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INVESTIGATING THE PERFORMANCE OF ISLAMIC MUTUAL FUNDS: EVIDENCE FROM AN EMERGING ECONOMY

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ABSTRACT

The objective of the paper is to study the performance of Islamic mutual funds by comparing their volatility with KSE-30 index of Pakistan Stock Exchange. For empirical analysis and to study the volatility behavior of KMI-30 index and KSE-30 indexed mutual funds ARCH/GARCH models are used. Factors that are considered for comparison of performance include Return, Volatility, Net Asset Value (NAV), KMI-30 Index and KSE-30 Index. Our results show that returns and volatility of Islamic mutual funds are consistent with the performance of conventional mutual funds. Furthermore our investigation shows that the volatility of Islamic mutual funds plays a little role in determining their performance, however opposite is true for conventional mutual funds. This study is important for investors in Pakistan because it can help them to diversify their investment by selecting suitable portfolios.

Keywords: *ARCH, GARCH, KSE, mutual funds, Shariah, NAV, KMI-30, KSE-30*

INTRODUCTION

Individuals invest in mutual funds as these funds offer them alternative investment opportunities. Investment in mutual funds is similar to investing in stocks, bonds and other monetary securities; the only difference is the management. Unlike private investors, investment in mutual funds is managed by fund managers. These fund Managers have expertise in asset management and have better and timely access to market information. This helps them to take better investment decision compared to individual investors.

Islamic mutual funds strictly invest in accordance to Shariah principles. An Islamic mutual fund does not invest in stocks of companies engaged in alcohol, tobacco, gambling, pornography, pork processing, entertainment and all other such activities that violates Muslim ethical values in terms of usury or component of leverage in the equity structure (Ghoul and Karam, 2007; Hassan and Girard, 2011). The main reason is that investors choose to place their funds according to religious or ethical objectives.

The objective of the paper is to study the performance of Islamic mutual funds by comparing their volatility with KSE-30 index. For data normalization we selected only those funds which are listed in KMI-30 index. For empirical analysis and to study the volatility behavior of KMI-30 and KSE-30 index mutual funds ARCH/GARCH models

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were used. Factors that are considered for comparison of performance include Return, Volatility, Net Asset Value (NAV), KMI-30 Index and KSE-30 Index. Data have been collected from Annual Reports of Islamic mutual funds and websites of mutual fund Association of Pakistan (MFAP) and Pakistan Stock Exchange. The data was statistically analyzed by STATA.

Following research questions are formulated for this study:

- Do Islamic mutual funds provide better return to its investors as compared to market?
- What is effect of NAV on Islamic mutual funds performance?
- What is effect of Volatility on Islamic mutual funds performance?

Hypotheses are formulated as below:

- ***H1:*** Islamic mutual funds provide better return to its investors as compared to market
- ***H2:*** NAV has an effect on the performance of Islamic mutual funds
- ***H3:*** Volatility has an effect on the performance of Islamic mutual funds
- ***H4:*** Equity mutual funds are more volatile than market index

LITERATURE REVIEW

Islamic mutual funds got recognition when the world was knocked out by recession in 2008. Now, Islamic mutual funds is considered as one of the rapidly growing sector in Islamic Finance. Around the globe, almost one third of the Islamic mutual funds are operated in Malaysia. Other destinations where Islamic mutual funds are gaining popularity include Middle Eastern countries, Pakistan, Indonesia and UK to name a few. During last many years performance of Islamic mutual funds is gaining immense attention of academicians and practitioners alike. Many of these funds perform well with progressive revenues, much greater than the standard benchmarks.

A large number of studies are conducted regarding the comparative performance of Islamic mutual funds and conventional mutual funds. Abderrezak (2008) found that Islamic mutual funds performed badly against their benchmarks. The researcher used monthly data for the period 1997-2002. He also found inefficient portfolio selection was the major reason of negligible difference in the performance of conventional mutual funds and Islamic mutual funds.

Hoepner, Rammal and Razec (2011) in their study of performance of Islamic mutual funds in 20 countries found that Islamic mutual funds working in Muslim countries population were not underperformed their equity market benchmarks. BinMahfouz and Hassan (2013) compared the performance of Dow Jones Islamic Market World Index and Dow Jones Islamic Market Sustainability Index and suggested that Shariah screening process does not lead to inferior performance. In another study by similar authors suggested that in Saudi Arabia the Islamic mutual funds performed at par with conventional funds (BinMahfouz and Hassan, 2012).

Abdullah, Hassan and Mohamad (2007) conducted the performance study of conventional mutual funds and Islamic mutual funds in Malaysia for the period 1992-

2001. He found that during slow economic growth period, the Islamic mutual funds performed better than conventional mutual funds probably due to low risk profile. However opposite trend was witnessed in period of fast economic growth. Rubio, Hassan and Merdad (2012) used non-parametric analysis and found similar evidence while comparing the performance of Islamic mutual funds and conventional mutual funds.

Alam and Rajjaque (2010) conducted the performance study of Islamic portfolios and conventional portfolios of S&P Europe 350 for the period 2007-2009. He found that due to lower leverage, Islamic portfolios underperformed when the equity market is upward. However Hayat and Kraeussl (2011) find that Islamic mutual funds performed poorly in either economic scenario. Merdad, Hassan and Alhenawi (2010) found positive returns of Islamic mutual funds during slow economic growth period.

The results of all of the above studies are not conclusive as to whether IMFs perform better or worse than conventional funds. Performance of Islamic mutual funds is heavily dependent on the benchmarks used for performance evaluation (Elfakhani, Hassan and Sidani (2007). Commonly used measures to judge the performance of Islamic mutual funds are security selection/timing abilities of fund managers and risk-return performance.

RESEARCH METHODOLOGY

This study emphasizes on equity-based mutual funds and the section consists of Islamic mutual funds. Five Islamic mutual funds are selected to check their performance as well as volatility. The volatility is compared with KMI-30 Index and KSE-30 Index using ARCH/GARCH. Returns distributed to mutual fund holders are calculated for the period 2008-2013. As a market benchmark, the returns on the KMI-30 Index and KSE-30 Index are used as proxy for the returns on the market portfolio.

Returns of mutual funds are calculated as follows:

$$R_p = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}} \quad \text{or} \quad R_p = ln\left[\frac{NAV}{L.NAV}\right]$$

Where

Rp = return of a portfolio;

NAVt = Net Asset Value;

NAVt_1 = Net Asset Value one period before;

ARCH MODEL

Curve model was created by Robert Engle in 1982 (Engle, 1982). Curve remains for Autoregressive Conditional Hetroskedasticity. Curve model is a standard to model the unpredictability of a given arrangement. Curve model is mix of two parts one segment is AR terms known as auto-backward terms and the other segment is contingent hetroskedasticity terms. Through ARCH model, fluctuation of a given time

arrangement is demonstrated regarding past data with different exogenous variables. The ARCH mathematical statement has zero mean, with non-consistent fluctuations that are serially uncorrelated and it is restrictive on the past information.

$$\sigma_t^2 = w_1 + \alpha_1 \varepsilon_{t-1}^2 + \alpha_2 \varepsilon_{t-2}^2 + \alpha_3 \varepsilon_{t-3}^2 + \cdots + \alpha_p \varepsilon_{t-p}^2$$

GARCH MODEL

Conditional heteroskedasticity identifies non-constant volatility when future periods of high and low volatility cannot be identified. In finance, conditional heteroskedasticity often is found in the prices of stocks and bonds. The level of volatility of these equities cannot be predicted over any period of time. Generalized Autoregressive Conditional Hetroskedasticity model is the altered manifestation of ARCH model. Curve and GARCH are utilized to test homoscedasticity that states that the fluctuation of aggravation term is consistent. Time arrangement information shows instability bunching, accordingly, ARCH and GARCH model are utilized to test such claims. As we realize that if changes of blunder terms change or are not equivalent at distinctive focuses then such failures are said to be experiencing the issue known as heteroskedasticity. In the event of Hetroskedasticity, certainty interim and standard lapse are decided through ordinary methodology that give false feeling of exactness on the grounds that the standard slip and trust interim would be excessively limited. Instead of treating such trademark as issue to even out, the ARCH and GARCH models utilized heteroskedasticity issue to model the difference. Because of this, forecast might be set aside a few minutes arrangement information and inadequacies of slightest square are additionally revised (Bollerslev, 1986).

In this comparison σ2t is known as restrictive difference. This restrictive variety is particularly consolidation of three parts. ω is consistent term in the comparison, ε2t-1identifying with unpredictability measured as slack of leftover when squared from the mean mathematical statement. It is otherwise called ARCH term and the third is σ2t-1 is difference of last period.

$$\sigma_t^2 = w_1 + \alpha_1 \varepsilon_{t-1}^2 + \alpha_2 \varepsilon_{t-2}^2 + \cdots + \alpha_p \varepsilon_{t-p}^2 + \lambda_1 \sigma_{t-1}^2 + \lambda_2 \sigma_{t-2}^2 + \cdots \lambda_q \sigma_{t-q}^2$$

In this equation σ2t is known as conditional variance. This conditional variation is specifically combination of three components. ω represent to constant term in the equation, ε2t-1 relating to volatility measured as lag of residual when squared from the mean equation. It is also known as ARCH term and the third is σ2t-1 is variance of last period which is in the form of geometrically distributed lag model.

RESULTS

As far as this study is concerned we tried to explain the performance of Islamic mutual funds. To calculate the market returns KMI-30 Index and KSE-30 index closing values are used. For volatility analysis data of daily annual returns through NAVs is used. First we calculated returns of funds by using NAV and then by using these returns ARCH/GARCH is applied to check the volatility of each Islamic mutual fund.

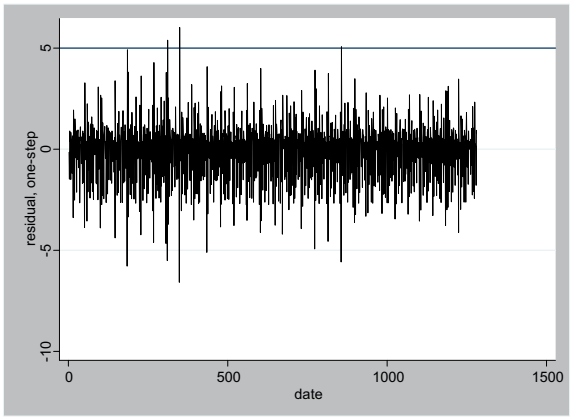
Table 1: Results of Islamic mutual funds

Mutual funds	Const.	ARCH L1	GARCH L1	P-value
Al Ameen *Shariah* stock fund	-.0075667	.1195628	.7697256	0.000
Al Meezan mutual fund	-.0135038	.2954488	-.6056567	0.000
Atlas Islamic stock fund	-.001738	.2754322	-.4279061	0.001
JS Islamic fund	-.0217137	.4560046	-.426906	0.000
Meezan Islamic fund	-.0190569	.4009105	-.5318396	0.000

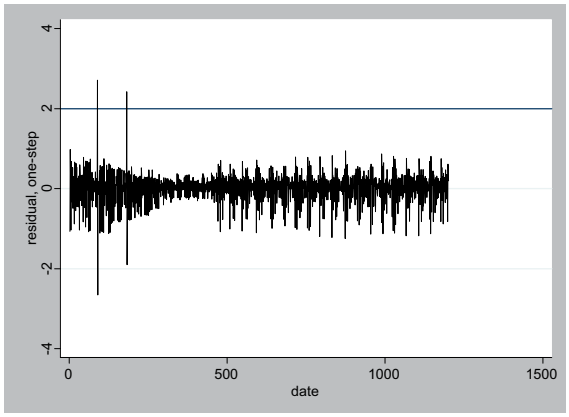
Table 2: Results of Indexes

Index	Const.	ARCH L1	GARCH L1	P-value
KMI-30	-.0478062	.1187104	-.678603	0.000
KSE-30	-.037366	.5444924	-.0247152	0.000

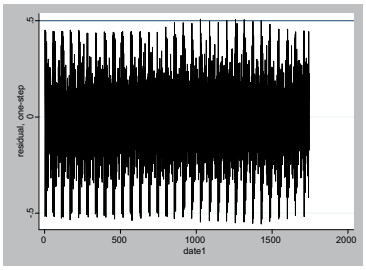
Graph 1 - KMI-30 Index



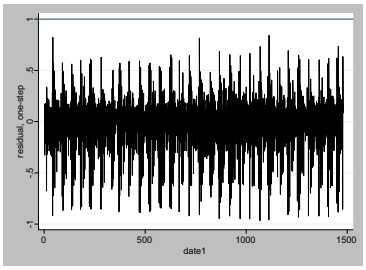
Graph 2 - KSE-30 Index



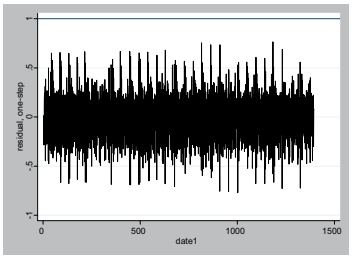
Graph 3 - Al Ameen Shariah stock fund



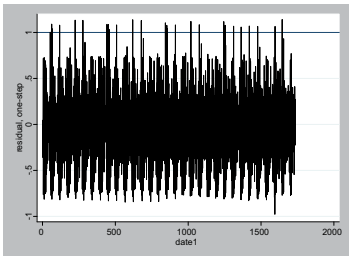
Graph 4 - Al Meezan mutual fund



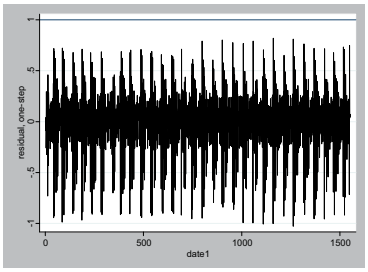
Graph 5 - Atlas Islamic stock fund



Graph 6 - JS Islamic fund



Graph 7 - Meezan Islamic fund



Graph 1 and Graph 2 represent the market index which is taken as a benchmark. KMI-30 Index is taken as a market benchmark for the Islamic mutual fund while the KSE-30 Index is taken as a cross benchmark for Islamic mutual funds. Graph 3-7 show the volatility of equity mutual funds.

Al Ameen Shariah stock fund $\sigma^2t = -.0075667 + 0.7697256 = 0.7621589$

Al Meezan mutual fund $\sigma^2t = -.0135038 + -0.6056567 = -0.6191647$

Atlas Islamic stock fund $\sigma^2t = -.001738 + -0.4279061 = -0.4296441$

JS Islamic fund $\sigma^2t = -.0217137 + -0.426906 = -0.4486197$

Meezan Islamic fund $\sigma^2t = -.0190569 + -0.5318396 = -0.5508965$

KMI-30 Index $\sigma^2t = -.0478062 + -.678603 = -0.7264092$

KSE-30 Index $\sigma^2t = -.037366 + -.0247152 = -0.0620812$

The instability is resolved from fluctuation mathematical statement coefficient. The P worth is short of what 5% huge level and it implies that ARCH impact exists in the information. As we realize that ARCH impact exists in the information thus GARCH (1,1) test has been used. The result in GARCH mathematical statement is additionally inferred from mean comparison. Change comparison has P-value 0.000 that shows the vicinity of unpredictability bunching. In this manner unpredictability of one period is not the same as the other period. Along these lines, contingent on results, the invalid theory could be rejected. Despite the fact that it is clear from the P- esteem that GARCH impact additionally exist in the information yet level of unpredictability is resolved from coefficients of fluctuation mathematical statement that are ($w + \alpha$). The ARCH impact exists in the information in light of the fact that as per results P quality is at critical level that is 0.000. The GARCH impact additionally exists in the information at 5% level of P estimation of centrality. It implies that there is unstable grouping.

CONCLUDING REMARKS

During last many years performance of Islamic mutual funds is gaining immense attention of academicians and practitioners alike. Many of them perform well with progressive revenues, much greater than the standard benchmarks. In this study, instability and execution is measured amongst KMI-30 Index and KSE-30 Index. Our results show that returns and volatility of Islamic mutual funds are consistent with the performance of conventional mutual funds. Furthermore our investigation shows that the volatility of Islamic mutual funds plays a little role in determining their performance, however opposite is true for traditional funds.

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