



Market Update

1Q 2023 Update

As of January 1, 2023

www.arrowrootfamilyoffice.com

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Market History

Performance, Major Events, Drawdowns

Historical Asset Class Returns

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Market Category	4Q 2022	6 Months	1 Year	3 Year	5 Year	10 Year
U.S. Large Cap Stocks	7.6%	2.3%	-18.2%	7.6%	9.3%	12.5%
U.S. Large Cap Growth Stocks	2.1%	-1.5%	-29.3%	7.6%	10.7%	13.9%
U.S. Large Cap Value Stocks	12.2%	5.9%	-7.8%	5.8%	6.5%	10.1%
U.S. Small Cap Stocks	6.2%	4.0%	-20.5%	3.0%	4.0%	9.0%
Global Stocks	9.9%	2.0%	-18.3%	4.1%	5.3%	8.1%
Developed Market Stocks	17.7%	5.5%	-14.3%	0.9%	1.6%	4.4%
Emerging Market Stocks	10.3%	-4.0%	-20.5%	-3.6%	-2.1%	0.6%
U.S. Taxable Bonds	1.8%	-3.2%	-12.9%	-2.8%	-0.1%	1.0%
U.S. Municipal Bonds	3.7%	0.5%	-7.3%	-0.5%	1.2%	1.9%
U.S. High Yield Bonds	5.0%	3.2%	-10.9%	-1.2%	1.5%	2.9%
REITs	4.3%	-7.2%	-26.1%	-0.4%	3.7%	6.4%
Commodities	3.7%	-6.9%	19.3%	15.9%	9.0%	-0.8%

Disclosures: All performance data represents total returns. Performance longer than 1 year are annualized. Past performance is no guarantee of future results. Asset classes are represented by the following ETFs: U.S. Large Cap (SPY - SPDR S&P 500 ETF), U.S. Large Cap Growth (IWD - Russell 1000 Growth ETF), U.S. Large Cap Value (IWF - Russell 1000 Value ETF), U.S. Small Cap (IWM - iShares Russell 2000 ETF), Global Stocks (ACWI - iShares MSCI ACWI ETF), DM Stocks (EFA - iShares MSCI EAFE ETF), EM Stocks (EEM - iShares MSCI Emerging ETF), U.S. Taxable Bonds (AGG - iShares Core U.S. Aggregate Bond ETF), U.S. Municipal Bonds (MUB - iShares National Muni Bond ETF), U.S. High Yield Bonds (HYG - iShares iBoxx \$ High Yield Corporate ETF), Commodities (DBC - Invesco DB Commodity ETF), and REITs (VNQ - Vanguard Real Estate ETF).

Annual Asset Class Performance

U.S. Large Caps (LG)	Emerging Market Equity (EM)	High Yield (HY)	Cash (CS)	Commodities (CM)
U.S. Small Caps (SM)	Developed Market Equity (DM)	Bonds (AGG)	REITs (RE)	60/35/5 Allocation (AA)

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	69% EM							21% SM	37% EM		31% LG			
	28% SM	28% RE		19% EM				19% CM	25% DM		29% RE			
	28% RE	27% SM		18% DM				13% HY	22% LG		25% SM	20% SM		
	27% HY	16% EM		17% RE				12% LG	14% SM		22% DM	18% LG	41% CM	
	26% DM	15% LG		17% SM	38% SM	30% RE		11% EM	14% AA		19% AA	17% EM	40% RE	
	26% LG	13% AA		16% LG	32% LG	13% LG		8% RE	6% HY		18% EM	10% AA	29% LG	
	21% AA	12% CM	8% RE	12% AA	21% DM	6% AGG		8% AA	5% CM		14% HY	7% AGG	15% SM	
	16% CM	11% HY	8% AGG	11% HY	14% AA	5% SM	2% RE	2% AGG	5% RE		12% CM	7% DM	14% AA	
8% AGG	3% AGG	8% DM	6% HY	4% AGG	6% HY	4% AA	1% LG	1% DM	4% AGG	2% CS	8% AGG	4% HY	11% DM	19% CM
2% CS	0% CS	6% AGG	2% LG	4% CM	2% RE	2% HY	0% AGG	0% CS	1% CS	0% AGG	2% CS	0% CS	4% HY	1% CS
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 YTD

-17% HY	0% CS	0% CS	0% CS	0% CS	0% CS	0% CS					-2% HY		-5% RE	0% CS	-11% HY
-23% AA		0% AA		-2% AGG	-4% EM	-1% DM					-4% LG		-8% CM	-2% AGG	-13% AGG
-32% CM		-3% CM		-4% EM	-6% DM	-2% AA					-6% AA			-4% EM	-14% AA
-34% SM		-4% SM		-8% CM	-28% CM	-4% SM					-6% RE				-14% DM
-36% RE		-12% DM				-5% HY					-11% SM				-18% LG
-36% LG		-19% EM				-16% EM					-12% CM				-20% SM
-40% DM						-28% CM					-14% DM				-20% EM
-48% EM											-15% EM				-26% RE

Disclosures: All performance data represents total returns for the stated period. Past performance is no guarantee of future results. Asset classes are represented by the following ETFs: EM Equity (EEM - iShares MSCI Emerging Markets ETF), Commodities (DBC - Invesco DB Commodity Index Tracking ETF), DM Equity (EFA - iShares MSCI EAFE ETF), REITs (VNQ - Vanguard Real Estate ETF), Large Caps (SPY - SPDR S&P 500 ETF), Small Caps (IWM - iShares Russell 2000 ETF), High Yield (HYG - iShares iBoxx \$ High Yield Corporate Bond ETF), Cash (BIL - SPDR Bloomberg Barclays 1-3 Month T-Bill ETF), Bonds (AGG - iShares Core U.S. Aggregate Bond ETF). The "60/35/5" portfolio is for illustrative purposes only and assumes the following weights: 25% Large Caps, 15% Developed Markets, 10% Small Caps, 5% Emerging Markets, 5% REITs, 25% Bonds, 5% High Yield, 5% Commodities, and 5% Cash.

Quarterly Asset Class Performance

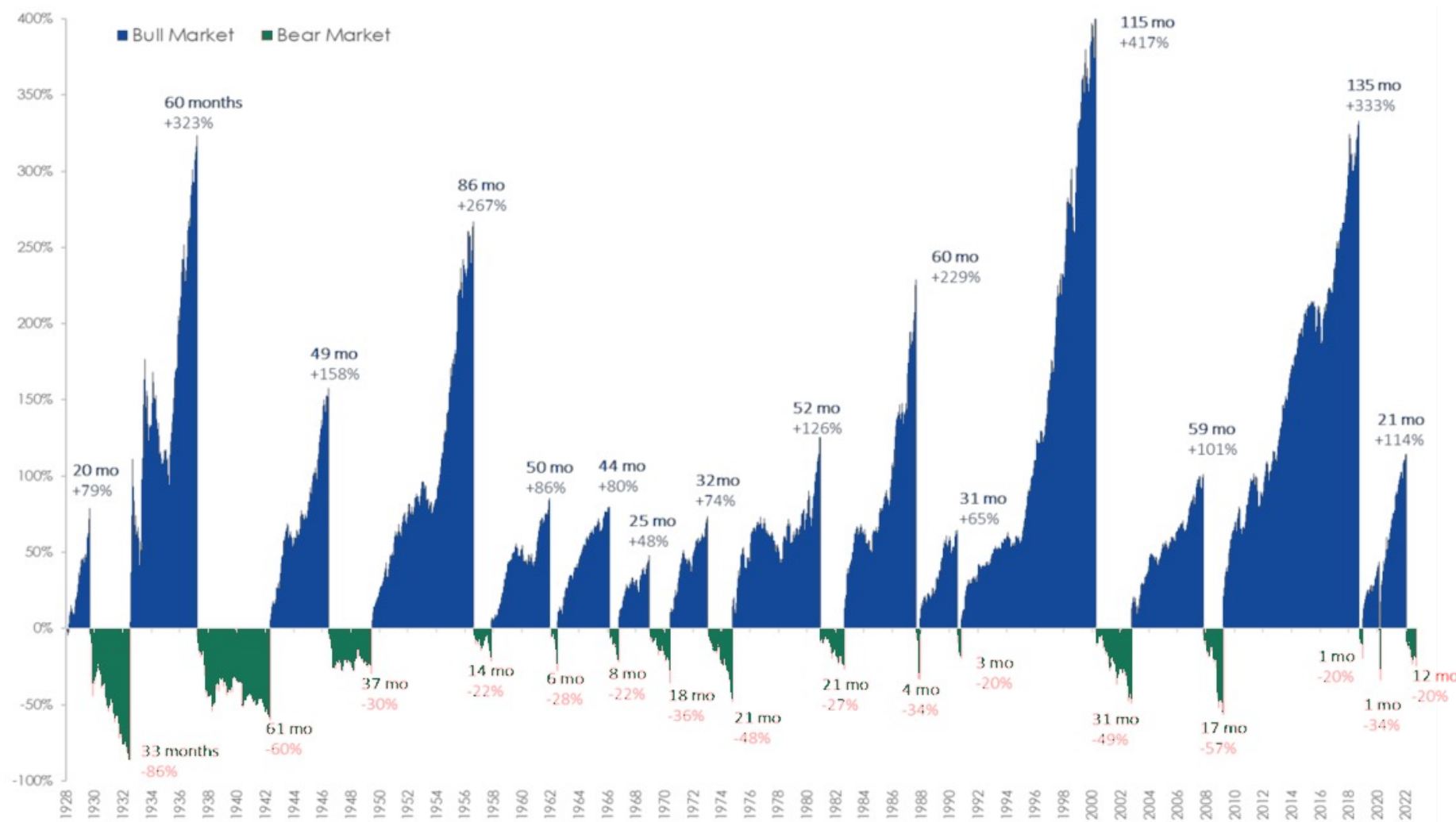
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1Q 2020	2Q 2020	3Q 2020	4Q 2020	1Q 2021	2Q 2021	3Q 2021	4Q 2021	1Q 2022	2Q 2022	3Q 2022	4Q 2022		1 Year
Bonds 3.1%	Small Caps 25.5%	EM Equity 10.3%	Small Caps 31.3%	Comdty 13.0%	Comdty 15.9%	Comdty 4.8%	REITs 15.0%	Comdty 25.4%	Comdty 2.2%	Cash 0.0%	DM Equity 17.7%		Comdty 19.3%
Cash 0.4%	Large Caps 20.2%	Large Caps 9.0%	EM Equity 18.4%	Small Caps 12.9%	REITs 11.6%	REITs 0.6%	Large Caps 11.1%	Cash 0.0%	Cash 0.0%	High Yield -1.7%	EM Equity 10.3%		Cash 1.4%
High Yield -11.5%	EM Equity 17.8%	Comdty 6.1%	DM Equity 15.7%	REITs 8.8%	Large Caps 8.4%	Large Caps 0.6%	60/35/5 4.2%	60/35/5 -4.0%	Bonds -4.6%	Small Caps -2.1%	Large Caps 7.6%		High Yield -10.9%
60/35/5 -15%	DM Equity 15.5%	Small Caps 5.0%	Comdty 12.6%	Large Caps 6.3%	DM Equity 5.4%	High Yield 0.3%	Comdty 3.0%	Large Caps -4.6%	High Yield -9.4%	Bonds -4.7%	60/35/5 6.8%		Bonds -12.9%
Large Caps -19.5%	REITs 13.5%	60/35/5 4.6%	Large Caps 12.1%	DM Equity 4.0%	60/35/5 5.4%	Bonds 0.0%	DM Equity 2.8%	High Yield -4.7%	EM Equity -10.4%	Large Caps -4.9%	Small Caps 6.2%		60/35/5 -13.8%
DM Equity -23.0%	60/35/5 13.1%	DM Equity 4.6%	60/35/5 11.0%	60/35/5 3.9%	Small Caps 4.0%	Cash 0.0%	Small Caps 2.0%	Bonds -5.8%	60/35/5 -10.5%	60/35/5 -5.9%	High Yield 5.0%		DM Equity -14.3%
EM Equity -23.9%	Comdty 9.4%	High Yield 4.0%	REITs 9.3%	EM Equity 3.2%	EM Equity 3.8%	60/35/5 -0.6%	High Yield 0.8%	REITs -6.1%	DM Equity -13.1%	Comdty -10.2%	REITs 4.3%		Large Caps -18.2%
REITs -24.0%	High Yield 7.3%	REITs 1.3%	High Yield 5.7%	High Yield 0.6%	High Yield 2.0%	DM Equity -1.1%	Cash 0.0%	DM Equity -6.5%	REITs -15.4%	DM Equity -10.4%	Comdty 3.7%		Small Caps -20.5%
Comdty -29.5%	Bonds 3.1%	Bonds 0.4%	Bonds 0.7%	Cash 0.0%	Bonds 1.8%	Small Caps -4.3%	Bonds -0.1%	Small Caps -7.5%	Large Caps -16.1%	REITs -11.0%	Bonds 1.6%		EM Equity -20.5%
Small Caps -30.7%	Cash 0.0%	Cash 0.0%	Cash 0.0%	Bonds -3.4%	Cash 0.0%	EM Equity -8.6%	EM Equity -1.6%	EM Equity -7.6%	Small Caps -17.3%	EM Equity -13.0%	Cash 0.8%		REIT's -26.1%

Disclosures: All performance data represents total returns for the stated period. Past performance is no guarantee of future results. Asset classes are represented by the following ETFs: EM Equity (EEM - iShares MSCI Emerging Markets ETF), Commodities (DBC - Invesco DB Commodity Index Tracking ETF), DM Equity (EFA - iShares MSCI EAFE ETF), REITs (VNQ - Vanguard Real Estate ETF), Large Caps (SPY - SPDR S&P 500 ETF), Small Caps (IWM - iShares Russell 2000 ETF), High Yield (HYG - iShares iBoxx \$ High Yield Corporate Bond ETF), Cash (BIL - SPDR Bloomberg Barclays 1-3 Month T-Bill ETF), Bonds (AGG - iShares Core U.S. Aggregate Bond ETF). The "60/35/5" portfolio is for illustrative purposes only and assumes the following weights: 25% Large Caps, 15% Developed Markets, 10% Small Caps, 5% Emerging Markets, 5% REITs, 25% Bonds, 5% High Yield, 5% Commodities, and 5% Cash.

S&P 500 Bull & Bear Markets

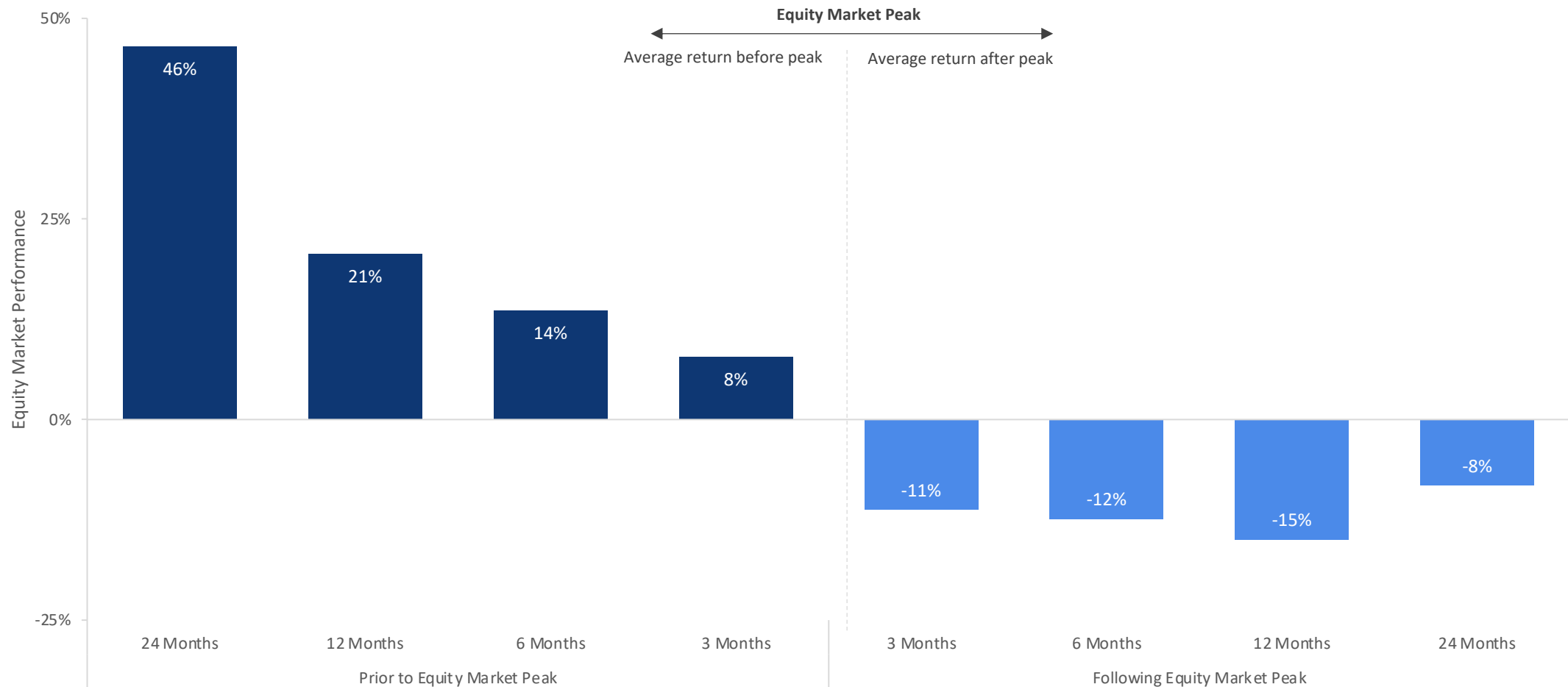
1Q 2023



Disclosures: All performance data represents price returns of the S&P 500. Past performance is no guarantee of future results. Bear Markets are defined as a decline of at least 20% from the market's high point to its low.

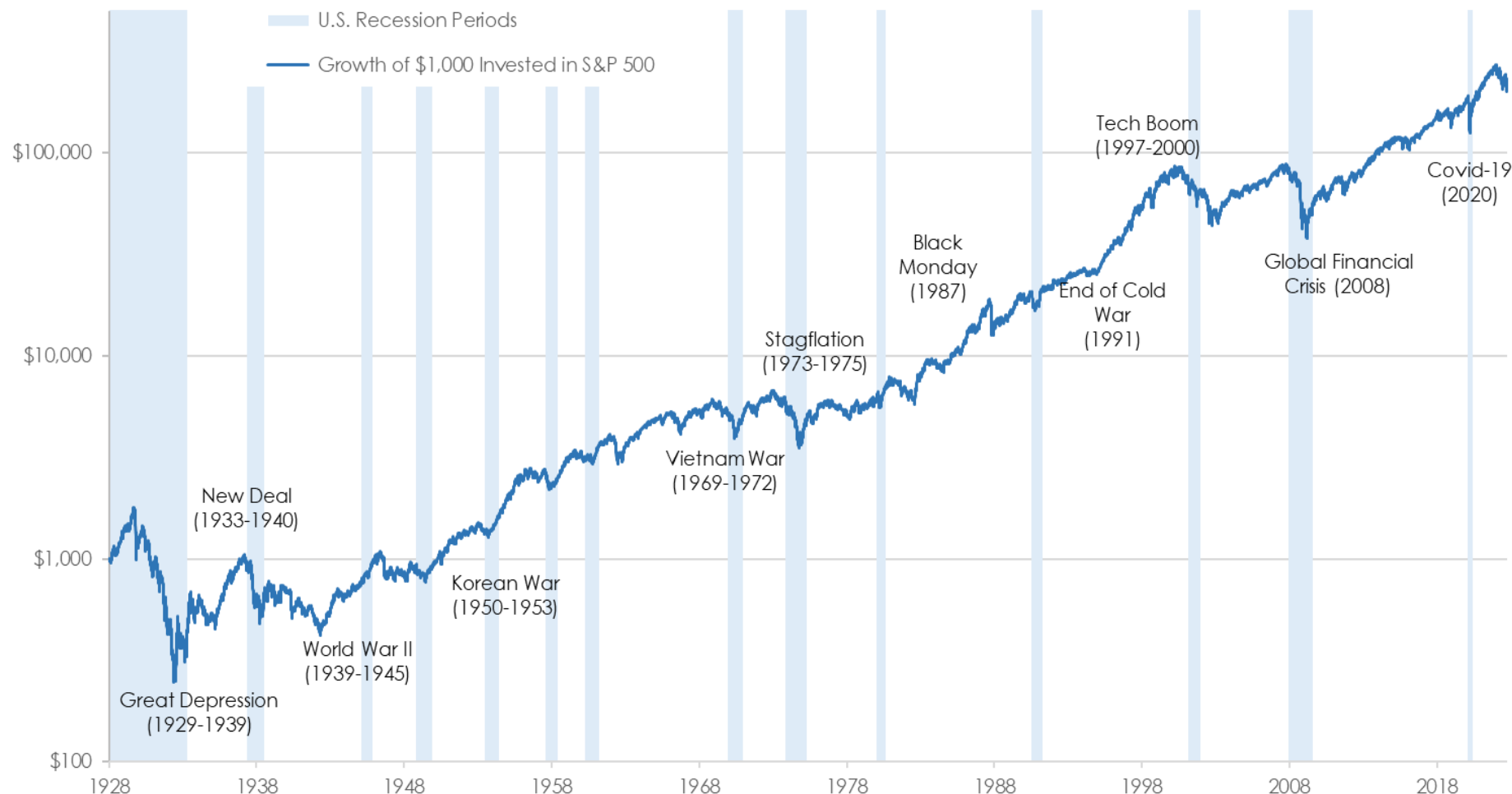
Average Returns Prior To & Following Equity Market Peaks

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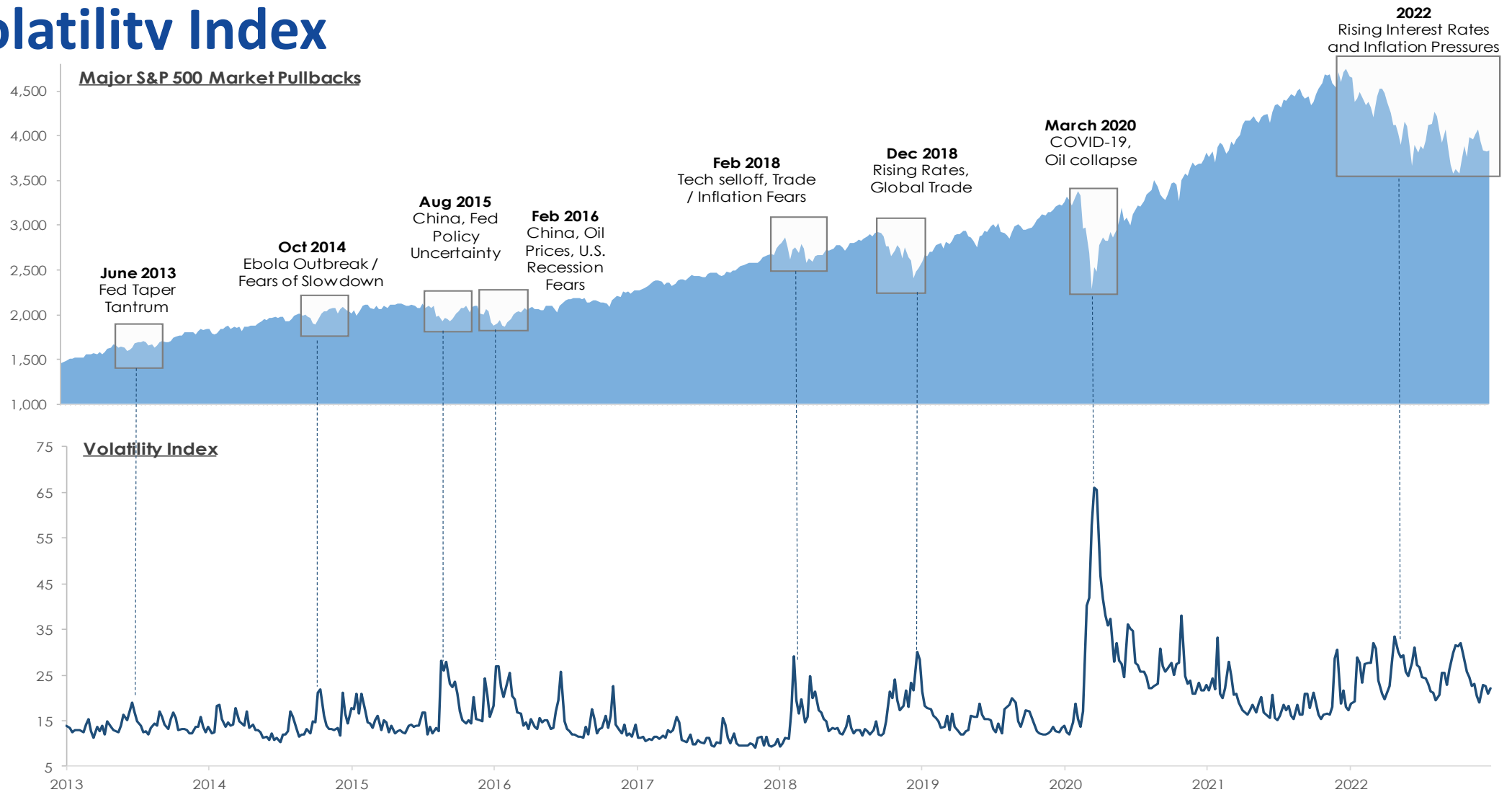
Disclosures: All performance data represents price returns of the S&P 500. Past performance is no guarantee of future results. The analysis is based on 14 bull/bear market cycles since 1937. Bear Markets are defined as a decline of at least 20% from the market's high point to its low.

Historic Market Events



Disclosures: All performance data represents price returns of the S&P 500. Past performance is no guarantee of future results. U.S. Recession dates are based on National Bureau of Economic Research (NBER).

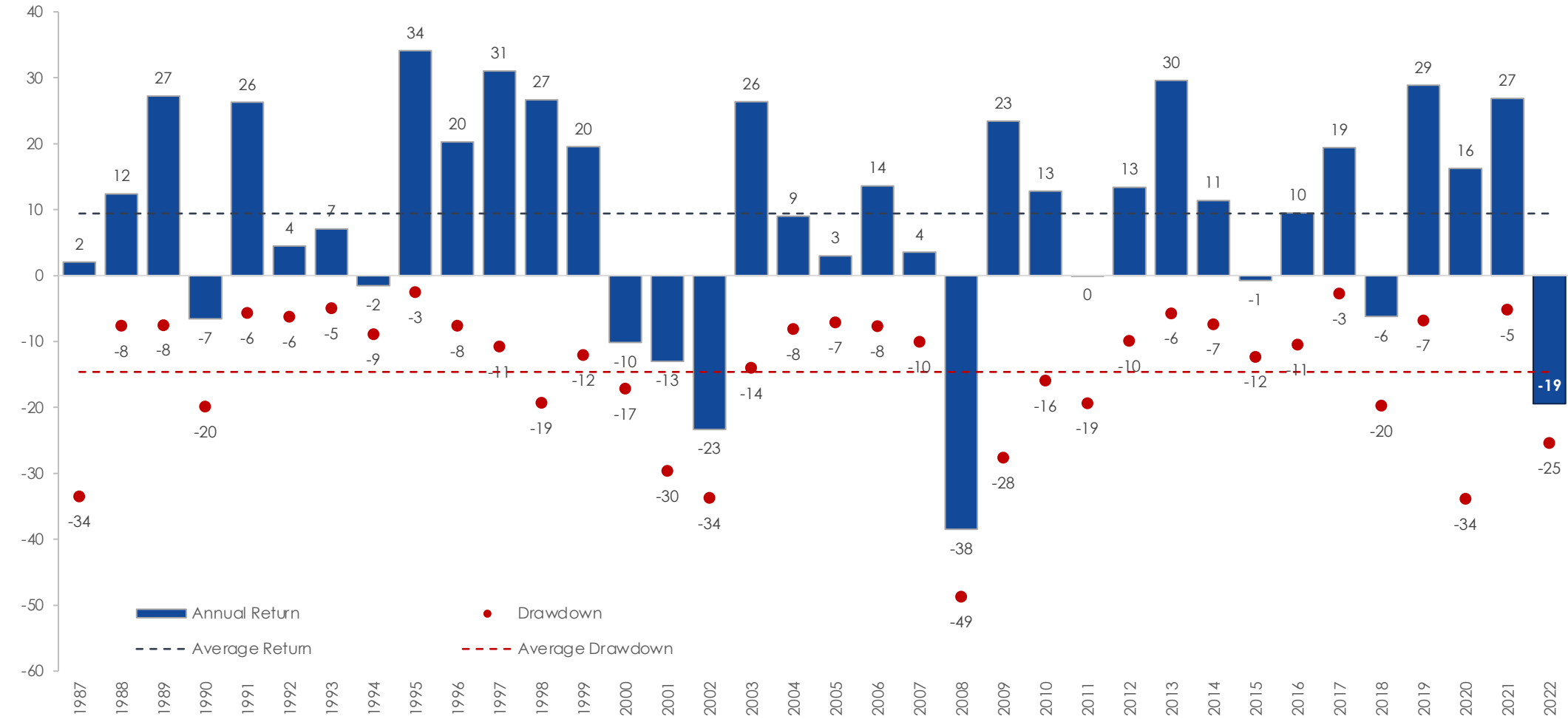
Volatility Index



Disclosures: Past performance is no guarantee of future results. All performance data represents price returns of the SPDR S&P 500 ETF Trust (SPY). The CBOE VIX measures the market's expectations of future volatility and is based on S&P 500 options activity.

History of Market Drawdowns by Year

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Disclosures: Past performance is no guarantee of future results. For illustrative purposes only. All performance data represents price returns and does not include dividends for the stated period. Drawdown is calculated from the intra-year peak to trough levels. Analysis is based on the State Street SPDR S&P 500 ETF (SPY).

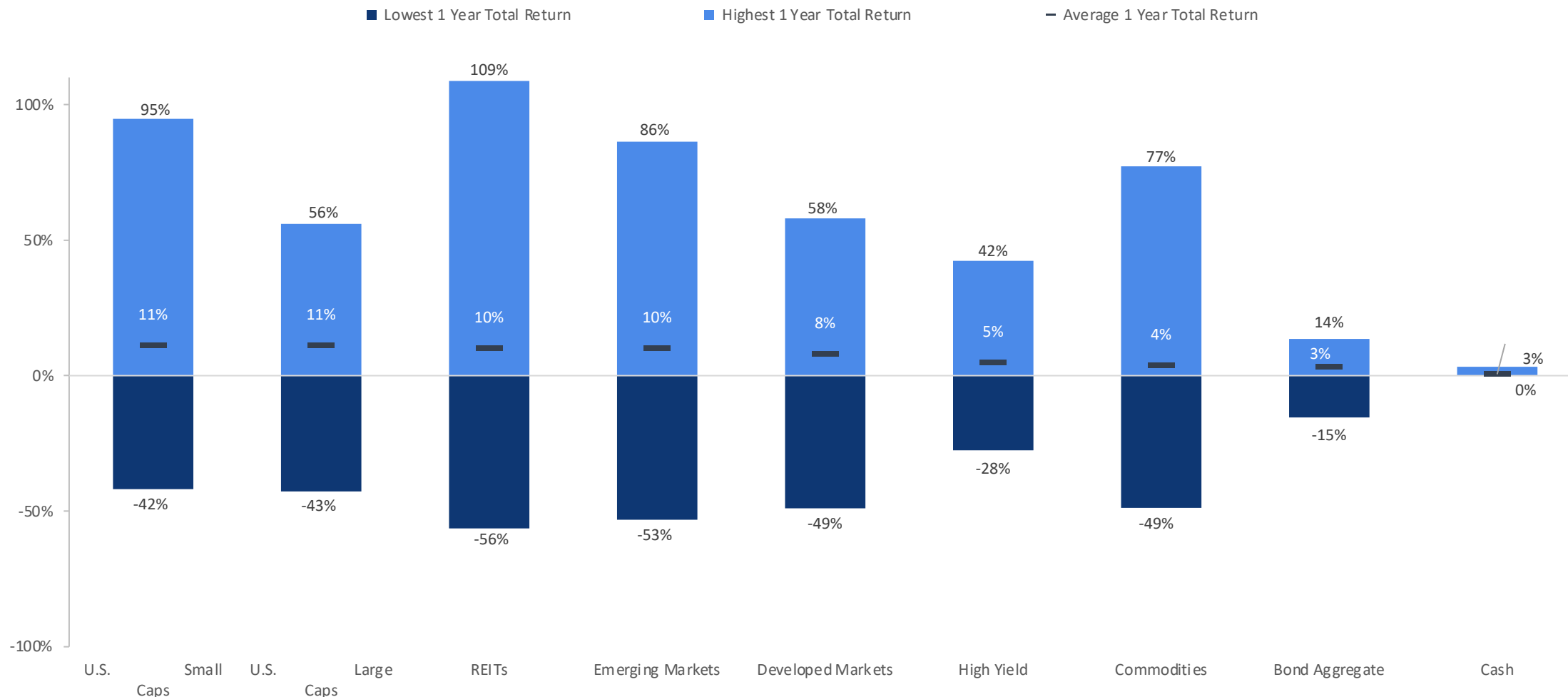
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Asset Allocation

Statistics, Risk vs Reward, Asset Class Correlations

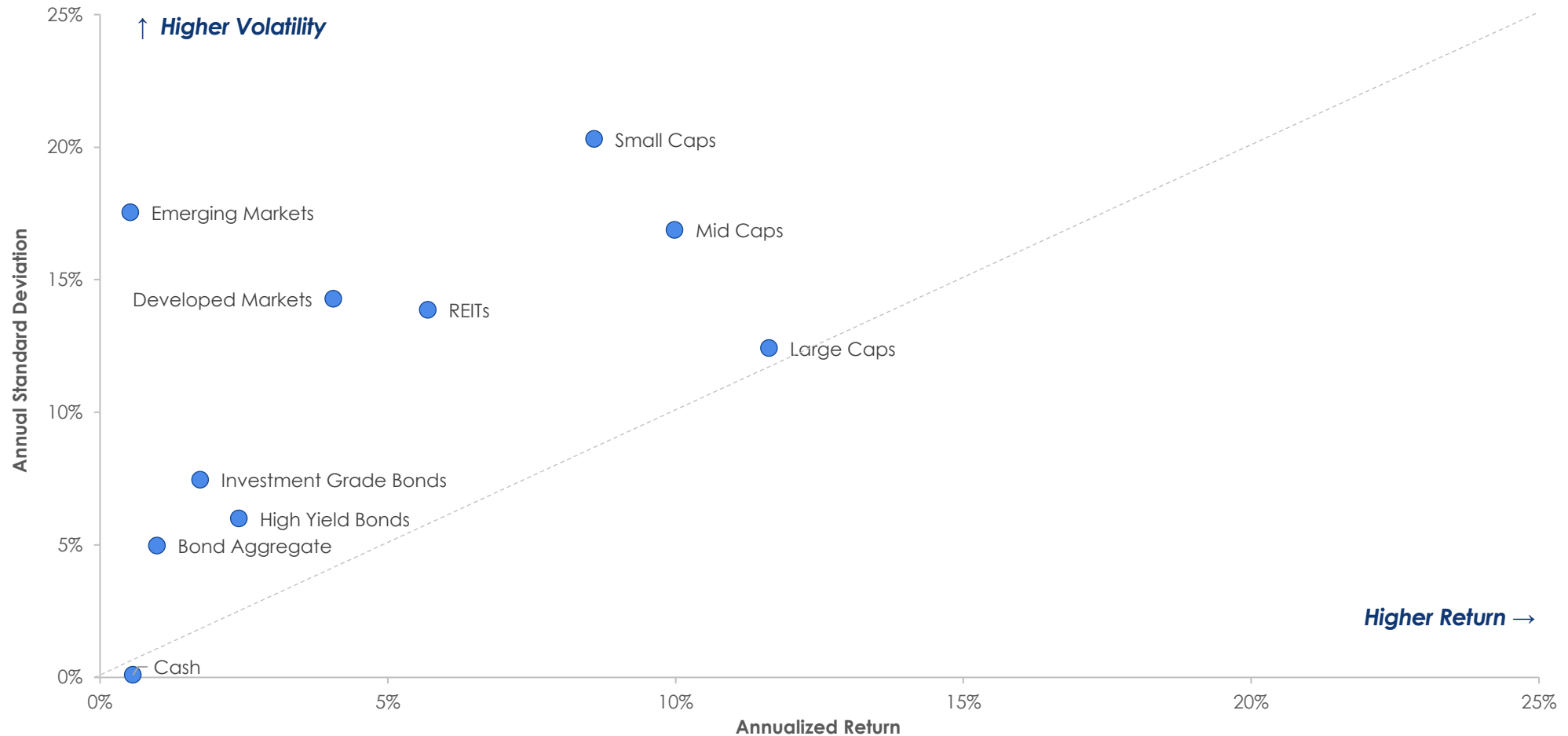
Asset Class Return Ranges Over 20 Years

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Disclosures: Past performance is no guarantee of future results. Performance data represents total returns for a 12-month period matching the description over the last 20 years. Note: Commodity and High Yield Bond ETF price data is only available since 2006. REITs ETF price data is only available since 2004. Asset classes are represented by the following ETFs: Emerging Markets (EEM - iShares MSCI Emerging Markets ETF), Commodities (DBC - Invesco DB Commodity ETF), Developed Markets (EFA - iShares MSCI EAFE ETF), REITs (VNQ - Vanguard Real Estate ETF), U.S. Large Caps (SPY - SPDR S&P 500 ETF), U.S. Small Caps (IWM - iShares Russell 2000 ETF), High Yield (HYG - iShares iBoxx \$ High Yield Corporate Bond ETF), Cash (BIL - SPDR Bloomberg Barclays 1-3 Month T-Bill ETF), Bond Aggregate (AGG - iShares Core U.S. Aggregate Bond ETF).

Asset Class Risk vs Reward



Disclosures: Past performance is no guarantee of future results. Annual Standard Deviation and the Annualized Return use monthly data from the past 10 years. Annualized returns are based on dividends reinvested. Asset classes are represented by the following ETFs: Cash (BIL - SPDR Bloomberg Barclays 1-3 Month T-Bill ETF), Bond Aggregate (AGG - iShares Core U.S. Aggregate Bond ETF), Investment Grade (LQD - iShares iBoxx \$ Investment Grade Corporate Bond ETF), High Yield (HYG - iShares iBoxx \$ High Yield Corporate Bond ETF), Large Caps (SPY - SPDR S&P 500 ETF), Small Caps (IWM - iShares Russell 2000 ETF), Mid Caps (MDY - SPDR S&P Midcap 400 ETF), REITs (VNQ - Vanguard Real Estate ETF), Emerging Markets (EEM - iShares MSCI Emerging Markets ETF), Developed Market (EFA - iShares MSCI EAFE ETF).

Asset Class Correlations

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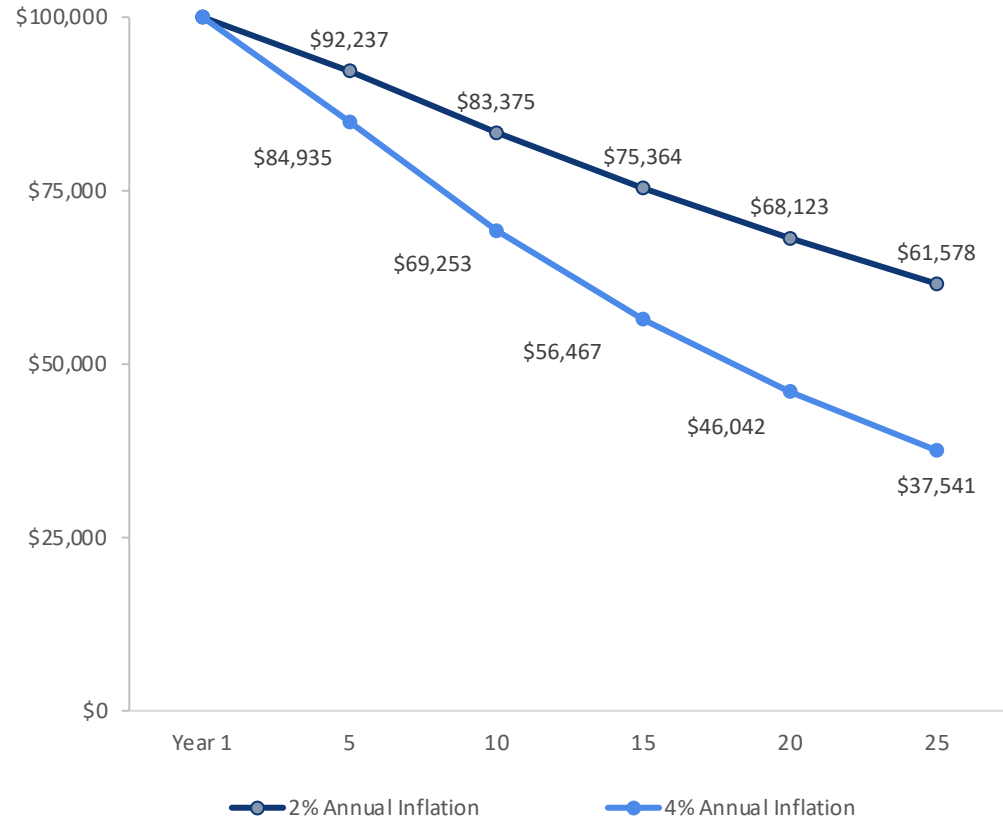
	U.S. Large Caps	U.S. Small Caps	Developed Markets	Emerging Markets	Bond Aggregate	High Yield	U.S. Dollar	Comdty	U.S. Growth	U.S. Value	REITs	Gold
U.S. Large Caps	1.00	0.88	0.86	0.66	0.26	0.79	-0.34	0.43	0.96	0.95	0.71	0.05
U.S. Small Caps		1.00	0.76	0.60	0.13	0.74	-0.25	0.46	0.82	0.90	0.64	-0.05
Developed Markets			1.00	0.81	0.32	0.78	-0.54	0.50	0.79	0.86	0.64	0.11
Emerging Markets				1.00	0.33	0.66	-0.60	0.47	0.62	0.66	0.50	0.24
Bond Aggregate					1.00	0.48	-0.31	-0.15	0.35	0.14	0.50	0.40
High Yield						1.00	-0.39	0.46	0.75	0.78	0.67	0.25
U.S. Dollar							1.00	-0.39	-0.32	-0.33	-0.18	-0.41
Commodities								1.00	0.33	0.52	0.25	0.16
U.S. Growth									1.00	0.84	0.68	0.08
U.S. Value										1.00	0.70	0.01
REITs											1.00	0.16
Gold												1.00

Disclosures: Past performance is no guarantee of future results. Correlations are based on 10 years of monthly total returns. Asset Classes are represented by the following ETFs: U.S. Large Caps (SPY - SPDR S&P 500 ETF), U.S. Small Caps (IWM - iShares Russell 2000 ETF), Developed Markets (EFA - iShares MSCI EAFE ETF), Emerging Markets (EEM - iShares MSCI Emerging Markets ETF), Bonds (AGG - iShares Core U.S. Aggregate Bond ETF), High Yield (HYG - iShares iBoxx \$ High Yield Corporate Bond ETF), Municipal Bonds (MUB - iShares National Muni Bond ETF), USD Index (United States Dollar Index), Emerging Market Sovereign Debt (LEMB - iShares J.P. Morgan EM Local Currency Bond ETF), Commodities (DBC - Invesco DB Commodity ETF), REITs (VNQ - Vanguard Real Estate ETF), Gold (GLD - SPDR Gold ETF).

Inflation's Impact

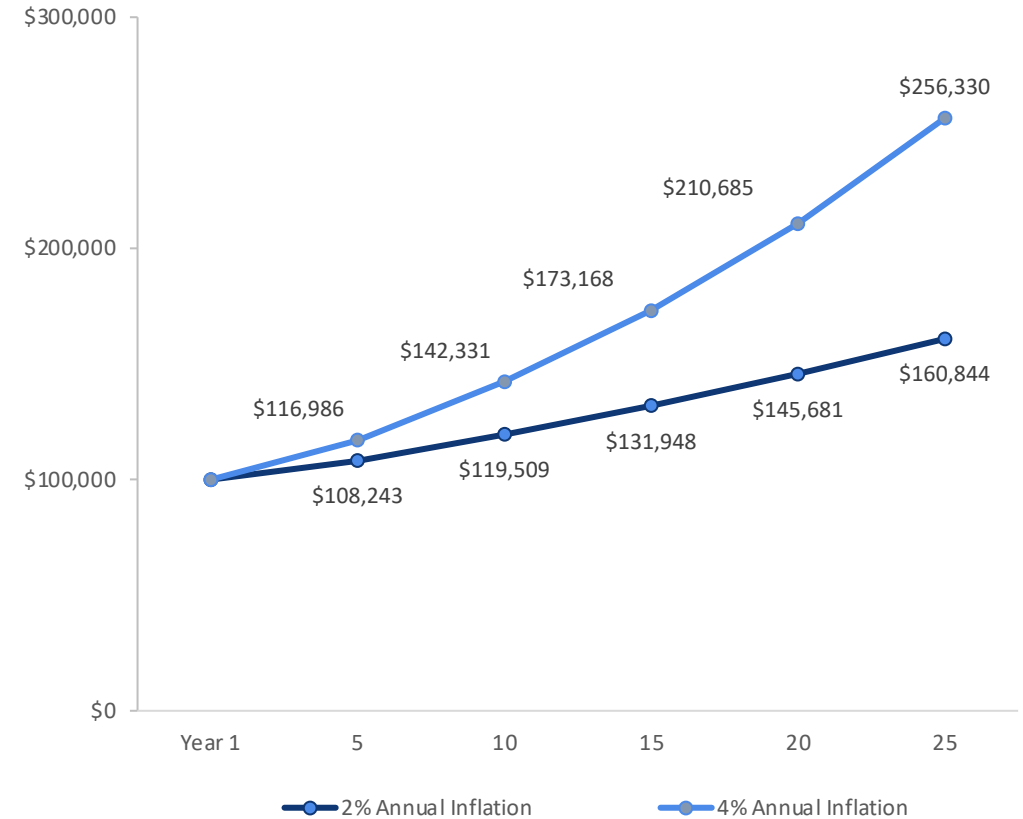
Inflation's Impact on Your Purchasing Power

Assumes constant annual inflation rates



Price Increases Based on Inflation

Assumes constant annual inflation rates



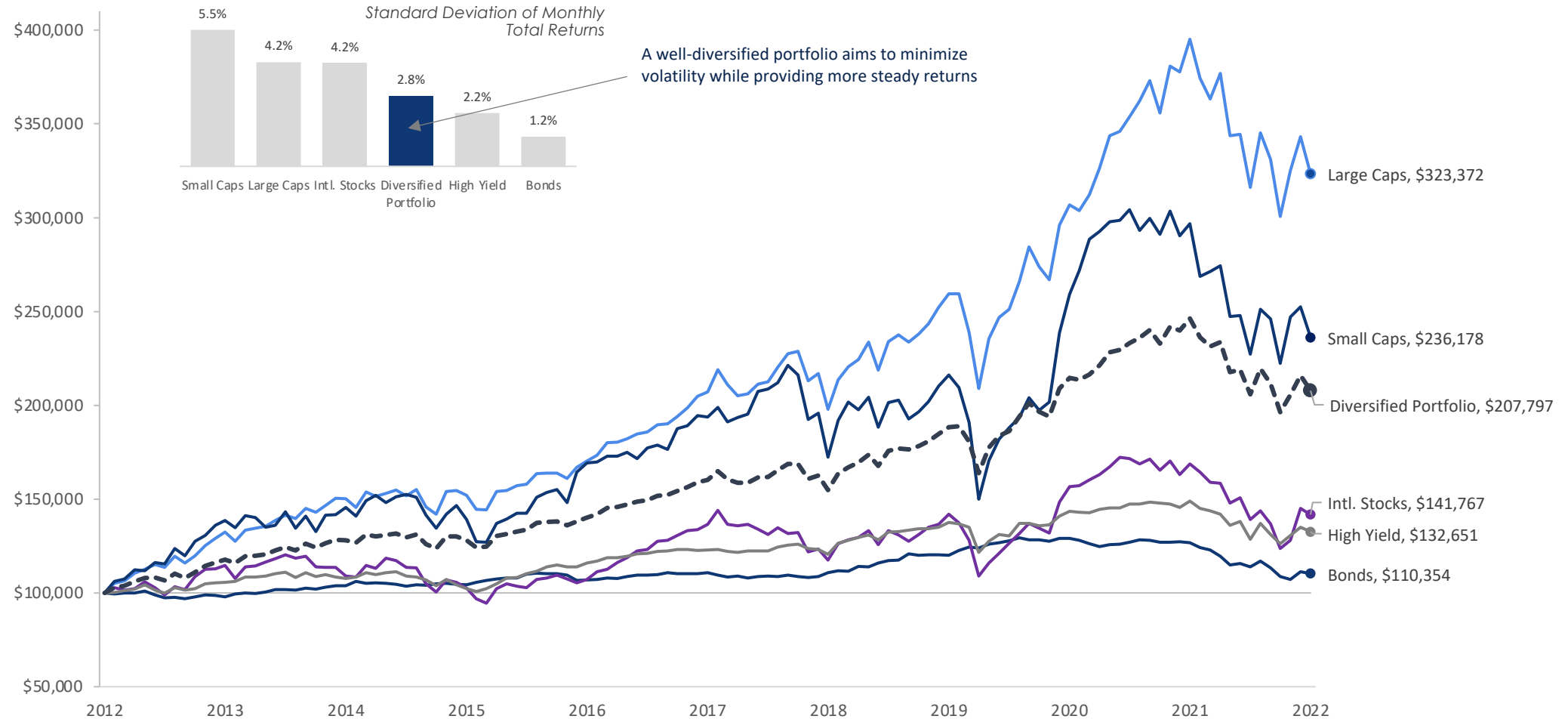
Disclosures: Past performance is no guarantee of future results. Investing involves risks, including possible loss of principal. Hypothetical illustrative examples for educational purposes only. Assumes constant annual inflation rate.

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Important Investing Lessons

Diversification, Market Timing, Withdrawing Capital

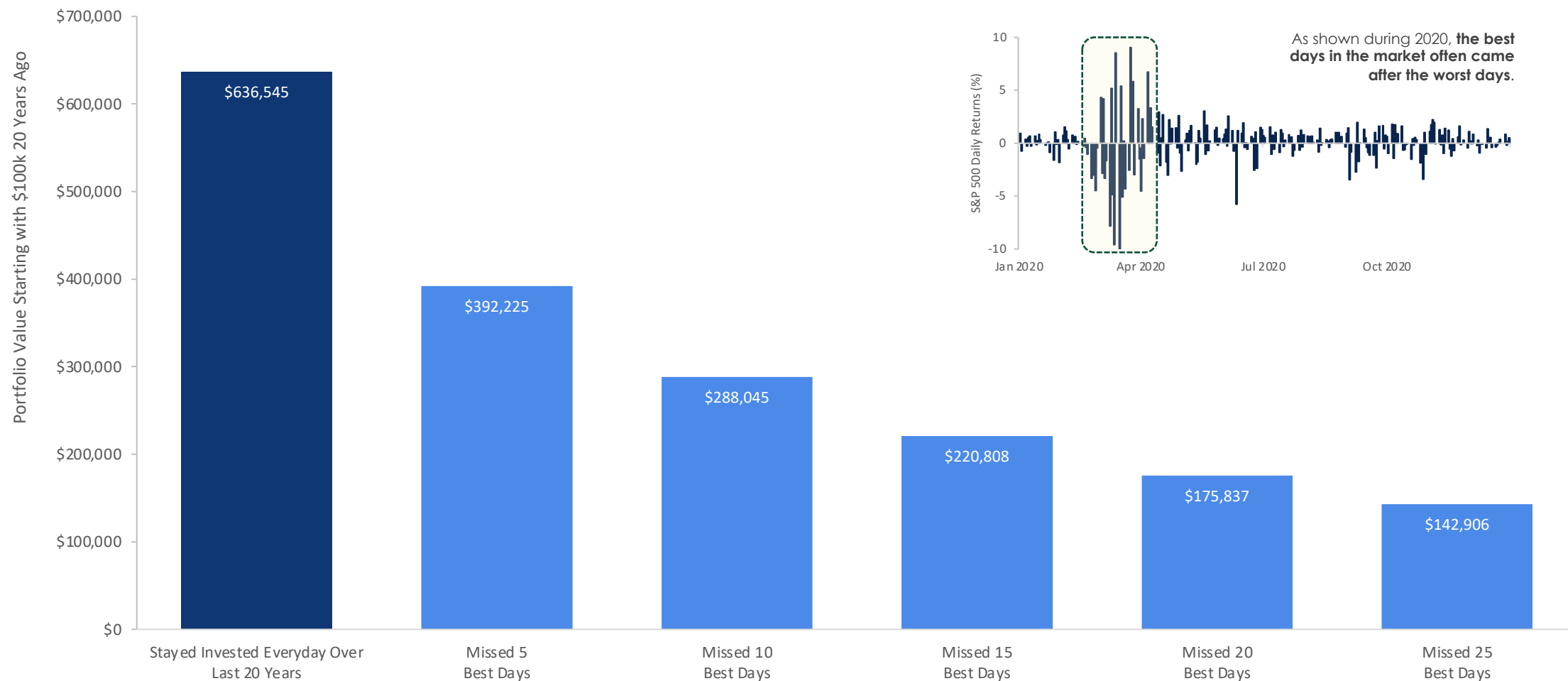
Importance of Diversification



Disclosures: Past performance is no guarantee of future results. Performance is for illustrative purposes only. Diversification does not guarantee a profit or protect against a loss in a declining market. Diversified Portfolio is represented by 40% Large Caps (SPY - SPDR S&P 500 ETF), 10% Developed Markets (EFA - iShares MSCI EAFE ETF), 5% Small Caps (IWM - iShares Russell 2000 ETF), 30% Bonds (AGG - iShares U.S. Aggregate Bond ETF), 10% High Yield (HYG - U.S. Corporate High Yield Bond ETF), and 5% Emerging Markets (EEM - iShares MSCI Emerging Markets ETF). Standard deviation is a measure of the amount of variation of each portfolio.

Time, Not Timing, is What Matters

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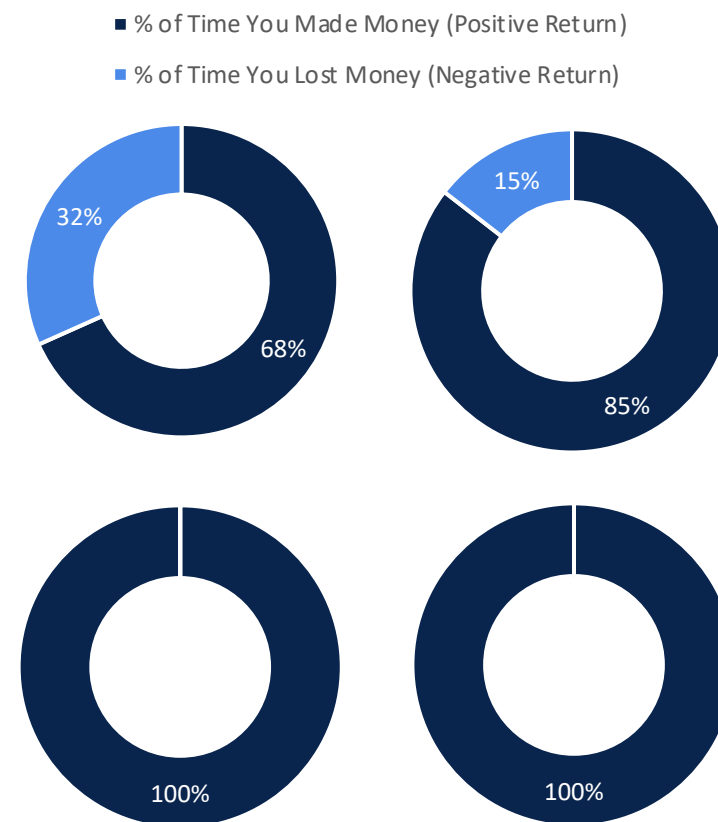
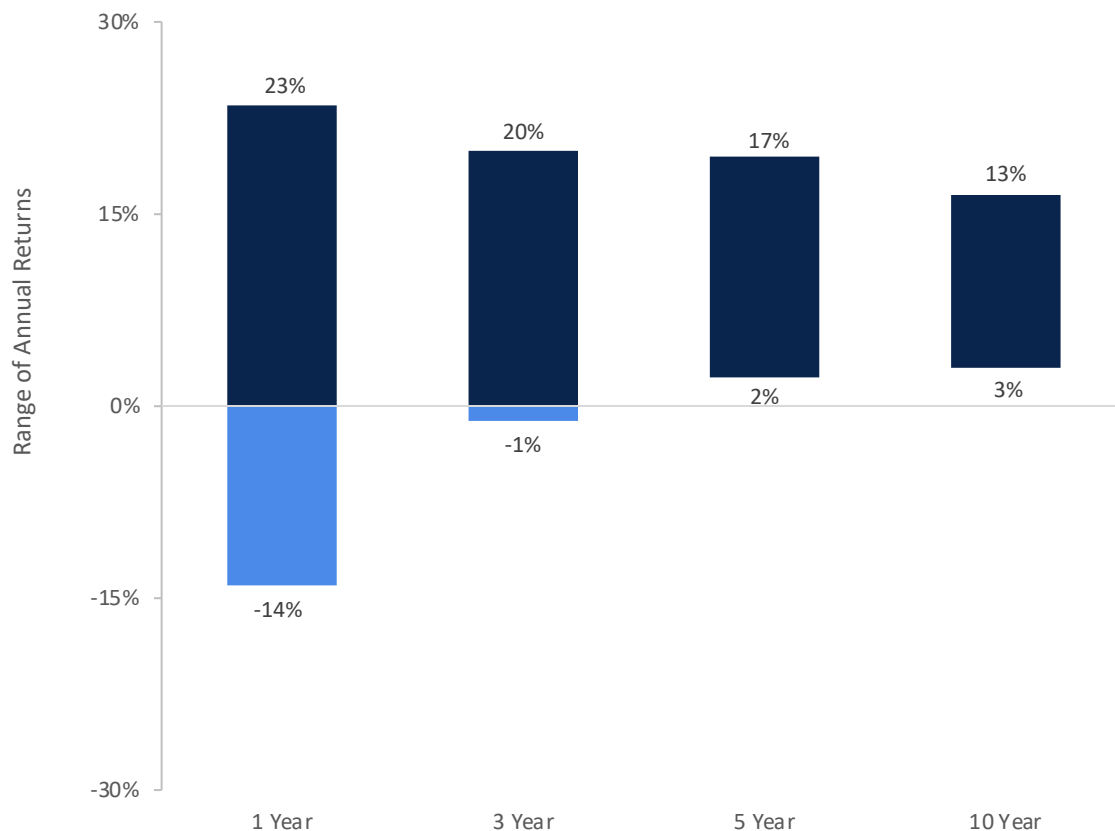


Disclosures: Past performance is no guarantee of future results. The analysis is based on 20 years of daily price return data. The portfolio value is represented by the State Street SPDR S&P 500 ETF (SPY), which represents an index of large cap stocks. The analysis does not include the impact of taxes or capital gains.

Staying Invested for the Long Term

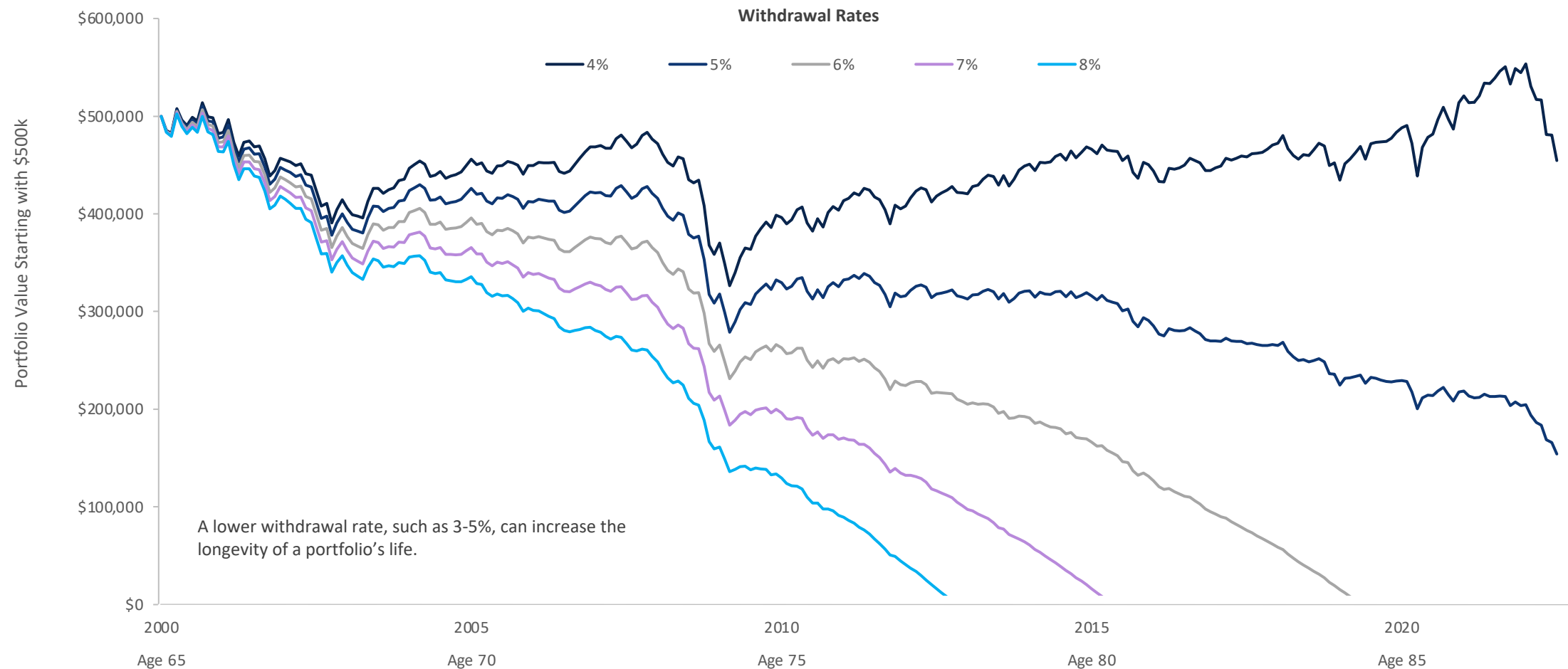
Range of Annualized Returns for Rolling 1-, 3-, 5-, 10-Year Periods
Based on 50 Stock / 50 Bond Portfolio's Rolling Annual Returns Over Last 30 Years

% of Time a 50 Stock / 50 Bond Portfolio was Positive / Negative
Based on Various Holding Periods Using Monthly Data From the Last 30 Years



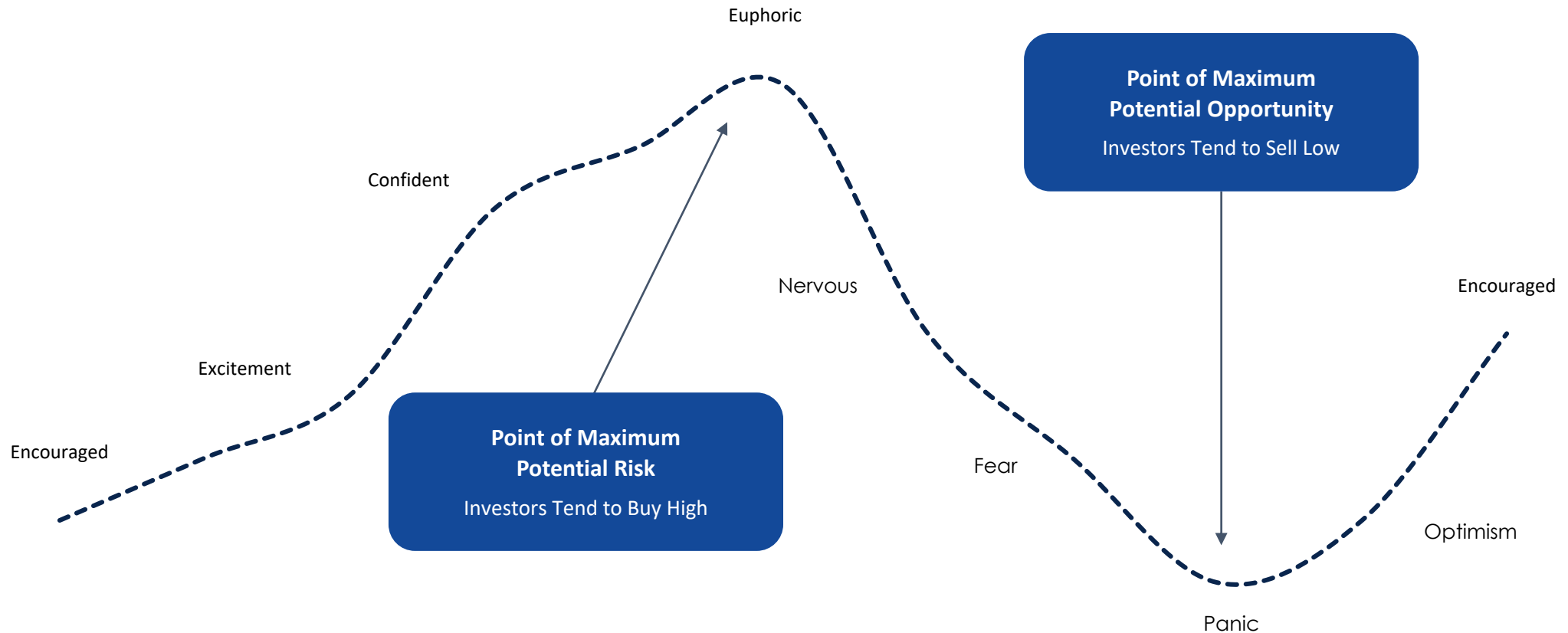
Disclosures: Past performance is no guarantee of future results. The analysis is based on the last 30 years of total return data. Returns are represented by a 50/50 allocation to equities (State Street S&P 500 ETF - SPY) and bonds (Bloomberg Bond Aggregate Index).

Impact of Various Withdrawal Rates



Disclosures: Past performance is no guarantee of future results. This is a hypothetical illustration for educational purposes only and assumes a hypothetical initial portfolio balance of \$500,000 as of January 1st, 2000. The analysis looks at the impact on the portfolio based on various amounts withdrawn monthly from the portfolio throughout several market cycles. Each monthly withdrawal is adjusted annually for inflation (measured by the consumer price index) and the portfolio is rebalanced at the end of the month. This hypothetical portfolio is made up of 50% stocks represented by the State Street SPDR S&P 500 ETF (SPY) and 50% bonds represented by the Bloomberg Barclays U.S. Aggregate Bond ETF (AGG). The longevity of a portfolio can be based on the following factors: withdrawal rate, asset class mix, diversification, capital gains, fund expenses, and life expectancy. Performance is based on total returns including dividends reinvested.

The Cycle of Market Emotions



Disclosures: Strictly for illustrative and educational purposes only. This analysis is not a recommendation, offer or solicitation to buy or sell any securities or to adopt any investment strategy.

Definitions

Annualized Return	The rate at which an investment grows each year over the period to arrive at the final valuation.
Bear Market	A decline of at least 20% from the market's high point to its low.
Beta	A measure of how an individual asset moves when the overall stock market increases or decreases.
Correlation	A measure of the extent to which two variables are related
Dividend Yield:	The dividend yield or dividend-price ratio of a share is the dividend per share, divided by the price per share. It is also a company's total annual dividend payments divided by its market capitalization, assuming the number of shares is constant.
Developed Markets	A country that is most developed in terms of its economy and capital markets. The country must be high income, but this also includes openness to foreign ownership, ease of capital movement, and efficiency of market institutions.
Emerging Markets	A country that has some characteristics of a developed market but does not fully meet its standards. This includes markets that may become developed markets in the future or were in the past
Large Cap Stocks	Shares of publicly traded corporations with a market capitalization of \$10 billion or more
LTM	An acronym for "Last Twelve Months" or the past one year
NTM	An acronym for "Next Twelve Months" or the next one year
Price Return	The rate of return on an investment portfolio, where the return measure takes into account only the capital appreciation of the portfolio, not including income generated in the form of interest or dividends.
Total Return	Return on a portfolio of investments including capital appreciation and income received on the portfolio.
Small Cap Stocks	Shares of publicly traded corporations with a market capitalization of \$2 billion or less.
Standard Deviation	In statistics, the standard deviation is a measure of the amount of variation or dispersion of a set of values. A low standard deviation indicates the values tend to be close to the historical average of the data set, while a high standard deviation indicates the current value is outside of the historical average range.
CBOE Volatility Index (VIX)	Measures the market's expectations of future volatility and is based on S&P 500 options activity.

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Disclosures and Legal Notice

- Investing involves risk, including the possible loss of principal. Stock markets can be volatile. Investments in securities of small and medium capitalization companies may involve greater risk of loss and more abrupt fluctuations in market price than investments in larger companies. Investments in fixed-income instruments are subject to the possibility that interest rates could rise, causing their values to decline. High yield and unrated debt securities are at a greater risk of default than investment grade bonds and may be less liquid, which may increase volatility. Investors in asset-backed securities, including mortgage-backed securities and collateralized loan obligations (“CLOs”), generally receive payments that are part interest and part return of principal. These payments may vary based on the rate loans are repaid. Some asset-backed securities may have structures that make their reaction to interest rates and other factors difficult to predict, making their prices volatile and they are subject to liquidity and valuation risk. CLOs bear similar risks to investing in loans directly, such as credit, interest rate, counterparty, prepayment, liquidity, and valuation risks. Loans are often below investment grade, may be unrated, and typically offer a fixed or floating interest rate.
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Thank You

