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An investigation of timing abilities in income funds of Pakistan

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ABSTRACT
This paper emphasizes on the measurement of mutual fund performance and timing abilities of income fund managers in Pakistan. To analyze the income fund performance Treynor measure is used which assumes that fund managers possess diversified portfolios. Timing abilities are ascertained by using Treynor and Mazuay measure and data for five years ranging from July 2009 to June 2014 is used and it consists of 30 income funds. Results showed that 23 of the total income funds had positive treynor values which indicate good performance and also an indicator of better diversification. Treynor and Mazuay measure also had a better indication of timing abilities as 2/3rd of the managers performed well in this regard.

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Introduction

Mutual fund is a popular mode of investment. In mutual fund the fund companies collect a pool of funds from a large number of people and then invest it in many types of securities and give return to the people. There are two types of funds according to their structure first one are open ended and second is close ended. The open ended fund are those fund in which capitalization is unlimited and organization get a large amount of money and in close-ended capitalization is limited. These funds are professionally managed and main advantage of mutual fund is for small investors who get professionally managed securities and invest in diversified portfolio. The managers put their managerial efforts to maximize return and minimize the risk and for this manager charge a fee from fund holder. Now it becomes popular topic of research for academic institution because the data is easily available and it also involves trillion of dollar truncation. The Pakistani mutual funds industry is in growing stage today. First mutual fund in Pakistan was established in 1962 with name of NIT (national investment trust) this was an open ended and publicly owned issue. Then the ICP (investment corporation of Pakistan) was formed in 1966 and they offered a large number of close-ended funds and these were privatize in 2000.The number of funds and investment in these funds increased in period of 2005-2008 and investment decreased in early 2009.In 2010 there were 126 funds operating in Pakistan, out of which105 were open-ended and there were 28 AMCs. The purpose of study is to evaluate the performance of income fund in Pakistan. The Income funds are the mutual funds in which mutual fund companies invests in bonds, preferred stock and in treasury bills. There are different types of income fund according to investment prospective. These different types are fixed income fund, Islamic income fund and aggressive income fund. Fix income funds, are those funds which invest in those securities which have specific maturity date and rate of interest. These are suitable for both type of investor who are risk avoider and risk lover because it depends upon the investment strategies either they invest in high risk securities or low risk securities. Aggressive income fund are those fund which invest in those securities which have a great potential to get growth. The investors which invest in these funds are mostly risk lover. Islamic income funds are those funds which invest in those securities which follow rules and regulations made by Sharia Compliance board of Pakistan. These are favorable for those investors who want to invest according to Islamic rules and also minimize loss by investing in income fund. In this type of mutual fund risk is less than other securities. Manager of mutual fund companies does not invest in one type of security instead they make portfolio of securities and then invest in these portfolio, portfolio mainly reduce risk. In Pakistan mutual fund industry is at growing stage as the time passes the number of mutual fund will increase in Pakistan and this is because of awareness in people. The number of income fund will also increase. This study is helpful for academic uses and it will also enable the fund manager to know the way academic circles look towards their offerings. It will also provide deep insight into this topic and provide updated view of the timing abilities of the fund managers. This study is divided into four parts. First part reviews the previous studies. Second is about the statistical measures used. Third part repots result and finally the paper is concluded.

Previous Literature:

Shah and Hijazi (2005), evaluated the risk adjusted performance of mutual fund for sample period of 1997-2004. They applied most common measures of performance evaluation which were Jensen alpha, Sortino, Sharpe and Treynor model .They found that most funds over performed and some underperformed. They also found that Pakistan market had an ability to add value.

Sipra (2006), found that the performance of funds was not up to the mark and only small number of funds beat the market which show that the market had semi strong efficiency.

Khan (2008), analyzed the performance of income fund in Pakistan by taking data of three years. He found that we could not analyze the performance only by using their return; we had to consider the risk for its evaluation. He also found that most funds under performed. He used Jensen alpha, Sharpe and Treynor ratio for performance evaluation of income fund.

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Afza and Rauf (2009), worked on open-ended mutual funds .The purpose of study was to provide guidelines to managers by providing information about different variable which affect the performance of mutual funds. These variables were size, age, liquidity, expense and turnover of fund. They used Sharpe measure to evaluate the performance of mutual fund. The result of the study was that all variable had a significant effect on the performance of mutual fund. Duguleana and et.al.,(2009), evaluated the performance of German blue chip "DW Duetsche Aktien TYP O" fund and also the timing and selection abilities of fund managers by taking data of 10 year. The German blue chip includes Dax 30 companies. They used two important measures first is Jensen alpha and second is Henriksson and Mertonn. They concluded that the performance of mutual funds was not well and fund manager do not have good timing and selection abilities.

Nawaz and Nazir (2010), investigated the determinants that affect the growth of mutual funds for period of (2005-2009). They investigated about 13 family equity funds and used fixed and random affect model for estimation of determinants of mutual fund growth. The results showed that the turnover, Family proportion and expense ratio affect the growth in positive way and management fee and risk adjusted return affect growth in negative way.

Cuthbertson et.al.,(2010), analyzed the timing abilities of UK funds managers by using non parametric test of timing abilities. The result indicated that only small number of fund managers is able to time the market and most of the fund managers were not able to time the market.

Mahmud and Mirza (2011), carried out a research on different types of mutual funds in Pakistan to evaluate their performance in bullish and bearish market as compared to the bench mark using different performance evaluation models like a Jensen alpha, CAPM and Sharpe model. The funds underperformed as compared to bench mark .The facts showed the Islamic fund are most growing type of mutual funds but their performance was not good, and most of fund carried a stock of large-cap and not a value oriented stock as a result they had to bear negative excess return in bearish market and stock funds also faced difficulty of high T-bill rate and their performance was also not good.

Zulfiqar et.al.,(2011), checked the performance of 22 mutual funds that were listed in Karachi stock exchange for period of(1999-2009)in different states of market such as normal, boom and recession. They checked their performance by use of Sharpe ratio, Treynor ratio, Sortino ratio and Jensen alpha ratio and then ranked them according to their performance. The overall results suggest that the close-ended funds under performed .The results were not satisfactory in recession period and also the performance of fund managers was not good.

Gohar, Ahmed and Niazi (2011), studied the equity and income fund by dividing them into broker back fund and institution backed fund. The study found that the performance of equity broker back fund was better than institution backed equity fund and performance of income institution backed fund was better than the broker back fund. They also indicate that the equity fund manager and institution back fund had possessed greater timing ability as compared to income fund managers.

Miglani (2011), analyzed the timing abilities of Indian mutual fund by using Treynor & Mazuy and henriksson and Merton model. He included both public and private funds in his research. He concluded that the market timing abilities of fund managers were not well and they totally relied on their abilities of security selection.

Nathaphan and chuhachinda (2012), conducted a research on the growth of mutual fund in Thailand. They studied different determinant of mutual fund performance besides using different measure of performance evaluation. These determinants were distribution channel, reputation of parent company and administrative expense. If mutual fund focuses in these factors then they easily grab a large section of market. They also point out some challenges that Thailand market faced. First is the mutual funds working in Thailand were short term and second one was limited mutual fund diversification.

Abbasi and shah (2012) had assessed the performance of mutual fund in Pakistan by using Sharpe ratio, Treynor ratio and Jensen alpha ratio. They concluded that fund under performed as compared to market because of defensive strategies of managers and macroeconomic environment like terrorism and insecurity.

Ali and Qudous (2012), studied the performance of 15 mutual fund by the implementation of Sharpe and Treynor measure for sample period of 2005-2009.They proved that most funds underperformed.

Baber, Nawaz and Ashraf (2012), measured the performance by using different measure like Sharpe , Jensen alpha , Sortino , Treynor , Information and Fama decomposition measure for period of2007 to 2014.The performance could not satisfy the investor because many funds under performed.

Asghar ,Afza and Bodla (2013) examined the cost efficiency of hundred mutual fund by using non-parametric data envelopment analysis(DEA).They also examined the impact of stock market crisis on the efficiency of mutual fund in Pakistan. The result showed that the mutual fund was cost efficient during period of 2005-2008 and their efficiency fall during financial crisis in market in 2009.

Methodology

The purpose of study is to evaluate the performance of income fund and timing abilities of fund managers of Pakistan by taking data of five year from July2009 to June2014. There are different types of measure used to evaluate the performance of mutual fund in the whole world. But some models are most commonly used; these are Treynor, Sharpe, Sortino, information and Jensen alpha measure. These different types of models focus on different factor to evaluate the performance of mutual fund. In this study performance is measured by the implementation of Treynor measure and Treynor and Mazuy measure. Data for net asset value is downloaded from the official website of mutual fund association of Pakistan (www.mufap.com.pk). Risk free rate assume to be the 12 month Treasury bill rate obtained from the website of financial market association of Pakistan (www.fmap.com.pk) and KSE 100 index is consider as the market representative it's data is download from yahoo finance.

Treynor Measure

This method was introduced by jack L. Treynor in 1965. This method is used to measure return per unit of risk. This method used only systematic risk as compared to Sharpe model which use total risk. In this model we use only systematic risk β because the unsystematic risk is diversified by manager by making portfolio of securities. The systematic risk is not diversified because it related to market.

Formula of Treynor measure

$T = R_p - R_f / \beta$

R_p= return of portfolio

R_f= risk free return

β =systematic risk

Results and Interpretations

Descriptive statistics

Table 1

Serial No	Name of funds	Mean	Standard Deviation	Minimum	Maximum
1	ABL income fund	-0.0001	0.0126	0.008565	0.002935
2	AKD aggressive income fund	0.02280	0.02373	-0.01006	-0.04428
3	Meezan Islamic income fund b	-0.00017	0.0159	0.0076	0.0031
4	Meezan Islamic income fund c	-0.00017	0.0159	0.0076	0.0031
5	IGI aggressive income fund	-0.0029	0.0444	0.0005	-0.01619
6	IGI income fund	-.0.00013	0.0142	-0.0478	0.0124
7	Alpha GHP income multiplier fund	-0.00132	0.0267	0.0001	-0.0543
8	Askari high yield scheme	-0.0005	0.0206	0.0041	-0.0775
9	Atlas income fund	-0.00021	0.0142	0.0046	-0.0177
10	Atlas Islamic income fund	-2.82179E-05	0.0105	0.0064	-0.0156
11	BMA chundrigar road saving fund	-0.0034	0.0668	0.0136	0.0010
12	Faysal income & growth fund	0.00035	0.0125	0.0087	0.00
13	Faysal saving growth fund	3.84657E-05	0.0115	0.0072	-0.0119
14	First Habib income fund	-0.00016	0.0099	0.0074	0.0048
15	HBL income fund	0.0009	0.0129	0.0067	0.00
16	JS income fund	-0.0026	0.0210	0.0084	-0.0197
17	KASB income opportunity fund	-0.0057	0.0555	-0.0005	-0.0178
18	KASB income opportunity fund contingent back end load	-.0.0057	0.0558	-0.0005	-0.01785
19	MCB dynamic cash fund	1.00783E-05	0.0128	0.0078	-0.0134
20	Metro bank sovereign fund	0.000174	0.0183	0.0026	-0.0101
21	Pakistan income enhancement fund	9.98971E-05	0.0058	0.0003	-0.0007
22	Pakistan income fund	0.00013	0.0109	0.0140	-0.0099
23	NAMCO income fund	0.00066	0.0211	-0.011	0.0102
24	NAFA income fund	-0.0013	0.0246	0.0045	-0.0195
25	NAFA Islamic aggressive income fund	-0.0002	0.0513	0.0047	-0.0428
26	NAFA income opportunity fund	0.0007	0.0173	0.0050	-0.0394
27	Pak Oman Advantage Islamic Income Fund	-3.25628E-05	0.0145	0.0040	-0.0364
28	Al meezan Islamic Income Fund (Formerly: United Islamic Income Fund Growth)	-0.00075	0.0295	0.0088	-0.0232
29	United growth and income fund(Growth)	-0.0039	0.0311	0.0068	-0.0977
30	United income and growth fund(Income)	-0.0039	0.0306	0.0068	-0.0977
31	KSE 100 index values	0.0211	0.0487	0.1165	0.1511

Table 2. Treynor measure

Name of fund	Beta	Treynor
ABL income fund	-0.01942	0.49045716
AKD aggressive income fund	-0.04627	0.228673
Meezan Islamic income fund b	-0.07032	0.135288
Meezan Islamic income fund c	-0.07056	0.134833
IGI aggressive income fund	0.044434	-0.21735
IGI income fund	-0.03939905	0.241659
Alpha GHP income multiplier fund	0.048045	-0.19959
Askari high yield scheme	0.011268	-0.84591
Atlas income fund	0.047176	-0.20213
Atlas Islamic income fund	0.007672	-1.24165
BMA chundrigar road saving fund	-0.04666	0.200684
Faysal income & growth fund	0.024047061	0.39579
Faysal saving growth fund	0.02168213	-0.43931
First Habib income fund	-0.009817758	0.970121
HBL income fund	-0.05048	0.189702
JS income fund	0.064371	-0.15059
KASB income opportunity fund	-0.031989484	0.291991538

KASB income opportunity fund contingent back end load	-0.03847	0.241832371
MCB dynamic cash fund	-0.03214	0.296396
Metro bank sovereign fund	-0.05361	0.177848
Pakistan income enhancement fund	-0.20139186	0.473108
Pakistan income fund	-0.02838	0.335798
NAMCO income fund	-0.01416	0.673513
NAFA income fund	-0.06912	0.136492
NAFA Islamic aggressive income fund	-0.05756	0.165296
NAFA income opportunity fund	-0.0013	7.328508
PAK Oman advantage Islamic income fund	-0.0168	0.56713
Al meezan Islamic income fund(United Islamic income fund)	-0.0033	2.889834
United growth and income fund(Growth)	-0.06384	0.145283
United income and growth fund(Income)	-0.03972	0.235869

Table 3. Treynor and Mazuy measure

Name of funds	Beta value	Std error beta	T-beta	Gamma	Std error Gamma	T-Gamma	R^2
ABL income fund	-0.0176	0.0330	-0.5316	0.7023	0.4157	1.6895	0.05176
AKD aggressive income fund	-0.0404	0.0629	-0.6423	-0.4908	0.7917	-0.6199	0.0147
Meezan Islamic income fund b	-0.0663	0.0418	-1.5819	-0.0124	0.5269	-0.0236	0.0429
Meezan Islamic income fund c	-0.0665	0.0419	-1.5873	-0.0096	0.5271	-0.0182	0.0432
IGI aggressive income fund	0.0504	0.0602	0.8381	0.0009	0.7572	0.0011	0.0124
IGI income fund	-0.0365	0.0375	-0.9697	0.3515	0.4728	0.7433	0.0248
Alpha GHP income multiplier fund	0.0563	0.0711	0.7926	-0.5068	0.8950	-0.5662	0.0159
Askari high yield scheme	0.0134	0.054	0.2462	0.7781	0.6894	1.1285	0.0237
Atlas income fund	0.0523	0.0375	1.3914	0.0851	0.4729	0.1799	0.0344
Atlas Islamic income fund	0.0097	0.6593	0.0273	0.3558	0.6593	0.3446	0.6451
BMA chundrigar road saving fund	-0.4371	0.1785	-0.2447	0.7459	2.2467	0.3320	0.0029
Faysal income & growth fund	0.0284	0.0334	0.8547	0.1227	0.4205	0.2918	0.0147
Faysal saving growth fund	0.0260	0.0308	0.8454	0.1286	0.3380	0.3315	0.0150
First Habib income fund	-0.0076	0.0259	-0.2935	0.6110	0.3269	1.8691	0.0594
HBL income fund	-0.0501	0.0325	-1.5448	0.9865	0.4083	2.4163	0.1233
JS income fund	0.0740	0.0549	1.3466	-0.9138	0.6912	-1.3216	0.05715
KASB income opportunity fund	-0.0207	0.1493	-0.1391	0.2026	1.8792	0.1078	0.0005
KASB income opportunity fund contingent back end load	-0.0270	0.1500	-0.1805	0.1340	1.8874	0.0710	0.0006
MCB dynamic cash fund	-0.0297	0.0337	-0.8805	0.5342	0.4252	1.2562	0.0386
Metro bank sovereign fund	-0.0496	0.0487	-1.0200	0.0694	0.06127	0.1133	0.0183
Pakistan income enhancement fund	-0.0158	0.0152	-1.0427	-0.0440	0.1914	-0.230	0.0204
Pakistan income fund	-0.0261	0.0286	-0.9124	0.5264	0.3599	1.4625	0.0483
NAMCO income fund	-0.0103	0.0558	-0.1843	-0.3072	0.7019	-0.4377	0.0041
NAFA income fund	-0.0669	0.0650	-1.0294	0.8991	0.8185	1.0984	0.0371
NAFA Islamic aggressive income fund	-0.0492	0.1373	-0.3583	-0.3772	1.7278	-0.2183	0.0032
NAFA income opportunity fund	0.0056	0.0470	0.1192	-0.1931	0.5916	-0.3264	0.0020
PAK Oman advantage Islamic income fund	-0.0137	0.0380	-0.3557	0.3577	0.4862	0.7358	0.0113
Al meezan Islamic income fund(United Islamic income fund)	0.00279	0.0795	0.0350	0.2645	1.0013	0.2645	0.0012
United growth and income fund(Growth)	-0.0586	0.0834	-0.7028	0.4673	1.0494	0.4452	0.0117
United income and growth fund(Income)	-0.0323	0.0824	-0.3924	-0.3929	1.0374	-0.0378	0.00280

Treynor and Mazuy model

This model was introduced by Treynor and Mazuy in 1966. This is the extension of Treynor model. They add a quadratic term of excess return in Treynor equation which provides us information about adjusted risk of portfolio and this can be used to check the timing abilities of portfolio manager. If marketing manager has good timing abilities then he easily understand the market trend and change the portfolio according to market. In this way they earn a large profit on portfolio.

Formula of Treynor and Mazuy measure

$$R_{pt} - R_f = \alpha_p + \beta_p (R_m - R_f) + C_p (R_m - R_f)^2 + \varepsilon$$

R_{pt} = Return of portfolio

R_f = Risk free rate

α_p = Jensen alpha of portfolio

R_m= Market return on portfolio

ε = Error

If value of Treynor and Mazuy model is positive than it means the manager possess the great timing abilities and vice versa.

The result of descriptive statistics is shown in table 1, it indicates that most of the funds earn a negative return for period of 2009-2014 that show poor performance of funds. The market return is (0.0211) and only AKD aggressive income fund beats the market and earns return of (0.0228) and the value of return for 29 funds are less then market return. The standard deviation of market is 0.0487 and standard deviation of 26 funds is less than market standard deviation and standard deviation of four funds is greater than market. The Pakistan income enhancement fund has a lowest standard of deviation which is 0.0058.

The Treynor ratio shows that the portfolios give a high reward per unit of systematic risk, as risk increases the returns also increase. The result of beta for all funds is less than 1 which shows that all funds follow the defensive strategies. The NAFA income opportunity has highest value of Treynor which is 7.33 and it performs well as compare to other. The Atlas income fund performance is not well as compare to other and value of Treynor measure is -1.2416. It can be seen in table (2) that most of the funds possess negative beta values. It can be due to the use of KSE 100 index use as a benchmark because mostly income fund invest in fixed income securities whereas benchmark consist of equities. So the negative Co-variance will cause the beta values turn into negative. This negative beta resultantly will cause Treynor ratio result to be positive in case of any fund has earned negative excess returns. These returns prove that income fund have achieved diversification up to some extent and also earned return in comparison to their systematic risk. Treynor and Mazuy measure can be used to measure the timing abilities of fund manager. Their timing abilities are linked with the value of t-gamma if its value is positive and significant then it means that fund manager contain great timing abilities and vice versa. Many of the fund managers are able to time the market correctly. According to Table 3 the manager of HBL income fund contain large timing abilities and value of Treynor and Mazuy measure is 2.4163. The managers of JS income fund are not able to time the market and its value of Treynor and Mazuy measure is -1.3216.

Conclusion

Our study evaluates the performance of 30 income funds of Pakistan by taking data of five years which range from July 2009 to June 2014. This study investigates risk adjusted performance of mutual fund and also checks the timing abilities of fund manager by using Treynor measure and Treynor & Mazuy measure respectively. The five year period is not enough to correctly evaluate the performance of mutual fund. But according to study the result of Treynor measure, many funds perform better and some underperform. The result of Treynor ratio is positive for 23 funds and only 7 funds show negative Treynor value. This study finds that manager of income fund posses better timing abilities, $2/3^{rd}$ of the managers show great timing abilities and directed the funds in right direction. The $1/3^{rd}$ of the manager does not perform better and they could not direct the funds in right direction. The mutual fund industry in Pakistan is in growing phase, as time will pass the awareness will increase in people and more people will be attracted toward mutual fund. If we provide complete information to investor and the funds work according to basic rules and regulations then the fund managers can achieve more growth in Pakistan.

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