

A COMPARATIVE ANALYSIS OF IMPACT OF ASSETS ALLOCATION ON PORTFOLIO PERFORMANCE AS MEDIUM TERM INVESTMENTS

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Abstract: The current research paper focuses on the impact of allocation of the stocks and bonds on the performance of the portfolio. The mutual funds were taken for a three year window beginning from (17/3/2014 to 17/3/2107) i.e. medium term investments. A combination of equity & debt has been tested equity funds and debt funds pooled separately. Each Portfolio containing 23 stocks each had been pooled together i.e Equity basket, Debt basket and Balanced basket. The overall performance of each basket has been tested using t-test analysis with its corresponding t-table value. The result obtained can be used by midterm investors for effective investments with better returns with such period.

Keywords: Equity, Debt, Balanced fund, stocks

I. Introduction

1.1.1 Relation between risk and return

It is well recognized and accepted that there is some relationship between risk and reward. Higher returns typically are associated with more risk. However, it is not true that more risk always lead to higher returns. Firstly, if the higher return were guaranteed, then it would not really be risky. Second, financial theory points that only efficient risks can be estimated to be compensated (on average) by higher returns. Dumb risks carry no prospect of higher returns. Risk limitations directly impacts how one should allocate funds between stocks, bonds and cash. Investors have to come to a decision what percentage of their money to invest in each of the broad assets classes. The three broadest asset classes can be stocks, bonds and cash (money market). Some analysts like to further sub-divide the above and would also include other asset classes such as precious metals, real estate and income trusts.

1.2 Characteristics of asset classes

The table(Table 1) describes the general characteristics of the three main asset classes. It must be noted that annual volatility is generally thought of as an excellent measure of risk. This is certainly true for short term investors, but is not really true for long-term investors. For long-term investors the bigger risk is long term growth in purchasing power rather than annual volatility.

<i>ASSET CLASS</i>	<i>EXPECTED ANNUAL VOLATILITY</i>	<i>EXPECTED ANNUAL AVERAGE RETURN</i>
STOCKS	HIGHEST	HIGHEST
BONDS (LONG TERM)	MEDIUM	MEDIUM
CASH (MONEY MARKET)	NEAR ZERO	NEAR ZERO, AFTER INFLATION

Table 1: Characteristics of asset classes

(Source: <http://www.investorsfriend.com/investment-goals/>)

1.3 Asset allocation

Asset allocation means diversifying or reinvesting money among different types of investment categories, such as stocks, bonds and cash. The goal is to help reduce risk and enhance returns.

This strategy can work because different categories act differently, Stocks, for example, offer possibility for both growth and income, while bonds characteristically offer stability and income. The merits of different asset categories can be combined into a portfolio with threshold or level of risk one may find acceptable. Creating a well-diversified portfolio may permit an investor to shun the risks associated with letting all the eggs in one basket. An investor with a very low tolerance for risk (due to a short time horizon or lack of appetite for risk) is practically forced to allocate close to 100% of their funds to Cash. On the contrary, an investor with a very high tolerance for risk (which usually requires both a very long time horizon and a high tolerance for volatility) may select 100% equities. Most investors most likely fall in between. They may have a relatively long time horizon. But there may be a possibility that some life event could cause them to necessitate to liquidate assets unexpectedly. Also, most people do not have a very high tolerance for downward volatility and prefer to observe a steadier march forward.

1.4 Types of portfolios

The types of portfolios could be as follows:

- **Aggressive portfolio-** This portfolio emphasizes growth, suggesting 65% in stocks or equity funds, 25% in bonds of fixed-income funds and 10% in short-term money market funds or cash equivalents. Investment experts suggest this portfolio for people who have a long investment time frame.

- Moderate portfolio- The portfolio tries to balance growth and stability. It suggests 50% in stocks or equity funds, 30% in bonds or fixed-income funds and 20% in short-term money market funds or cash equivalents. This portfolio also seeks to provide regular income with moderate protection against inflation. The equity component provides the possibility for growth, whereas the component in bonds and short-term instruments helps balance out fluctuations in the stock market.
- Conservative portfolio- This portfolio implicates 25% in stocks or equity funds, 50% in bonds or fixed-income funds, and 25% in money market funds or cash equivalents. This portfolio appeals to people who are very risk averse or who are retired. The 25% equity component is intended to help investors stay ahead of inflation.

The purpose of the research analysis on such stocks can be :

1. To verify through an empirical research whether there is an impact of asset allocation on the performance of the portfolio in the Indian context.
2. To understand which fund type gives better returns to an investor in the long run. For the purpose of analysis we have taken Equity funds, debt funds and balanced funds in anticipation of their presence in most of the portfolios that an investor holds. Only open ended equity funds were taken as they are more in number as compared to close ended and interval funds. The three year returns of the funds were taken because the study is done keeping in mind a medium-term horizon.

II. literature review

James L. Farrell, Jr. (1989) in his study predicted that in the late 50's and 60's the correlation between stocks and bonds will be negative, in spite their actual results showing a strong positive correlation. This positive relation he said, would remain positive in the coming years only if the economic conditions will remain same, but since the economy moves in a cycle, the conditions will change overtime and so will the correlation change. On the other hand Craig B. Wainscott (1990) suggested that in the short run as well as long run, the investors can think of investing in gold bullions for the purpose of diversifying the portfolio. James H. Wilson and William G. Droms (1999) pointed in their analysis that making a choice on the percentage of the total portfolio allocated to equity investment in relation to other asset classes has much more impact than deciding which specific stocks to hold. Whereas, DRIP investor (2002) suggested 'the ultimate all-weather portfolio' combination in which the allocation suggested was 67% stocks, 25% bonds, and 8% cash. According to him, the given combination will provide a reasonable return without major changes in the portfolio value.

Frederick E. Dopfel (2003) concluded from his research that bonds and stocks have decoupled in the current times and they also had the experience of negative correlations, as well as lower correlations in contrast to previous typical trends that were moderately positively correlated. He also exposed that the overall portfolio risk is reduced when there

is a chance of lower stock-bond correlation from a perspective of strategic asset allocation, which benefits the asset-only investor. Whereas, if the strategic perspective is thinking of more assets then even for large downward there are changes in the expected correlation, the adjustments to holdings and expected benefits are mostly minor. On the other hand, Isabelle Bajeux-Besnainou, James V. Jordan and Roland Portrait (2003) reflects during their observation that if relative risk aversion is decreased then it results to convex strategies which are similar to portfolio insurance whereas, if the relative aversion strategy as in a mean-variance case is increased then it results to curved in strategies.

Robert V. Kohn and Oana M. Papazoglu-Statescu (2006) have depicted in their study that while the dynamic and static asset allocation decisions are different from each other generically, in a number of special cases they tend to coincide with each other.

Whereas, Robert Jarrow and Feng Zhao (2006) affirmed that increased use of quantitative techniques for portfolio management of bonds and the increased use of derivatives for the purpose of to manage the equity portfolio has shown a resurgence in the portfolio management literatures due to downside loss-averse preferences. In their study they justified the reasonable use of mean – variance analysis since fixed- income portfolios are less normally distributed than portfolios which includes equity only that have small risk events, despite the increasing empirical evidence which support the use of downside loss portfolio theory in management of investments.

Koji Kato and Hiroshi Konno (2006) estimated as per their study that in accumulation to risk-free bonds and stocks, if risky corporate bonds are further added to the integrated stock-bond portfolio then it leads to a better performance than the standard asset allocation approach. On the contrary, Helena Chuliá and Hipòlit Torró (2008) observed that the bond market revives shocks effect the stock market variance. The bond market volatility is influenced by any item of news that arrives from the stock market. They also discovered that an asymmetrical response is there on the stock return shocks, whereas on the bond return shocks there is a proportioned response. But in case of stock return shocks and bond return shocks, a uncertain stock variance is seen to respond.

Klaus Berge, Giorgio Consigli, And William T. Ziemba (2008) predicted using the bond-stock model and exposed that the risk in equity is only partially predictable and not absolutely constant. They believed that when the market mean response behavior is to be analyzed then the agents' risk reduction is also needed to be taken into account. The fractional predictability of equity returns is also established in the analysis done by them. Also, Ken Johnston, Jonh Hatem and Elton Scott (2013) by investigating the historical risks and returns, accomplished that a improved strategy would be shifting asset allocation as compared with put option insurance portfilios. Also, they intended that over the asset allocation portfolios, the call option insurance portfolio returns are superior.

Hamish Anderson, Ben Marshall and Jia Miao (2014) in the United States and international markets, concluded the performance of the 'Permanent Portfolio'. They observed that superior risk-adjusted returns are given by the permanent portfolio, but

throughout a buy-and-hold strategy which is based on the raw returns, it is likely to underperform. They also observed that there is a likelihood that the permanent portfolio is in the interest for investors who are predominantly risk-aversed.

III. Hypothesis Testing

1. Null Hypothesis,

- a. H_{a0} = Average return on Equity fund \leq Average return on Balanced fund.
- b. H_{b0} = Average return on Equity fund \leq Average return on Debt fund.
- c. H_{c0} = Average return on Balanced fund \leq Average return on Debt fund.

I. DATA COLLECTION

The research has been done using secondary data which was largely extracted from mutual fund India website. The total sample is 69, out of which 23 are equity funds, 23 are debt funds and 23 are balanced funds. Due to the limitation of the number of funds in balanced funds, the same company's equity and debt funds were selected during a three year window beginning from (17/3/2014 to 17/3/2107). i.e. 3 years period.

IV. Data Analysis and Processing

The independent sample t-test was run using Statistical Package for the Social Sciences (SPSS) on the selected data.

1. T-test results (equity funds vs balanced funds)

G R O U P	N	M E A N	S . D . .	t - v a l u e	S i g . (1 - t a i l e d)
E Q U I T	2 3	2 0 . 3 8	6 . 5 6 7		

Y		3	3		
		9	8		
B	2	1	3	1	0
A	3	7	.	.8	.0
L		.	4	8	0
A		5	4	3	3
N		4	2	9	7
C		0	9		5
E		9	2		
D					

Table 2. Independent sample t-test between equity and balanced funds

As seen in table 2, Results depicts that, $t(44) = 1.84$ is not significant at 0.025 level.

Since, $t_{(44)} = 1.84$ is not significant at 0.025 level.

2. T-test results (debt funds vs. equity funds)

G R O U P	N	M E A N	S . D .	t - v a l u e	S i g . (1 - t a i l e d)
D E B T	2 3	9 . 1 0 7 8	1 . 0 3 3 0 2		
E Q U I T Y	2 3	2 0 . 3 8 3	6 . 5 6 7 3	8 . 1 3 4 *	0

		9	8	*	
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Table 3: Independent sample t-test between debt and equity funds
As seen in table 3, Results depicts that the t-value is significant at 0.005 level.

Since, $t_{(44)} = 8.134 > \text{Critical value of } t_{(44)}$.

3. T-test results (debt funds vs. balanced funds)

G R O U P	N	M E A N	S D	t - v a l u e	S i g . (1 - t a i l e d)
D E B T	23	9 . 1 0 7 8	1 . 0 3 3 0 2		
B A L A N C E D	23	1 7 . 5 4 0 9	3 . 4 4 2 9 2	11.251 . 2 5 1 * *	0

Table 4: Independent sample t-test between debt and balanced funds

Results shown in the above table 4 depicts that the t-value is significant at 0.005 level.
Since, $t_{(44)} = 11.251 > \text{Critical value of } t_{(44)}$.

V. Findings & conclusions

From the above tables 1, 2, 3 we can note the following:

a. Null hypothesis H_{a0} stands false, and **its alternative hypothesis H_{a1} i.e., the average return on Equity fund is significantly greater than average return on Debt fund is accepted.** (see table 2).

b. Null Hypothesis H_{b0} is rejected, and **it's alternate H_{b1} i.e., the average return on Equity fund is significantly greater than average return on Debt fund is accepted.**(see table 3).

c. Null Hypothesis H_{c0} is rejected, and **it's alternate hypothesis H_{c1} may be accepted that average return on Balanced fund is significantly greater than average return on Debt fund.** (see table 4).

Hence, from the above tests conducted on different portfolios or baskets , we can conclude on the note there is an impact of asset allocation on the performance of the portfolio. The **average returns on balanced funds are significantly greater** than average returns on equity funds and debt funds. Whereas, the average returns on **equity fund** is significantly greater than average returns on debt funds.

VI. Suggestions

a. An investor who takes higher risk generally goes for higher equity fund allocation in his/her portfolio. But from the study it is suggested that the investor could generate higher returns from balanced funds if the portfolio allocation is done in the right manner.

b. An investor who takes moderate risk generally goes for equal distribution of his/her resources between equity funds and debt funds. From the study also the same is being justified because when equity and debt funds were compared with balanced funds, balanced funds proved to give better returns. So balanced funds are perfect for investors, who take moderate risks as well.

VII. Future work & Implications

The results of this paper shows that balanced equity remains more preferred form of investment in the current market situation although further research needs to be conducted to understand the deeper concepts regarding such investments.

APPENDIX**1. THREE YEAR RETURNS OF DEBT FUNDS**

	DEBT	
SL.NO	FUND NAME	RETUR N (3 YR.) %
1	Baroda Pioneer Dynamic Bond Fund	11.69
2	Birla Sun Life Dynamic Bond Fund	11.34
3	Birla Sun Life Income Plus	10.36
4	Canara Robeco Income Scheme	10.06
5	DHFL Pramerica Dynamic Bond Fund	9.92
6	DSP BlackRock Bond Fund	9.56
7	Edelweiss Bond Fund	9.33
8	Escorts Income Bond	9.25
9	Escorts Income Plan	9.23
10	Franklin India Income Opportunities Fund	9.17
11	HDFC Annual Interval Fund - Series I - Plan A	9.14

12	HDFC Cash Management Fund - Treasury Advantage	9.14
13	ICICI Prudential Corporate Bond Fund	8.77
14	JM Monthly Income Plan	8.54
15	Kotak Monthly Income Plan	8.5
16	L&T Monthly Income Plan	8.49
17	LIC MF Bond Fund	8.48
18	Principal PNB Fixed Maturity Plan - Series B10	8.44
19	Reliance Fixed Horizon Fund 24 - Series 22	8.41
20	SBI Magnum Income Fund	8.12
21	Sundaram Bond Saver	8.1
22	Tata Long Term Debt Fund	7.86
23	UTI Bond Fund	7.58

Table 5 RETURN OF DEBT FUNDS

(Source:
<https://www.mutualfundindia.com/MF/return/TopFunds?id=3>
 (accessed on 17/3/2107))

2. THREE YEAR RETURNS OF EQUITY FUNDS

EQUITY		
SL.NO	FUND NAME	RETUR N (3 YR.) %
1	Baroda Pioneer Growth Fund	17.72
2	Birla Sun Life Equity Fund	26.28
3	Birla Sun Life Pure Value Fund	35.14
4	Canara Robeco Equity Diversified	15.27
5	DHFL Pramerica Midcap Opportunities Fund	19.87
6	DSP BlackRock Equity Fund	21.39
7	Edelweiss Equity Opportunities Fund	17.57
8	Escorts Growth Plan	24.83
9	Escorts High Yield Equity Plan	34.55
10	Franklin India Flexi Cap Fund	20.91
11	HDFC Equity Fund	19.07
12	HDFC Growth Fund	18.52
13	ICICI	30.09

	Prudential MidCap Fund	
14	JM Equity	15.61
15	Kotak Classic Equity	15.93
16	L&T Equity Fund	19.77
17	LIC MF Equity Fund	12.22
18	PRINCIPAL Dividend Yield Fund	17.78
19	Reliance Growth Fund	24.21
20	SBI Magnum Equity Fund	17.37
21	Sundaram Equity Plus	6.68
22	Tata Equity Opportunitie s Fund	20.06
23	UTI Equity Fund	17.99

Table 6 RETURN OF EQUITY FUNDS

(Source: <https://www.mutualfundindia.com/MF/return/TopFunds?id=3> (accessed on 17/3/2107))

3. THREE YEAR RETURNS OF BALANCED FUNDS

	BALANCED	
SL. NO.	FUND NAME	RETURN (3 YR.) %
1	Baroda Pioneer Balance Fund	14.32
2	Birla Sun Life Balanced 95	20.88
3	Birla Sun Life Balanced Advantage Fund	16.99

4	Canara Robeco Balance II	19.76
5	DHFL Pramerica Balanced Advantage Fund	15.22
6	DSP BlackRock Balanced Fund	21.4
7	Edelweiss Absolute Return Fund	13.28
8	Escorts Balanced Fund	18.99
9	Escorts Opportunities Fund	12.28
10	Franklin India Balanced Fund	19.39
11	HDFC Balanced Fund	21.44
12	HDFC Prudence Fund	20.89
13	ICICI Prudential Balanced Fund	21
14	JM Balanced	13.35
15	Kotak Balance	15.77
16	L&T India Prudence Fund	20.93
17	LIC MF Balanced	11.08
18	PRINCIPAL Balanced Fund	18.12

19	Reliance Regular Savings Fund - Balanced	20.32
20	SBI Magnum Balanced Fund	18.84
21	Sundaram Balanced Fund	12.06
22	Tata Balanced Fund	20.59
23	UTI Balanced Fund	16.54

Table 7 RETURN OF BALANCED FUNDS

(Source: <https://www.mutualfundindia.com/MF/return/TopFunds?id=3> (accessed on 17/3/2107))

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