended to offer a larger historical perspective.

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Market Reaction to Crisis Events

Historically after a crisis event, the market (as measured by the Dow Jones Industrial Average - DJIA), has initially dropped by a median of 3%. Yet over eight months later, the median return was 17%. While each crisis is unique and the magnitude of events varies, the market has repeatedly proven its resiliency over the long-term.

CRISIS EVENTS, DJIA PERFORMANCE

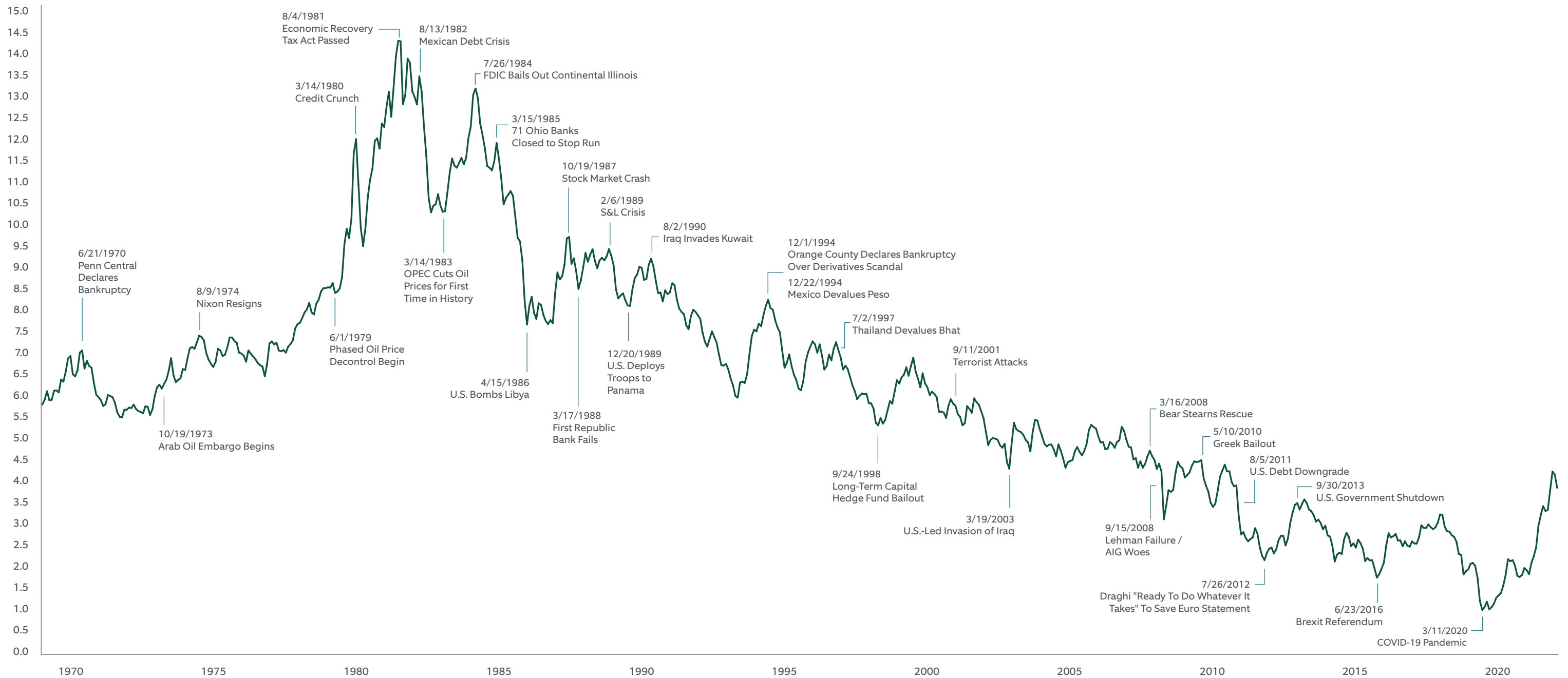
Event	Reaction Dates	Reaction Date % Gain/Loss	DJIA % Gain Days After Reaction Dates			
			22	63	126	253
Panic of 1907	02/15/1907 - 11/20/1907	-42.9	6.9	14.7	29.9	48.3
Exchange Closed WWI	07/22/1914 - 12/24/1914	-10.2	10.0	6.6	21.2	80.2
Woodrow Wilson Stroke	09/25/1919 - 09/26/1919	1.3	5.7	-4.5	-16.0	-21.8
Bombing at JP Morgan Office	09/15/1920 - 09/30/1920	-5.5	2.4	-14.9	-9.5	-17.3
Market Crash of 1929	10/11/1929 - 11/13/1929	-43.7	27.3	34.1	46.0	11.8
Germany invades France	05/09/1940 - 06/22/1940	-17.1	-0.5	8.4	7.0	-5.2
Pearl Harbor	12/06/1941 - 12/10/1941	-6.5	3.8	-2.9	-9.6	5.4
Truman Upset Victory	11/02/1948 - 11/10/1948	-4.9	1.6	3.5	1.9	6.1
Korean War	06/23/1950 - 07/13/1950	-12	9.1	15.3	19.2	26.3
Eisenhower Heart Attack	09/23/1955 - 09/26/1955	-6.5	0.0	6.6	11.7	5.7
Suez Canal Crisis	10/30/1956 - 10/31/1956	-1.4	0.3	-0.6	3.4	-9.5
Sputnik	10/03/1957 - 10/22/1957	-9.9	5.5	6.7	7.2	29.2
Cuban Missile Crisis	10/19/1962 - 10/27/1962	1.1	12.1	17.1	24.2	30.4
JFK Assassinated	11/21/1963 - 11/22/1963	-2.9	7.2	12.4	15.1	24.0
Martin Luther King Assassinated	04/03/1968 - 04/05/1968	-0.4	5.3	6.4	9.3	10.8
U.S. Bombs Cambodia	04/29/1970 - 05/14/1970	-7.1	0.4	3.8	13.5	36.7
Kent State Shootings	05/01/1970 - 05/26/1970	-14	9.9	20.3	20.7	43.7
Penn Central Bankruptcy	06/19/1970 - 07/07/1970	-7.1	8.0	16.0	24.9	33.8
Arab Oil Embargo	10/16/1973 - 12/05/1973	-18.5	9.3	10.2	7.2	-25.5
Nixon Resigns	08/07/1974 - 08/29/1974	-17.6	-7.9	-5.7	12.5	27.2
Iranian Hostage Crisis	11/02/1979 - 11/07/1979	-2.7	4.7	11.1	2.3	17.0
U.S.S.R. Invades Afghanistan	12/24/1979 - 01/03/1980	-2.2	6.7	-4.0	6.8	21.0
Hunt Silver Crash	02/13/1980 - 03/27/1980	-15.9	6.7	16.2	25.8	30.6
Falkland Islands War	04/01/1982 - 05/07/1982	4.3	-8.5	-9.8	20.8	41.8
Beirut Bombing	10/21/1983 - 10/23/1983	0.0	2.1	-0.5	-6.9	-2.9
U.S. Invades Grenada	10/24/1983 - 11/07/1983	-2.7	3.9	-2.8	-3.2	2.4
Continental Illinois Bailout	05/08/1984 - 05/27/1984	-6.4	2.3	11.5	10.1	18.3
U.S. Bombs Libya	04/14/1986 - 04/21/1986	2.8	-4.3	-4.1	-1.0	25.9
Financial Panic '87	10/02/1987 - 10/19/1987	-34.2	11.5	11.4	15.0	24.2
Invasion of Panama	12/15/1989 - 12/20/1989	-1.9	-2.7	0.3	8.0	-2.2
Iraq Invades Kuwait	08/02/1990 - 08/23/1990	-13.3	0.1	2.3	16.3	22.4

CRISIS EVENTS, DJIA PERFORMANCE CONTINUED...

Event	Reaction Dates	Reaction Date % Gain/Loss	DJIA % Gain Days After Reaction Dates			
			22	63	126	253
Gulf War	01/16/1991 - 01/17/1991	4.6	11.8	14.3	15.0	24.5
Gorbachev Coup	08/16/1991 - 08/19/1991	-2.4	4.4	1.6	11.3	14.9
ERM U.K. Currency Crisis	09/15/1992 - 10/16/1992	-4.6	0.6	3.2	9.2	14.7
World Trade Center Bombing	02/25/1993 - 02/27/1993	-0.3	2.4	5.1	8.5	14.2
Oklahoma City Bombing	04/18/1995 - 04/20/1995	1.2	3.9	9.7	12.9	30.8
Asian Stock Market Crisis	10/07/1997 - 10/27/1997	-12.4	8.8	10.5	25.0	16.9
U.S. Embassy Bombings Africa	08/06/1998 - 08/14/1998	-1.8	-4.0	4.8	10.4	32.0
U.S.S. Cole Yemen Bombing	10/11/2000 - 10/18/2000	-4.2	6.6	6.1	6.1	-5.1
WTC and Pentagon Terrorist Attacks	09/10/2001 - 09/21/2001	-14.3	13.4	21.2	24.8	-6.7
War in Afghanistan	10/05/2001 - 10/09/2001	-0.7	5.9	11.5	12.4	-16.8
Bali Nightclub Bombing	10/11/2002 - 10/13/2002	0.3	6.6	12.3	6.7	24.4
Iraq War	03/19/2003 - 05/01/2003	2.3	5.5	9.2	15.6	22.0
Madrid Terrorist Attacks	03/10/2004 - 03/24/2004	-2.4	3.9	3.9	-0.1	4.4
London Train Bombing	07/06/2005 - 07/07/2005	0.3	2.3	0.1	5.6	7.8
India Israel and Lebanon Bombings	07/11/2006 - 07/18/2006	-3.0	5.0	10.9	16.4	28.3
Bear Stearns Collapse	03/13/2008 - 03/14/2008	-1.6	5.6	3.0	-4.4	-38.1
Russia Invades Georgia	08/08/2008 - 08/16/2008	-2.2	-4.0	-26	-34.2	-19.2
Lehman Brothers Collapse	09/15/2008 - 09/16/2008	1.3	-18.8	-22.6	-32.3	-11.5
Israel Invades Gaza	12/27/2008 - 01/21/2009	-3.0	-13.5	-4.2	7.9	23.6
Boston Marathon Bombing	04/12/2013 - 04/15/2013	-1.8	4.6	6.1	4.4	11.4
Russia Invades Crimea	03/07/2014 - 03/14/2014	-2.4	1.2	4.4	5.7	11.1
Chinese Market Turmoil	08/21/2015 - 08/25/2015	-4.8	4.1	13.6	6.6	17.8
U.K. Votes to Leave E.U.	06/23/2016 - 06/27/2016	-4.8	7.7	5.6	16.3	25.2
COVID-19 Crash	03/4/2020 - 03/23/2020	-31.4	26.5	40.0	46.0	74.4
Russia Invades Ukraine	02/09/2022 - 03/08/2022	-8.8	6.0	1.7	-3.2	N/A
Mean		-7.1	4.2	5.9	9.4	15.3
Median		-3.0	4.7	6.1	9.2	17.0

Source: Ned Davis Research, Inc. Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index. The 22, 63, 126 and 253 day rate-of-change is calculated from the last day in the reaction dates column. The first date in the reaction dates column indicates the start of the market reaction or the trading day prior to the event. Days equal market days. In 1916 a new list of 20 stocks for the DJIA was adopted and computed back to the reopening of the exchange on 12/12/1914. NDR analysis for this study adjusted the DJIA index level prior to 12/12/1914 to reflect an accurate and consistent data set. Source: The Dow Jones Averages 1885-1990, Edited by Phyllis S. Pierce.

LONG-TERM TREASURY BOND YIELDS AND MARKET EVENTS



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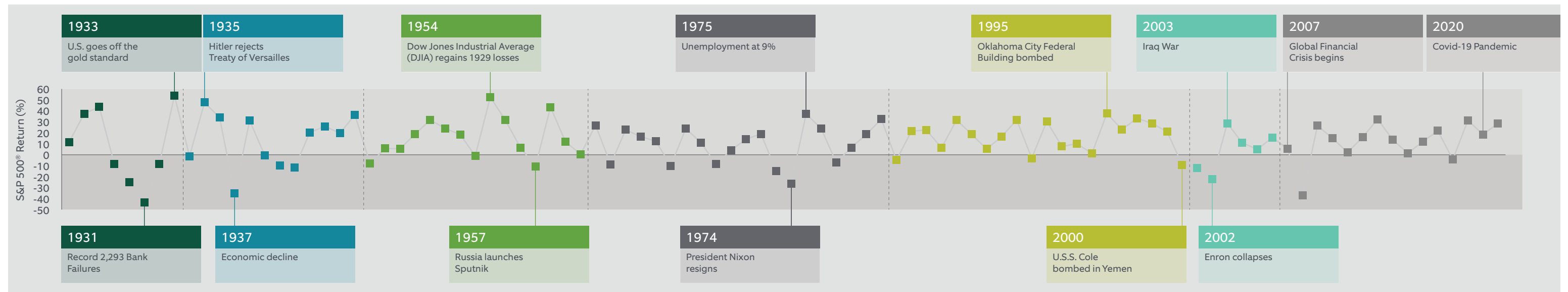
Equity Markets Have Had Positive Annual Returns Over 70% of the Time

The market goes up more than it goes down. Since 1926 there have been 71 years of positive stock market performance and 26 years of negative performance. The table below shows an event that transpired in each calendar year from 1926 to 2022 that influenced investor decisions. While each of these events swayed the market significantly at their individual points in time, viewing them in broader historical context shows a much richer story. With this in mind, investors of today should take current headlines with a grain of salt and stay focused on their long-term investment goals.

Year	Event	S&P 500 Return (%)
1926	\$388 million tax cut signed into law	11.62
1927	Lindbergh makes first trans-Atlantic flight	37.49
1928	Congress passes \$4.5 billion budget (peace-time record)	43.61
1929	Stock market crash	-8.42
1930	Bank of United States fails	-24.90
1931	Record 2,293 bank failures	-43.34
1932	Unemployment hits 15 million (23.6%)	-8.19
1933	U.S. goes off the gold standard	53.99
1934	Depression continues	-1.44
1935	Hitler rejects Treaty of Versailles	47.67
1936	Rome-Berlin Axis is formed	33.92
1937	Economic decline	-35.03
1938	President Roosevelt increases spending to end Depression	31.12
1939	Threat of war dominates headlines	-0.41
1940	Germany invades France	-9.78

Year	Event	S&P 500 Return (%)
1941	Attack on Pearl Harbor	-11.59
1942	Nationwide gas rationing begins	20.34
1943	President Roosevelt freezes prices and wages	25.90
1944	Allies invade Normandy	19.75
1945	Atomic bombs dropped on Japan	36.44
1946	Steel and shipyard workers strike	-8.07
1947	President Truman forecasts a record budget surplus	5.71
1948	Truman upset victory	5.50
1949	Russia explodes atomic bomb	18.79
1950	Korean War	31.71
1951	Corporate taxes rises from 47% to 52%	24.02
1952	Truman orders seizure of steel mills to avert strike	18.37
1953	Many economists expect depression in 1954	-0.99
1954	Dow Jones Industrial Average (DJIA) regains 1929 losses	52.62
1955	President Eisenhower suffers heart attack	31.56
1956	Suez Canal crisis	6.56
1957	Russia launches Sputnik	-10.78
1958	U.S. launches Explorer I	43.36
1959	Castro seizes power in Cuba	11.96
1960	U-2 spy plane shot down over Russia	0.47
1961	Berlin Wall erected	26.89
1962	Cuban Missile Crisis	-8.73
1963	President Kennedy assassinated	22.80
1964	New York race riots	16.48

Continued on Next Page...



Sources: (Events) Ned Davis Research, (Market Returns) Morningstar. The S&P 500® Index is a widely recognized unmanaged index that measures the performance of the large-cap sector of the U.S. stock market. Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

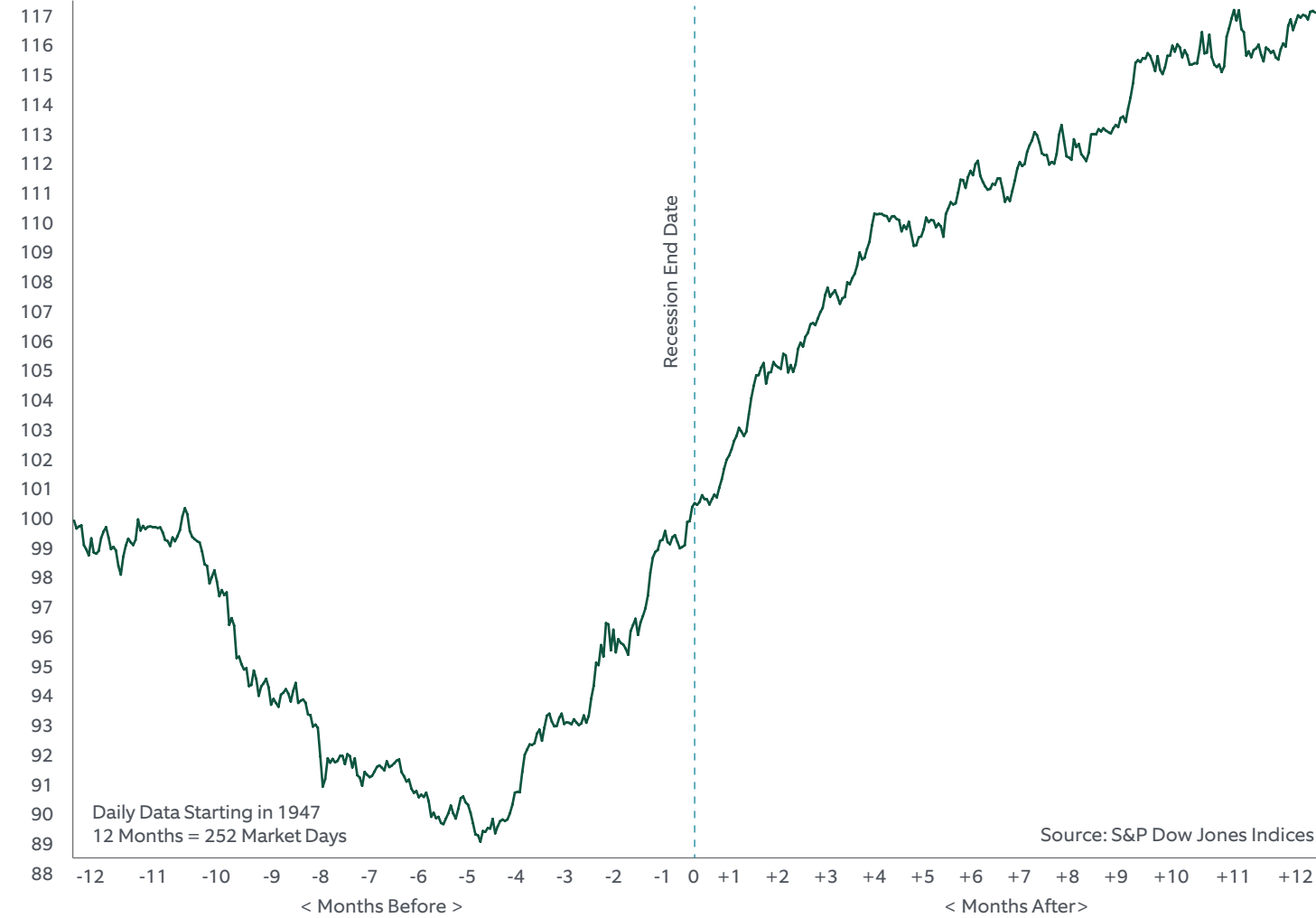
CHALLENGING AND VOLATILE MARKETS

Year	Event	S&P 500 Return (%)
1965	Vietnam War continues	12.45
1966	U.S. bombs Hanoi	-10.06
1967	President Johnson requests tax increase	23.98
1968	Martin Luther King assassinated	11.06
1969	Prime Rate at record high	-8.50
1970	U.S. Bombs Cambodia	3.94
1971	Wage and price freezes	14.30
1972	DJIA surpasses 1,000 for the first time	19.00
1973	Arab oil embargo	-14.69
1974	President Nixon resigns	-26.47
1975	Unemployment at 9%	37.23
1976	OPEC announces price increases	23.93
1977	Social security taxes raised	-7.16
1978	Capital gains taxed reduced from 35% to 28%	6.57
1979	Iranian hostage crisis	18.61
1980	Hunt silver crash	32.50
1981	President Reagan shot	-4.92
1982	Falkland Islands War	21.55
1983	U.S. invades Grenada	22.56
1984	Average home price over \$100,000	6.27
1985	U.S. is now a debtor nation	31.73
1986	U.S. bombs Libya	18.66
1987	Stock market crash	5.25
1988	First Republic Bank fails	16.61
1989	Invasion of Panama	31.69
1990	Iraq invades Kuwait	-3.10
1991	Gulf War	30.47
1992	U.K. currency crisis	7.62
1993	World Trade Center bombed	10.08
1994	Orange County California crisis	1.32
1995	Oklahoma City Federal Building bombed	37.58
1996	Greenspan warns of "irrational exuberance"	22.96
1997	Asian stock market crisis	33.36
1998	U.S. Embassy in Africa bombed	28.58
1999	DJIA surpasses 10,000/NASDAQ 4,000	21.04
2000	U.S.S. Cole bombed in Yemen	-9.10
2001	Terrorist attacks on America	-11.89
2002	Enron collapses	-22.10
2003	Iraq War	28.68
2004	Federal budget deficit hits record \$412 billion	10.88
2005	Hurricane Katrina	4.91
2006	Real estate boom peaks	15.80
2007	Global Financial Crisis begins with subprime mortgage crisis	5.49

CHALLENGING AND VOLATILE MARKETS

Year	Event	S&P 500 Return (%)
2008	Global Markets have worst single day in history	-37.00
2009	Global Financial Crisis ends	26.46
2010	The Flash Crash	15.06
2011	Japan earthquake, tsunami & nuclear disaster	2.11
2012	Case-Shiller National Housing Index bottoms	16.00
2013	Boston Marathon bombing	32.39
2014	Russia annexes Crimea	13.69
2015	Paris Climate Agreement adopted	1.38
2016	Brexit - U.K. votes to leave European Union	11.96
2017	Corporate taxes cut from 35% to 21%	21.83
2018	U.S.-China trade war intensifies	-4.38
2019	U.S. unemployment rate falls to 3.5%, lowest since 1969	31.49
2020	Covid-19 Pandemic	18.40
2021	Global supply chain shortages drive inflation to almost 7%	28.71
2022	Russia invades Ukraine	-18.11

S&P 500® PERFORMANCE AROUND POST-WAR RECESSION END DATES



Recession End Dates	% Change 6 Months (126 Days) Later	% Change 12 Months (252 Days) Later
10/31/1949	9.91	21.20
6/01/1954	17.30	29.87
4/30/1958	16.51	32.71
2/28/1961	6.48	10.66
11/30/1970	14.91	7.12
3/31/1975	3.39	23.38
7/31/1980	6.48	7.60
11/30/1982	17.22	20.21
4/01/1991	3.93	8.67
11/30/2001	-8.67	-17.98
6/30/2009	22.50	12.12
4/30/2020	12.31	43.56
Mean	10.19	16.59

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Index Performance Following Recessions & Bear Markets

Investing in a difficult market requires patience and discipline. Just as indices across various investment styles and asset classes perform differently during bull markets, this is also true before, during and after both bear markets and recessions. The importance of maintaining a diversified portfolio through all market cycles is critical. During challenging markets, many investors may inadvertently deviate from their original long-term plan and allocation and flock to perceived “safer assets.” As a result, they may miss out on opportunities that follow once the market recovers.

The subsequent tables provide historical benchmark data following bear markets and recessions. While one cannot predict the beginning of a recovery, reviewing current allocations may help to ensure a portfolio is positioned accordingly to both weather a storm and potentially prosper once it is over.

A bear market requires a 30% drop in the Dow Jones Industrial Average after 50 calendar days or a 13% decline after 145 calendar days. Reversals of 30% in the Value Line Geometric Index also qualify.

– Ned Davis Research

INDEX RETURNS FOLLOWING RECESSION END DATES

Russell 1000 Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
1/31/1980	7/31/1980	6.91	8.98	13.37	13.37	1.9
7/31/1981	11/30/1982	7.96	20.42	22.63	25.11	12.4
7/31/1990	3/31/1991	2.22	7.01	16.14	13.81	2.4
3/31/2001	11/30/2001	-2.21	-4.87	-17.98	-16.07	5.8
12/31/2007	6/30/2009	16.07	23.11	30.13	15.24	14.3
2/29/2020	4/30/2020	13.91	14.96	35.01	49.48	0.8
Events Mean:		7.48	11.60	16.55	16.82	6.3

Russell 1000 Growth Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
3/31/2001	11/30/2001	-6.02	-12.87	-25.05	-22.68	5.8
12/31/2007	6/30/2009	13.97	23.03	28.74	13.62	14.3
2/29/2020	4/30/2020	19.93	21.80	42.41	51.41	0.8
Events Mean:		9.29	10.65	15.37	14.12	7.0

Russell 1000 Value Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
3/31/2001	11/30/2001	1.73	3.40	-10.93	-9.61	5.8
12/31/2007	6/30/2009	18.24	23.23	31.58	16.92	14.3
2/29/2020	4/30/2020	6.80	7.06	26.33	45.92	0.8
Events Mean:		8.92	11.23	15.66	17.75	7.0

Russell MidCap Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
3/31/2001	11/30/2001	2.30	5.13	-11.01	-9.24	5.8
12/31/2007	6/30/2009	20.62	27.76	38.84	25.13	14.3
2/29/2020	4/30/2020	15.36	17.83	42.42	59.57	0.8
Events Mean:		12.76	16.91	23.42	25.15	7.0

Russell MidCap Growth Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
3/31/2001	11/30/2001	-5.26	-6.31	-25.01	-19.80	5.8
12/31/2007	6/30/2009	17.58	25.45	35.08	21.30	10.7
2/29/2020	4/30/2020	21.62	23.33	48.89	53.97	0.8
Events Mean:		11.31	14.16	19.65	18.49	5.8

Russell MidCap Value Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
3/31/2001	11/30/2001	6.91	12.13	-2.24	-3.61	5.8
12/31/2007	6/30/2009	23.62	30.05	42.56	28.91	14.3
2/29/2020	4/30/2020	10.81	13.64	37.45	60.70	0.8
Events Mean:		13.78	18.61	25.92	28.67	7.0

Russell 2000						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
1/31/1980	7/31/1980	14.76	18.45	32.23	30.28	1.9
7/31/1981	11/30/1982	15.86	36.90	33.78	33.40	12.4
7/31/1990	3/31/1991	-0.79	6.80	13.02	20.80	3.1
3/31/2001	11/30/2001	2.19	6.46	-14.32	-10.60	5.8
12/31/2007	6/30/2009	19.28	23.90	34.87	21.48	14.3
2/29/2020	4/30/2020	13.32	18.13	63.71	74.91	0.6
Events Mean:		10.77	18.44	27.22	28.38	6.3

Russell 2000 Growth						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
3/31/2001	11/30/2001	-4.18	-4.07	-25.73	-20.43	5.8
12/31/2007	6/30/2009	15.95	20.75	29.95	17.96	14.3
2/29/2020	4/30/2020	17.56	22.72	70.17	69.15	0.6
Events Mean:		9.78	13.13	24.79	22.23	6.9

Russell 2000 Value						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
3/31/2001	11/30/2001	8.19	16.40	-3.52	-1.81	5.8
12/31/2007	6/30/2009	22.70	27.15	39.89	25.07	14.3
2/29/2020	4/30/2020	8.03	12.44	55.74	78.96	0.8
Events Mean:		12.98	18.66	30.70	34.08	7.0

INDEX RETURNS FOLLOWING RECESSION END DATES

S&P 500 Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
8/31/1929	3/31/1933	89.45	72.56	79.53	93.01	33.1
5/31/1937	6/30/1938	7.55	17.54	-1.31	-1.23	10.0
2/28/1945	10/31/1945	12.62	14.85	10.93	-7.37	0.9
11/30/1948	10/31/1949	8.10	17.54	16.88	29.99	6.4
7/31/1953	5/31/1954	4.21	19.23	30.55	35.99	1.5
8/31/1957	4/30/1958	9.72	20.43	31.03	37.21	1.7
4/30/1960	2/28/1961	5.71	8.93	14.94	13.53	5.9
12/31/1969	11/30/1970	12.16	16.77	16.33	11.29	4.8
11/30/1973	3/31/1975	15.39	2.76	11.68	28.43	10.1
1/31/1980	7/31/1980	6.05	8.97	13.00	12.76	1.9
7/31/1981	11/30/1982	8.13	19.92	22.72	25.52	12.4
7/31/1990	3/31/1991	2.61	6.52	15.12	12.35	2.4
3/31/2001	11/30/2001	-2.55	-5.69	-18.69	-16.52	5.8
12/31/2007	6/30/2009	15.74	22.77	29.38	14.59	14.3
2/29/2020	4/30/2020	12.87	13.33	31.30	46.00	0.8
Events Mean:		13.85	17.10	20.23	22.37	7.5

NASDAQ Composite Index (Price-Only)						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
11/30/1973	3/31/1975	15.01	-1.76	2.59	19.77	10.1
1/31/1980	7/31/1980	12.21	15.13	26.15	23.18	1.9
7/31/1981	11/30/1982	12.21	32.90	25.87	22.97	12.5
7/31/1990	3/31/1991	0.09	9.91	21.96	25.21	2.6
3/31/2001	11/30/2001	-10.31	-16.31	-31.89	-23.40	5.8
12/31/2007	6/30/2009	15.66	23.66	30.68	14.94	14.3
2/29/2020	4/30/2020	20.88	22.75	50.78	57.07	0.8
Events Mean:		9.39	12.32	18.02	19.96	6.8

MSCI EAFE Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
11/30/1973	3/31/1975	-0.06	-8.63	3.84	6.69	10.0
1/31/1980	7/31/1980	11.61	8.41	13.86	5.40	2.0
7/31/1981	11/30/1982	10.06	20.34	21.47	29.16	14.0
7/31/1990	3/31/1991	-5.38	2.81	4.62	-7.71	2.0
3/31/2001	11/30/2001	-4.07	3.28	-10.76	-12.21	5.8
12/31/2007	6/30/2009	19.52	22.18	23.33	6.38	14.3
2/29/2020	4/30/2020	10.55	8.77	31.05	40.45	0.8
Events Mean:		6.03	8.17	12.49	9.74	7.0

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INDEX RETURNS FOLLOWING BEAR MARKET END DATES

Russell 1000 Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
4/27/1981	8/12/1982	39.36	48.61	67.53	68.34	15.6
11/29/1983	7/24/1984	14.97	23.38	28.91	37.43	7.9
8/25/1987	10/19/1987	9.08	14.33	20.19	24.81	1.8
7/16/1990	10/11/1990	8.44	32.07	32.67	36.15	2.9
7/17/1998	8/31/1998	22.29	30.37	37.09	39.35	1.5
1/14/2000	9/21/2001	19.08	21.01	4.19	-10.43	20.3
3/19/2002	10/9/2002	20.14	12.88	32.08	37.79	6.7
10/9/2007	3/9/2009	41.01	55.84	65.86	74.49	17.0
4/29/2011	10/3/2011	17.09	30.79	27.44	35.12	5.2
5/19/2015	2/11/2016	14.15	21.63	21.10	30.58	8.8
2/12/2020	3/23/2020	42.32	48.47	73.08	83.11	1.3
Events Mean:	22.54	30.85	37.29	41.52	8.1	

Russell 1000 Growth Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
7/17/1998	8/31/1998	25.19	37.87	39.70	48.33	1.5
1/14/2000	9/21/2001	24.47	21.81	-2.29	-13.39	20.3
3/19/2002	10/9/2002	16.36	11.25	29.40	35.70	6.7
10/9/2007	3/9/2009	38.45	50.67	62.41	70.14	17.0
4/29/2011	10/3/2011	15.37	31.47	26.67	33.97	5.2
5/19/2015	2/11/2016	12.72	20.34	17.58	27.18	8.8
2/12/2020	3/23/2020	47.73	58.34	82.62	85.17	1.3
Events Mean:	25.76	33.11	36.58	41.01	8.7	

Russell 1000 Value Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
7/17/1998	8/31/1998	19.24	22.38	34.48	30.08	1.5
1/14/2000	9/21/2001	14.08	20.31	10.33	-8.00	20.3
3/19/2002	10/9/2002	24.28	14.66	35.04	40.12	6.7
10/9/2007	3/9/2009	44.07	61.71	69.92	79.55	17.0
4/29/2011	10/3/2011	18.85	30.10	28.22	36.28	5.2
5/19/2015	2/11/2016	15.67	23.05	24.84	34.20	8.8
2/12/2020	3/23/2020	35.43	37.16	61.76	78.79	1.3
Events Mean:	24.52	29.91	37.80	41.57	8.7	

INDEX RETURNS FOLLOWING BEAR MARKET END DATES

Russell 2000 Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
4/27/1981	8/12/1982	47.31	67.13	95.66	99.09	15.6
11/29/1983	7/24/1984	11.69	20.17	24.01	33.19	7.9
8/25/1987	10/19/1987	-5.85	8.48	14.86	13.64	1.8
7/16/1990	10/11/1990	7.16	47.16	43.22	50.39	2.9
7/17/1998	8/31/1998	18.10	17.42	30.76	28.36	1.5
1/14/2000	9/21/2001	28.20	34.29	22.89	-1.76	20.3
3/19/2002	10/9/2002	21.52	14.69	47.47	61.64	6.7
10/9/2007	3/9/2009	54.47	72.16	76.17	97.90	17.0
4/29/2011	10/3/2011	23.91	37.98	35.78	39.64	5.2
5/19/2015	2/11/2016	17.34	29.88	36.00	47.79	8.8
2/12/2020	3/23/2020	44.11	45.79	102.21	120.70	1.2
Events Mean:	24.36	35.92	48.09	53.69	8.1	

Russell 2000 Growth Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
7/17/1998	8/31/1998	24.87	30.17	44.84	43.31	1.5
1/14/2000	9/21/2001	32.86	32.06	11.22	-11.77	20.3
3/19/2002	10/9/2002	23.76	16.30	52.87	68.10	6.7
10/9/2007	3/9/2009	53.68	68.41	72.57	92.19	17.0
4/29/2011	10/3/2011	23.15	38.54	35.82	38.83	5.2
5/19/2015	2/11/2016	16.26	30.09	33.13	42.80	8.8
2/12/2020	3/23/2020	50.55	54.69	114.13	117.13	1.2
Events Mean:	32.16	38.61	52.08	55.80	8.7	

Russell 2000 Value Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
7/17/1998	8/31/1998	11.73	5.31	17.40	14.08	1.5
1/14/2000	9/21/2001	24.19	36.30	33.19	7.17	20.3
3/19/2002	10/9/2002	19.46	13.22	42.46	55.64	6.7
10/9/2007	3/9/2009	55.31	75.97	79.84	103.66	17.0
4/29/2011	10/3/2011	24.69	37.42	35.74	40.45	5.2
5/19/2015	2/11/2016	18.36	29.64	38.85	52.72	8.8
2/12/2020	3/23/2020	36.27	35.44	88.30	121.71	1.3
Events Mean:	27.14	33.33	47.97	56.49	8.7	

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INDEX RETURNS FOLLOWING BEAR MARKET END DATES

S&P 500 Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
9/3/1929	11/13/1929	33.67	41.11	17.76	-1.97	2.4
4/17/1930	7/8/1932	57.36	69.52	50.33	194.01	25.6
9/7/1932	2/27/1933	77.20	109.35	82.38	105.67	5.7
2/5/1934	7/26/1934	6.59	12.76	16.68	35.46	5.7
3/10/1937	3/31/1938	38.70	49.18	63.03	36.89	12.7
11/12/1938	4/8/1939	10.53	27.99	28.76	29.58	4.9
9/12/1939	4/28/1942	17.82	29.67	46.41	64.54	31.6
5/29/1946	5/17/1947	14.33	13.42	6.36	27.73	4.4
6/15/1948	6/13/1949	17.97	26.80	32.68	51.78	12.0
1/5/1953	9/14/1953	10.29	20.34	31.34	45.31	8.3
4/6/1956	10/22/1957	6.84	12.18	22.85	36.43	18.6
1/5/1960	10/25/1960	16.72	26.88	27.67	34.76	2.1
12/13/1961	6/26/1962	8.30	22.61	30.23	37.21	6.4
2/9/1966	10/7/1966	13.25	24.16	28.41	37.28	7.9
12/3/1968	5/26/1970	18.46	26.58	43.70	49.04	17.8
4/28/1971	11/23/1971	17.77	23.57	27.27	33.89	6.9
1/11/1973	12/6/1974	30.26	45.48	36.08	39.47	20.8
9/21/1976	2/28/1978	13.24	21.75	13.03	16.36	17.3
9/8/1978	4/21/1980	24.36	35.47	36.49	41.09	18.7
4/27/1981	8/12/1982	38.15	47.94	66.41	66.04	15.6
11/29/1983	7/24/1984	14.42	22.28	27.43	35.32	7.9
8/25/1987	10/19/1987	11.87	16.72	22.52	27.53	1.8
7/16/1990	10/11/1990	7.69	30.08	30.89	33.52	2.9
7/17/1998	8/31/1998	22.02	30.04	36.58	39.77	1.5
1/14/2000	9/21/2001	18.98	20.28	3.52	-11.13	20.3
3/19/2002	10/9/2002	19.94	12.50	30.74	36.07	6.7
10/9/2007	3/9/2009	40.45	55.06	65.40	72.95	17.0
4/29/2011	10/3/2011	16.78	29.88	26.90	34.70	5.2
5/19/2015	2/11/2016	13.47	20.78	20.24	29.29	8.8
2/12/2020	3/23/2020	40.69	46.11	67.27	77.89	1.3
Events Mean:	22.60	32.35	34.65	45.22	10.6	

NASDAQ Composite Index (Price-Only)						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
4/28/1971	11/23/1971	23.23	32.31	30.69	32.61	6.9
1/11/1973	12/6/1974	27.18	45.63	33.62	28.36	20.8
9/21/1976	2/28/1978	18.50	33.05	13.03	20.78	13.5
9/8/1978	4/21/1980	28.10	47.63	48.85	62.86	18.7
4/27/1981	8/12/1982	45.53	60.56	89.03	87.42	15.6
11/29/1983	7/24/1984	11.12	20.65	25.40	34.55	7.9
8/25/1987	10/19/1987	-5.51	4.62	8.63	7.09	1.8
7/16/1990	10/11/1990	11.11	53.35	49.99	59.41	2.9
7/17/1998	8/31/1998	30.03	53.09	60.88	82.71	1.5
1/14/2000	9/21/2001	36.72	31.31	1.25	-14.20	20.3
3/19/2002	10/9/2002	29.11	21.78	56.85	71.61	6.7
10/9/2007	3/9/2009	46.62	62.41	72.13	84.50	17.0
4/29/2011	10/3/2011	13.40	33.30	27.41	34.22	5.2
5/19/2015	2/11/2016	11.57	22.54	22.74	34.39	8.8
2/12/2020	3/23/2020	47.67	54.98	86.15	92.80	1.3
Events Mean:	24.96	38.48	41.78	47.94	9.9	

MSCI EAFE Index:						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
4/28/1971	11/23/1971	19.06	34.20	42.19	40.57	6.1
1/11/1973	12/6/1974	32.12	35.92	25.12	32.87	20.7
9/21/1976	2/28/1978	8.78	26.21	24.79	31.20	1.3
9/8/1978	4/21/1980	21.89	29.89	33.31	34.44	18.8
4/27/1981	8/12/1982	-0.14	15.51	30.43	33.14	15.1
11/29/1983	7/24/1984	0.73	5.83	16.01	23.74	7.0
8/25/1987	10/19/1987	-10.53	3.18	-1.28	-0.59	1.2
7/16/1990	10/11/1990	10.63	18.96	12.56	22.31	2.5
7/17/1998	8/31/1998	12.61	14.00	17.29	26.03	1.5
1/14/2000	9/21/2001	13.50	17.57	10.70	-5.92	20.3
3/19/2002	10/9/2002	13.02	7.14	25.65	40.00	6.7
10/9/2007	3/9/2009	47.61	72.57	76.50	76.57	17.0
4/29/2011	10/3/2011	8.26	17.77	10.96	17.43	4.8
5/19/2015	2/11/2016	12.39	17.09	13.10	20.41	8.8
2/12/2020	3/23/2020	36.81	39.23	59.37	67.84	1.3
Events Mean:	15.12	23.67	26.45	30.67	8.9	

INDEX RETURNS FOLLOWING BEAR MARKET END DATES

MSCI Emerging Markets Index:						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
7/16/1990	10/11/1990	-3.05	25.24	31.61	35.93	2.5
7/17/1998	8/31/1998	27.32	24.65	57.61	72.28	1.5
1/14/2000	9/21/2001	24.73	43.71	34.05	17.04	20.3
3/19/2002	10/9/2002	16.52	10.79	37.85	60.11	6.7
10/9/2007	3/9/2009	60.40	84.53	102.58	108.25	12.7
4/29/2011	10/3/2011	10.68	24.81	14.66	21.18	5.0
5/19/2015	2/11/2016	13.89	29.64	21.81	34.04	8.2
2/12/2020	3/23/2020	34.86	44.61	69.26	78.92	1.3
Events Mean:	23.17	36.00	46.18	53.47	7.3	

S&P GSCI Index						
Start Date	End Date	+3 Mos.	+6 Mos.	+9 Mos.	+12 Mos.	Index Bottom (Mos. from Start Date)
4/28/1971	11/23/1971	6.54	12.79	20.30	31.81	4.7
1/11/1973	12/6/1974	-27.11	-27.07	-10.96	-18.92	16.5
9/21/1976	2/28/1978	21.29	16.04	27.00	42.45	10.8
9/8/1978	4/21/1980	13.43	33.11	16.17	9.48	18.8
4/27/1981	8/12/1982	-0.29	1.86	4.56	14.92	7.7
11/29/1983	7/24/1984	1.89	0.84	2.75	-3.68	7.9
8/25/1987	10/19/1987	1.41	5.78	7.81	10.64	1.8
7/16/1990	10/11/1990	-15.02	-16.23	-16.70	-10.27	1.5
7/17/1998	8/31/1998	-7.73	-12.89	-1.43	17.99	1.5
1/14/2000	9/21/2001	-16.81	-5.19	-7.23	5.39	20.3
3/19/2002	10/9/2002	8.76	6.91	16.27	20.94	0.8
10/9/2007	3/9/2009	28.72	22.25	23.70	30.54	16.4
4/29/2011	10/3/2011	13.65	17.92	5.17	10.90	5.2
5/19/2015	2/11/2016	24.13	17.78	14.84	29.79	8.1
2/12/2020	3/23/2020	8.49	11.23	26.70	43.74	1.2
Events Mean:	4.09	5.68	8.60	15.71	8.2	

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HISTORICAL S&P 500 INDEX PERFORMANCE

Total Return Excluding Best and Worst Days	Days Excluded				
	10	20	30	40	50
Full History (1/04/1928 - 1/03/2023)					
Best Days	8.53	7.61	6.82	6.10	5.46
Worst Days	11.13	12.11	12.95	13.72	14.43
Best & Worst Days	9.88	9.91	9.93	9.93	9.94

Buy/Hold Gain/Annum = 9.76%

Largest Rally in the S&P 500 During Each Bear Market

Bear Market	Largest Rally	S&P 500 % Gain	# Days
09/03/1929 - 11/13/1929	10/29/1929 - 10/31/1929	18.2	2
04/17/1930 - 07/08/1932	10/05/1931 - 11/09/1931	30.6	35
09/07/1932 - 02/27/1933	10/10/1932 - 11/11/1932	19.6	32
02/05/1934 - 07/26/1934	06/02/1934 - 06/16/1934	10.9	14
03/10/1937 - 03/31/1938	11/24/1937 - 01/11/1938	17.5	48
11/12/1938 - 04/08/1939	01/26/1939 - 03/10/1939	13.6	43
09/12/1939 - 04/28/1942	06/10/1940 - 11/09/1940	26.8	152
05/29/1946 - 05/17/1947	10/09/1946 - 02/08/1947	14.7	122
06/15/1948 - 06/13/1949	09/27/1948 - 11/01/1948	9.9	35
01/05/1953 - 09/14/1953	06/10/1953 - 08/03/1953	5.5	54
04/06/1956 - 10/22/1957	02/12/1957 - 07/15/1957	15.9	153
01/05/1960 - 10/25/1960	03/08/1960 - 08/24/1960	8.6	169
12/13/1961 - 06/26/1962	05/28/1962 - 05/31/1962	7.4	3
02/09/1966 - 10/07/1966	08/29/1966 - 09/15/1966	7.4	17
12/03/1968 - 05/26/1970	07/29/1969 - 11/10/1969	9.9	104
04/28/1971 - 11/23/1971	08/09/1971 - 09/08/1971	8.4	30
01/11/1973 - 12/06/1974	10/03/1974 - 11/07/1974	20.8	35
09/21/1976 - 02/28/1978	11/10/1976 - 12/31/1976	8.8	51
09/08/1978 - 04/21/1980	11/14/1978 - 02/13/1980*	28.1	456
04/27/1981 - 08/12/1982	09/25/1981 - 11/30/1981	12.0	66
11/29/1983 - 07/24/1984	02/23/1984 - 05/02/1984	4.9	69
08/25/1987 - 10/19/1987	09/21/1987 - 10/02/1987	5.6	11
07/16/1990 - 10/11/1990	08/23/1990 - 09/05/1990	5.6	13
07/17/1998 - 08/31/1998	08/14/1998 - 08/18/1998	3.6	4
01/14/2000 - 09/21/2001	04/04/2001 - 05/21/2001	19.0	47
03/19/2002 - 10/09/2002	07/23/2002 - 08/22/2002	20.7	30
10/09/2007 - 03/09/2009	11/20/2008 - 01/06/2009	24.2	47
04/29/2011 - 10/03/2011	08/08/2011 - 08/31/2011	8.9	23
05/19/2015 - 02/11/2016	08/25/2015 - 11/03/2015	13.0	70
02/12/2020 - 03/23/2020	03/12/2020 - 03/13/2020	9.3	1
01/04/2022 - 01/03/2023	06/16/2022 - 08/16/2022	17.4*	61*
	Median =	11.5	39

* Although the rally of 11/14/1978 - 2/13/1980 met the NDR bull market criteria, it is classified as a rally, since the 9/08/1978 high was never exceeded before the bear market criteria was achieved.

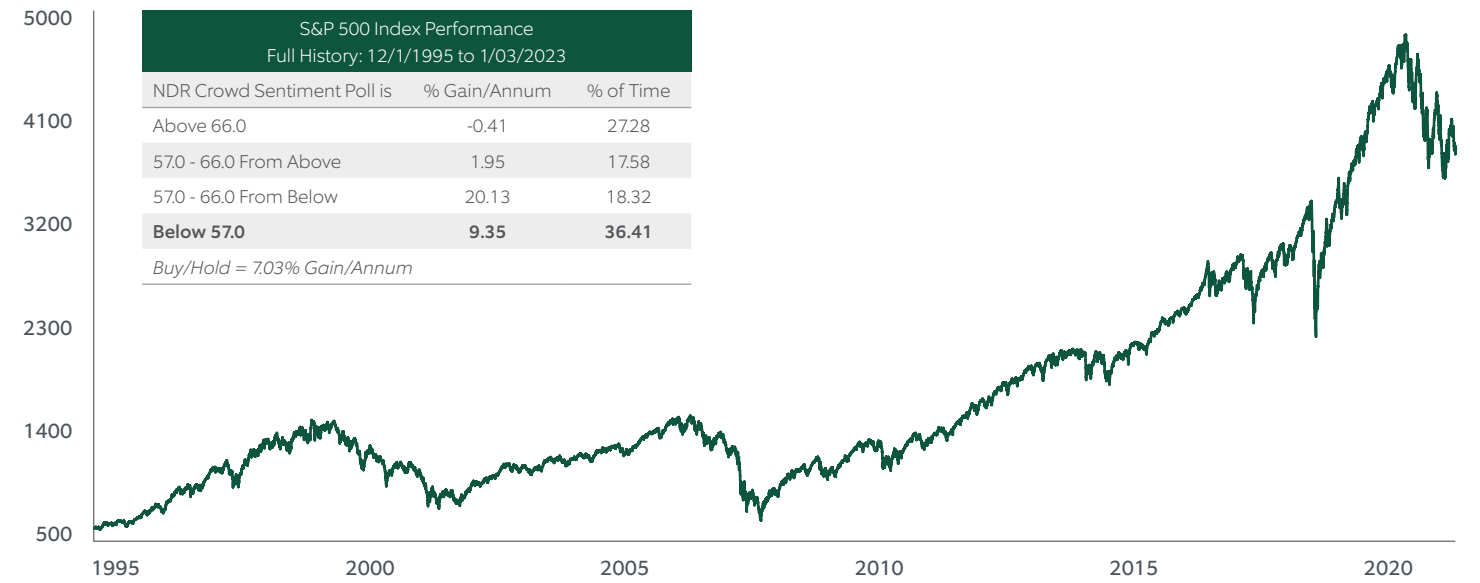
Study uses NDR-defined bear markets. (The table uses corresponding high and low dates and values for the S&P 500) The current data, shown with *, represents an incomplete bear market and is excluded from the summary statistics. Days = Calendar Days

Source: Ned Davis Research, Inc. Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

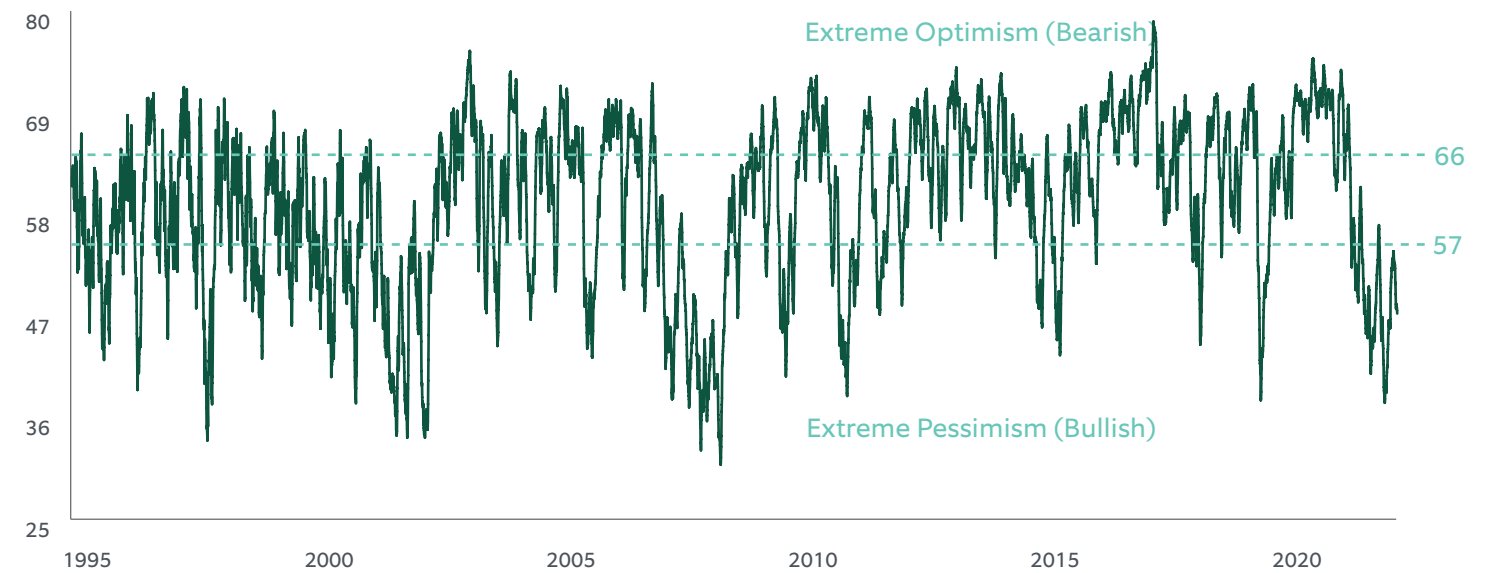
MARKET SENTIMENT AND S&P 500 HISTORICAL PERFORMANCE

Data from 12/1/1995 to 1/3/2023

S&P 500 INDEX (\$)



NDR CROWD SENTIMENT POLL - TRANSITIONAL MODE BASIS



Source: Ned Davis Research. As of 1/3/2023. Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

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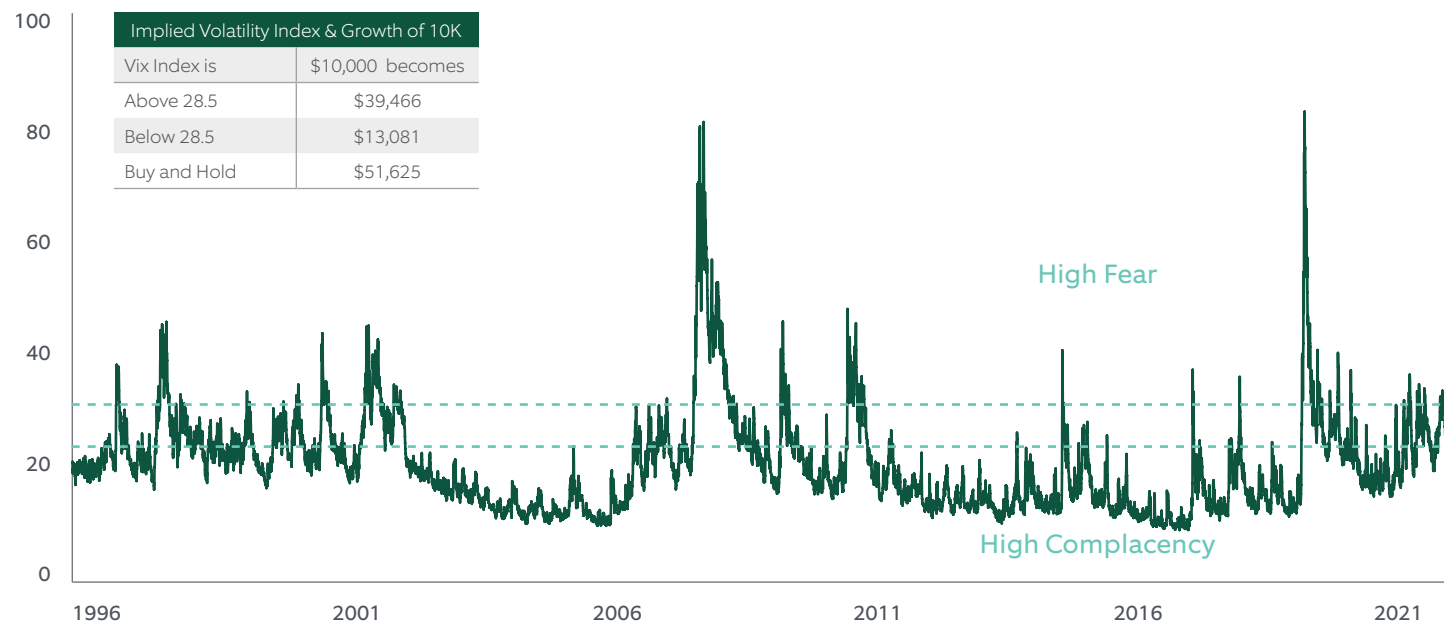
S&P 500 INDEX VS. VIX INDEX

Data from 12/31/1996 to 1/3/2023

S&P 500 INDEX(\$)



VIX INDEX



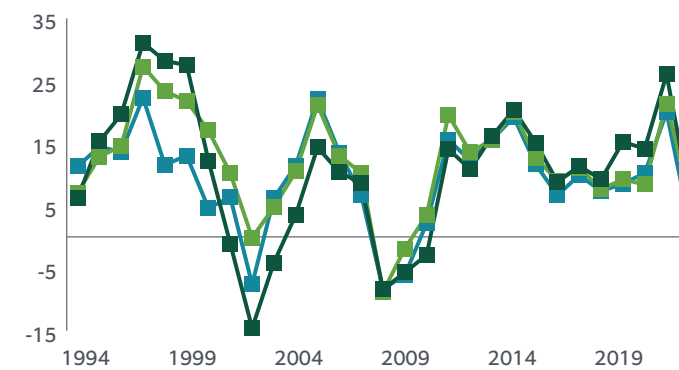
Source: Ned Davis Research. As of 1/3/2023. Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.
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Consistency is Built Over Time

For the long-term investor, the best strategy to be successful may be staying fully invested. The charts below show the 3-, 5-, 10- and 15-year rolling periods of the S&P 500® (Large-Cap), Russell 2000® (Small-Cap) and S&P MidCap 400® (Mid-Cap) Indices from January 1, 1992 to December 31, 2022. The evidence shows that the longer one remains invested, the greater the chance of generating positive returns.

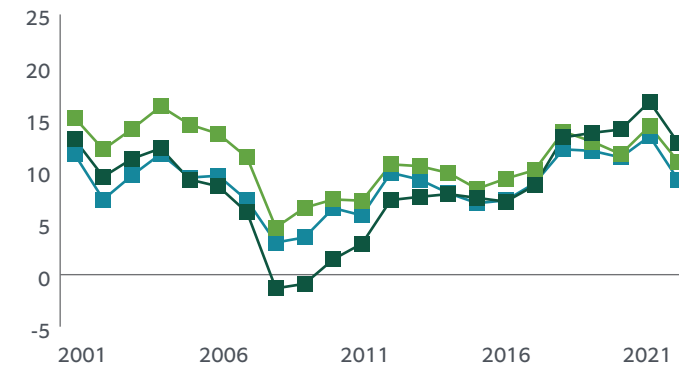
3 Year Rolling Periods	Large-Cap	Mid-Cap	Small-Cap
# of Negative Periods	6	3	3
Highest Return (%)	31.15 (1997)	27.34 (1997)	22.34 (1997)
Lowest Return (%)	-14.55 (2002)	-8.76 (2008)	-8.29 (2008)

3 YEAR ROLLING PERIOD ANNUALIZED RETURNS (%)



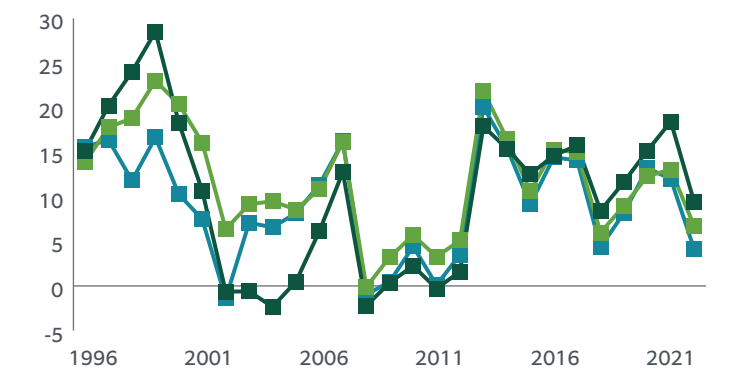
10 Year Rolling Periods	Large-Cap	Mid-Cap	Small-Cap
# of Negative Periods	2	0	0
Highest Return (%)	16.55 (2021)	16.10 (2004)	13.23 (2021)
Lowest Return (%)	-1.38 (2008)	4.46 (2008)	3.02 (2008)

10 YEAR ROLLING PERIOD ANNUALIZED RETURNS (%)



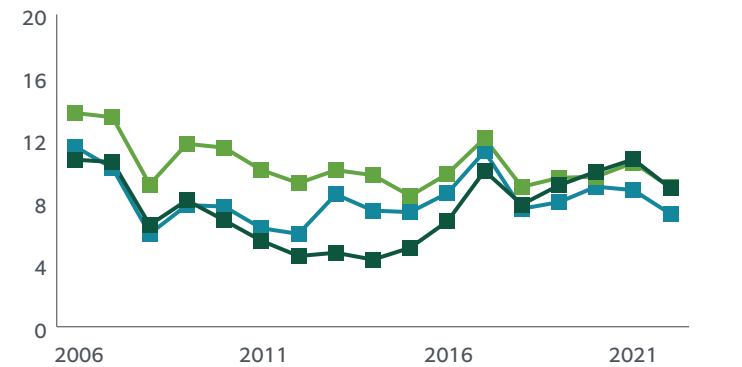
5 Year Rolling Periods	Large-Cap	Mid-Cap	Small-Cap
# of Negative Periods	5	1	2
Highest Return (%)	28.56 (1999)	23.06 (1999)	20.08 (2013)
Lowest Return (%)	-2.30 (2004)	-0.08 (2008)	-1.36 (2002)

5 YEAR ROLLING PERIOD ANNUALIZED RETURNS (%)



15 Year Rolling Periods	Large-Cap	Mid-Cap	Small-Cap
# of Negative Periods	0	0	0
Highest Return (%)	10.66 (2021)	13.63 (2006)	11.47 (2006)
Lowest Return (%)	4.24 (2014)	8.32 (2015)	5.89 (2012)

15 YEAR ROLLING PERIOD ANNUALIZED RETURNS (%)



Source: Morningstar Direct. Data from 1/1/1992 - 12/31/2022.
 S&P 500® Index is an unmanaged index consisting of 500 stocks and is a widely recognized common measure of the performance of the overall U.S. stock market. S&P MidCap 400® Index is an unmanaged index consisting of 400 mid-cap stocks. The S&P MidCap 400 Index covers over 7% of the U.S. equities market. Russell 2000® Index is an unmanaged index which measures the performance of the 2,000 smallest of the 3,000 largest U.S. companies, based on market capitalization.
 Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index. Investors should note, these charts are for illustrative purposes and do not represent the performance of any Northern Trust product.

The Results of Investor Behavior

It is well known that mutual funds are long-term investment vehicles. While most investors' expectations are based on this philosophy, their actual behavior contradicts it.

The findings:

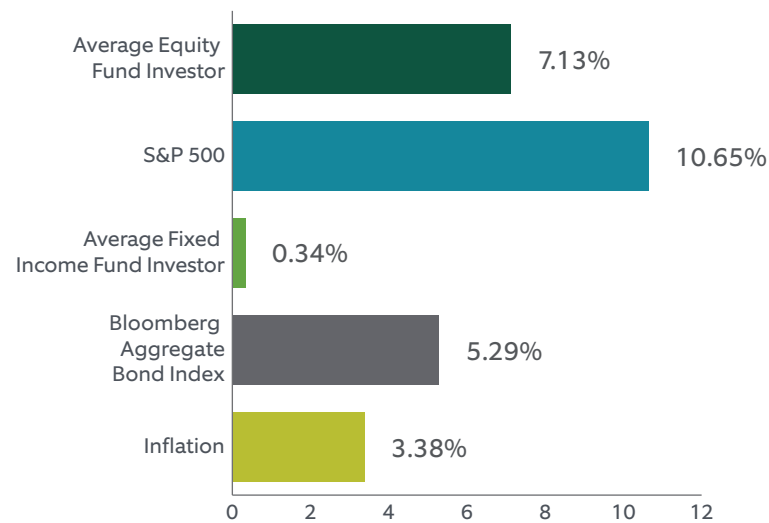
Among the many findings of a recent DALBAR survey:¹

- Investment return is far more dependent on INVESTMENT BEHAVIOR than on fund performance.
- Mutual fund investors who simply remained invested were more successful than those who did not.
- The average investor's return was significantly lower than the S&P 500® Index.
- Equity investors outpaced inflation.
- The average equity investor remains invested for 4.4 years; the average fixed income investor, 3.4.¹

Past performance does not guarantee future results. The performance data quoted represents past performance, does not represent the performance of any Northern Trust product and would differ during alternate time periods.

INVESTORS' AVERAGE ANNUALIZED RETURN (%)

12/31/1991 - 12/31/2021 Trailing 30-year Period



Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

¹ Returns for Average Equity Fund Investors and Average Fixed Income Fund Investors, as well as for Inflation and the S&P 500® Index, were taken from Quantitative Analysis of Investor Behavior (QAIB) 2022, which was published by DALBAR, Inc., an independent research firm. 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. Annualized return is determined by calculating the investor return dollars as a percentage of the net of the sales, redemptions, and exchanges for the period. The Average (equity or fixed income) Investor refers to the universe of all (equity or fixed income) mutual fund investors whose actions and financial results are restated to represent a single investor. Average (equity or fixed) Investor returns are represented by a change in assets, excludes sales charges, 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.

S&P 500® Index is an unmanaged index consisting of 500 stocks and is a widely recognized common measure of the performance of the overall U.S. stock market. It is not possible to invest directly in an index.

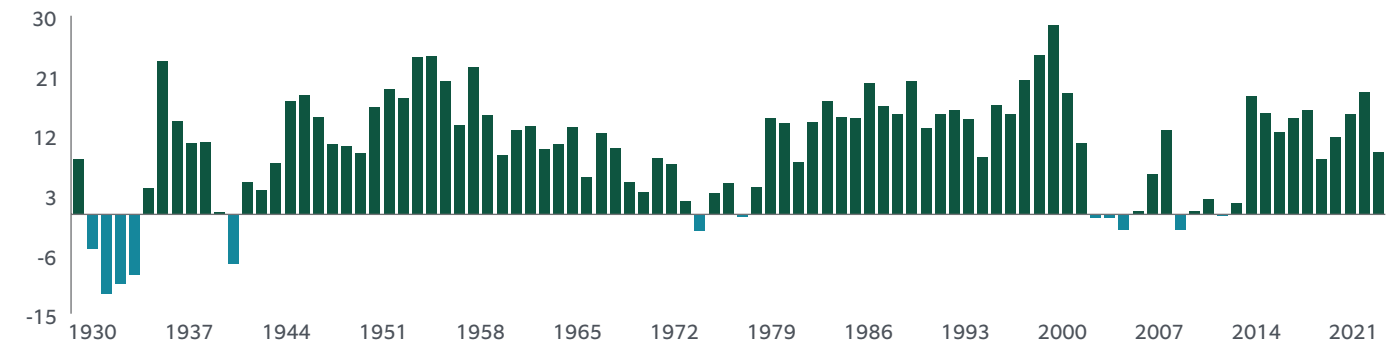
Bloomberg U.S. Aggregate Bond Index is an unmanaged index of prices of U.S. dollar denominated, fixed-rate, taxable, investment-grade fixed-income securities with remaining maturities of one year and longer. The Index includes Treasury, government, corporate, mortgage backed, commercial mortgage-backed and asset-backed securities.

Inflation: The monthly value of the consumer price index is converted to a monthly rate. The monthly rates are used to compound a "return" for the period under consideration. This result is then annualized to produce the inflation rate for the period.

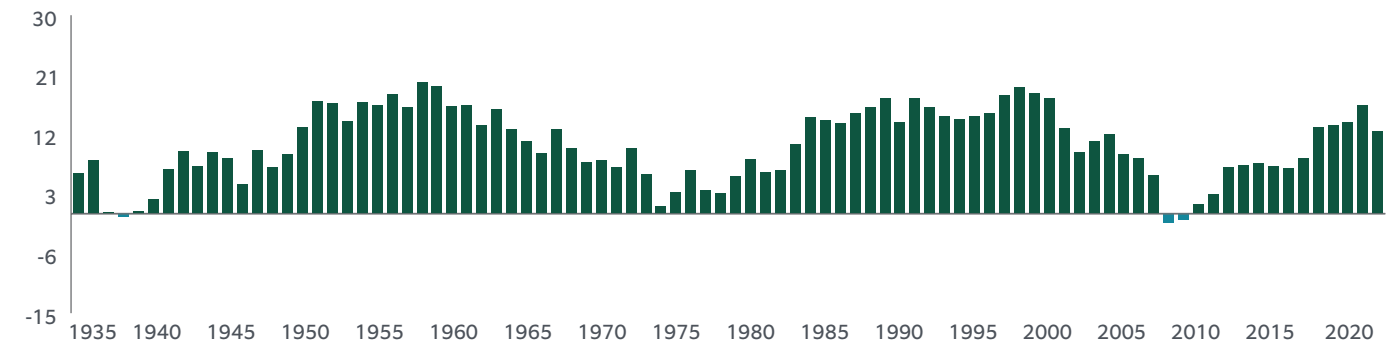
Time in the Market Remains Better Than Timing the Market

When the market experiences down years such as 2000, 2001, 2002, 2008 and 2022, it is important to focus on the bigger picture, especially for long-term investors. The charts below show the 5-, 10- and 15-year rolling periods of the S&P 500® Index from January 1, 1926 through December 31, 2022.

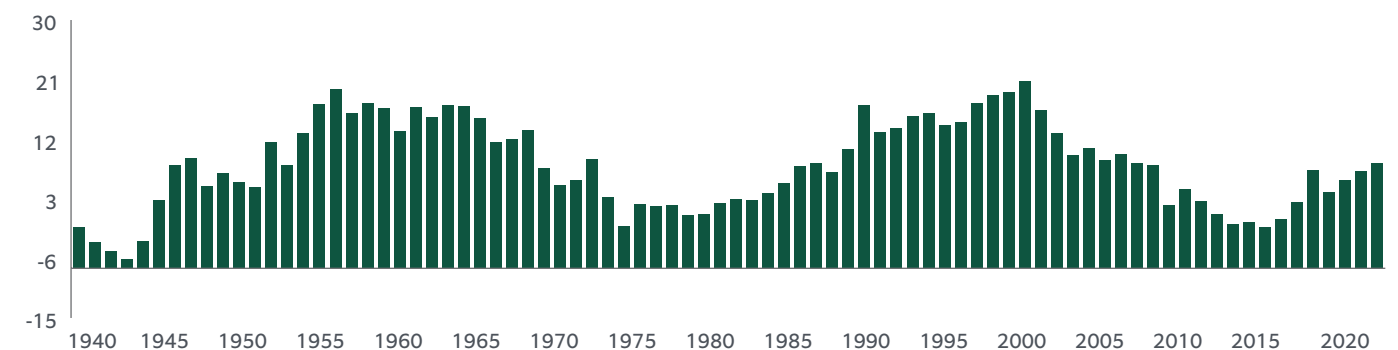
S&P 500®* 5-YEAR ROLLING PERIODS (NUMBER OF NEGATIVE PERIODS: 12)



S&P 500®* 10-YEAR ROLLING PERIODS (NUMBER OF NEGATIVE PERIODS: 3)



S&P 500®* 15-YEAR ROLLING PERIODS (NUMBER OF NEGATIVE PERIODS: 0)



Source: Ned Davis Research, 12/31/2022. Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

*The S&P 500® Index is a widely recognized, unmanaged index that measures the performance of the large-cap sector of the U.S. stock market.

Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index. Investors should note, these charts are for illustrative purposes and do not represent the performance of any Northern Trust product.

The Potential Cost of Timing the Market

These tables demonstrate how investments into large-, mid- and small-cap stocks were affected simply by missing the best one, three and six months of performance in the ten-year period from 1/1/13 to 12/31/22:

LARGE-CAP STOCKS AS REPRESENTED BY THE S&P 500® INDEX¹



Fully invested \$32,654
- Missed 6 best months \$18,866

= Hypothetical loss of not being fully invested*: \$13,788

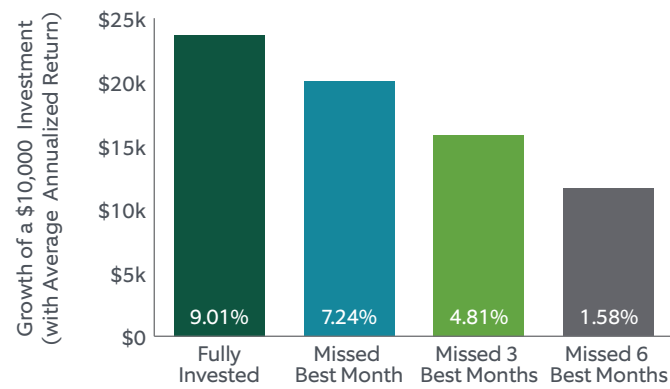
MID-CAP STOCKS AS REPRESENTED BY THE S&P MID-CAP 400® INDEX²



Fully invested \$27,833
- Missed 6 best months \$14,526

= Hypothetical loss of not being fully invested*: \$13,308

SMALL-CAP STOCKS AS REPRESENTED BY THE RUSSELL 2000® INDEX³



Fully invested \$23,696
- Missed 6 best months \$11,604

= Hypothetical loss of not being fully invested*: \$12,092

Source: Morningstar Direct. Data from 1/1/2013 - 12/31/2022.

Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index. Smaller and medium-sized company stocks are more volatile and less liquid than larger more established company securities.

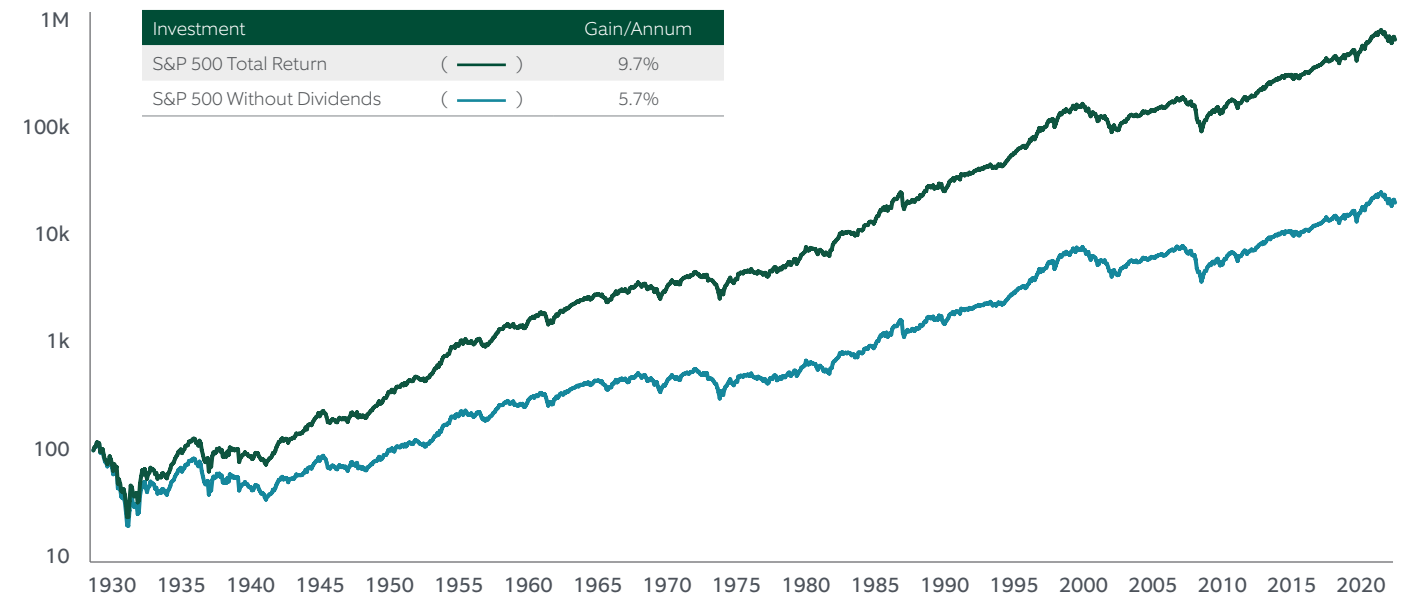
¹ The S&P 500® Index is a widely recognized, unmanaged index that measures the performance of the large-cap sector of the U.S. stock market.

² The S&P MidCap 400® Index is a capitalization-weighted index that measures the performance of the mid-range sector of the U.S. stock market.

³ The Russell 2000® Index is an unmanaged index that measures the performance of the bottom 2,000 companies (based on market capitalization) in the Russell 3000® Index, an index representing approximately 98% of the U.S. equity market.

*These illustrations assume a hypothetical investment of \$10,000 over a ten-year period. Results will differ during alternative time periods and do not indicate the performance of any Northern Trust products. The hypothetical loss of not being fully invested does not include the best six individual performance months during the ten-year period. Smaller and medium-sized company stocks are more volatile and less liquid than larger more established company securities.

S&P 500® GROWTH OF 100 WITH AND WITHOUT DIVIDENDS



Full Date Range	With Dividends	Annualized Return (%)	Without Dividends	Annualized Return (%)	% From Dividends
12/31/1929 - 12/31/2022	\$542,761	9.7%	\$17,900	5.7%	96.7%
Periods Through Current					
12/31/1939 - 2/28/2022	\$525,063	10.9	\$30,741	7.1	94.1
12/31/1949 - 2/28/2022	\$223,040	11.1	\$22,909	7.7	89.7
12/31/1959 - 2/28/2022	\$38,476	9.9	\$6,411	6.8	83.3
12/31/1969 - 2/28/2022	\$18,281	10.3	\$4,171	7.3	77.2
12/31/1979 - 2/28/2022	\$10,476	11.4	\$3,557	8.7	66.0
12/31/1989 - 2/28/2022	\$2,112	9.7	\$1,086	7.5	48.6
12/31/1999 - 2/28/2022	\$399	6.2	\$261	4.3	34.5
12/31/2009 - 2/28/2022	\$440	12.1	\$344	10.0	21.7
12/31/2019 - 12/31/2022	\$125	7.6	\$119	5.9	4.7
By Decade					
12/31/1929 - 12/31/1939	\$103	0.3	\$58	-5.3	43.7
12/31/1939 - 12/31/1949	\$235	8.9	\$134	3.0	43.0
12/31/1949 - 12/31/1959	\$580	19.2	\$357	13.6	38.4
12/31/1959 - 12/31/1969	\$210	7.7	\$154	4.4	27.0
12/31/1969 - 12/31/1979	\$175	5.7	\$117	1.6	32.8
12/31/1979 - 12/31/1989	\$496	17.4	\$327	12.6	34.0
12/31/1989 - 12/31/1999	\$529	18.1	\$416	15.3	21.5
12/31/1999 - 12/31/2009	\$91	-1.0	\$76	-2.7	16.4
12/31/2009 - 12/31/2019	\$353	13.4	\$290	11.2	17.8

GPA = Compound annualized rate of return (Gain Per Annum)

% From Divs = (Ending \$ Value with Divs - \$ Value w/o Divs) / \$ Value with Divs

Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

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THE IMPORTANCE OF DIVERSIFICATION

% Annual Return for Various Asset Classes 1/1/2013 - 12/31/2022, Ranked in Order of Performance (Best to Worst)

2013	2014	2015	2016	2017	2018
U.S. Equities 32.6	Global RE 15.1	Municipals 3.3	Natural Res. 32.3	EM Equities 37.8	Cash 1.8
Dev. ex-U.S. 21.6	U.S. Equities 13.4	U.S. Equities 1.3	High Yield 17.1	Dev. ex-U.S. 24.8	Municipals 1.3
Infrastructure 15.0	Infrastructure 13.0	Global RE 1.1	Infrastructure 12.4	Natural Res. 22.7	Inv. Grade 0.0
60/40 12.7	Municipals 9.1	Inv. Grade 0.5	U.S. Equities 11.6	U.S. Equities 21.9	Global Fixed -1.2
High Yield 7.4	Inv. Grade 6.0	Cash 0.0	EM Equities 11.6	Infrastructure 20.1	TIPS -1.3
Global RE 3.4	60/40 5.3	60/40 -0.7	EM Fixed 9.9	60/40 15.8	High Yield -2.1
Natural Res. 1.5	TIPS 3.6	TIPS -1.4	Gold 8.6	Global RE 15.5	Gold -2.1
Cash 0.0	High Yield 2.5	Dev. ex-U.S. -2.6	60/40 6.3	EM Fixed 15.2	U.S. Equities -4.5
Inv. Grade -2.0	Global Fixed 0.6	Global Fixed -3.2	Global RE 4.9	Gold 13.7	60/40 -5.2
EM Equities -2.3	Cash 0.0	High Yield -4.4	TIPS 4.7	High Yield 7.5	EM Fixed -6.2
Municipals -2.6	Gold -1.5	Gold -10.5	Dev. ex-U.S. 3.3	Global Fixed 7.4	Global RE -6.3
Global Fixed -2.6	EM Equities -1.8	Infrastructure -11.5	Inv. Grade 2.6	Municipals 5.4	Infrastructure -9.5
TIPS -8.6	Dev. ex-U.S. -3.9	EM Equities -14.6	Global Fixed 2.1	Inv. Grade 3.5	Natural Res. -12.6
EM Fixed -9.0	EM Fixed -5.7	EM Fixed -14.9	Cash 0.3	TIPS 3.0	Dev. ex-U.S. -13.6
Gold -28.3	Natural Res. -9.7	Natural Res. -24.0	Municipals 0.2	Cash 0.8	EM Equities -14.2

THE IMPORTANCE OF DIVERSIFICATION

% Annual Return for Various Asset Classes 1/1/2013 - 12/31/2022, Ranked in Order of Performance (Best to Worst)

2019	2020	2021	2022	10YR CAGR
U.S. Equities 31.6	Gold 24.4	U.S. Equities 27.0	Natural Res. 10.3	U.S. Equities 12.4
Infrastructure 27.0	U.S. Equities 21.4	Natural Res. 25.2	Cash 1.5	Infrastructure 6.5
Global RE 23.8	EM Equities 18.7	Global RE 23.3	Gold -0.1	60/40 5.7
Dev. ex-U.S. 23.2	60/40 13.8	Dev. ex-U.S. 13.2	Infrastructure -0.2	Dev. ex-U.S. 5.1
60/40 19.8	TIPS 11.0	Infrastructure 11.9	Municipals -8.5	Natural Res. 4.9
EM Equities 18.9	Global Fixed 9.2	60/40 10.5	High Yield -11.2	High Yield 4.0
Gold 18.9	Dev. ex-U.S. 8.1	TIPS 6.0	EM Fixed -11.7	Global RE 3.8
Natural Res. 17.2	Inv. Grade 7.5	High Yield 5.3	TIPS -11.8	Municipals 2.1
High Yield 14.3	High Yield 7.0	Municipals 1.5	Inv. Grade -13.0	EM Equities 1.8
EM Fixed 13.5	Municipals 5.2	Cash 0.0	Dev. ex-U.S. -13.8	TIPS 1.1
Inv. Grade 8.7	EM Fixed 2.7	Inv. Grade -1.5	60/40 -15.8	Inv. Grade 1.1
TIPS 8.4	Natural Res. 0.7	EM Equities -2.2	Global Fixed -16.2	Gold 0.9
Municipals 7.5	Cash 0.5	Gold -3.5	U.S. Equities -19.5	Cash 0.7
Global Fixed 6.8	Infrastructure -5.8	Global Fixed -4.7	EM Equities -19.7	Global Fixed -0.4
Cash 2.2	Global RE -8.0	EM Fixed -8.7	Global RE -24.1	EM Fixed -2.0

Source: Northern Trust Investment Strategy, Bloomberg. Gross total returns in USD. Indices shown are preferred Investment Policy Committee proxies; U.S. Equities = MSCI USA Index, Dev. Ex-U.S. = MSCI World ex USA, EM Equities MSCI EM Index, Inv. Grade = Bloomberg US Aggregate Index, Global Fixed = Bloomberg Global Aggregate Index, High Yield = Bloomberg US High Yield 2% Issuer Cap Index, EM Fixed = J.P. Morgan GBI-EM Global Diversified Composite Unhedged Index, Municipals = Bloomberg Municipal Bond Index, TIPS = Bloomberg US TIPS Index, Cash = Bloomberg 1-3 Months U.S. Treasury Bills Index, Global RE = MSCI ACWI IMI Core Real Estate Index, Natural Res. = S&P Global Natural Resources Index, Infrastructure = S&P Global Infrastructure Index, Gold = Gold Spot Index, 60/40 = 60% MSCI ACWI & 40% Bloomberg US Agg Bond Index; risk-control assets in shades of green; CAGR = Compound Annual Growth Rate (trailing 10 years through 12/31/2022). Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.



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ASSET MANAGEMENT

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