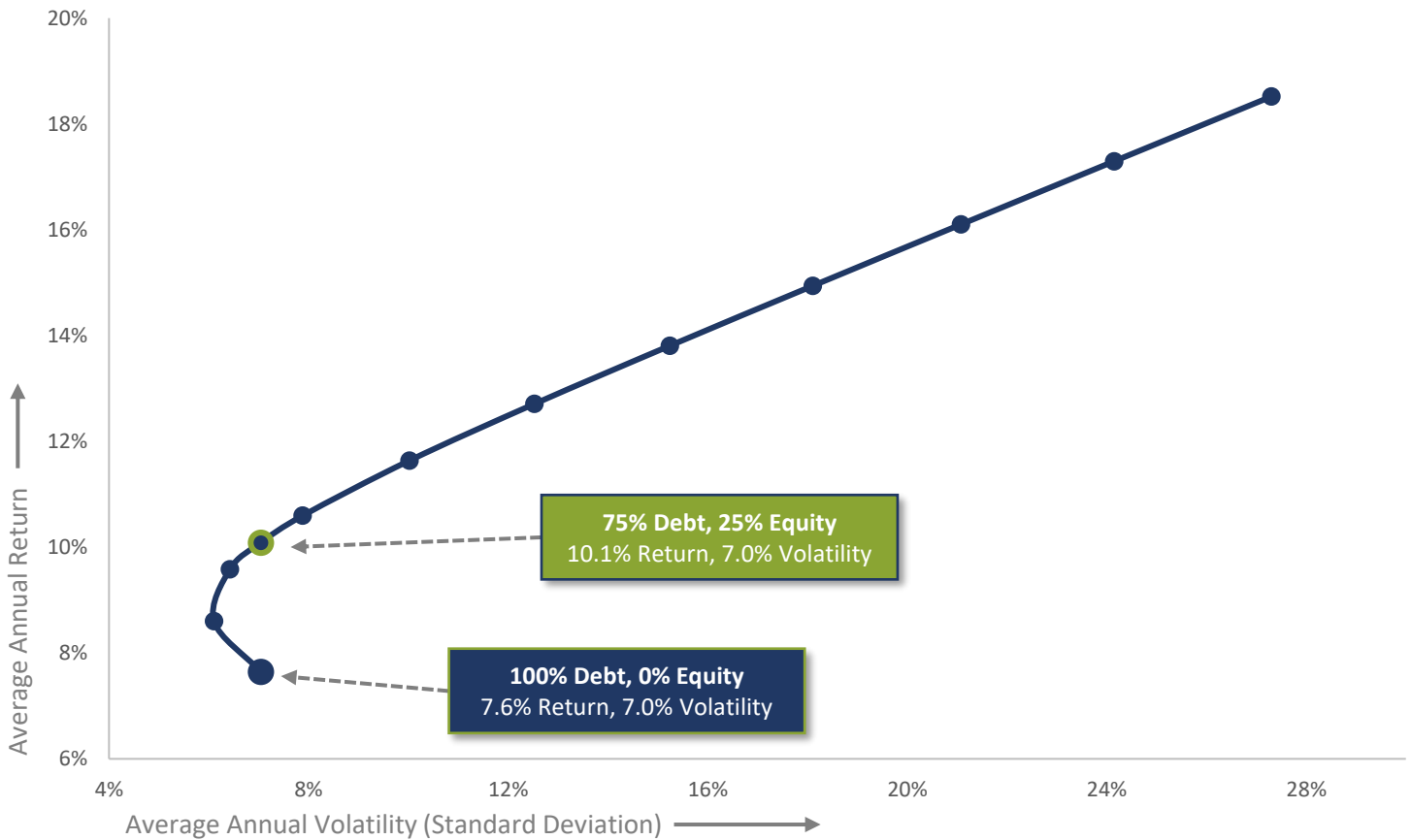


Chemistry of Investing

A Study of Multi Asset Allocation Concept

Adding Equity ≠ Adding Volatility Always

Generally, it is perceived that if we add Equity to the Bond Portfolio, we increase the portfolio's risk (Volatility). But that is not true always. This relationship is not linear as depicted in the below chart:



Key Observations

- It can be inferred from the adjacent table that a 100% bond portfolio has delivered an average return of 7.6% with a volatility of 7%; by adding 10% equity volatility reduces to 6.1%, and the average return improves by 1%.
- It is also notable that a **75% Bond and 25% Equity combination represents similar volatility as a 100% Bond portfolio on average with a 2.5% higher return** measured for 1-year of the average volatility (standard deviation) and average return observations.
- Which means the asset allocation portfolio has delivered risk-adjusted return than a 100% Bond Portfolio.

Sample Portfolio (Equity + Debt)

Portfolio Composition	Average Annual Return [^]	Average Annual Volatility [^]
D:100%, E:0%	7.6%	7.0%
D:90%, E:10%	8.6%	6.1%
D:80%, E:20%	9.6%	6.4%
D:75%, E:25%	10.1%	7.0%
D:70%, E:30%	10.6%	7.9%
D:60%, E:40%	11.6%	10.0%
D:50%, E:50%	12.7%	12.5%
D:40%, E:60%	13.8%	15.2%
D:30%, E:70%	14.9%	18.1%
D:20%, E:80%	16.1%	21.1%
D:10%, E:90%	17.3%	24.1%
D:0%, E:100%	18.5%	27.3%

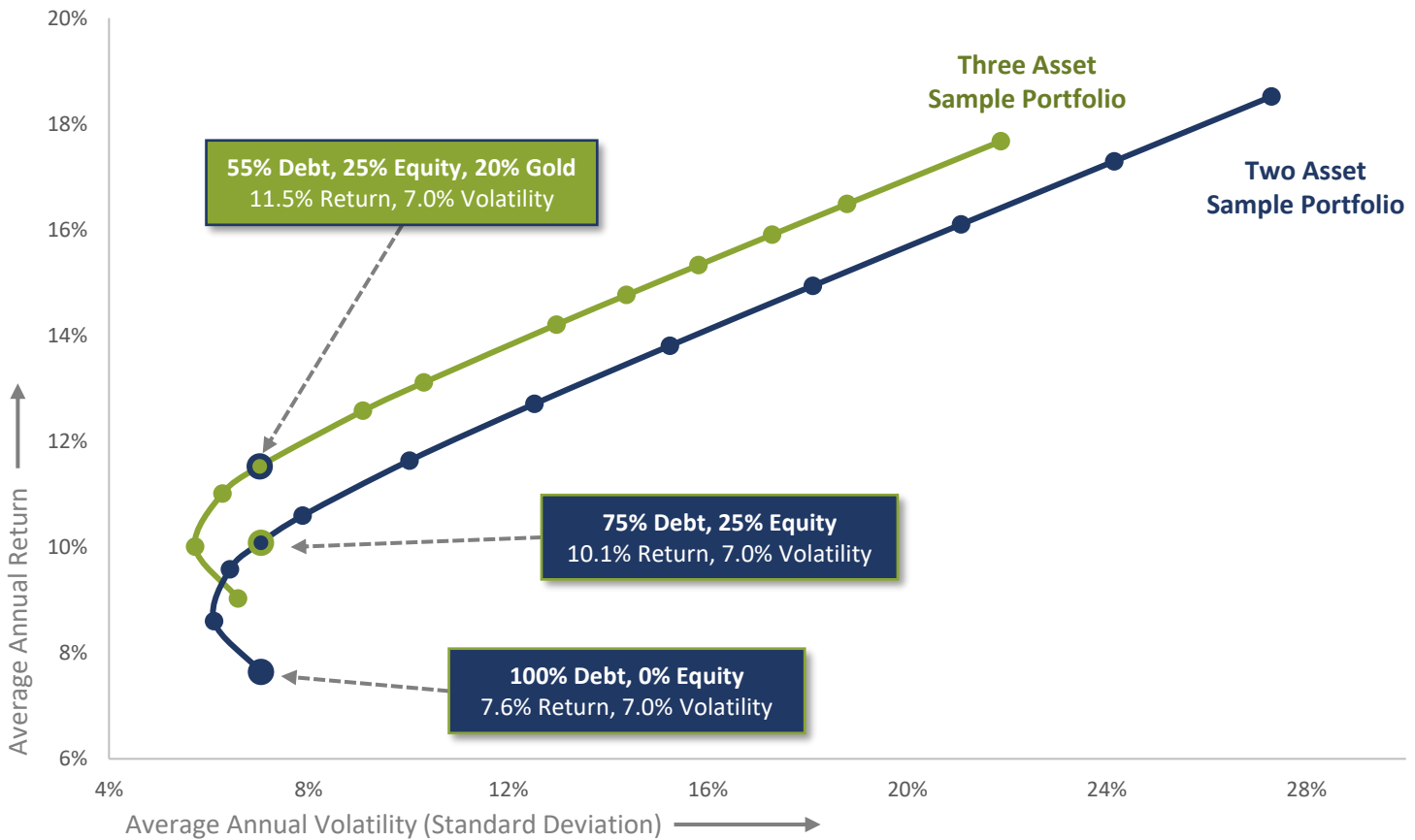
D = Debt (Crisil 10 Year Gilt Index), E = Equity (S&P BSE Sensex TRI). Source: MFIE, Bloomberg and Internal Research of WhiteOak Capital. [^]Average 1 Year rolling return on daily basis and Standard Deviation (Volatility) of the return for various combination of Equity and Debt for the period January 2001 to March 2023 is considered for above analysis. The above analysis is only to illustrate the concept of Multi Asset Allocation. The performance of the "Sample Portfolio" does not represent the performance of the scheme. Past performance may or may not sustain in future.

Chemistry of Investing

A Study of Multi Asset Allocation Concept

Adding Gold as a Third Asset Class

Let's see what happens when we add a third asset class, i.e., Gold, to previously discussed two asset (Debt and Equity) portfolio. Gold, as we know, has a Negative Correlation with most of the other asset classes on average. So, when we add 20% Gold to this two asset portfolio, the resultant Asset Allocation becomes **25% Equity, 20% Gold, and 55% Debt**.



Key Observations

- The Return-Volatility Trendline shifts from right to left, i.e., volatility reduced all three asset combinations (compared to 2 asset portfolios).
- The portfolio with 25% Equity, 20% Gold, and 55% Bond has exhibited similar volatility of 7% as the 100% Bond Portfolio along with an average return of 11.5% (i.e., about 4% higher compared to a 7.6% average return from 100% Bond Portfolio).
- This clearly shows that adding a judicious combination of Low Correlated, No Correlated, and Negatively Correlated Growing Asset Classes can achieve a superior risk-adjusted return on the portfolio level.

Sample Portfolio (Equity + Debt + Gold)		
Portfolio Composition	Average Annual Return [^]	Average Annual Volatility [^]
D:80%, E:0%, G:20%	9.0%	6.6%
D:70%, E:10%, G:20%	10.0%	5.7%
D:60%, E:20%, G:20%	11.0%	6.3%
D:55%, E:25%, G:20%	11.5%	7.0%
D:45%, E:35%, G:20%	12.6%	9.1%
D:40%, E:40%, G:20%	13.1%	10.3%
D:30%, E:50%, G:20%	14.2%	13.0%
D:25%, E:55%, G:20%	14.8%	14.4%
D:20%, E:60%, G:20%	15.3%	15.8%
D:15%, E:65%, G:20%	15.9%	17.3%
D:10%, E:70%, G:20%	16.5%	18.8%
D:0%, E:80%, G:20%	17.7%	21.9%

Chemistry of Investing

A Study of Multi Asset Allocation Concept

A chemical reaction occurs when two or more substances (reactants) are mixed and result in one or more new substances. For example, Respiration – we inhale oxygen which reacts with glucose and produces carbon dioxide, water, and energy. Adding or subtracting a small atom can result into completely new substance.

Just like chemicals, various Asset Classes also perform differently when they are mixed depending on type of Asset Class and allocation mix. Each of the Asset Class has its role in an investor's portfolio:



Indian Equity

Wealth Creation Opportunities in the Long Term



Gold

Hedge against inflation and uncertainties



Debt

Provides Relative Stability and Generate Income



Foreign Equity

Wealth Creation Opportunities with Foreign Currency Exposure

Calendar Year wise performance (% return) of select indices

2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Nasdaq 58.2	Equity - IND 32.9	Nasdaq 12.1	Equity - US 14.9	Equity - IND 30.3	Gold 7.9	Nasdaq 39.7	Nasdaq 48.6	Equity - US 31.2	Gold 13.9
Equity - US 49.5	Nasdaq 17.3	Real Estate 9.8	MSCI EM 14.1	MSCI EM 29.0	Liquid 7.6	Equity - US 34.4	Gold 28.0	Equity - IND 25.6	Equity - IND 5.7
MSCI DM 43.0	Real Estate 16.9	Debt 8.6	Debt 12.9	Nasdaq 21.8	Nasdaq 6.0	MSCI DM 30.5	Equity - US 21.4	Nasdaq 24.6	Liquid 5.1
Real Estate 10.1	Equity - US 16.2	Liquid 8.2	Nasdaq 11.7	MSCI DM 15.0	Debt 5.9	Gold 23.8	MSCI EM 21.3	MSCI DM 24.2	Real Estate 2.8
MSCI EM 10.0	Debt 14.3	Equity - US 6.2	Gold 11.3	Equity - US 14.4	Real Estate 5.1	MSCI EM 21.0	MSCI DM 18.9	Liquid 3.6	Debt 2.5
Liquid 9.0	Liquid 9.2	MSCI DM 3.8	MSCI DM 10.3	Real Estate 7.2	Equity - IND 4.6	Equity - IND 13.5	Equity - IND 16.1	Debt 3.4	Equity - US -9.1
Equity - IND 8.1	MSCI DM 7.3	Equity - IND -3.0	Real Estate 8.3	Liquid 6.7	Equity - US 4.4	Debt 10.7	Debt 12.3	Real Estate 3.1	MSCI DM -9.1
Debt 3.8	MSCI EM 0.0	Gold -6.6	Liquid 7.5	Gold 5.1	MSCI DM -0.4	Liquid 6.9	Liquid 4.6	MSCI EM -0.6	MSCI EM -11.3
Gold -4.5	Gold -7.9	MSCI EM -10.9	Equity - IND 4.4	Debt 4.7	MSCI EM -6.8	Real Estate 3.0	Real Estate 2.2	Gold -4.2	Nasdaq -25.1

Correlation of Select Asset Classes with each other

Asset Classes	Indian Equity	Debt	Gold	US Equity
Indian Equity	--	-0.22	-0.54	+0.39
Debt	-0.22	--	-0.05	+0.16
Gold	-0.54	-0.05	--	-0.11
US Equity	+0.39	+0.16	-0.11	--

Various Asset Classes have varied Degree of Correlation with each other. Economic Cycles and Markets across the globe are very dynamic and it is not possible to consistently time the winning asset class, but a right mix of these asset classes may help investors achieve optimum level of risk adjusted return to attain their long-term financial goals.

Correlation is a statistical measure that indicates the extent to which two or more variables (Asset Classes in our example) fluctuate in relation to each other. It ranges between +1 to -1. When two variable (Asset Classes) generally move in the same direction, they are said to be positively correlated and vice versa.

Ordered by performance in percentage terms (best to worst) for each Calendar Year. For illustration purpose only. Past performance may or may not sustain in future. Source: Bloomberg, Yes Securities and Internal Research of WhiteOak Capital. Equity IND: Nifty 50 TRI, Equity – US: S&P 500 INR, MSCI DM: MSCI World Index (Developed) INR, MSCI EM: MSCI Emerging Index INR, Gold: Gold INR, Debt: CRISIL Composite Bond Index, NASDAQ: NASDAQ Composite Index INR, Real Estate: RBI House Price Index. Correlation of asset classes based on their annual return from January 2010 to March 2023.

Chemistry of Investing

A Study of Multi Asset Allocation Concept

Achieving Optimal Level of Risk-Adjusted Return

By allocating investment in Multiple Asset Classes (Multi Asset Allocation)

Let's create a "Sample Multi Asset Portfolio" with pre-defined allocation in some of the asset classes with annual rebalancing. And see, how this simple strategy may help investors achieve better risk-adjusted return on their investments.

Sample Multi Asset Portfolio[^]

Asset Class	Represented by	Weight
Domestic Equity	S&P BSE Sensex TRI	25%
Debt	CRISIL Short Term Bond Index	45%
Gold	MCX Gold (INR)	25%
US Equity	S&P 500 TRI (INR)	5%

Financial Year wise performance (% return) of select indices

Financial Year	S&P BSE Sensex TRI	CRISIL Short Term Bond Index	MCX Gold (INR)	S&P 500 TRI (INR)	Sample Multi-Asset Portfolio [^]
FY 2011	12.5%	5.1%	27.4%	14.7%	13.0%
FY 2012	-9.2%	8.3%	32.9%	24.0%	10.9%
FY 2013	10.1%	9.1%	7.1%	21.9%	9.5%
FY 2014	20.7%	8.9%	-3.2%	33.9%	10.1%
FY 2015	26.8%	10.3%	-8.3%	17.3%	10.1%
FY 2016	-7.9%	8.5%	10.9%	8.1%	4.9%
FY 2017	18.5%	9.1%	-1.9%	14.9%	9.0%
FY 2018	12.7%	6.1%	7.4%	12.9%	8.4%
FY 2019	18.8%	7.6%	3.2%	18.1%	9.8%
FY 2020	-22.9%	9.9%	29.7%	1.1%	6.2%
FY 2021	69.8%	7.8%	7.3%	51.8%	25.4%
FY 2022	19.5%	5.2%	16.6%	20.0%	12.4%
FY 2023	2.0%	4.2%	16.0%	-1.5%	6.3%
FY 2011 to FY 2023	11.3% CAGR	7.7% CAGR	10.5% CAGR	17.5% CAGR	10.4% CAGR

It is interesting to note from above table that for a Multi-Asset Portfolio, Gold has provided some downside protection in many of the years when Domestic Equity has delivered negative returns and vice versa. Various Asset Classes have varied Degree of Correlation with each other. Economic Cycles and Markets across the globe are very dynamic and it is not possible to consistently time the winning asset class, but a right mix of these asset classes may help investors achieve optimum level of risk adjusted return to attain their long-term financial goals.

Source: MFIE, Bloomberg and Internal Research of WhiteOak Capital. The above is only to illustrate the concept of Multi Asset Allocation. [^]The performance of the "Sample Multi Asset Portfolio" does not represent the performance of the scheme. The above analysis assumes annual rebalancing to predetermined weights (as mentioned in above table). Past performance may or may not sustain in future.

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C/106/4/23

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