PalArch's Journal of Archaeology of Egypt / Egyptology

PERFORMANCE EVALUATION: ISLAMIC MUTUAL FUNDS VS. CONVENTIONAL MUTUAL FUNDS IN SAUDI ARABIA

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Danyah Alsharif, Shabbir Ahmad. Performance Evaluation: Islamic Mutual Funds Vs. Conventional Mutual Funds in Saudi Arabia-- Palarch's Journal Of Archaeology Of Egypt/Egyptology 18 (13), 899-909. ISSN 1567-214x

Keywords: Fund Performance, Islamic Mutual Funds, Market Timing Abilities, Performance Evaluation, Selectivity

ABSTRACT

The performance of mutual funds has long been the topic of discussion. Many studies have been conducted to evaluate mutual funds' performance against the overall market performance. Moreover, the comparisons have also been made between the performance of Islamic mutual funds (IMF) and conventional mutual funds (CMF). The literature documents contradictory results when IMF performance is compared with CMF. Some studies conclude that IMF has superior performance over CMF whereas others conclude the opposite. This study participates in this debate and provides new empirical evidence. This study analyzes and compares the risk-adjusted returns for both Islamic funds and conventional funds using Sharpe ratio, Treynor ratio, and Jensen's Alpha. Furthermore, this study examines fund managers' selectivity and market timing of IMF and CMF. The basic finding of this paper is that Islamic mutual funds and conventional mutual funds have almost similar performance on the basis of Treynor ratio and Jensen's Alpha. Whereas Sharpe ratio results indicate that Islamic funds perform better than conventional funds. The study also finds that selectivity and market timing abilities for both Islamic mutual funds and conventional mutual funds outperform the market portfolio. Moreover, selectivity skills of Islamic mutual funds mangers are superior to conventional mutual funds mangers whereas market timing ability is same for both types of managers.

INTRODUCTION

During the past two decades, Islamic mutual funds and their values have experienced solid growth [1]. This growth has driven several empirical studies on the evaluation and analysis of performance and riskiness of Islamic mutual funds [2]. Abdullah et al. [3] analyze 65 mutual funds of which 14 are Islamic and 51 are conventional. The study concludes both Islamic and conventional funds underperform the benchmark. Moreover, they find that conventional funds perform better than Islamic funds during bullish trends; but during bearish trends, Islamic funds perform better. They also find that conventional funds have diversification levels that are slightly better than Islamic funds.

Abderrezak [4] evaluates the performance of 46 Islamic mutual funds for the period from 1997 to 2002 and concludes that Islamic mutual funds, on average, performed poorly against their benchmarks during the sample period. The study also reports evidence of poor security selection with no significant performance differences between Islamic and conventional funds. Hoeper et al. [5] examine a sample of 265 Islamic equity funds from 20 countries and conclude that funds from eight nations significantly underperform their benchmark and funds from three nations only outperform their respective benchmark. In addition, they find that Islamic funds from the GCC do not significantly underperform their benchmark.

Merdad et al. [6] evaluates 28 Saudi mutual funds managed by one fund manager. They find Islamic funds underperform conventional funds during both the full and the bullish periods but outperform during bearish and financial crisis periods. They find that the fund managers are good at showing timing and selectivity skills for Islamic funds during the bearish period, and for conventional funds during the bullish period. Hayat and Kraeussl [7] have similar findings in which Islamic equity funds underperform compared to Islamic as well as conventional equity benchmarks. This underperformance increases during the financial crisis. They also find that Islamic equity funds managers are bad market timers.

Ashraf [8] evaluates 159 mutual funds from 2007 to 2011. The empirical results show that Islamic mutual funds, on average, perform better than conventional funds during the economic crisis. Furthermore, the results on stock selection ability indicate that Islamic mutual funds' managers possess superior stock selection ability to conventional mutual funds' managers. El-Masry et al. [9] perform an evaluation for 21 Saudi mutual funds over the period from 2005 till 2011. The study finds, on average, Islamic mutual funds are outperforming conventional mutual funds and the market portfolio. Boo et al. [10] examine 448 funds of which 131 are Islamic over the period from 1996 to 2013. Their results show there is no clear-cut over performance of Islamic mutual funds against their conventional peers across the three financial crises. However, results also indicate that Islamic funds did significantly outperform conventional during the recent financial crises. The study further indicates that Islamic mutual funds have better risk management compared to conventional peers.

Agussalim et al. [11] results show that performance of conventional mutual funds is better than Sharia mutual funds when comparing the level of return and the Sharpe index. However, from the level of risk, Treynor index and Jensen's Alpha results indicate the performance of conventional mutual funds is lower than the Islamic mutual fund. Al Rahahleh et al. [12] find that non-risk adjusted return shows that Islamic funds produced a significantly higher return than their benchmark during 2014 and a significantly lower return than their benchmark during 2016. However, results based on the risk-adjusted measures, Islamic mutual funds slightly underperformed their benchmark on the basis of the Sharpe ratio and Treynor ratio. Therefore, this study analyzes and compares the risk-adjusted returns for both Islamic funds and conventional funds using Sharpe ratio, Treynor ratio, and Jensen's Alpha, also examines fund managers' selectivity and market timing of IMF and CMF.

METHODOLOGY

The study attempts to evaluate the performance of Islamic mutual funds and conventional mutual funds in Saudi Arabia. This evaluation will be based on risk-adjusted returns, managers' selectivity skills and their timing abilities. Fund managers' selectivity skills are defined as how good managers are in selecting the stocks for their portfolio. Managers' timing abilities indicate how good managers are in anticipating changes in market prices. To achieve this objective, the Sharp ratio, the Treynor ratio, and, the Jensen's Alpha are the basic measurement tools used for mutual fund performance evaluation. The Treynor–Mazuy's model is also used to assess fund managers' market timing ability and selection ability.

Data Selection

To examine the performance of Saudi Mutual funds, this study considered a sample of forty mutual funds listed on TASI, twenty funds are Islamic and the remaining twenty are conventional mutual funds. The selection criteria of mutual funds include being open-ended, managed in Saudi Arabia, invest in local currency, and use local financial instruments and active over the past five years. These criteria ensure reliable and consistent data when Tadawul All Saudi Index (TASI) is used as a benchmark for both IMF and CMF evaluation. Tadawul All Saudi Index (TASI) is used as a proxy for market portfolio and Saudi Arabia Inter-Bank Offered Rate (SAIBOR) as a proxy for the risk-free rate. All the data was downloaded from the Bloomberg including TASI monthly return, SAIBOR 3-month rate, mutual funds monthly return and the beta of each fund over the study period.

Risk-Adjusted Measures

The first approach to evaluate the performance of IMF and CMF in this study is to use Sharpe ratio, Treynor ratio, and Jensen's Alpha as standard risk-adjusted performance measures.

Sharpe ratio

Sharpe ratio shows the average excess returns of a fund over the average risk-free rate per unit of a standard deviation of the mutual fund. The Sharpe ratio indicates how well a fund investment is performing compared to a risk-free investment. The higher the ratio, the better the fund manager's ability of

diversification relative to the overall risk. A negative Sharpe ratio indicates that the investor would have a better risk-adjusted rate of return using a risk-free investment.

$$Sharp\ Ratio = \frac{R_i - R_f}{\sigma_i}$$

Where $R_i - R_f$ is the average excess return of a fund over the average risk-free rate and σ_i is the total volatility (risk) of the fund.

1.1.1 Treynor ratio

Treynor ratio is the reward to volatility measures, shows the average excess returns of a fund over the average risk-free rate per unit of systematic risk.

$$TR = \frac{R_i - R_f}{\beta_i}$$

Where $R_i - R_f$ is the average excess return and β_i is the fund's beta. The higher the ratio, the better the fund manager's ability of diversification relative to the systematic risk.

1.1.2 Jensen's Alpha

Jensen's Alpha measures the fund's excess returns over and above the benchmark.

$$R_{it} - R_{ft} = \alpha_i + \beta_i\left(R_{mt} - R_{ft}\right) + \varepsilon_{it}$$

The intercept α_i gives the Jensen's alpha, which typically interpreted as a measure of stock selection capability for the fund managers i, β_i represent the systematic risk for the fund i and $R_{mt} - R_{ft}$ is the market excess return.

The results of these ratios for IMF and CMF will be compared to find out how they are different from each other and if these differences are significant. The tests of equality of means approach will be used to analyze these results.

The Treynor and Mazuy (1966) model

The second approach for evaluating mutual funds' performance is to examine funds managers' market timing ability and selection ability using Treynor and Mazuy's model.

$$R_{it} - R_{ft} = \alpha_i + \beta_i\left(R_{mt} - R_{ft}\right) + \gamma_i\left(R_{mt} - R_{ft}\right)^2 + \varepsilon_{it}$$

The right-hand side of the equation are composed of the excess returns of market ($R_m - R_f$) and the quadratic excess returns of market $(R_m - R_f)^2$. The left-hand side is the excess return of the mutual fund ($R_{it} - R_{ft}$).

Where α_i refers to the stock selection ability of fund managers, β_i refers to the systematic risk associated to the mutual funds, and γ_i refers to the market timing ability that defines managers' ability on conducting assets' adjustments in the portfolio to anticipate any changes in market prices.

A statistically significant positive value of αi indicates that the fund managers have stock selection skills. A statistically significant positive value of γ_i indicates that the mutual fund managers' hold skills for market timing. A significant negative value for γ_i indicates a lack of the fund managers' ability to correctly time the market. Furthermore, insignificant value for γ_i also represents a lack of the timing ability.

RESULT AND DISCUSSION

Unit Root Test

The mean and variance of time series data is likely to be not constant over time and the result obtained from OLS are spurious. Therefore, the data series was tested for stationery using unit root tests. Panel unit root test emerged from time series unit root test. The major difference between panel unit root test and time series unit root test is the consideration for the asymptotic behavior of the time-series dimension and the cross-sectional dimension [13]. To test the stationarity of the variables, this study applied Levin, Lei & Chu (LLC), ImPersaran Shin (IPS), and Wu, and Fisher tests. The null hypothesis for these tests is defined as the presence of a unit root (non-stationary). The obtained result shows that the null hypothesis is rejected and all results are significant with a p-value less than 5% and therefore, the variables are stationary at level.

Descriptive Statistics

Table 1 shows the descriptive statistics for Treynor and Mazuy variables. The statistics indicate that the fund excess returns, R_i-R_f, for IMF, 0.33, is slightly lower than CMF, 0.38. Therefore, the standard deviation for CMF access return, 5.00, is higher than that for IMF, 4.30; which is consistent with the rule of thumb "higher the return, higher the risk." Looking at the Maximum value, the statistics show almost same values for both IMF and CMF. Whereas the minimum values for the fund's excess return relative to IMF, -18.69, is lower than the one for CMF, -22.82. The values of the skewness are within the accepted range of (- 1: +1) except for the quadratic market access return, $(R_m-R_f)^2$, it shows a value of 2.71. Which imply the values are normality except for $(R_m-R_f)^2$. Regarding the values of kurtosis, Table 1 indicates that all variables are positively skewed with values exceed 3 means the distribution is peaked relative to the normal.

The Jarque-Bera is a test for normality all variables have a probability of 0.00, less than 5% therefore, reject the null hypotheses. This is because Kurtosis of the data distributions of the variables is high.

Table 1: Descriptive Statistics for Treynor and Mazuy variables

	Islamic RI_RF	Conv. RI_RF	RM_RF	_RM_RF__2
Mean	0.338	0.379	0.445	34.827
Median	0.020	0.033	0.963	9.377
Maximum	18.061	19.834	16.312	291.753
Minimum	-18.686	-22.815	-17.081	0.044
Std. Dev.	4.305	4.999	5.887	62.107
Skewness	-0.387	-0.319	-0.313	2.708
Kurtosis	6.284	5.812	4.286	9.868
Jarque-Bera	569.201	415.779	102.246	3824.633
Probability	0.000	0.000	0.000	0.000
Sum	405.576	454.227	534.196	41791.98
Sum Sq. Dev.	22217.16	29962.77	41554.18	4624814.
Observations	1200	1200	1200	1200

	Islamic RI_RF	Conv. RI_RF	RM_RF	_RM_RF__2
Notes: This table presents the descriptive statistics of Treynor-Mazuy model; fund excess return (RI_RF), market excess return (RM_RF) and quadratic fund excess return (_RM_RF__2).				

Correlation analysis

The correlation matrix among the variables was conducted to examine the relationship between the study variables, and to check if the sample has any two variables in which they are near perfect linear combinations of one another as this indicates to a multicollinearity problem. The results shown in Table 2 and 3 suggest the absence of the multicollinearity issue for the variables and ratios.

Table 2: Correlation for Treynor and Mazuy IMF Variables

	_RM_RF__2	RI-RF	RM-RF
_RM_RF__2	1		
RI-RF	-0.1478	1	
RM-RF	-0.0901	0.7099	1

Table 3: Correlation for Treynor and Mazuy CMF Variables

	_RM_RF__2	RI_RF	RM_RF
_RM_RF__2	1		
RI_RF	-0.1264	1	
RM_RF	-0.0902	0.7409	1

Heteroskedasticity Test

In order to be more accurate in forecasting the volatility and to detect the homogeneity of the residuals' variance, panel cross-section heteroskedasticity LR test was conducted on both IMF and CMF. The null hypothesis for this test is residuals are homoskedastic. The results show the probabilities for IMF and CMF equal Zero, less than 0.05. Therefore, the null is rejected, and there is evidence of heteroskedasticity issue in the data. As a graphical detection another common method used, the residuals versus fund access return for IMF and CMF was plotted and the graphs in Figure 1 and Figure 2 provide additional confirms that the data suffer from heteroskedasticity problem. To resolve the issue, the white period standard errors and covariance will be used when running the regression.

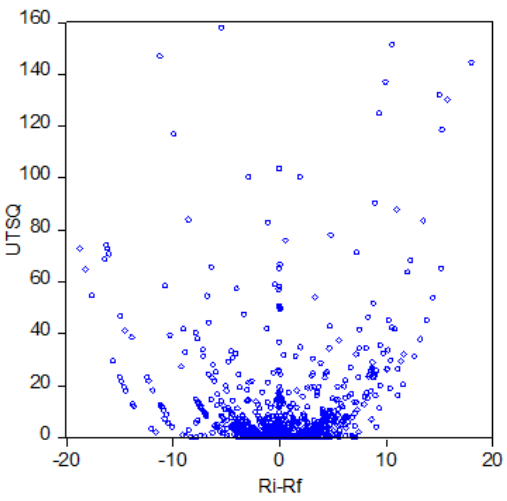

Figure1: Heteroskedasticity in IMF

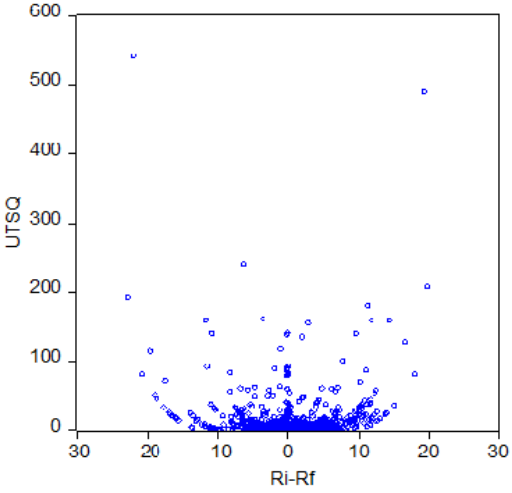

Figure 2: Heteroskedasticity in CMF

Equality Test for the Risk-Adjusted Measures

Based on Table 4, Treynor ratio and Jensen's Alpha show insignificant means difference between IMF and CMF. In other words, there are no differences between Islamic mutual funds and conventional mutual funds behavior relative to the fund's average excess returns per unit of systematic risk and to the managers' selectivity skills. That is, mutual funds in Saudi Arabia, whether they are Islamic or conventional, are acting up with the same manner in terms of systematic risk's diversification as well as to the stock selection capability of the funds' managers. For Sharpe ratio, there is a significant mean difference between Islamic funds and conventional funds in the year 2017 and for the overall period. However, in 2015 there was a major downward movement in oil prices that affected the market prices as a whole. As a result, IMF and CMF reported insignificant negative mean difference relative to Sharpe ratio and Treynor ratio with less loss for IMF. After this year, Sharpe ratio reports almost significant result between IMF and CMF, with p-value equal 0.11. For the year 2017, the significant result improved and comes with p-value equal 0.082. In other words, mean differences in the Sharpe ratio did not occur by chance and IMF managed the overall risks in a way better than CMF. That is, IMF has better management for the unsystematic risks after the market crash than the conventional fund. However, for the overall period, the results for Treynor ratio and Jensen's Alpha are consistent, in which the mean differences between IMF and CMF are insignificant. The mean difference of Sharpe ratio for the IMF becomes highly significant with a p-value less than 1%. These differences in the behavior emphasize that IMF is providing better management for overall risk diversification than CMF, especially during the market downward movement. In terms of Treynor ratio and Jensen's Alpha, the behavior of Islamic mutual funds does not vary substantially from that of the conventional mutual funds. Whereas the Sharpe ratio differs significantly between IMF and CMF which implies that IMF manages the overall risks in a way better than CMF.

Table 4: Mean Differences Test of Equality

	2013	2014	2015	2016	2017	Over 5-yrs

	IMF	CMF	IMF	CMF	IMF	CMF	IMF	CMF	IMF	CMF	IMF	CMF
Sharpe ratio												
mean	0.34	0.244	0.094	0.034	-0.143	-0.262	0.041	-0.157	0.074	-0.032	0.078	-0.035
t-test	1.749		1.584		1.134		0.614		*1.454		***2.645	
p-value	0.1467		0.5395		0.2574		0.1138		0.081		0.0082	
Treynor ratio												
mean	2.297	2.588	0.797	1.045	-0.832	-1.406	0.032	0.254	0.635	0.401	0.563	0.576
t-test	0.639		-0.24		0.677		-0.316		-0.601		-0.042	
p-value	0.5482		0.752		0.4986		0.8101		0.5234		0.9668	
Jensen's Alpha												
mean	0.115	0.15	0.389	0.575	0.104	-0.081	-0.426	-0.344	0.224	0.056	0.06	0.071
t-test	0.734		-0.243		0.586		-0.65		-0.166		-0.087	
p-value	0.8681		0.5158		0.5578		0.8082		0.4631		0.9303	

Notes: This table presents the risk-adjusted measures for the period from January 2013 to December 2017. The Sharpe ratio, Treynor ratio and Jensen alpha (α) are obtained through Formulas (1), (2) and (3). The values reported in the table are based on monthly returns. The beta values used in the Treynor ratio and Jensen's alpha are downloaded from Bloomberg. The asterisks are used to denote the statistical significance

*Statistically-significant values at 10% level.

**Statistically-significant values at 5% level.

***Statistically-significant values at 1% level

The Treynor and Mazuy (1966) Model

The null hypothesis for this test is Random effect model is appropriate, the alternative is Fixed effect model is appropriate. This study implements Hausman test on both IMF and CMF data. The obtained test result indicates that both IMF and CMF are insignificant with p-value equal to 1. So, reject the alternative hypothesis and accept the null where the random effect model is more appropriate to use.

Regression using Panel EGLS (Cross-section random effects) method was performed with white period coefficient covariance. The results in Table 5 shows positive and significant alpha for both CMF and IMF, with a p-value less than 0.05, indicating that mutual funds in Saudi Arabia significantly outperform the market portfolio. Furthermore, the selectivity skills, α, relative to IMF managers, 0.31, is slightly higher than the CMF managers, 0.27. This superiority might be attributed to the screening process applied on the Islamic funds. Regarding the timing abilities for mutual funds managers for both IMF and CMF, the coefficients are negative with almost zero value, -0.006 and -0.005 for IMF and CMF respectively, which imply managers are not able to anticipate changes in the market prices.

Table 5: The Random Effect Model for the IMF and CMF

Models	Variable	Coefficient	Std. Error	t-Statistic	Prob.
IMF	RM_RF	0.513483	0.078992	6.500456	0
	_RM_RF__2	-0.005856	0.001232	-4.75222	0
	C	0.313347	0.079705	3.931324	0.0001
	RM_RF	0.513483	0.078992	6.500456	0
CMF	RM_RF	0.624491	0.080247	7.782143	0
	_RM_RF__2	-0.004839	0.001342	-3.605296	0.0003
	C	0.269054	0.080394	3.346693	0.0008
	RM_RF	0.624491	0.080247	7.782143	0

In other words, mutual funds managers' in Saudi Arabia are not capable to correctly capture the market expectation and benefit from any changes in the prices. Moreover, the systematic risk, β, of IMF and CMF report positive and significant results, 0.51 for IMF and 0.62 for CMF, with a p-value less than 0.05. That implies IMF has lower volatility than the conventional and typically is less risky than conventional. Therefore, IMF's managers have better assessment and management for the risk.

CONCLUSION

The results for the risk-adjusted measures revealed that there is an insignificant difference between IMF and CMF performance in terms of Treynor ratio and Jensen's alpha. That is the performance of Islamic mutual funds does not differ substantially from that of the conventional mutual funds. The Sharpe ratio indicates a significant difference which implies that IMF managed the overall risks in a way better than CMF. In other words, IMF has better management for the unsystematic risks.

Moreover, the study finds that mutual funds, Islamic as well as conventional, in Saudi Arabia significantly outperform the market portfolio. The results on stock selection ability indicate that IMF managers hold a slightly better selectivity skill than CMF. That may be attributed to the screening process applied on the Islamic funds. In terms of market timing ability, the study finds that IMF and CMF managers have negative coefficients with almost zero value that conclude neither IMF managers nor CMF managers exhibit any market timing ability. Therefore, fund managers' in Saudi Arabia are not capable to correctly capture the market and anticipate price changes. However, a significant and lower beta for Islamic funds that for conventional funds indicates that Islamic mutual funds are less risky than conventional mutual funds.

ACKNOWLEDGMENTS

The authors would like to thank the College of Business, Effat University for its unconditional support.

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