



Pathways Advisory Group, Inc. Investment Philosophy Statement

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Establishing an Investment Plan

Why do we need an investment plan? Because markets are scary. They sometimes drop quickly. They will move down for months at a time, sometimes years at a time. As humans, we are wired to avoid uncertainty and losses. We seek stability and prefer gradual, steady gains (such as those provided by CDs). The exasperating irony of the market is that although an investor enjoys much greater rates of return over the long haul than those generally provided by CDs, the investor must endure repeated market drops of uncertain severity.

Since markets are scary, we need a logical, understandable plan that we can stick to. Assuming we desire a rate of return that is higher than CDs, then we must agree to put up with greater fluctuations in our portfolio values. Alas, there is no free lunch. Risk and return are related. The larger the equity portion (stocks and real estate) - the greater the fluctuation. Over long time periods, greater equity weightings lead to higher returns. The long-term investor is richly rewarded for accepting extra volatility.

Wait! Stop the presses! That last sentence is of utmost importance. “The long-term investor is richly rewarded for accepting extra volatility”. We are rewarded for accepting volatility. The problem is this: many investors (and their advisors) try their best to avoid volatility.

Let’s time the market – when we predict the market will rise, we’ll jump in. When we predict a drop, we’ll jump out. We’ll protect your assets by making smart moves...

Or, I like these sectors now. When my indicators change, we’ll move to other sectors. My technical charts will keep us out of trouble...

Or, based on the political climate, the inflation rate, interest rates, the business cycle, the latest news, or the price of rice, I like these stocks. When the wind changes, we’ll go defensive...

These are the siren songs of the investment gurus. We will avoid volatility by being smarter than the markets. (Many investors believe that their advisor must know more about markets than they. After all, it is his day job. Even if he does know more than his client, this in no way means he is smarter than the markets!)

These siren songs are based on forecasting and prediction. Crystal ball investing. Such advice is widespread and alluring. Why shouldn’t the experts who study stocks and markets and trends obtain impressive investment returns and keep me out of trouble, too? The answer is that no one can consistently do this. There is no crystal ball, no magic bullet. That’s the bad news. The good news is that you do not need such an approach to be a successful investor. There is another way. Build a widely diversified portfolio, based on your return needs and your stomach for volatility, and then rebalance now and then, but stay invested for the long haul.

Investing is a process of making rational choices in an uncertain environment. No one can predict where the markets will be next week, next month or next year. But that does not mean that investing is random, or that the financial markets are akin to casinos. Wise investors learn about the nature of the uncertainties in the market and make plans aimed at creating the highest probability of long-term investment success.

We ask you to accept a certain amount of volatility and to be patient when markets are down. We will not attempt to “time” the markets by getting out before a downturn or getting in before an upturn. We believe “timing” is not a prudent course, nor is it necessary for investment success. Sticking to our written plan (staying invested) will be our key to success.

Let’s look at this business of asking you to be patient when markets are down. A “bear” market is defined as a drop of 20% or more below a previous market high. They can be nasty and they can be long. Every so often they just happen. They always have and they always will.

It is best for us to expect them, and to get used to them. We see one about every five years on average. Since we can never know when one will begin or when it will end, we just have to maintain our discipline all the way along. The problem with “timing” is that sometimes the market drops 10% or 15% and then turns around and jumps to new highs. The timer often pulls out just before a new rise. Remember, markets truly are unpredictable. Even if the timer times it about right, the next big opportunity for a mistake is deciding when to jump back in!

So, bear markets are the bad news. The very good news is that patient investors are rewarded. Bear markets have always been a temporary interruption of the permanent upward trend. Trying to step in and out is very hazardous to your wealth.

Here are the five steps of our plan.

Step One: Assess Your Goals and Circumstances

We want to design the investment plan based on your specific circumstances and objectives. This is the reason we have far-ranging discussions about personal values, family, present circumstances, current assets and long-term goals in our early meetings. We wish to describe both the present and the future with as much clarity as possible.

All of these discussions help us determine the proper investment risk level. They provide context.

Step Two: Set Your Long-Term Investment Portfolio Objectives

Most investors know they should invest for the long-term. This often raises the question “How long is long term?” The answer for many investors is surprising—your long-term horizon should stretch as far into the future as possible. You want your horizon to be as long as possible, because as an investor, time is your best friend. The simple fact is that the more time you have, the more likely you are to succeed as an investor. With longer periods of time, there will be more good years to offset the bad years.

There are two reasons that time is the investor’s friend. The first is the magic of compound growth, and the second is the phenomenon of risk reduction over time.

The Magic of Compound Growth

Compound growth operates on a simple principle. When your invested money makes money, and you then reinvest that extra money, you have both your original investment and the returns working for you. The longer this goes on, the greater your accumulation will likely be. Imagine putting \$1 million into an investment that consistently earns 8 percent every year. The table below shows how the compounding process works:

Year	Starting amount	Annual Earnings	Ending amount
1	\$1,000,000	\$80,000	\$1,080,000
2	\$1,080,000	\$86,400	\$1,166,400
3	\$1,166,400	\$93,312	\$1,259,712
10	\$1,999,005	\$159,920	\$2,158,925
20	\$4,315,701	\$345,256	\$4,660,957

At 8 percent, your investment would grow to more than 4-1/2 times its original size in twenty years. To see the effect of compounding, notice that you would earn \$1,158,925 in the first ten years, but even more during the second ten years—\$2,502,032.

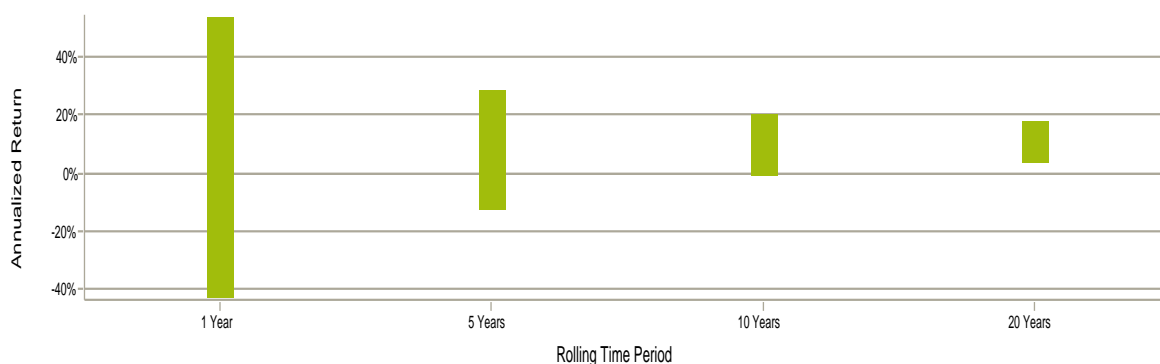
Risk Reduction Over Time

Time also helps reduce investment risk, especially in diversified portfolios of stocks. It is natural to worry that if you invest in the stock market today, it may go down tomorrow. From one day to the next, markets can be savagely volatile. Down sharply or up sharply. But if you have a long investment horizon, tomorrow is just one of the thousands of market days during your investment timeframe. Over long time periods, the greater magnitude of “up” days outweighs the fewer “down” days, leaving the broad market trend to be positive.

The following graph shows how the range of annualized outcomes for the Standard & Poor’s 500 (S&P 500) equity market narrows as your horizon becomes longer. It shows results based on the performance of Large U.S. stocks¹ from 1926 to 2018. During this time period, the market has produced a wide range of outcomes. An investor holding stocks for just one year would have had returns ranging from a high of 54.0 percent to a low of -43.4 percent.

Investors with longer horizons face much less volatility. An investor with a ten-year horizon could have experienced annualized returns ranging from a high of 20.1 percent to a low of -1.4 percent. The worst 20-year time period produced an average annualized return of positive 3.1%.

Standard & Poor’s 500 Index Overlapping Returns Annualized
1926 - 2018



Highest Return	53.97%	28.56%	20.06%	17.88%
Lowest Return	-43.35%	-12.47%	-1.38%	3.11%
Annualized Return	11.88%	10.13%	10.35%	10.94%

As much as time can reduce your risk, many investors looking at this chart would still feel that the stock market by itself is too risky. In designing your portfolio, we will make use of asset allocation beyond the one asset class illustrated above, in an effort to reduce risk much further.

It is important, however, for you to have a long-term perspective in any equity portfolio. The minimum expected investment period should be five years for any portfolio containing a high concentration of equity securities. For any portfolio with less than a five-year horizon, the portfolio should be comprised predominantly of fixed rate investments. This five-year minimum investment period is important because the investment process must be viewed as a long-term plan for achieving the desired results. This is because one-year volatility can be significant for certain asset classes. Over a five-year period, however, volatility is greatly reduced.

¹ U.S. large stock performance calculations are based on Standard and Poor’s 500 Index, an unmanaged index intended to represent the performance of a diversified portfolio of the largest U.S. stocks. Large or Small refers to the size of a company as measured by the value of its total outstanding stock.

Your Attitude Toward Risk

While we can do a great deal to reduce risk, we cannot eliminate it. In any investment plan, it is important to understand the amount of risk you have decided to accept. As best we can define it, your proper level of risk is this: when your portfolio drops in value, you remain patient, stick with the program and wait for the subsequent upturn.

The right level of risk for you depends on both your personal preferences and your situation. We break the risk equation into two parts: risk tolerance (the ability to tolerate fluctuations in value) and risk aversion (your vulnerability to losses).

Risk Tolerance: Ability to Tolerate Fluctuations

Over the course of your investment life, the value of your portfolio will rise and fall. While we would always rather see our portfolio value rise, a realistic investor knows that any investment will have some periods in which the value will fall. Your risk tolerance describes your level of comfort waiting through the downturns. If the risk you take is within your risk tolerance, then you will be able to maintain your investment strategy through both strong markets and weak ones, giving you the best chance of investment success.

As we said before, “timing the market” (trying to move out of markets before a drop or in before a rise) is not a prudent investment strategy. Much can go wrong with such an approach. It is far better to match your ability to tolerate downturns to an appropriate portfolio blend.

Risk Aversion: Vulnerability to Losses

Your ability to withstand volatility may be determined by your circumstances. Your level of risk aversion indicates the genuine economic harm you would endure if your portfolio had a sharp decline in value. It represents how much you would have to adjust your goals if your portfolio failed to deliver the returns for which you hope. So, we don't want a portfolio with such a high degree of volatility that it might jeopardize your security.

Rate of Return Objective

Every investment choice you make involves a tradeoff between risk and return. Given enough time, a portfolio of “safer” investments will generally have less growth potential than a riskier one. To increase the rate of return, you will typically have to sign on for more risk. Thus, your rate of return objective must match the realistic opportunities that you have, given your time horizon and ability to handle volatility. This is the conundrum of all investors – finding their appropriate balance between risk and return.

More Is Better

So far, we have focused largely on volatility or risk. The other side of the coin is return. Return is critical, too. Differences in rates of return can make or break an investment plan. We need to be aware of the power of higher rates of return.

Over a long investment horizon, a modest increase in your rate of return can make a significant difference in the amount you accumulate. The table below shows the growth of an initial investment of \$1 million over 10 and 20 years at rates of return ranging from 2 to 10 percent.

Rate of return	Initial investment	Balance after 10 years	Balance after 20 years
2%	\$1,000,000	\$1,218,994	\$1,485,947
4%	\$1,000,000	\$1,480,244	\$2,191,123
6%	\$1,000,000	\$1,790,848	\$3,207,136
8%	\$1,000,000	\$2,158,925	\$4,660,957
10%	\$1,000,000	\$2,593,743	\$6,727,500

An extra percent or two over time can make an enormous difference. When we try to decide on the level of volatility we are willing to accept, we must always remember that as we lower volatility, we reduce our ultimate accumulation power. Lower volatility does come at a cost. Whoever said this was easy!!

Step Three: Plan Your Asset Allocation

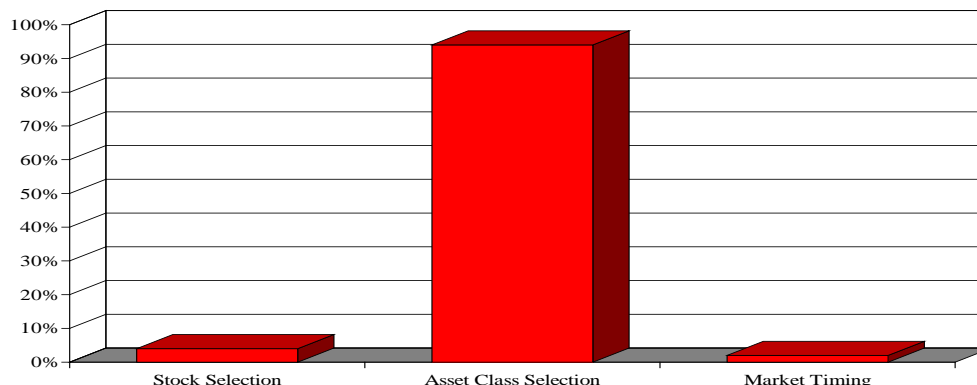
Asset allocation is the process of deciding how much of your portfolio to invest in each of the different investment types, or asset classes — domestic and foreign stocks, real estate, bonds, and short-term investments. We want to construct a portfolio with the proper blend of investments to capture the most growth potential that is available at the risk level we decided to accept.

Warning: Technical stuff in the next two paragraphs and chart. Skip if you like...

To investigate how critical asset allocation really is, three leading American investment experts performed a comprehensive statistical study² to measure the influence of various factors in determining a portfolio's performance. They studied a broad range of portfolios over widely varying market conditions. Their conclusion was that, on average, 94 percent of the variability in returns of a given ten-year portfolio could be explained by the asset class selection policy being used (see chart below). The balance of the variability was attributed to the policies of individual security selection (4 percent) and market timing's buy and sell decisions (2 percent).

The study also made it clear that it is especially important to invest for the long term, regardless of the management style. This is true because an investment plan's success cannot be fully realized until the underlying portfolio has gone through the various economic and market cycles that a long period of time, such as ten years, might encompass.

Determinants of Investment Portfolio Variability



OK. Done with the technical for a while. Let's get back to the building blocks we use to construct a portfolio.

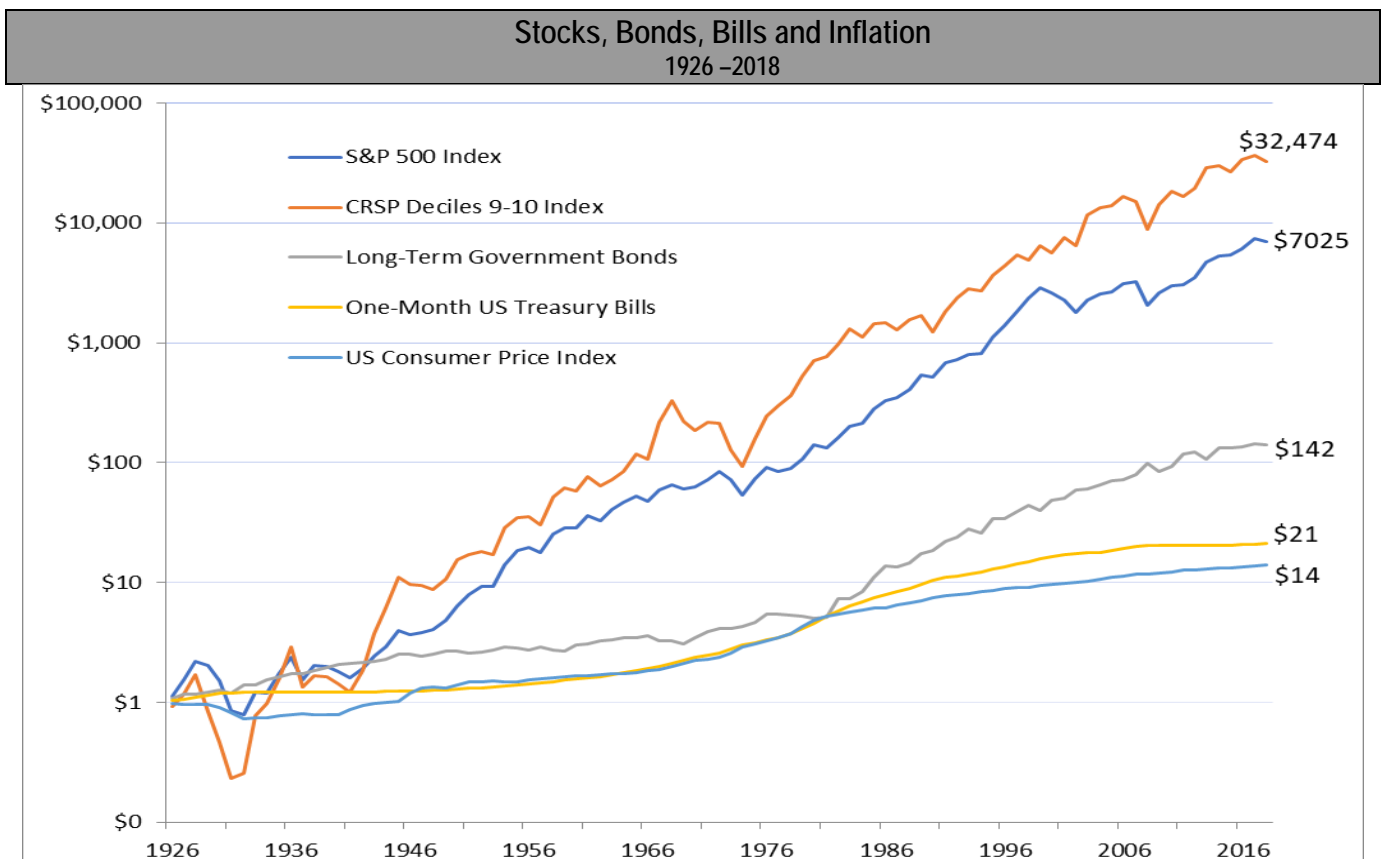
² Determinants of Portfolio Performance II: An Update, 1991, Brinson, Singer, and Beebower

Stocks vs. Bonds

The most basic asset allocation choice is between stocks and bonds. Stocks represent participation in the long-term growth of companies and of the economy, while bonds represent fixed obligations of governments and corporations. It seems natural, then, that stocks should offer superior long-term growth potential, while bonds offer more stability. The choice of allocation between stocks and bonds is a clear example of the basic investment tradeoff between risk and return.

In exploring asset classes, we begin with historical performance. This is not to say that the past indicates future performance; however, it does indicate reasonable relationships between various asset classes.

By referring to the graph below, you can see that historically, equities (stocks) have far outperformed fixed income securities (bonds). For example, one dollar invested in large common stocks (as represented by the Standard & Poor's 500 Index) at the beginning of 1926 would have grown to \$7025 (assuming reinvestment of dividends) by the end of 2018, while an investment in small company stocks (represented by CRSP Deciles 9-10 Index) would have grown to \$32,474. Fixed income vehicles have trouble even keeping pace with inflation. That same dollar invested in Long-Term U.S. government bonds would have been worth \$142 and less than a fifth of that (\$21) if invested in One-Month U.S. Treasury Bills. Investments over this period required an increase in value to \$14 simply to maintain purchasing power (stay even with inflation).³



Modern Portfolio Theory suggests that investments in equities will most likely continue to produce higher returns than investments in fixed income, given the higher risks inherent in equity markets. These risks are primarily due to the cyclical swings of the stock markets. These cyclical swings are of greatest concern to those who might have to liquidate their investments in the near future.

³ Roger G. Ibbotson and Rex Sinquefeld, *Stocks, Bonds, Bills, and Inflation*. Dow Jones Irwin, Homewood, IL. 1986. Updated annually by DFA Returns program.

Fixed Income Investments

As the long-term return figures show, an all-equity portfolio has attractive growth potential, but significant uncertainty about the exact outcome. For this reason, we describe an all-equity portfolio as being aggressive. It is most suitable for investors who are willing to tolerate substantial volatility in the pursuit of reward.

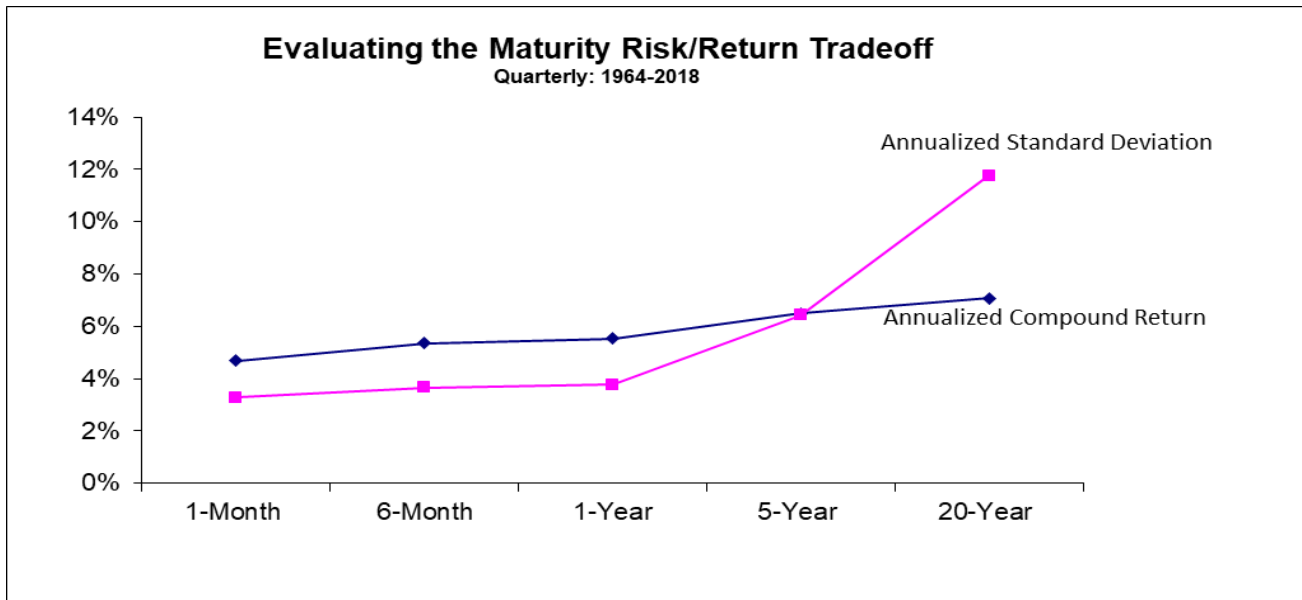
Investors with shorter investment horizons or a high level of risk aversion should maintain portfolios that are significantly less aggressive than an all-equity strategy. For these investors, some portion of the portfolio should be placed in fixed income instruments. Bonds provide income, and also help reduce the overall risk in a portfolio. However, because of the fixed nature of the income stream from a bond, there is comparatively little upside potential in a bond portfolio. Investors are sometimes surprised to learn that bond prices can rise and fall with changes in interest rates, but the main source of investment return from bonds is the receipt of interest.

We use short and intermediate term bonds in our portfolios. Research by Eugene Fama at the University of Chicago and other respected academicians has shown that long-term bonds historically have had wide variances in their rates of total return without sufficiently compensating investors with higher expected returns.⁴ In terms of variability of total return, long-term bonds look more like stocks than shorter-term fixed income vehicles such as Treasury bills. And yet, over long time periods, their respective total returns have consistently lagged those of equities.

A look at the following graph will help illustrate the higher standard deviations (volatility) and only slightly higher total returns of bonds with maturities beyond five years.⁵ It seems we are not compensated enough for bearing this higher risk.

Risk and Return Examined for Bonds

1964 to 2018



Subject to a given level of risk, we believe a combination of equities and short- to intermediate-term fixed instruments is the most effective way to achieve your objectives. However, in certain circumstances your time horizon can be long enough and/or your tolerance for risk high enough not to include fixed income in the portfolio.

⁴ For example, see Edward L. Martin, "Intermediate-Term Bonds," *AALJ Journal*, January 1991, pp. 13-16.

⁵ Treasury instruments 1964-2018: DFA Returns program. Standard deviation annualized from quarterly data.

Equity Investments

We will focus your portfolio's equity investments in "asset class funds" or close proxies for asset class funds. An asset class fund is a mutual fund designed to broadly represent the market, or some significant segment of the market (such as large companies or the stocks of foreign countries). These funds invest in a large number of the stocks of their defined segment of the market to provide returns closely approximating the returns offered by that particular segment. By using asset class funds, we hope to lower risk by increasing diversification, achieve market segment returns, and minimize costs.

An alternative approach is to invest in a few individual stocks – to invest heavily in a few "carefully" selected companies. We do not believe this is a prudent approach. We do not believe that a person can consistently pick the right stocks and beat the market, as a whole. This approach also adds greater risk to the portfolio since it is so highly concentrated. Picking the wrong stocks could be very ugly.

Real Estate Investment Trusts (REITs)

A REIT is an equity investment structure where a management team purchases many different commercial properties for the benefit of shareholders. Although there is a limited historical database tracking investment risk and returns of REITs compared to stocks and bonds (for example, the Dow Jones Wilshire REIT Index began in 1978), there is enough historical data to statistically verify that Real Estate can be a valuable addition to the equity portion of a portfolio.

We believe that equity REITs are an important piece of a well-diversified portfolio because of historical return characteristics (in the form of dividends and price appreciation) in excess of fixed income securities. More importantly, REITs have a low correlation to bonds and the stock market, both foreign and domestic. For this reason, we consider REITs to be a distinct asset class. The addition of Real Estate to a portfolio helps reduce the overall volatility. Investing in REITs is far different than investing in real estate directly. REITs are liquid. We can sell and have cash on hand in a day.

The following table illustrates how often REITs perform similarly to various stock asset classes, based on the statistical measure of correlation. Correlation coefficients reveal the predictability of one asset class, given the knowledge of another. Correlation coefficients are measured on a scale from +1.00 to -1.00, where +1.00 indicates that both asset classes always move in the same direction and -1.00 indicates that both asset classes always move in opposite directions. A measure of zero indicates no measurable relationship between the two asset classes. For instance, the correlation between the S&P 500 and REITs is only .41. More often than not, they move in the same direction. However, a substantial amount of the time, the two assets can move in opposite directions.

Low or negative correlation among our asset classes can come in handy. If our asset classes behave somewhat independently of each other, some may pick up the slack for those that perform poorly. This helps reduce overall portfolio volatility.

Correlation Coefficient Factors

1988-2018

	S&P 500 Index	Russell 2000 Value Index	Russell 2000 Index	MSCI EAFE Index (gross div.)	MSCI Emerging Markets Index (gross div.)	Dow Jones US Select REIT Index
S&P 500 Index	1.00					
Russell 2000 Value Index	0.64	1.00				
Russell 2000 Index	0.83	0.90	1.00			
MSCI EAFE Index (gross div.)	0.75	0.55	0.74	1.00		
MSCI Emerging Markets Index (gross div.)	0.51	0.45	0.64	0.75	1.00	
Dow Jones US Select REIT Index	0.41	0.75	0.63	0.43	0.37	1.00

Domestic Equity Investments

For U.S. stocks, our two main asset classes are Large and Small stocks. Academic research shows the largest and smallest company stocks have low correlation with each other. In other words, these two asset classes would be the best and worst performers in most investment periods.⁶ A portfolio containing asset classes with low correlation to each other results in greater long-term performance for the investor while reducing risk through diversification.

The table below divides the stocks on the New York Stock Exchange (NYSE) into 10 segments, or deciles. Decile 1 represents the largest 10% of stocks, while Decile 10 represents the smallest 10%. The table highlights the best and worst performing deciles. You can see that the most extreme returns (the best and worst each period) have generally occurred in the largest and smallest deciles.

It is well documented that, historically, stocks of smaller companies have outperformed the market as a whole (the small firm effect). For instance, stocks whose capitalization puts them in the lowest quintile of the NYSE have had an average return of 11.8 percent over the 93 years ending in 2018. It is well above the average return of 10.1 percent for the S&P 500 Index (larger stocks) over the same period.⁷

Annualized Returns (%)	NYSE Decile									
	1	2	3	4	5	6	7	8	9	10
Time	1	2	3	4	5	6	7	8	9	10
1929-31	-26.86	-35.02	-35.60	-37.53	-37.19	-43.38	-41.30	-46.26	-48.46	-50.13
1932-34	9.38	23.28	28.57	29.70	24.63	38.44	27.51	49.57	48.74	82.02
1935-37	7.92	9.80	2.64	3.18	7.99	6.76	8.99	3.70	13.48	15.29
1938-40	6.77	6.14	5.20	9.79	15.08	11.96	10.73	8.85	5.56	-3.64
1941-43	7.67	15.86	14.62	15.09	16.40	16.63	26.92	26.44	32.26	52.07
1944-46	13.16	21.09	20.80	23.45	25.08	29.27	24.15	29.55	35.35	39.09
1947-49	9.13	8.19	9.05	6.00	6.34	4.55	5.07	1.59	2.26	5.10
1950-52	21.33	21.15	20.02	19.68	20.47	18.97	21.30	20.44	19.23	18.79
1953-55	24.44	21.52	23.72	20.95	21.66	24.87	22.13	19.15	23.20	25.05
1956-58	11.24	15.20	13.02	15.43	13.41	10.52	14.99	12.45	15.55	11.92
1959-61	12.52	13.60	15.27	15.12	14.44	13.19	14.18	14.07	14.44	11.82
1962-64	9.00	7.94	7.24	5.80	3.10	4.28	4.28	6.10	2.76	4.86
1965-67	6.00	10.91	15.90	19.31	23.09	26.17	25.78	29.99	33.23	40.22
1968-70	1.18	1.21	2.96	-2.77	-0.60	0.07	-4.67	-3.96	-7.24	-3.78
1971-73	7.01	-0.45	-0.14	0.00	-4.42	-4.08	-6.76	-7.71	-11.27	-11.67
1974-76	4.57	12.90	17.07	18.59	20.73	18.45	21.16	24.60	21.44	24.03
1977-79	3.96	8.25	13.78	16.01	19.39	25.07	25.23	27.06	26.58	31.04
1980-82	13.17	16.83	17.75	20.07	21.90	22.16	20.56	20.01	23.89	21.65
1983-85	19.72	20.07	18.75	17.43	17.24	19.16	17.33	19.87	16.22	11.61
1986-88	12.47	12.51	13.66	13.67	9.96	8.38	8.52	7.09	4.26	1.07
1989-91	19.78	17.01	17.08	15.92	16.52	14.75	12.76	11.65	8.01	2.44
1992-94	4.59	8.74	8.26	8.96	12.81	11.86	11.13	9.45	12.04	17.61
1995-97	32.51	28.14	25.57	25.76	20.63	24.21	27.14	24.11	27.25	22.68
1998-00	13.30	10.47	10.85	8.24	5.48	6.55	4.24	6.85	3.78	-0.69
2001-03	-6.20	1.35	2.40	6.07	4.30	8.13	8.75	15.35	21.97	34.78
2004-06	8.93	15.86	14.96	13.59	14.37	13.16	15.09	15.75	11.23	14.47
2007-09	-5.18	-4.90	-5.04	-1.65	0.28	-3.76	-3.32	-3.38	-4.04	-4.99
2010-12	10.27	12.40	14.09	12.57	14.11	14.00	14.04	13.74	11.06	10.59
2013-15	14.89	15.42	13.40	13.97	11.25	11.07	12.66	10.85	10.77	10.62
2016-18	10.04	8.42	8.68	5.81	5.46	6.17	8.73	5.46	8.91	3.44
Best	Worst									

⁶Dimensional Fund Advisors, *U.S. Small Company Strategy*.

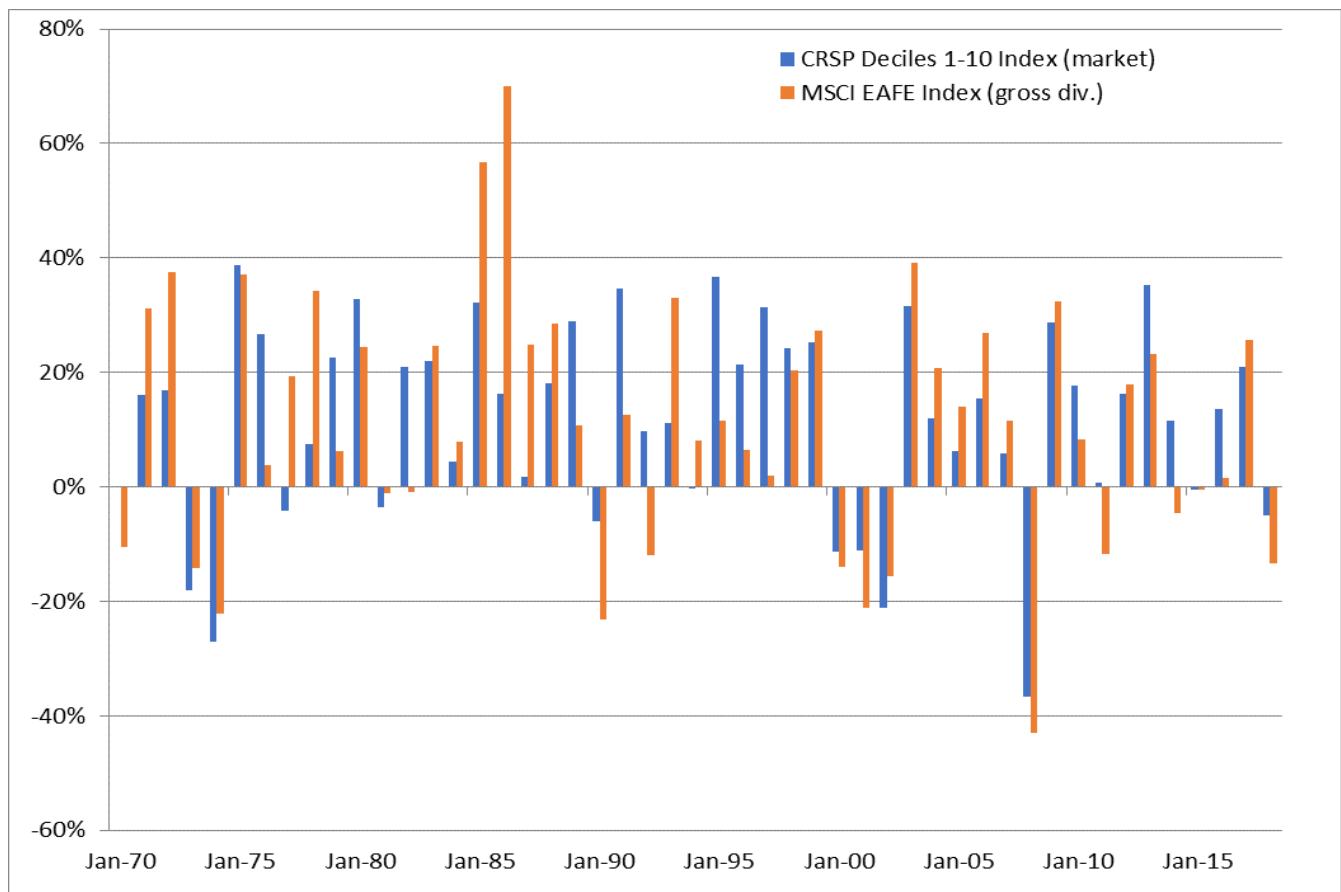
⁷ Dimensional Fund Advisors, DFA Returns program, as updated through 2018.

International Equity Investments

The international and U.S. markets also have low correlation. In addition to taking advantage of the high returns attainable in the U.S. equity markets, your portfolio will invest in overseas equity markets. The primary reason for this is increased diversification, which will lower risk. The correlation between the performance of U.S. stocks and that of stocks from developed nations outside of the U.S. is lower than the correlation between the large and small segments of the U.S. market. Thus, by diversifying internationally, you can lower the volatility of your portfolio by combining asset classes with low correlation while still enjoying the superior returns of the equity markets.

The chart below shows the importance of global diversification.⁸ Investment returns in foreign markets have outperformed domestic market returns at irregular intervals, which emphasizes the importance of maintaining a globally diversified portfolio.

U.S. and Foreign Markets Performed Differently
1970 -2018⁹



When two investments have similar long-term returns, yet have such dissimilar patterns in their short-term outcomes, you can attain your portfolio's growth potential and reduce risk at the same time by investing in both.

⁸The difference between the CRSP 1-10 Deciles Index and the MSCI EAFE Index. Annualized returns.

⁹ See Standardized Performance Data & Disclosures. Selection of funds, indices and time periods presented chosen by client's advisor. Indices are not available for direct investment and performance does not reflect expenses of an actual portfolio. Past performance is not a guarantee of future results. CRSP data provided by the Center for Research in Security Prices, University of Chicago. MSCI data copyright MSCI 2007, all rights reserved.

A segment of your portfolio will be invested in stocks of small companies outside of the US. The small firm effect has been identified in foreign equity markets as well as in the U.S. In fact, available evidence implies that the effect is even stronger in the major foreign markets.¹⁰

The important thing to realize is that mixing domestic and foreign stocks is a powerfully advantageous investment strategy. While investors all over the world tend to emphasize investments in their home markets, you miss two important benefits by not investing in overseas markets at all. First, overseas investments allow you to participate in the growth of the whole global economy. And second, international equities are a powerful diversifier, allowing you to reduce risk without sacrificing the growth potential of equity investments.

Emerging Market Equity Investments

All of our portfolios include a small portion in emerging markets. In today's world of international equity investing, we are seeing a great deal of growth in stock markets of emerging economies. The growth rates in these markets are five or six times the rate of growth found in established markets. Research indicates that a very small position in emerging markets can increase the return of the portfolio without increasing overall portfolio volatility. In fact, because of the low correlation between the emerging market asset class and the other asset classes, the overall portfolio volatility may be reduced.

In order to minimize the risk of investing in the inherently riskier realm of emerging markets, many mutual fund managers have established stringent selection criteria in choosing appropriate countries to include in this asset class.

Criteria for Country Selection

Criteria to be considered for inclusion in the Emerging Market asset class might include:

- ⇒ a relatively stable political environment
- ⇒ a well-organized financial market
- ⇒ a market that provides ample liquidity for their shares
- ⇒ a good legal system that protects property rights and upholds contractual obligations

While the markets are defined as *emerging*, the companies within the asset class are well-established companies in those countries. Typical holdings are the national banks, the land developers and phone companies of the various countries.

Step Four: Select Your Investment Approach

As noted previously, asset allocation is the most important factor determining your investment outcome. Once you have determined your asset allocation, the next step is to select the investment vehicles to implement your portfolio strategy. Two important principles should guide this selection:

1. Diversify
2. Stay invested

Elements of Modern Portfolio Theory

The basis for the principles guiding your investment plan is a collection of the best evidence from the academic disciplines of economics and finance. Investment experts usually summarize this evidence as a body of knowledge called "Modern Portfolio Theory."

¹⁰Dimensional Fund Advisors, Inc., "International Small Company Stocks - A New Dimension for Institutional Investors" (1987); also, "International Small Companies" a DFA presentation; (1990). Updated, 2002.

The foundation of Modern Portfolio Theory was a 1952 paper, “Portfolio Selection,” by Dr. Harry Markowitz, in which he established a theory explaining the best way for an investor to choose a portfolio.

His basic theory was that investors should choose a portfolio that offers the best return for a given level of risk—an efficient portfolio. Later work by contributors such as Dr. William Sharpe added to our understanding of how to choose the best portfolio from among a specific set of securities. Modern Portfolio Theory is of such fundamental importance to investing that the economists that formulated the theory received the Nobel Prize in Economic Science in 1990.

Modern Portfolio Theory has four basic premises:

1. Investors are inherently risk averse. Investors are not willing to accept risk except where the level of returns generated will compensate them for that risk. Investors are often more concerned with risk than they are with reward.
2. Securities markets are efficient. Most studies support this idea. An efficient market means that since so much information about a company is known by so many analysts, any new (surprise!) information is rapidly absorbed and the price adjusts quickly in our “auction” market. The market quickly and efficiently prices in “new” information. In fact, advancing information technology and increased sophistication on the part of investors are causing the markets to become even more efficient.
3. The focus of attention should be shifted away from individual security analysis and toward the consideration of a portfolio as a whole, predicated on the explicit risk/reward parameters and on the total portfolio objectives. The efficient allocation of capital in your portfolio to specific asset classes will be far more important than selecting the individual investments.
4. The final premise of Modern Portfolio Theory is that for every risk level there is an optimal combination of asset classes to maximize returns. Quantitative methods can be used to measure risk and to diversify effectively among asset classes. Portfolio diversification is not so much a function of how many individual stocks or bonds are involved, as it is of the relationship of assets to each other. The percentage and the proportionality of these assets in the portfolio are of paramount importance. The “blend” is critical.

Diversify

One reason that many investors are reluctant to invest much in the stock market is that they know many stories of companies that have suddenly come on hard times. Some investors imagine an investment in the stock market to be like that—just when a stock has gone very high, it may be just the time that it is about to fall sharply. The mistake they make when they think this way is that they forget that while a single stock may rise or fall dramatically, the movements of the overall market are more subdued.

Stock-specific events can cause individual stocks to move up or down wildly. You may think that your best protection against stock-specific risk is to have portfolio managers that know all the companies in your portfolio well. The trouble is that the events that cause the most damage to stocks usually come as a complete surprise. A company may have a sudden product liability problem, or the chairman may die or come under a cloud. On the contrary, the company may make a surprise new product announcement, or land a major contract. These events are often unanticipated, and so they cause price movements that not even the best portfolio managers expect. In fact, Modern Portfolio Theory tells us that if the market can anticipate an event, then the effect of the event is already evident in the stock’s price, and no further profit from knowledge of the event is possible.

If a portfolio manager cannot anticipate the movement of stocks, then how can an investor protect a portfolio against stock surprises? The answer is diversification. Own thousands of them, not just a few. The stock-specific movements of individual stocks may not be predictable, but within a diversified portfolio they tend to cancel one another out.

Modern Portfolio Theory tells us that we can build diversified portfolios to greatly reduce stock-specific risk, but that market events, which affect all stocks, are not diversifiable. That is, even a diversified portfolio of stocks is subject to the overall movements of the market. Fortunately, the theory predicts that the market rewards us for taking this risk by giving us generous long-term growth potential. The asset allocation decision is where we decided how aggressively to pursue this long-term growth.

Stay Invested

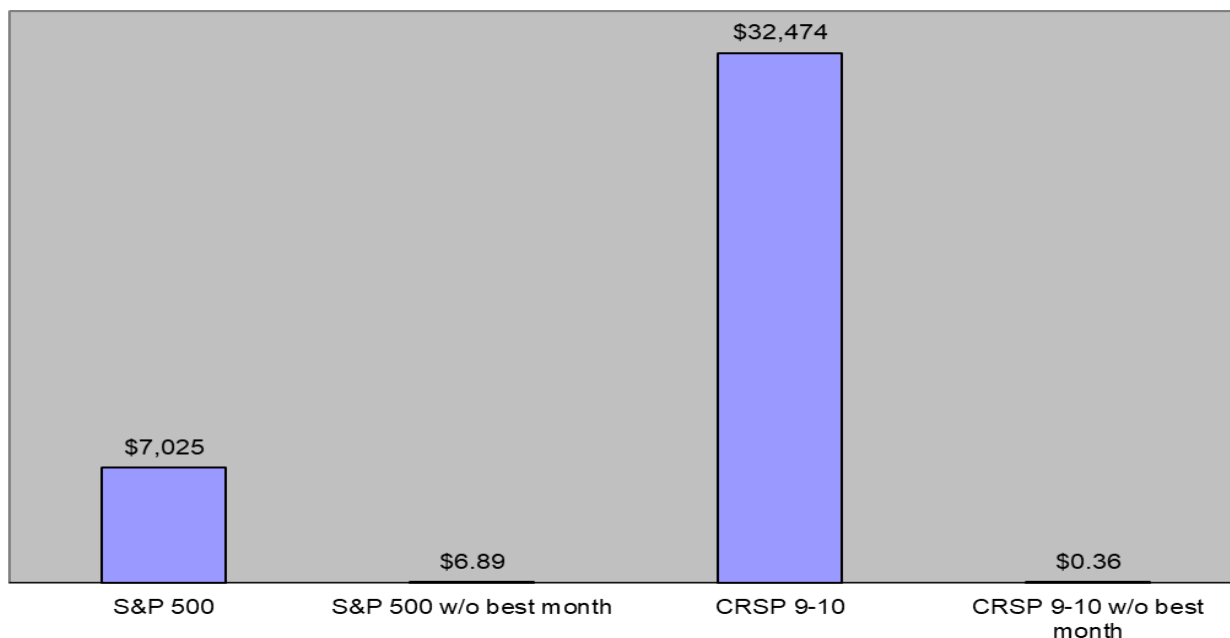
Investors often ask: When is the right time to enter the market? For a long-term investor, the answer is, “today.” There is no short-term investment opinion behind that statement. No one can predict the movements of the market for the next month or year.¹¹ Just as with unanticipated events, if portfolio managers could somehow predict the future movement of the market, then prices in the market would already reflect that knowledge, and so it would be impossible to profit from it.

Even though there is always a danger that the market will go down tomorrow, today is the right day to start investing. The next chart shows why. A major part of the long-term gains from investing in stocks comes from sharp upward bursts. Just missing the best month out of each calendar year over the past 93 years would have resulted in dramatically lower returns compared to staying invested throughout the period (see the chart below). A dollar invested January 1, 1926 in the Standard & Poor’s 500 would have accumulated to \$7,025 by December 31, 2018. If you had simply not been invested the best month out of each calendar year, your one dollar investment in 1926 would have grown to only \$6.89 over the following 93 years.

The opportunity costs are even more dramatic with small company stocks. A dollar invested in the small company index of The Center for Research and Security Prices (CRSP 9-10) in 1926 would have grown to \$32,474 by the end of December 2018. If you had simply not been invested the best month out of each calendar year, your one dollar investment in 1926 would not have grown at all over the 93 years! Your dollar would have reduced to just 36 cents. Smart investors stay invested for the long term. Don’t miss these sharply positive months.

Market Gains Are Very Concentrated

Growth of \$1 Invested January 1926 through December 2018



¹¹ For an intelligent and entertaining discussion of this issue, see Burton R. Malkiel, *A Random Walk Down Wall Street*.

Modern Portfolio Theory Continues to Evolve

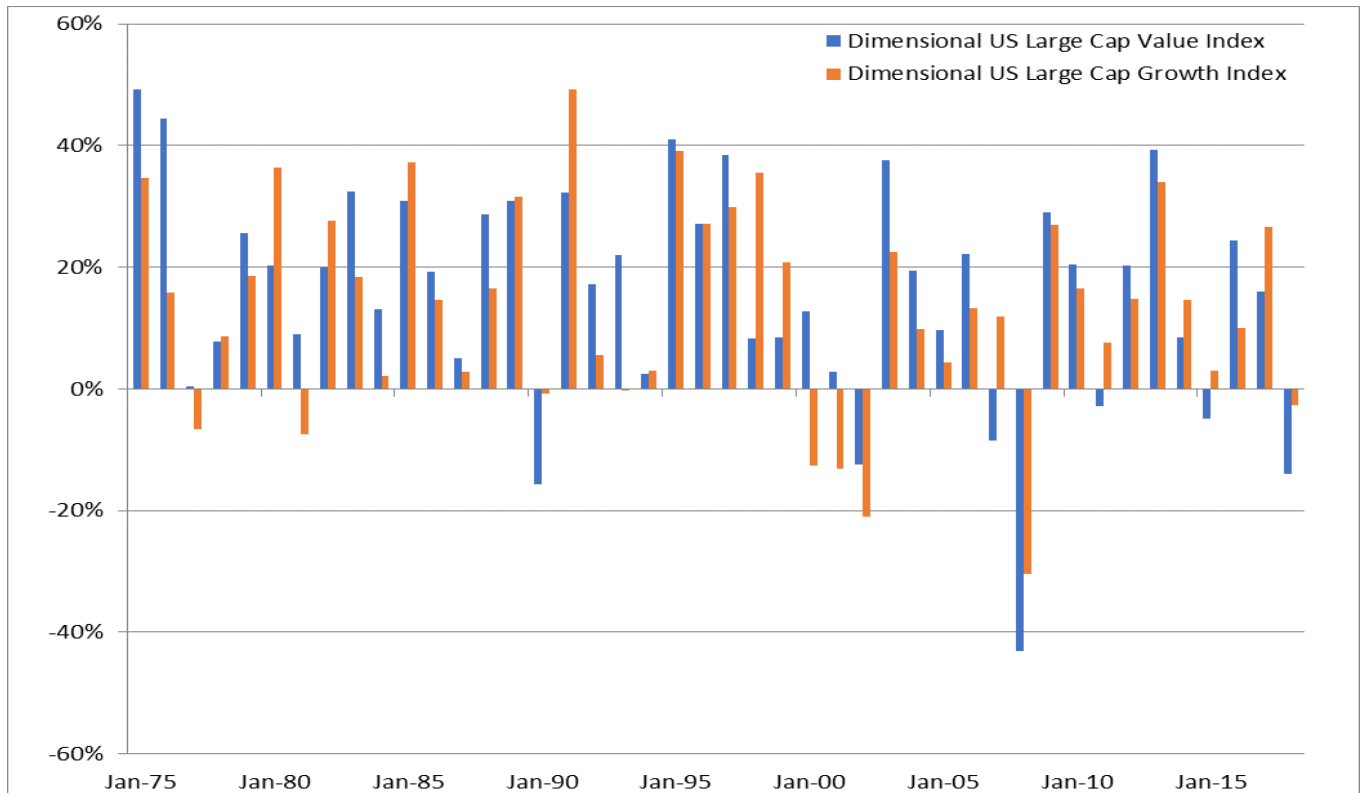
Please bear with us as we get a little technical one more time...

University of Chicago Professors Eugene Fama and Kenneth French expanded the work of Sharpe and others regarding beta, or the concept of risk.¹² Fama and French found that three factors, taken together, explain almost all of the returns we get from stocks. These three factors are market, company size, and book-to-market ratio (BtM). Market means the stock market. The market, as a whole, delivers returns beyond a “riskless” rate (such as 3-month Treasury Bills). We spoke of company size above. It turns out that smaller companies generally have higher returns than larger companies.

Okay, now we get to the really technical part...BtM is a ratio comparing the book value per share of a common stock with the market price of the company's common stock. The book-to-market ratio relates the value of a given company (using generally accepted accounting principles) with the market value assigned by the stock market. A high ratio indicates that investors have a lower opinion of the company's earnings prospects relative to other companies with the same book value. We call companies with high book-to-market ratios value companies. Those with low ratios are called growth companies.

The following chart shows the importance of diversifying between both growth and value stocks.¹³ Investment returns in value stocks have outperformed growth stocks at irregular intervals, which indicates the importance of maintaining a style-diversified portfolio.

U.S. Growth and Value Styles Performed Differently
1975 -2018



¹²“Size and Book-to-Market Equity: Returns and Economic Fundamentals,” by Eugene F. Fama and Kenneth R. French.

¹³The difference between the Dimensional US Large Value Index and the Dimensional US Large Growth Index. Annualized returns.

Another study¹⁴ yielded interesting results. Specifically, it showed that an international high BtM stock portfolio outperformed the recognized global indices. In fact, the excess returns were greater on average than those found in the United States for high BtM stocks. These excess returns, combined with the low correlation of returns between countries, can help lower risk.

This value issue (high book-to-market ratio) is our third factor. Being in the market gives us a higher return expectation than Treasury Bills (Factor 1). Holding smaller company stock yields a greater return over the market (Factor 2) and holding value stocks also yields more than the market as a whole (Factor 3). So, how should our portfolio look?

For stocks, we want three dimensions: first, exposure to the market (U.S., International and emerging markets) second, exposure to small stocks; and, third, exposure to value stocks. We also want to include real estate.

Alright, enough with the technical stuff, let's get back to building the portfolio!

Step Five: Build Your Portfolio

For most people, building a truly diversified portfolio is difficult. Imagine that you wanted to build a diversified portfolio of 500 stocks worldwide. To do a good job, you may need to have \$5 million or more to invest. We already discussed why we don't want to hold just a few individual stocks.

A better way to implement a diversified portfolio investment is through institutional asset class mutual funds. By buying an institutional asset class fund, you invest in a broadly diversified portfolio in a specific asset class in a single transaction. These institutional asset class funds combine your investment with those of other investors to create a pool of money large enough to build a diversified portfolio. The portfolio manager's full-time job is making sure that the securities in the portfolio continue to be suitable for the fund's investment objective. For these reasons, we prefer asset class mutual funds for the stock, real estate, and bond portions of the portfolio.

Manager Selection for Each Asset Class

Almost all investors would benefit by using institutional asset classes. An asset class is a group of investments whose risk factors and expected returns are similar. Originally, institutional asset class funds were not available to investors. Often the minimum investment for these mutual funds was in the millions of dollars, effectively removing them from reach for all but the wealthiest investors. That was their goal because these funds were for institutional accounts, such as large pension plans. Working with our firm provides our investors with access to these institutional asset class funds.

There are five major attributes of institutional asset class funds that attract institutional investors:

1. Lower operating expenses

All mutual funds and separately managed accounts have expenses which include management fees, administration charges and custody fees. These are expressed as a percentage of assets. The average annual expense ratio for all retail equity mutual funds is 1.54 percent¹⁵. In comparison, the same ratio for asset class funds is typically only about one-third of all retail equity mutual funds. All other factors being equal, lower costs lead to higher rates of return.

2. Lower turnover resulting in lower cost

¹⁴"International Value and Growth Stock Returns," by Carlo Capaul, Ian Rowley and William Sharpe, *Financial Analysts Journal*, February 1993, p. 27.

¹⁵ Morningstar Principia database 2002.

Most investment managers do a substantial amount of trading, believing that this adds value. The average retail mutual fund has an annual turnover ratio of 83 percent¹⁶. This means that on average, 83 percent of the securities in the portfolio are traded over a twelve-month period! Talk about fickle. This represents \$83,000 of traded securities for every \$100,000 invested.

Higher turnover is costly to shareholders because each time a trade is made there are transaction costs, including commissions, spreads and market impact costs. These hidden costs may amount to more than a fund's total operating expenses if the fund trades heavily or if it invests in small company stocks whose trading costs can be very high.

Institutional asset class funds have significantly lower turnover. They are not chasing after “winners.” They essentially buy and hold and, thus, trade far less.

3. Lower turnover resulting in lower taxes

If a mutual fund realizes a net gain from its trading, it must make a capital gains distribution to shareholders because mutual funds are required to distribute 98 percent of their taxable income each year, including realized gains to remain tax-exempt at the corporate level. They distribute all their income annually because no mutual fund manager wants to have his or her performance reduced by paying corporate income taxes.

In one study, Stanford University economists John B. Shoven and Joel M. Dickson¹⁷ found that taxable distributions have a negative effect on the rate of return of many well-known retail equity mutual funds. They found that a high-tax bracket investor who reinvested the after-tax distributions ended up with an accumulated wealth per dollar invested of only 45 percent of the fund's published performance. An investor in the middle tax bracket realizes just 55 percent of the published performance.

Because institutional asset class funds have less turnover, they create significantly lower taxable income for the investor. Tax-efficient funds can make a dramatic difference.

4. Consistently maintained market segments

Most investment advisors agree that the largest determination of performance is asset allocation—how your money is divided among different asset categories. However, you can only accomplish effective asset allocation if the investments in your portfolio maintain consistent asset allocation. That means your funds need to stay within their target asset classes – stick to their knitting¹. Unfortunately, many retail funds botch your asset allocation when they migrate among asset classes or park money in cash. On the other hand, because of their investment mandates, institutional asset classes must stay fully invested in the specific asset class they represent.

5. Buy Broadly

All other things being equal, we would prefer fund managers who do not, through fundamental analysis or any other speculative process, attempt to pick the winners within their stated asset class. Instead, we prefer that the fund manager target all viable options fitting the stated parameters, in an attempt to build a mix of many positions to most accurately capture the returns of the stated asset class over time.

Fortunately, we can now make these institutional asset class funds available to our clients. You can gain the same advantages that previously only large institutional investors enjoyed.

¹⁶ Morningstar Principia database 2002.

¹⁷ A study, commissioned by Charles Schwab and conducted by John Shoven, a Stanford University economics professor, and Joel Dickson, a Stanford Ph.D. candidate, measured the performance of 62 equity funds for the 30-year period from 1963 through 1992.

Conclusion

Yes, markets are scary. They swing up and down wildly. They seem irrational. They are unpredictable. They are uncontrollable. So, what should an investor do? Step back a bit. Watching the daily, weekly, monthly, even annual fluctuations seems to confirm this irrationality. But when you step back (away from the short-term swings and noise), there truly is a pattern to the market! Observe the upward trend in the Dow Jones Industrial Average over time:

1931	78
1941	113
1951	270
1961	725
1971	890
1981	875
1991	3,169
2001	10,022
2011	12,218
2018	23,327

Stepping back a bit helps us remain patient. Patience is rewarded.

You, as an investor, need to understand what is in your power to control. We feel you do not have the power to:

1. Successfully pick winning stocks.
2. "Time" the market by selling before the market drops or buying before the market rises.
3. Identify winning money managers in advance.

You do have the power to:

1. Select an appropriate level of risk.
2. Diversify based on sound investment principles.
3. Minimize investment expenses.
4. Exercise discipline by staying the course during inevitable tough times.
5. Have a successful investment experience!

So, by working through these five steps above, we create an investment plan. This plan is tailored to your goals and objectives and is designed to guide us through the tough times, the scary times. It is our vehicle to make those dreams and goals a reality.

Comparative Index Returns
Jan. 1, 1973 through Dec. 31, 2018 — SINGLE YEAR PERIODS

1 Year Ending				S&P 500	Small Co.	EAFE	Int'l Small
	Inflation	T-Bills	T-Bonds	Index	Stocks	Index	Co. Stocks
Dec-73	8.8%	6.9%	4.6%	-14.7%	-36.6%	-14.2%	-13.7%
Dec-74	12.2%	8.0%	5.7%	-26.5%	-27.1%	-22.1%	-28.6%
Dec-75	7.0%	5.8%	7.8%	37.2%	55.2%	37.1%	49.9%
Dec-76	4.8%	5.1%	12.9%	23.8%	47.5%	3.7%	11.5%
Dec-77	6.8%	5.1%	1.4%	-7.2%	22.0%	19.4%	74.1%
Dec-78	9.0%	7.2%	3.5%	6.6%	22.0%	34.3%	65.5%
Dec-79	13.3%	10.4%	4.1%	18.4%	41.8%	6.2%	-0.8%
Dec-80	12.4%	11.3%	3.9%	32.4%	39.2%	24.4%	35.5%
Dec-81	8.9%	14.7%	9.4%	-4.9%	0.9%	-1.0%	0.1%
Dec-82	3.9%	10.5%	29.1%	21.4%	28.2%	-0.9%	0.0%
Dec-83	3.8%	8.8%	7.4%	22.5%	35.3%	24.6%	36.1%
Dec-84	4.0%	9.8%	14.0%	6.3%	-7.2%	7.9%	11.6%
Dec-85	3.8%	7.7%	20.3%	32.2%	30.6%	56.7%	67.5%
Dec-86	1.1%	6.1%	15.1%	18.5%	6.7%	69.9%	59.5%
Dec-87	4.4%	5.5%	2.9%	5.2%	-10.5%	24.9%	40.7%
Dec-88	4.4%	6.4%	6.1%	16.8%	24.4%	28.6%	25.9%
Dec-89	4.6%	8.4%	13.3%	31.5%	15.2%	10.8%	30.8%
Dec-90	6.1%	7.8%	9.7%	-3.1%	-19.9%	-23.2%	-17.9%
Dec-91	3.1%	5.6%	15.3%	30.5%	48.4%	12.5%	5.8%
Dec-92	3.0%	3.5%	7.2%	7.6%	20.0%	-11.8%	-20.6%
Dec-93	2.8%	2.9%	11.2%	10.1%	18.2%	32.9%	34.4%
Dec-94	2.7%	3.9%	-5.1%	1.3%	-2.9%	8.1%	14.8%
Dec-95	2.7%	5.6%	16.1%	37.6%	33.1%	11.6%	1.0%
Dec-96	3.3%	5.2%	2.1%	23.0%	18.6%	6.4%	2.8%
Dec-97	1.7%	5.3%	8.4%	33.4%	24.4%	2.1%	-14.5%
Dec-98	1.6%	4.9%	10.2%	28.6%	-1.9%	20.3%	10.2%
Dec-99	2.7%	4.7%	-1.8%	21.0%	32.5%	27.3%	30.2%
Dec-00	3.4%	5.9%	12.6%	-9.1%	-4.1%	-14.0%	-12.3%
Dec-01	1.6%	3.8%	7.6%	-11.9%	9.1%	-21.2%	-16.7%
Dec-02	2.4%	1.6%	13.0%	-22.1%	-19.7%	-15.7%	-2.9%
Dec-03	1.9%	1.0%	2.4%	28.7%	56.7%	39.2%	60.2%
Dec-04	3.3%	1.2%	2.3%	10.9%	18.9%	20.7%	32.1%
Dec-05	3.4%	3.0%	1.3%	4.9%	6.1%	14.0%	22.6%
Dec-06	2.5%	4.8%	3.1%	15.8%	17.1%	26.9%	26.3%
Dec-07	4.1%	4.7%	10.0%	5.5%	-3.5%	11.6%	8.0%
Dec-08	0.1%	1.7%	13.1%	-37.0%	-38.1%	-43.1%	-47.1%
Dec-09	2.7%	0.1%	-2.4%	26.5%	39.8%	32.5%	44.8%
Dec-10	1.5%	0.1%	7.1%	15.1%	29.7%	8.2%	20.7%
Dec-11	3.0%	0.0%	9.5%	2.1%	-5.4%	-11.7%	-15.6%
Dec-12	1.7%	0.1%	0.6%	16.0%	17.4%	17.9%	16.8%
Dec-13	1.5%	0.0%	-1.1%	32.4%	43.4%	23.3%	25.8%
Dec-14	0.8%	0.0%	3.1%	13.7%	3.8%	-4.5%	-5.3%
Dec-15	0.7%	0.0%	1.7%	1.4%	-5.6%	-0.4%	5.7%
Dec-16	2.1%	0.2%	1.9%	12.0%	26.8%	1.5%	5.5%
Dec-17	2.1%	0.8%	1.6%	21.8%	13.4%	25.6%	32.1%
Dec-18	1.9%	1.8%	1.2%	-4.4%	-12.8%	-13.4%	-18.8%
Annualized Return (%)	3.9%	4.6%	6.8%	10.1%	12.9%	8.6%	12.4%
Annualized Standard Deviation* (%)	3.1%	3.6%	6.6%	17.5%	22.6%	21.8%	27.2%
Growth of Wealth	\$5.91	\$8.19	\$20.72	\$82.67	\$264.97	\$43.62	\$213.97

Annualized Return is a compound set of returns expressed as a yearly return. • Growth of a Dollar computes the ending value of a dollar invested on the first day of the time period.
• Standard Deviation measures the amount of variation in returns.

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Comparative Index Returns
Jan. 1, 1973 through Dec. 31, 2018 — FIVE YEAR PERIODS

5 Year Ending	Inflation	T-Bills	T-Bonds	S&P 500 Index	Small Co. Stocks	EAFE Index	Int'l Small Co. Stocks
	Dec-77	7.9%	6.2%	6.4%	-0.2%	5.2%	2.6%
Dec-78	7.9%	6.2%	6.2%	4.3%	20.0%	12.2%	28.0%
Dec-79	8.2%	6.7%	5.9%	14.8%	37.0%	19.4%	36.7%
Dec-80	9.2%	7.8%	5.1%	13.9%	34.1%	17.1%	34.0%
Dec-81	10.1%	9.7%	4.4%	8.1%	24.3%	16.0%	31.1%
Dec-82	9.5%	10.8%	9.6%	14.0%	25.5%	11.7%	17.4%
Dec-83	8.4%	11.1%	10.4%	17.3%	28.1%	10.1%	12.9%
Dec-84	6.6%	11.0%	12.4%	14.8%	17.7%	10.4%	15.6%
Dec-85	4.9%	10.3%	15.8%	14.7%	16.2%	15.6%	20.6%
Dec-86	3.3%	8.6%	17.0%	19.9%	17.5%	28.8%	32.4%
Dec-87	3.4%	7.6%	11.8%	16.5%	9.4%	34.9%	41.7%
Dec-88	3.5%	7.1%	11.5%	15.4%	7.5%	35.8%	39.5%
Dec-89	3.7%	6.8%	11.4%	20.4%	12.3%	36.5%	44.0%
Dec-90	4.1%	6.8%	9.3%	13.2%	1.9%	18.4%	24.8%
Dec-91	4.5%	6.7%	9.4%	15.4%	8.8%	9.0%	15.0%
Dec-92	4.2%	6.3%	10.3%	15.9%	15.4%	1.6%	2.6%
Dec-93	3.9%	5.6%	11.3%	14.5%	14.2%	2.3%	3.9%
Dec-94	3.5%	4.7%	7.4%	8.7%	10.3%	1.8%	1.2%
Dec-95	2.8%	4.3%	8.7%	16.6%	22.2%	9.7%	5.5%
Dec-96	2.9%	4.2%	6.0%	15.2%	16.8%	8.5%	4.9%
Dec-97	2.6%	4.6%	6.3%	20.3%	17.6%	11.7%	6.5%
Dec-98	2.4%	5.0%	6.1%	24.1%	13.3%	9.5%	2.3%
Dec-99	2.4%	5.1%	6.8%	28.6%	20.6%	13.2%	4.9%
Dec-00	2.5%	5.2%	6.2%	18.3%	13.0%	7.4%	2.0%
Dec-01	2.2%	4.9%	7.3%	10.7%	11.1%	1.2%	-2.2%
Dec-02	2.3%	4.2%	8.2%	-0.6%	1.8%	-2.6%	0.4%
Dec-03	2.4%	3.4%	6.6%	-0.6%	11.8%	0.3%	8.2%
Dec-04	2.5%	2.7%	7.5%	-2.3%	9.4%	-0.8%	8.5%
Dec-05	2.5%	2.1%	5.2%	0.5%	11.6%	4.9%	16.0%
Dec-06	2.7%	2.3%	4.3%	6.2%	13.2%	15.4%	26.1%
Dec-07	3.0%	2.9%	3.8%	12.8%	17.5%	22.1%	28.8%
Dec-08	2.7%	3.1%	5.9%	-2.2%	-2.5%	2.1%	3.2%
Dec-09	2.6%	2.8%	4.9%	0.4%	0.8%	4.0%	5.1%
Dec-10	2.2%	2.3%	6.1%	2.3%	4.9%	2.9%	4.8%
Dec-11	2.3%	1.3%	7.3%	-0.3%	0.5%	-4.3%	-3.4%
Dec-12	1.8%	0.4%	5.4%	1.7%	4.5%	-3.2%	-1.8%
Dec-13	2.1%	0.1%	2.9%	17.9%	23.8%	13.0%	17.4%
Dec-14	1.7%	0.1%	3.3%	15.5%	16.8%	5.8%	7.9%
Dec-15	1.5%	0.0%	2.2%	12.6%	9.8%	4.1%	5.1%
Dec-16	1.4%	0.1%	0.9%	14.7%	16.1%	7.0%	9.6%
Dec-17	1.4%	0.2%	0.9%	15.8%	15.2%	8.4%	12.0%
Dec-18	1.5%	0.6%	1.9%	8.5%	4.2%	1.0%	2.4%
5 Year Median	2.7%	4.8%	6.4%	14.3%	15.5%	8.7%	11.2%
5 Year Std. Dev.	2.5%	3.2%	3.6%	7.8%	8.5%	10.2%	13.0%

Annualized Return is a compound set of returns expressed as a yearly return. • Total Return computes a simple aggregate return. • Growth of a Dollar computes the ending value of a dollar invested on the first day of the time period. • Standard Deviation measures the amount of variation in returns. • Median computes the midpoint return for a particular time period.

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Hypothetical Portfolio Returns Before Fees
Jan. 1, 1973 through Dec. 31, 2018—SINGLE YEAR PERIODS

1 Year Ending	Global Fixed Portfolio	Global Conservative Portfolio	Global Moderate Portfolio	Global Normal Portfolio	Global Aggressive Portfolio	Global Equity Portfolio
Dec-73	5.1%	0.2%	-4.7%	-9.4%	-14.1%	-18.6%
Dec-74	7.9%	1.2%	-5.3%	-11.4%	-17.3%	-22.9%
Dec-75	7.9%	15.6%	23.6%	31.9%	40.4%	49.3%
Dec-76	8.3%	12.7%	17.2%	21.7%	26.3%	30.8%
Dec-77	4.2%	7.0%	9.8%	12.7%	15.7%	18.7%
Dec-78	4.7%	8.5%	12.4%	16.3%	20.3%	24.3%
Dec-79	8.5%	11.2%	13.9%	16.5%	19.2%	21.8%
Dec-80	9.1%	13.0%	16.9%	20.8%	24.7%	28.5%
Dec-81	13.2%	12.0%	10.7%	9.3%	8.0%	6.6%
Dec-82	20.0%	19.5%	18.8%	18.1%	17.3%	16.4%
Dec-83	8.8%	13.4%	18.1%	22.9%	27.9%	33.1%
Dec-84	13.4%	12.5%	11.6%	10.7%	9.7%	8.6%
Dec-85	12.8%	17.4%	22.0%	26.9%	31.9%	37.0%
Dec-86	10.1%	13.7%	17.3%	21.0%	24.8%	28.6%
Dec-87	6.0%	7.6%	8.9%	10.0%	10.6%	10.9%
Dec-88	6.5%	10.4%	14.5%	18.7%	23.0%	27.4%
Dec-89	9.7%	13.1%	16.6%	20.1%	23.7%	27.3%
Dec-90	8.8%	4.0%	-0.7%	-5.3%	-9.8%	-14.2%
Dec-91	10.7%	14.4%	18.2%	22.0%	25.8%	29.6%
Dec-92	6.1%	6.9%	7.6%	8.3%	8.9%	9.6%
Dec-93	6.2%	10.5%	14.8%	19.4%	24.0%	28.8%
Dec-94	0.5%	1.4%	2.3%	3.2%	4.0%	4.8%
Dec-95	11.3%	13.4%	15.6%	17.8%	20.0%	22.3%
Dec-96	6.2%	9.1%	12.0%	15.0%	18.1%	21.1%
Dec-97	6.7%	9.3%	11.9%	14.4%	17.0%	19.6%
Dec-98	7.3%	7.1%	6.7%	6.1%	5.3%	4.3%
Dec-99	3.4%	6.5%	9.6%	12.7%	15.9%	19.1%
Dec-00	8.1%	7.2%	6.3%	5.3%	4.3%	3.3%
Dec-01	7.1%	6.3%	5.4%	4.4%	3.3%	2.0%
Dec-02	5.1%	2.2%	-0.7%	-3.6%	-6.7%	-9.7%
Dec-03	1.8%	9.9%	18.5%	27.6%	37.2%	47.5%
Dec-04	1.7%	5.8%	10.1%	14.5%	19.0%	23.6%
Dec-05	2.4%	4.6%	6.8%	9.0%	11.3%	13.5%
Dec-06	4.1%	8.0%	12.0%	16.1%	20.3%	24.6%
Dec-07	6.6%	5.5%	4.4%	3.2%	2.0%	0.8%
Dec-08	6.4%	-4.8%	-15.2%	-24.8%	-33.7%	-41.8%
Dec-09	1.3%	9.3%	17.5%	25.7%	34.1%	42.4%
Dec-10	2.0%	6.1%	10.1%	14.1%	18.1%	21.9%
Dec-11	1.9%	0.6%	-0.9%	-2.4%	-4.1%	-5.9%
Dec-12	1.1%	4.6%	8.0%	11.5%	15.1%	18.6%
Dec-13	0.4%	5.4%	10.7%	16.1%	21.7%	27.6%
Dec-14	1.1%	2.2%	3.4%	4.5%	5.7%	6.8%
Dec-15	0.7%	0.1%	-0.6%	-1.3%	-2.1%	-2.9%
Dec-16	1.1%	4.4%	7.8%	11.2%	14.6%	18.0%
Dec-17	0.8%	4.2%	7.8%	11.4%	15.1%	18.9%
Dec-18	1.9%	-0.8%	-3.5%	-6.2%	-8.9%	-11.6%
Annualized Return (%)	6.0%	7.5%	9.0%	10.4%	11.7%	12.9%
Annualized Standard Deviation* (%)	4.2%	5.2%	8.0%	11.4%	14.9%	18.6%
Growth of Wealth	\$14.52	\$28.35	\$53.00	\$94.86	\$162.43	\$265.86

Annualized Return is a compound set of returns expressed as a yearly return. • Total Return computes a simple aggregate return. • Growth of a Dollar computes the ending value of a dollar invested on the first day of the time period. • Standard Deviation measures the amount of variation in returns. • Median Return computes the midpoint return for a particular time period. • The 6 hypothetical portfolios' performances are based exclusively on index data before fees.

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Hypothetical Portfolio Returns Before Fees
Jan. 1, 1973 through Dec. 31, 2018—FIVE YEAR PERIODS

5 Year Ending	Global Fixed Portfolio	Global Conservative Portfolio	Global Moderate Portfolio	Global Normal Portfolio	Global Aggressive Portfolio	Global Equity Portfolio
Dec-77	6.7%	7.2%	7.5%	7.7%	7.8%	7.8%
Dec-78	6.6%	8.9%	11.1%	13.3%	15.3%	17.3%
Dec-79	6.7%	11.0%	15.3%	19.7%	24.1%	28.6%
Dec-80	6.9%	10.5%	14.0%	17.6%	21.2%	24.8%
Dec-81	7.9%	10.3%	12.7%	15.1%	17.4%	19.7%
Dec-82	11.0%	12.8%	14.5%	16.2%	17.7%	19.3%
Dec-83	11.8%	13.8%	15.6%	17.4%	19.2%	20.9%
Dec-84	12.8%	14.0%	15.2%	16.2%	17.2%	18.2%
Dec-85	13.6%	14.9%	16.2%	17.4%	18.6%	19.7%
Dec-86	12.9%	15.2%	17.5%	19.8%	22.0%	24.3%
Dec-87	10.2%	12.9%	15.5%	18.1%	20.6%	23.1%
Dec-88	9.7%	12.3%	14.8%	17.3%	19.7%	22.0%
Dec-89	9.0%	12.4%	15.8%	19.2%	22.6%	25.9%
Dec-90	8.2%	9.7%	11.1%	12.4%	13.6%	14.7%
Dec-91	8.3%	9.9%	11.3%	12.6%	13.8%	14.9%
Dec-92	8.4%	9.7%	11.0%	12.3%	13.5%	14.6%
Dec-93	8.3%	9.7%	11.1%	12.4%	13.7%	14.9%
Dec-94	6.4%	7.3%	8.2%	9.0%	9.8%	10.5%
Dec-95	6.9%	9.2%	11.6%	13.9%	16.2%	18.6%
Dec-96	6.0%	8.2%	10.4%	12.6%	14.8%	17.0%
Dec-97	6.1%	8.7%	11.2%	13.8%	16.4%	19.1%
Dec-98	6.4%	8.0%	9.6%	11.2%	12.7%	14.1%
Dec-99	7.0%	9.1%	11.1%	13.2%	15.1%	17.1%
Dec-00	6.3%	7.8%	9.3%	10.6%	12.0%	13.2%
Dec-01	6.5%	7.3%	8.0%	8.5%	9.0%	9.4%
Dec-02	6.2%	5.9%	5.4%	4.9%	4.2%	3.4%
Dec-03	5.1%	6.4%	7.6%	8.8%	9.8%	10.8%
Dec-04	4.7%	6.3%	7.7%	9.1%	10.4%	11.6%
Dec-05	3.6%	5.8%	7.9%	9.9%	11.9%	13.8%
Dec-06	3.0%	6.1%	9.2%	12.2%	15.3%	18.4%
Dec-07	3.3%	6.8%	10.3%	13.8%	17.4%	21.0%
Dec-08	4.2%	3.7%	3.1%	2.4%	1.5%	0.5%
Dec-09	4.2%	4.4%	4.5%	4.3%	4.0%	3.4%
Dec-10	4.1%	4.7%	5.1%	5.3%	5.2%	4.9%
Dec-11	3.6%	3.2%	2.6%	1.7%	0.5%	-0.9%
Dec-12	2.5%	3.0%	3.3%	3.3%	3.0%	2.4%
Dec-13	1.3%	5.2%	8.9%	12.6%	16.3%	19.8%
Dec-14	1.3%	3.8%	6.2%	8.6%	10.9%	13.1%
Dec-15	1.0%	2.6%	4.0%	5.4%	6.8%	8.1%
Dec-16	0.9%	3.3%	5.8%	8.2%	10.7%	13.1%
Dec-17	0.8%	3.3%	5.7%	8.2%	10.7%	13.2%
Dec-18	1.1%	2.0%	2.9%	3.7%	4.4%	5.1%
5 Year Median	6.5%	8.2%	10.3%	12.4%	13.8%	14.9%
5 Year Std. Dev.	3.2%	3.4%	4.1%	4.9%	6.0%	7.2%

Annualized Return is a compound set of returns expressed as a yearly return. • Total Return computes a simple aggregate return. • Growth of a Dollar computes the ending value of a dollar invested on the first day of the time period. • Standard Deviation measures the amount of variation in returns. • Median Return computes the midpoint return for a particular time period. • The 6 hypothetical portfolios' performances are based exclusively on index data before fees.

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Important Notice

The Global Fixed, Global Conservative, Global Moderate, Global Aggressive and Global Equity hypothetical portfolios illustrate how an asset allocation strategy could have performed in those markets. Results presented are hypothetical and are provided to educate investors on the performance of different asset classes over an extended period of time. The results are not intended to represent the performance of a particular investment. The year 1973 was selected as a start date for the data in order to show this information over an extended period of time encompassing complete market cycles. It was also selected because that was the first full calendar year after the Bretton-Wood's Treaty was signed, which unlinked certain currencies from fixed exchange rates. The selection of a different starting date would have materially affected the results portrayed.

Our hypothetical portfolios hold percentages constant by rebalancing the portfolios at the beginning of each calendar month. No management fees, advisory fees and/or transaction costs were deducted. Past performance is not indicative of future performance. This is especially the case with a hypothetical portfolio, which is not subject to specific economic and market conditions.

Our simulation uses a combination of indices and managed funds. While an index is a composite of securities with similar characteristics, investors cannot invest directly in an index. In addition, not all of the funds used in the simulation have been in existence since 1973. Our hypothetical model is based on data that is representative of how the asset classes could have performed in earlier years.

All investments involve risk including loss of principal. Foreign securities involve additional risks including foreign currency changes, political risks, foreign taxes, and different methods of accounting and financial reporting. Treasury Bills and Government Bonds are guaranteed as to repayment of principal and interest by the U.S. Government. The S&P 500 Index is an unmanaged stock index, with dividends reinvested, that is generally considered representative of the large U.S. equity market. **Material sources for data used in the simulated returns are listed below.**

The Following Asset Classes Were Used to Construct the Hypothetical Portfolios Used in the Research Studies:

	Fixed	Conservative	Moderate	Normal	Aggressive	Equity
Equity	0.0%	20.0%	40.0%	60.0%	80.0%	100.0%
U.S. Stocks	0.0%	14.0%	28.0%	42.0%	56.0%	70.0%
Large Cap Market U.S. Large Company Portfolio	0.0	4.0	8.0	12.0	16.0	20.0
Large Cap Value U.S. Large Cap Value Portfolio	0.0	4.0	8.0	12.0	16.0	20.0
Small Cap Market U.S. Micro Cap Portfolio	0.0	2.0	4.0	6.0	8.0	10.0
Small Cap Value U.S. Small Cap Value Portfolio	0.0	2.0	4.0	6.0	8.0	10.0
Real Estate Stocks Real Estate Securities Portfolio	0.0	2.0	4.0	6.0	8.0	10.0
International Stocks	0.0%	6.0%	12.0%	18.0%	24.0%	30.0%
Large Cap Value International Value Portfolio	0.0	2.0	4.0	6.0	8.0	10.0
Small Cap Market International Small Company Portfolio	0.0	1.0	2.0	3.0	4.0	5.0
Small Cap Value International Small Cap Value Portfolio	0.0	1.0	2.0	3.0	4.0	5.0
Emerging Markets Large Emerging Markets Portfolio	0.0	0.6	1.2	1.8	2.4	3.0
Emerging Markets Value Emerging Markets Value Portfolio	0.0	0.6	1.2	1.8	2.4	3.0
Emerging Markets Small Emerging Markets Small Cap Portfolio	0.0	0.8	1.6	2.4	3.2	4.0
Fixed Income	100.0%	80.0%	60.0%	40.0%	20.0%	0.0%
One-Year Fixed Income Portfolio	25.0	20.0	15.0	10.0	5.0	0.0
Two-Year Global Fixed Income Portfolio	25.0	20.0	15.0	10.0	5.0	0.0
Five-Year Government Portfolio	25.0	20.0	15.0	10.0	5.0	0.0
Five-Year Global Fixed Income Portfolio	25.0	20.0	15.0	10.0	5.0	0.0

Series include live and simulated returns. For portfolio construction, simulated data is used prior to the inception of the live portfolios. Simulated data does not reflect deduction of advisory fees, brokerage fees and other expenses that a client would pay. Nor do simulated results represent results of actual trading. See *Sources and Descriptions of Data* to identify which periods are simulated and which periods contain live data for each data series. Live data does not reflect the deduction of advisory fees, brokerage fees and other expenses incurred by the portfolios and incorporates actual trading results. Both simulated and live data reflect actual returns.

Large Cap Market weighting allocated to U.S. Large Company Portfolio prior to August 1996 and allocated to the S&P 500 Index prior to January 1991.
 Real Estate Stocks weighting allocated evenly between U.S. Micro Cap Portfolio and U.S. Small Cap Value Portfolio prior to January 1975 data inception.
 International Large Cap Value weighting allocated between International Small Cap Portfolio and MSCI EAFE Index (net dividends) prior to January 1975 data inception.
 International Small Cap Value weighting allocated between International Small Company Portfolio prior to January 1975 data inception.
 Emerging Markets Large weighting allocated evenly between International Value Portfolio and International Small Company Portfolio prior to January 1988 data inception.
 Emerging Markets Value weighting allocated to Emerging Markets Large prior to April 1998 data inception.
 Emerging Markets Small weighting allocated to Emerging Markets Large prior to January 1997 data inception.
 Five-Year Global Fixed Income Portfolio weighting allocated evenly between One-Year Fixed Income Portfolio, Two-Year Global Fixed Income Portfolio and Five-Year Government Portfolio prior to January 1987 data inception.

Sources and Description of Data for Hypothetical Portfolios Used in the Research Studies:

U.S. Stocks

Large Cap Market - Enhanced U.S. Large Company Portfolio

- 1995-July 1996: DFA One-Year Fixed Income Portfolio and S&P 500 Futures.
- August 1996-Present: Enhanced U.S. Large Company Portfolio net of all fees.

Large Cap Value - U.S. Large Cap Value Portfolio

- July 1963-March 1993: Fama/French U.S. Large Cap Value Simulated Strategy, excludes utilities.
- April 1993-Present: U.S. Large Cap Value Portfolio net of all fees.

Small Cap Market - U.S. Micro Cap Portfolio

- 1926-March 1992: Courtesy of CRSP. Deciles 6-10 NYSE (plus AMEX equivalents since July 1962 and NASDAQ equivalents since 1973).
- April 1992-Present: U.S. Small Cap Portfolio net of all fees.

Small Cap Value - U.S. Small Cap Value Portfolio

- July 1963-March 1993: Fama/French U.S. Small Cap Value Simulated Strategy, excludes utilities.
- April 1993-Present: U.S. Small Cap Value Portfolio net of all fees.

Real Estate Stocks - Real Estate Securities Portfolio

- 1975-December 1992: Courtesy of Professor Donald Keim, Wharton School, University of Pennsylvania. Don Keim Equity REITs Index, simulated, excludes health-care REITs.
- 1993-December 1994: Real Estate Securities Portfolio net of all fees, includes REITs and residential construction and commercial property securities.
- 1995-Present: Real Estate Securities Portfolio net of all fees, REITs only.

S&P 500 Index

- 1926-Present: Courtesy of Stocks, Bonds, Bills, and Inflation, Ibbotson Associates, Chicago (annually updates work by Roger G. Ibbotson and Rex A. Sinquefeld). Used with permission. All rights reserved. Comprised of the largest 500 U.S. companies based on market capitalization.

International Stocks

Large Cap Value - International Value Portfolio

- 1975-March 1993: Courtesy of Fama/French and MSCI. International High Book-to-Market. Simulated value-weighted, unhedged strategy of stocks with upper 30% book-to-market, returns in U.S. dollars, rebalanced quarterly.
- April 1993-June 1993: MSCI EAFE Index substituted temporarily due to unavailable data.
- July 1993-February 1994: International High Book-to-Market Portfolio net of all fees.
- March 1994-Present: International Value Portfolio net of all fees.

Small Cap Market - International Small Company Portfolio

- 1970-September 1996: DFA International Small Company Index.
- October 1996-Present: International Small Company Portfolio, net of all fees.

Small Cap Value - International Small Cap Value Portfolio

- 1995-March 1997: 35% DFA Japanese Portfolio, 35% DFA Continental Portfolio, 15% DFA U.K. Portfolio, 15% DFA Asia/Australia Portfolio net of all fees.
- April 1997-March 1998: 30% DFA Japanese Portfolio, 35% DFA Continental Portfolio, 15% DFA U.K. Portfolio, 20% Pacific Rim Portfolio net of all fees.
- April 1998-August 2000: 25% DFA Japanese Portfolio, 40% DFA Continental Portfolio, 20% DFA U.K. Portfolio, 15% Pacific Rim Portfolio net of all fees.
- September 2000-Present: 35% DFA Japanese Portfolio, 35% DFA Continental Portfolio, 15% DFA U.K. Portfolio, 15% Pacific Rim Portfolio net of all fees.

Emerging Markets Large - Emerging Markets Portfolio

- 1988-February 1993: Simulated index data.
- March 1993-April 1994: Emerging Markets Closed-End Portfolio net of all fees, equally-weighted, rebalanced monthly.
- May 1994-Present: Emerging Markets Open-End Portfolio net of all fees, equally-weighted, rebalanced monthly.

Emerging Markets Value - Emerging Markets Value Portfolio

- April 1998-Present: Emerging Markets Value Portfolio net of all fees, equally-weighted, rebalanced monthly.

Emerging Markets Small - Emerging Markets Small Cap Portfolio

- 1997-February 1998: Emerging Markets Small Cap Series net of all fees, equally-weighted, rebalanced monthly.
- March 1998-Present: Emerging Markets Small Cap Portfolio net of all fees, equally-weighted, rebalanced monthly.

Fixed Income

One-Year Global Fixed Income Portfolio - Average Maturity: One Year or less.

- 1972-July 1983: Simulated CD Fixed Income Strategy (maximum maturity one year).
- August 1983-Present: One-Year Fixed Income Portfolio net of all fees.

Two-Year Global Fixed Income Portfolio - Average Maturity: Two Years or less.

- March 1996-Present: Two-Year Global Fixed Income Portfolio net of all fees.

Five-Year Government Portfolio - Average Maturity: Five Years or less.

- 1953-May 1987: Simulation using U.S. Government instruments (maximum maturity five years).
- June 1987-Present: Five-Year Government Portfolio net of all fees.

Five-Year Global Fixed Income Portfolio - Average Maturity: Five Years or less.

- 1987-November 1990: Courtesy of Lehman Brothers, Inc. Lehman Hedged Country Indices: Equally-weighted. U.S., U.K., Australia, Canada, Germany, France, Japan, Netherlands.
- December 1990-Present: Five-Year Global Fixed Income Portfolio net of all fees.

Inflation

- Courtesy of Stocks, Bonds, Bills, and Inflation, Ibbotson Associates, Chicago (annually updates work by Roger G. Ibbotson and Rex A. Sinquefeld). Used with permission. All rights reserved.

Thirty-Day Treasury Bills

- 1926-Present: Courtesy of Stocks, Bonds, Bills, and Inflation, Ibbotson Associates, Chicago (annually updates work by Roger G. Ibbotson and Rex A. Sinquefeld). Used with permission. All rights reserved.

Long-Term Treasury Bonds

- 1926-Present: Courtesy of Stocks, Bonds, Bills, and Inflation, Ibbotson Associates, Chicago (annually updates work by Roger G. Ibbotson and Rex A. Sinquefeld). Used with permission. All rights reserved. Average maturity: Twenty Years.

Sources and Description of Data for Hypothetical Portfolio Used in “What to Expect” Section:

U.S. Stocks

Large Cap Market –

- o 1973-2006: S&P 500 Index.

Large Cap Value –

- o 1973-1993: Fama/French U.S. Large Cap Value Index.

Small Cap Market -

- o 1973-1981: Courtesy of CRSP. Deciles 9-10 NYSE.

Small Cap Value - U.S. Small Cap Value Portfolio

- o 1973-1993: Fama/French U.S. Small Cap Value Index.

Real Estate Stocks -

- o 1973-1974: Simulation allocated evenly between U.S. Micro Cap Portfolio and U.S. Small Cap Portfolio.
- o 1975-1992: Courtesy of Professor Donald Keim, Wharton School, University of Pennsylvania. Don Keim Equity REITs Index, simulated, excludes health-care REITs.
- o 1993-1994: Real Estate Securities Portfolio net of all fees, includes REITs and residential construction and commercial property securities.
- o 1995-2006: Real Estate Securities Portfolio net of all fees, REITs only.

International Stocks

Large Cap Value -

- o 1973-1974: Simulation allocated between International Small Cap Portfolio and MSCI EAFE Index (net dividends).
- o 1975-March 1993: Courtesy of Fama/French and MSCI. International High Book-to-Market. Simulated value-weighted, unhedged strategy of stocks with upper 30% book-to-market, returns in U.S. dollars.
- o April 1993-June 1993: MSCI EAFE Index substituted temporarily due to unavailable data.
- o July 1993-February 1994: International High Book-to-Market Portfolio net of all fees.
- o March 1994-Present: International Value Portfolio net of all fees.

Large Cap Market –

- o 1973-1991: MSCI EAFE Index.

Small Cap Market -

- o 1973-1996: Dimensional International Small Cap Index.

Small Cap Value - International Small Cap Value Portfolio

- o 1973-June 1981: Simulation allocated to International Small Company Portfolio.
- o July 1981-1994: Dimensional International Small Cap Value Index.
- o 1995-2006: DFA International Small Cap Portfolio.

Emerging Markets -

- o 1973-1987: Simulation allocated evenly between International Value Portfolio and International Small Company Portfolio.
- o 1988-February 1993: MSCI Emerging Markets Index.
- o March 1993-April 1994: Emerging Markets Closed-End Portfolio net of all fees, equally weighted.
- o May 1994-2006: Emerging Markets Open-End Portfolio net of all fees, equally-weighted.

Fixed Income

Two-Year Global Fixed Income Portfolio -Average Maturity: Two Years or less.

- o 1973-July 1983: Simulated CD Fixed Income Strategy (maximum maturity one year).
- o August 1983-Present: One-Year Fixed Income Portfolio net of all fees.
- o March 1996-Present: Two-Year Global Fixed Income Portfolio net of all fees.

Five-Year Global Fixed Income Portfolio - Average Maturity: Five Years or less.

- o 1973-1986: Simulation allocated evenly between One-Year Fixed Income Portfolio, Two-Year Global Fixed Income Portfolio and Five-Year Government Portfolio.
- o 1987-November 1990: Courtesy of Lehman Brothers, Inc. Lehman Hedged Country Indices: Equally-weighted. U.S., U.K., Australia, Canada, Germany, France, Japan, Netherlands.
- o December 1990-Present: Five-Year Global Fixed Income Portfolio net of all fees.

Five-Year Government Portfolio - Average Maturity: Five Years or less.

- o 1973-May 1987: Simulation using U.S. Government instruments (maximum maturity five years).
- o June 1987-Present: Five-Year Government Portfolio net of all fees.