**Definitions of Investment Terms & Methodologies**

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***Asset Allocation:*** Apportioning of investment funds among categories of assets, such as cash equivalents, stocks, fixed-income investments, and various categories of tangible assets that might include real estate, precious metals, and collectibles.

It also applies to subcategories such as government, municipal, and corporate bonds, and industry groups and market segment groups of common stocks.

Asset allocation affects both risk and return, and is a central concept in personal financial planning and investment management.

The extent to which investments chosen for allocation move dissimilarly will determine whether the allocation of assets provides effective diversification.



***Correlation Coefficient:*** Correlation coefficients quantify the probability of two or more investments moving in the same direction at the same time. Values range from +1 to -1. A correlation coefficient of +1 implies that the returns of the assets will move in lockstep with each other, although not necessarily by equal increments (i.e., they can start at different levels).

A measure of -1 means they move in opposite directions to each other. By combining asset classes having low correlation, volatility can be lowered for portfolios while enhancing risk-adjusted rates of return.[[1]](#footnote-1) The use of low and/or negative correlation provides a powerful tool in providing “effective diversification.”

***Dissimilar Price Movements:*** See “Correlation Coefficients” above. Some investments have historically shown a pattern of moving dissimilarly, either in time, in degree, or in direction. When such investments are combined into asset classes, they become a proven tool to effectively diversify away many risks, reduce volatility, and simultaneously increase expected compounded rates of return.

***Diversification:*** A prudent method to manage investment risk. However, not all diversification is effective. If all investments were to decrease in value at the same time, that type of diversification would be ineffective. See “Effective Diversification” below.

***Effective Diversification:*** While all diversification is good, certain types of diversification are better. This was the premise of Harry Markowitz’s Nobel Prize winning theory. He showed that to the extent that securities in a portfolio do not move in concert with each other, their individual *risks can be effectively diversified away.*

Diversification among securities that move together is *ineffective diversification.* Effective diversification reduces portfolio price fluctuations and smoothes out returns. Generally, anything that reduces price fluctuations increases compound returns.[[2]](#footnote-2)

To provide effective diversification, you must choose and combine assets (both domestic and foreign) that are measured statistically to have ***dissimilar price movements***. In addition to many domestic securities that do not move together, it has been found that some international markets do not move together. By including asset classes representing markets in other countries, diversification is made more efficient and investors can find protection against the potential downturn of any one country’s market.

***Efficient Frontier:*** Once expected returns, standard deviation and correlation coefficients (dissimilar price movements) have been determined, “optimal” portfolios can be created. These portfolios lie on a graph line called the “efficient frontier,” which represents the asset mix with the highest expected returns for each given level of risk.

By plotting every portfolio representing a given level of risk and expected return, you are able to trace a line connecting all the efficient portfolios. This line forms the efficient frontier. In dimensions of expected return and standard deviation, the efficient frontier is a continuum of efficient portfolios.[[3]](#footnote-3) *Rational and prudent investors restrict their choice of a portfolio to those which appear on the efficient frontier and to the specific portfolio that represents their own risk tolerance level.*

***Efficient Portfolio:*** A portfolio that offers the maximum level of expected return for any level of risk, or alternatively a portfolio that has the minimum level of risk for any level of expected return.[[4]](#footnote-4) The combination is arrived at mathematically, taking into account the expected rate of return and standard deviation of returns for each security as well as the similarity or dissimilarity of price movements (and their magnitude) between securities in the portfolio.[[5]](#footnote-5)

Only by selecting investments that have dissimilar price movements can you diversify away risk, reduce volatility, and increase compounded rates of return at the same time. Harry Markowitz, the 1990 Nobel Prize winner in economics, called portfolios that have dissimilar price movement diversification “efficient portfolios.” This strategy is based on the following “Modern Portfolio Theory” concept, “If two portfolios have the same expected return, the one with the lower volatility will have the greater compound rate of return.” Both risk is reduced and compound rates of return are enhanced simultaneously. (See “Variance Reduction”).

***Expected Return:*** This is a term of specialized use. It is generally understood to mean the statistically achievable return (based on historical data and future probability assumptions) over a sufficiently long time horizon. Expected returns are theoretical returns; they are not estimated returns and are in no way returns for the investments that comprise the portfolio.[[6]](#footnote-6) The success of the strategy is highly dependent upon the assumptions made to calculate the expected return. The expected rate of return is what the prudent investor attempts to maximize at his selected level of risk.

***Investment Policy Statement:*** The process that defines in statement form, the investor’s financial objectives, the amount of funds available for investment, the investment methodology and the strategy that will be used to reach those objectives. The strategy is customized and matched to investors’ individual needs, objectives and chosen risk tolerance levels. Investment Policy Statements are required by law for some qualified plans.[[7]](#footnote-7) All investors should have an Investment Policy Statement that outlines their goals and how their money will be invested to reach those goals.

***Optimal Portfolio:*** After all efficient portfolios have been identified, the particular portfolio that is *most suitable* to the investor is the optimal portfolio. “Most suitable” refers to the portfolio that best represents the balance between investor’s stated risk tolerance and the related expected return. Normally investors will accept moderately higher levels of risk for higher expected rates of return.

Those portfolios that fit within the range of their risk and reward criterion can be placed on a curve, called the utility curve or indifference curve (and sometimes the risk tolerance curve). In practice, however, expected utility curves can be somewhat indeterminate because seldom can most investors quantify their acceptable levels of risk as it relates to expected return, and if they can decide, their emotional mood often changes with the changes in the market’s up or down volatility and their concurrent emotional changes.

In strategic asset allocation, the *optimal asset mix* is defined as that point along the *efficient frontier* that is tangent to one’s desired *utility curve*,[[8]](#footnote-8) or risk tolerance curve.

The *optimal portfolio* is that portfolio that has the highest expected return that matches up with the *risk and related return of the utility curve* for a specific investor.

***Passive Management:*** The process of buying and holding a well-diversified portfolio.[[9]](#footnote-9) While it is called passive management because there is not a continual process of securities selection and/or timing schemes that create constant trading activity (which drives up costs and often reduces returns), there is considerable work involved if dissimilar price movement diversification is used.

Thousands of investments must be evaluated through computer analysis of historical data to select those securities that will provide the most effective diversification and highest yield for a given level of risk. Portfolios generated must also be re-balanced periodically to bring them back in line with the efficient frontier.

***Portfolio Theory:*** This is a sophisticated investment approach that won a Nobel Prize for its author in 1990. It permits an investor to classify, estimate, and control both the kind and amount of expected risk and return as measured statistically. It is also called ***“Modern Portfolio Theory”*** or ***“Portfolio Management Theory.”***

Portfolio theory departs from traditional security analysis in *shifting emphasis from analyzing the timing and value of individual investments to determining the statistical price movement relationships between the individual securities* that comprise the overall portfolio.

In 1952, Harry Markowitz published an article entitled “Portfolio Selection,”[[10]](#footnote-10) which describes how to combine assets into efficiently diversified portfolios. In 1990 he won the Nobel Prize in Economics for this theory.

He showed that investors failed to account correctly for the covariance among security returns. Holding securities that tend to move in concert with each other does not lower one’s risk. In other words, *the average risk of a portfolio is not the average of the individual component investments of the portfolio if all of their prices move in tandem or in concert with each other.* Therefore, what may be perceived to be a low risk portfolio could actually be a high-risk portfolio and vice versa. *Diversification reduces risk only when assets are combined whose prices move inversely or at different times in relation to each other.[[11]](#footnote-11)*

***Re-optimization:*** This is an analysis and adjustment performed at regular intervals to return the investment portfolio to its most efficient frontier. The prices of some assets or asset classes will fluctuate more than others. Periodically asset classes should be brought back to the most desirable and efficient proportions to maintain the highest return at the investor’s chosen risk level.

***Risk:*** The possibility of financial loss and/or uncertainty of future rates of return. Its derivation comes from the fact that the future cannot be accurately forecasted. The less certain we are that an asset’s actual return will be close to its expected return, the more risk that asset carries.

Historical variance or volatility (risk) of an investment can be statistically measured using standard deviations. The return of an investment is set according to its perceived risk.

The lower the risk, the lower the return. *Harry Markowitz won a Nobel Prize for his theory that showed that to the extent a diversified portfolio has assets that do not move in concert with each other, risk can be diversified away while maintaining and actually increasing return.[[12]](#footnote-12)*

While there are many potential risks, all risks can be classified into two broad categories: loss of principal and loss of purchasing power. The risk of losing principal comes from investing in securities whose value fluctuates with the market. The risk of losing purchasing power is generally derived from investing in assets whose expected rates of return are too low to counter the erosion of their principal value by taxes and inflation.

***Risk Tolerance:*** Each investor has his own risk tolerance. It is the trade-off of between risk the investor is willing to take to receive a specified expected rate of return in light of his financial condition, objectives and needs.

Generally, younger people have the greatest risk tolerance and older people the least. Often younger people feel they have both time and earning capabilities to recover from any loss, while older people may feel they do not. Retired people are dependent on income from their invested principal, and any loss would represent a reduction in income.

Investor risk levels range from defensive (conservative) to aggressive. Investors will tolerate slightly higher risks for higher expected rates of return along a utility curve.

***Standard Deviation:*** A key component of any investment plan is understanding and measuring risk. Investment risk can be measured using standard deviations to signify the volatility in terms of past performance.

Standard deviations describe how far from the mean the performance has been, either higher or lower. One standard deviation encompasses about 68% of the occurrences; two standard deviations cover approximately 95%. The higher the standard deviation of return, the higher the risk involved with the investment.

To calculate the standard deviation for a combination of assets, we must also account for the interaction of price movements between each asset. If assets are similarly influenced by factors that cause prices to change, their returns will be closely linked and their standard deviations will be higher. In the example below, the average annual expected return for the S&P 500 is 12.2%. We can expect that returns would fall between -8.4% to 32.8% approximately two thirds (68%) of the time.

***Variance Reduction:*** Markowitz showed that for a given expected return, reducing a portfolio’s variance increases the compound rate of return. For example, a $100 portfolio that is up 20% in one period and unchanged in a second period has $120 after the two periods. If we reduce the portfolio’s variance to zero (up 10% the first period and up 10% the second period) we *maintain our average rate of return* (of 10%) but end up with $121 after the two periods, *increasing our compounded rate of return.* In other words, the strategy of Mr. Markowitz’ Nobel Prize winning “Modern Portfolio Theory” is based on the following concept:

“If two portfolios have the same expected return, the one with the lower volatility will have the greater compound rate of return.”

This phenomenon of variance is indifferent to market direction. Although absolute variance reduction requires underperformance during certain periods, it ultimately assures a higher compound rate of return.

In backtesting from a period from 1972 to 1989, reduced variance optimization on the cap weighted S&P 500 and the DJIA indexes alone, produced an increased annual compound rate of return of about 350 basis points. Note also that by reducing variance, you are also reducing risk that comes from volatility.

Variance reduction can only be achieved through dissimilar price movement diversification. Actively trading or substituting securities within a portfolio will not only lessen the potential benefits of the variance reduction but will also increase transaction costs.[[13]](#footnote-13)

**Investment Methodologies Defined**

***Asset Allocation:*** An investment methodology that combines various assets such as stocks, bonds, cash equivalents, real estate, precious metals, collectibles, etc.

The typical institutional portfolio is about 55% stocks, 30% bonds and 15% money market instruments.[[14]](#footnote-14) By such wide diversification, risk is reduced and the expected return is not reliant on inconsistent timing or security selection methods.

Before Harry Markowitz published his award winning theory, risk and expected return for an asset allocation fund was believed to be the average risk and average expected rate of return for the component investments of the portfolio. But, as he pointed out, to the extent that the component parts of the portfolio move in the same direction with each other, the overall portfolio diversification may not be effective.[[15]](#footnote-15)&[[16]](#footnote-16)

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***Dissimilar Price Movement Selection:*** This is essential for effective portfolio diversification. This method of investing is *based on Harry Markowitz’s Nobel Prize winning theory, which states that if investments which have dissimilar price movements were combined, the ensuing portfolio’s risk could be reduced and its expected rate of return could be improved.*

By using institutional asset classes which represent whole market segments, the essence of Markowitz’s efficient portfolio theory has been brought to a higher level.The recent increase in the speed of computers has made is possible to make millions of computations to aid in the selection of individual securities for market segment funds called institutional asset classes.

The resulting funds are useful diversification tools and can achieve much safer dissimilar price movement diversification because they are, in themselves, well diversified.

Previously, these kinds of diversification tools were the domain of large pension plan managers and institutional investors. Computer simulations using historical data show that when asset classes that have dissimilar price movements are combined, this methodology is superior to the three other methodologies.

Studies indicate that asset class portfolios outperform 75% of the total returns of institutional plans that use market timing and stock selection methodologies when invested over time horizons in excess of five years.[[17]](#footnote-17) “Modern Portfolio Theory” has demonstrated its ability to reduce risk and enhance compounded rates of return simultaneously.

Now this award winning, academic, and proven methodology is available to individual investors for the first time utilizing institutional asset class funds as a primary tool. Strategic Asset Money Management is also available for use in corporate qualified plans as well.

1. Asset Allocation for Institutional Portfolios, Mark P. Kritzman, CFA, Business One Irwin, 1990, pp. 11-18. [↑](#footnote-ref-1)
2. “Building an Investment Plan,” Dimensional Fund Advisors, Inc., August, 1991, p. 6. [↑](#footnote-ref-2)
3. Asset Allocation for Institutional Portfolios, Mark P. Kritzman, CFA, Business One Irwin, 1990, pp. 19-20. [↑](#footnote-ref-3)
4. Asset Allocation for Institutional Portfolios, Mark P. Kritzman, CFA, Business One Irwin, 1990, p. 19. [↑](#footnote-ref-4)
5. Dictionary of Finance and Investment Terms, Third Edition, Barron’s Educational Series, 1991. [↑](#footnote-ref-5)
6. Dictionary of Finance and Investment Terms, Third Edition, Barron’s Educational Series, 1991. [↑](#footnote-ref-6)
7. American Law Institute, The Prudent Man Rule, Restatement of the Law (Third), American Law Institute Publishers, St. Paul, Minnesota, 1992. [↑](#footnote-ref-7)
8. Asset Allocation for Institutional Portfolios, Mark P. Kritzman, CFA, Business One Irwin, 1990. [↑](#footnote-ref-8)
9. Fundamentals of Investments, Second Ed., Gordon Alexander, William Sharpe, Jeff Bailey, Prentice Hall, 1993. [↑](#footnote-ref-9)
10. “Portfolio Selection,” H. Markowitz, Journal of Finance, March, 1952, pp. 77-91. [↑](#footnote-ref-10)
11. Asset Allocation for Institutional Portfolios, Mark P. Kritzman, CFA, Business One Irwin, 1990. [↑](#footnote-ref-11)
12. Asset Allocation for Institutional Portfolios, Mark P. Kritzman, CFA, Business One Irwin, 1990. [↑](#footnote-ref-12)
13. ”Portfolio Results Enhanced--Using Markowitz increases returns without added risk,” Joseph N. Papp, Pension & Investments, February 18, 1991. [↑](#footnote-ref-13)
14. Source: SEI Research Corporation. [↑](#footnote-ref-14)
15. “Portfolio Selection,” H. Markowitz, Journal of Finance, March, 1952, pp. 77-91. [↑](#footnote-ref-15)
16. “Asset Allocation for Institutional Portfolios,” Mark P. Kritzman, CFA, Business One Irwin, 1990. [↑](#footnote-ref-16)
17. SEI Research Corp. [↑](#footnote-ref-17)