

One of the key determinants of Portfolio Optimization is the Asset Allocation Policy/Strategy that you adopt for the client. Risk Tolerance, Return Objectives, Financial Goals, Time Horizon, Asset Valuations etc. are factors that go in towards building an appropriate Asset Allocation.

Asset Allocation is both art and science, and it's the scientific side that we are covering here. Amid the various strategies, the most popular ones are Static, Strategic, Tactical and Dynamic Asset Allocation models. Today, most of these models are being offered by Asset Managers themselves, but in the idealistic sense, it's a proposition that an advisor should project as unique. In the western world, asset allocation advice driven by computer algorithms (Robo-Advisors) are fast emerging and are posing serious threats to human advisory practice. If we believe in trends, then the time is not too far for us to do a catch up game. The question is how we get to a scientifically driven asset allocation model.

In this article, we have compared various strategies and its performance with empirical data for more than a decade. By the end of it, you would indeed be surprised with the output which clearly goes against the conventional hypothesis.

Static Asset Allocation (SAA): It is an approach to asset allocation in which the investor takes into account all the information available regarding

- i) macro-economic conditions,
- ii) performance expectations of the capital market and various asset classes over the time horizon of his intended investment,
- iii) his own risk tolerance level and
- iv) risk-reward trade-off in terms of investment goal etc.

at the beginning of his investment while deciding the structure of investment, and sticks to that original investment till the end without any re-balancing or change in proportion of the asset classes or any addition of other asset classes with the original mix.

Basically, it is a buy and hold strategy. For example, if an investor invests INR 1000 for a period of 1 year with 35:30:35 ratio in large cap equity, small cap equity, and bonds respectively, he shall remain invested without any alteration in the asset mix or rebalancing to keep the same asset mix over the period.

The main tool used by the investor for minimizing risk while opting for SAA is diversification through investing into various asset classes having low correlation of returns among themselves.

Dynamic Asset Allocation (DAA): It is an approach to asset allocation in which the investor, based on his situation and goals, keeps on adjusting the asset class mix in the portfolio in response to the changing market conditions, with the aim of getting higher returns.

DAA gives a lot of flexibility to the investor in general and the institutional investor in particular as there is no target asset mix to chase. The investor is free to respond to the change in market conditions as per his assessment of the situation. Therefore, for example, if the investor is initially bullish on equities, he may allocate large portion of his portfolio on equities. If after some time, he anticipates an impending bear market, he can sell equities and buy bonds as per his own assessment of the timing.

SAA can be considered as a special case of the DAA in which, the investor may opt not to change original investment structure based upon his assessment of market conditions.

Strategic Asset Allocation (StAA): It involves starting with a target asset mix and periodically rebalancing to restore that target asset mix. There might be a permissible range with a target allocation corresponding to each asset class as a tool of risk management. The portfolio formed using the strategic asset allocation technique is often called the **policy portfolio**.

Suppose a conservative investor has a strategic asset allocation target of 30:50:20 into equities, bonds, and cash respectively, with initial investment amount of INR 100000 for 5 years horizon, with re-balancing permissible at the end of each year. Investment starts at 01.01.2009. If in one year, the equities, bonds, and cash have given gross returns of 10%, 6%, and 4% respectively, then the values of the equity, bond, and cash components as on 31.12.2009 EOD are INR 33000, INR 53000, and INR 20800 respectively, with total portfolio value at INR 106800. Rebalancing would require the investor to sell equities worth INR 960, buying bonds worth INR 400, and putting rest INR 560 in cash so that the asset mix reaches the target initially allocated. This process would be repeated on 31.12.2010, 31.12.2011, 31.12.2011, and 31.12.2012.

Tactical Asset Allocation (TAA): It is an approach to asset allocation which involves making short term adjustments to target asset class weights based on short term expected relative

performance among asset classes. It can subsume a range of approaches, from occasional and ad hoc adjustments to frequent and model-based adjustments. When executed for the asset classes in many country markets, this approach is often called “**global tactical asset allocation**”.

TAA starts with a strategic asset allocation and adjusts it when the need arises based upon the assessment of the investor about the evolving market conditions and the potential returns various asset classes can give. Continuing with the example discussed in the StAA segment, assume that the investment strategy is TAA instead of strategic one. Let the returns be the same in 1st year as mentioned above. Suppose the investor anticipates an equity market boom in 2010, and wants to increase the equity exposure to 60%, while reducing that of bonds and cash to 30% and 10% respectively. Then, he would have to sell bonds worth INR 20960, take INR 10120 from cash, and invest the sum, viz. INR 31080 in equities to achieve the short term target allocation of 60:30:10.

Case Study: A small case study would be discussed here in which an initial amount of INR 10000 has been invested on 31st December, 1999. We invest additional INR 10000 at the end of each year till 2012. The representative market for equities has been taken as the CNX Nifty, and for debts 9% has been assumed to be the constant CAGR throughout investment horizon. The objective would be to find and compare the returns at the end of the 14 year investment horizon viz. 31st December, 2013 using various approaches to asset allocation discussed before, and see which approach gave highest return.

Investment using Static Asset Allocation: We invest INR 10000 on 31st December, 1999 with 60% in equity and 40% in debt, and make additional investments of INR 6000 in equity and INR 4000 in debt portions at the end of each 31st December till 2012 to make them available for investment at the beginning of next year. But, we do not make any other change. Then, the changes in the value of the portfolio over years and the IRR are given in Table 1 below.

Investment using Dynamic Asset Allocation-Best Case Scenario: We invest INR 10000 on 31st December, 1999 on the basis of our own predictions based upon the analysis of the information available in the market about debt and equity segments. Although theoretically it can be done more frequently, we change the weights of the two asset classes at the end of each year till 31st December, 2012. We change the weights liberally within the range of 0%-100%, and opt

out of taking leveraged positions. Also, we make an additional investment of INR 10000 at the end of each year till 2012. Suppose our predictions match actual market returns of each coming year. Then, the changes in the value of the portfolio over years and the IRR are given in Table 1 below.

Investment using Dynamic Asset Allocation-Worst Case Scenario: We invest INR 10000 on 31st December, 1999 on the basis of our own predictions based upon the analysis of the information available in the market about debt and equity segments. Although theoretically it can be done more frequently, we change the weights of the two asset classes at the end of each year till 31st December, 2012. We change the weights liberally within the range of 0%-100%, and opt out of taking leveraged positions. Also, we make an additional investment of INR 10000 at the end of each year till 2012. Suppose our predictions do not at all match the actual market returns of each coming year. Then, the changes in the value of the portfolio over years and the IRR are given in Table 1 below.

Investment using Strategic Asset Allocation: We invest INR 10000 on 31st December, 1999 with an asset allocation in 60:40 ratios, with re-balancing the portfolio at the end of each year to maintain that ratio. Our decision of weights being allocated to the two asset classes-equity and debt- is based on long term prediction of market performance reached after analysis of information available in market. Also, we make an additional investment of INR 10000 at the end of each year till 2012. At the end of each year, we simply adjust the weights by buying and selling securities to achieve the 60:40 equity-debt ratios while simply overlooking any imminent or current market trend. Then, the changes in the value of the portfolio over years and the IRR are given in Table 1 below.

Tactical Asset Allocation-60:40 Target Ratios with $\pm 20\%$ Flexibility-Best Case Scenario: We invest INR 10000 on 31st December, 1999 with strategic asset allocation target of 60:40 with the flexibility of re-balancing the portfolio at the end of each year within the permissible limit of $\pm 20\%$ for deviating from the strategic target ratio to take advantage of short term market anomalies to gain higher returns. Although such anomalies might emerge any time during the investment horizon, for the sake of simplicity, we assume them to have emerged near to year end, if any. We make an additional investment of INR 10000 at the end of each year till 2012. Further we assume that all our assessments of market anomalies and short term market trends at

the end of each year are successful in terms of actual market returns coming very close to estimated market returns for respective periods. Then, the changes in the value of the portfolio over years and the IRR are given in Table 1 below.

Tactical Asset Allocation-60:40 Target Ratios with $\pm 20\%$ Flexibility-Worst Case Scenario:

We invest INR 10000 on 31st December, 1999 with strategic asset allocation target of 60:40 with the flexibility of re-balancing the portfolio at the end of each year within the permissible limit of $\pm 20\%$ for deviating from the strategic target ratio to take advantage of short term market anomalies to gain higher returns. Although such anomalies might emerge any time during the investment horizon, for the sake of simplicity, we assume them to have emerged near to year end, if any. We make an additional investment of INR 10000 at the end of each year till 2012. Further we assume that all our assessments of market anomalies and short term market trends at the end of each year are unsuccessful in terms of results of those anomalies going awry from the intended results for respective periods. Then, the changes in the value of the portfolio over years and the IRR are given in Table 1 below.

Nifty Performance with Annual SIP: We invest INR10000 on 31st December, 1999 in Nifty, and then make additional investment of INR10000 at the end of each year till 2012. The changes in the value of the portfolio over years and the IRR are given in Table 1 below.

ASSET ALLOCATION STRATEGIES: A DEEPER LOOK

Table 1

Year End Values of Portfolios (SIP) under Various Scenarios									
Scenario	1	2	3	4	5	6	7	8	9
Date	SAA (60:40)	DAA-Best Case Scenario	DAA- Worst Case Scenario	DAA-Average of Best & Worst	StAA- (60:40, Yearly Re- balancing)	TAA (60:40, ±20%)-Best Case Scenario	TAA (60:40, ±20%)- Worst Case Scenario	TAA- Average of Best & Worst	Nifty
31.12.1999	10000	10000	10000	10000	10000	10000	10000	10000	10000
31.12.2000	19481	20900	18535	19717	19481	19954	19008	19481	18535
31.12.2001	28433	32781	25535	29158	28291	29740	26889	28314	25535
31.12.2002	40112	45731	37833	41782	39861	41733	38073	39903	36366
31.12.2003	67447	88613	51238	69926	68493	76489	61079	68784	72514
31.12.2004	84248	107779	65850	86814	85347	94401	76986	85694	90258
31.12.2005	116636	156946	81776	119361	117029	133544	102334	117939	133057
31.12.2006	161748	229460	99136	164298	159211	188502	134165	161334	196056
31.12.2007	240140	365124	118058	241591	227257	284482	180800	232641	313426
31.12.2008	157425	407985	66911	237448	174815	250906	119139	185022	161089
31.12.2009	246121	727081	82933	405007	270574	417495	171677	294586	293133
31.12.2010	294008	867572	100397	483985	319451	494953	203272	349112	355743
31.12.2011	258713	955654	85681	520667	293765	482941	176898	329919	278165
31.12.2012	323202	1230343	103392	666868	363160	608643	216048	412345	365209
31.12.2013	347372	1330026	112697	721362	390953	657955	231613	444784	389880
IRR	11.47%	27.37%	-2.94%	20.18%	14.86%	19.10%	6.49%	14.45%	12.87%

Conclusion:

1. In best case scenario, DAA out-performs all other asset allocation approaches by huge margin.
2. In worst case scenario, DAA underperforms all other asset allocation approaches by huge margin.
3. DAA is a double-edged sword. If used carefully, it gives best returns. But if predictions go wrong, it bleeds the portfolio the most.
4. In best case scenario, TAA is a better choice than all other approaches except DAA.
5. In worst case scenario, TAA is a better choice than DAA.
6. SAA is most conservative approach, and underperforms all other approaches except DAA and TAA under worst case scenarios.
7. StAA stands in between these approaches, and yields a moderately higher return than SAA but lower than DAA and TAA under best case scenarios.
8. Nifty outperforms SAA and worst case scenarios of DAA and TAA, but underperforms best case and the averages of best and worst cases of DAA and TAA.

About the Author

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