Volatility and Variability Rewards of Mutual Funds in Ghana Using Jensen Alpha Index

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ABSTRACT

Investors are finding it difficult to determine the fund that may produce the optimal risk-reward combination. This study was engaged through the application of the Jensen Alpha Index to ascertain the performance of 10 mutual funds listed on the Ghana Stock exchange for a period of 5 years (2010-2014). The results acquired from the analyses indicated that all the 10 listed mutual funds were statistically significant and further elucidate that 90 percent of the fund managers generated excess returns for their investors, while 10 percent being unable to generate excess returns based on their stock selection skills. The overall level of diversification by the fund managers using the adjusted R grounded that, 59.88% on the average of the 10 listed mutual funds on GSE were highly diversified to some extent.

Keywords: Volatility, Variability Rewards, Mutual Funds, Ghana, Jensen Alpha Index

INTRODUCTION

Investors recently are passionate about funds with high annual returns or potential of outperforming the market. Risk analysis has been the active area of financial literature for academia because of its significant impact on performance evaluation of Mutual Funds and critical effect on investors’ decision and fund managers choice of financial assets allocation in a portfolio as their bonus is tied to the fund performance (Simons, 1998). Hence, performance evaluation based on average portfolio returns is useful to both investors and portfolio managers as long as these returns are risk-adjusted.

In emerging economies like Ghana, industry players prefer using raw returns in their annual financial reports which do not necessarily reflect superior performance as any unskilled investor can increase raw returns by undertaking highly risky investment. There is the need to measure the volatility and variability of the mutual funds which can help the investors to take thorough decision. This can be done using the Jensen Alpha Index to measure the fund volatility and variability. Rao et al (2013) evaluated the performance of ten Indian Mutual Funds on a risk-adjusted basis with mean return, beta risk, total risk, Sharpe ratio, Treynor ratio, Jensen Alpha and Fama’s decomposition measures. They concluded that JM Balanced G (-0.0282) and Kotak Balanced fund (-0.6974) schemes performed poorly and the rest outperformed the benchmark, S&P CNX Nifty. However, raw returns usually reported in financial annual reports by fund managers in Ghana do not necessarily reflect superior performance of the Mutual Funds as even unskilled manager can increase raw returns by undertaking highly risky investment.

This study therefore seeks to measure the volatility and variability rewards of ten mutual funds listed on...
the Ghana Stock Exchange between the periods 2010-2014.

LITERATURE REVIEW

The Mutual Funds industry in Ghana commenced in 1993 with the promulgation of the Security Industry Law (SIL) 1993 (PNLCL 333) section 141-Regulation which was substituted by the Security Industry (amendment) Act, 2000 (Act 590) section 11. SIL established the Security and Exchange Commission (SEC) as a regulatory body to provide integrity to the financial markets, to protect consumers, the national interest and also the integrity of the economy. The Databank Asset Management Services Limited was the first asset management company to launch Mutual Funds called, the Databank Epack investment funds (Epack), which commenced operations in October 1996 and was credited for demystifying and democratizing the stock market investment in Ghana. This fund is considered to be relatively risky as it can invest up to 20% of its Net Asset Value in fixed income securities for a short period. The Mutual Fund industry has seen a steady increase in asset under management since its inception. The capital market has assumed increasing importance in the financial markets in Ghana.

The capital market, since it started operating in the country has witnessed various developments. Currently, the market is one of the highly regarded performing markets in Africa. Yeboah (2009) claimed that the Mutual Fund industry in Ghana has made significant impact in the capital market for the past two decades and is now a significant financial intermediary. Becker and Vaughan (2003) attributed the immense impact of Mutual Funds as a financial intermediary to the ever increasing funds mobilization, rising number of schemes and investors in the industry.

To improve the capitalization, the government extended the stock market tax holiday for another five years. In addition, the exemption from capital gain tax has been extended for further five years to promote investment and deepen activities on the stock market. Mutual funds and unit trust funds that invest in stocks on the stock market are also exempted from VAT on financial services (GNA, 2012).

Benefits of Mutual Funds Investment

Mutual Fund is simply the manner at which financial and real assets are held in a portfolio of investment. The investment company pools money from several investors to buy stocks, bonds and other financial assets. The ordinary investor has a share in the mutual fund in proportion to the amount of their investment divided by the total asset value of the fund. Mutual fund investment is beneficial to smaller investors as they have access to professional fund managers to run the scheme. There are several benefits associated with Mutual fund investment such as:

Diversification: Individual investors owning a single stock or bond is very risky but owning a Mutual Fund which consists of different types of securities can reduce the risk of the portfolio substantially. Levine (2002) affirmed the same view that it is prudent for small investors to purchase mutual fund as diversification can be achieved with their small capital investment.

Professional Management: Individual investors picking their own stocks and bonds to form a portfolio and beating the benchmark is difficult and time consuming. Buying shares of mutual funds with professional fund managers to make those decisions for the scheme can be beneficial and save time. Bogle (1994) agreed with this view that it is financially expedient for an individual with no knowledge, requisite skill or expertise to manage their own investment portfolio to engage the services of professional fund managers by investing in mutual fund as it attracts low management fee.

Minimal transaction costs: Buying individual stocks and bonds is expensive in terms of the transaction cost. Mutual Fund enjoys economies of scale in purchase and sales due to the size of the fund. Rowley and Dickson (2012) added that trading volumes of mutual funds and Exchange Trade Funds (ETF) are high and attract low transactional fee.

Liquidity: Mutual funds are more liquid than individual stocks and bonds which mostly are illiquid, as it is quite difficult to find a market. Buying and selling individual stocks and bonds takes time. Money from open-end mutual funds can be received within two business days. Robert (1998) explained liquidity as the ease with which financial securities or assets are sold at a fair value. Bogle (199) argued that most asset management companies of mutual funds are more than ready to buy back the shares from the investors.

Flexibility: Individual stocks and bonds are not flexible. With many mutual funds, there is more flexibility and often cheque could be written against the investors account.

Low Cost: “No-load” mutual funds are sold without a sales charge and are redeemed without a charge also.

Ability to purchase and sell at Net Asset Value (NAV): Open-ended mutual funds can be purchased and sold each day at the fund’s NAV, which is the
fund’s assets less liabilities, divided by the number of shareholders.

**Diversification and its advantages to Investors**

Armstrong (2010) explained that diversification basically means investing in several asset categories with the benefit of reducing total risk whiles realizing higher total return for the investment period. Beverley (2014) likewise emphasized that investing in multiple asset classes increases investment opportunities through multiple return sources, flexible asset allocation and reduces volatility of portfolio. Cresson (2002) also re-echoed the view that diversification reduces expected risk which bears no compensation without sacrificing the realized returns.

Davo’ et al (2013) analyzed composition of efficient portfolio using mutual fund that invests in life settlement inclusive of fixed income and equity index funds. The optimal weight of these assets and their contribution to portfolio performance and risk were ascertained and found to be significantly negative correlated between life settlement funds and certain U.S and European fixed income and equity funds. These correlations are lower than the correlation between the index funds that replicate each other. This result indicates that life settlement fund are superior in achieving diversification of funds portfolio and increasing performance of funds as they provide fixed return with lower level of risk.

Louton and Saraoglou (2008) further confirmed that diversification is not only sought across asset classes alone but also cross multiple managers with different styles and expertise. The amount of money invested in each asset class is dependent on the investor’s age, risk tolerance, investment objectives and current economic condition (Armstrong, 2010).

According to Rao (2006) diversification of the risk is the main objective of investing in a Mutual Fund. Diversified portfolios are created by mutual fund investments and fund managers take different levels of risks in order to get maximum value from their investment. Hence, when comparing and evaluating the performance of funds, it is appropriate to employ risk-adjusted returns.

Singh (2014) evaluated the risk-adjusted performance of 20 growth oriented Mutual Funds schemes in India selected on the basis of random sampling technique as a proportionate of the Mutual Funds population from 1st May 2009 to 31st May, 2014 using Sharpe, Treynor and Jensen alpha performance techniques. The results indicate that 17 out of 20 Mutual Funds sampled had superior performance than the benchmark and therefore concluded that the growth oriented Mutual Funds had performed better with offering the advantage of diversification and professionalism to the investors.

**METHODOLOGY**

This paper employed quantitative research approach using the Jensen Alpha index on the premise that, the study seeks to measure the volatility and variability of rewards of mutual funds in Ghana. Funds selected have been in operation for at least five years with 39.8 million Ghana cedis total Asset Under Management (AUM) as at the end of 2014 financial year. 91- Day Treasury bill rate of return is selected as the proxy for the risk-free rate of return, average at 17.84% per annum from 2010 to 2014. Ghana Stock Exchange Composite Index (GSE-CI) is selected as the proxy for the benchmark index of the return of the market, average at 27.43% per annum from 2010 to 2014. Collected the Net Asset Value (NAV) and distribution of the funds for each year of the study period and compute the return appropriately. Computed the arithmetic average returns for each funds, GSE-CI and the total fund return.

**Model Specification**

Jensen (1968) developed a model which sought to determine whether the portfolio returns’ deviation from the return of the market was statistically significant and whether the excess return could be explained by superior skill by the manager or just by chance.

\[ \alpha_p = R_p - [R_f + \beta_p (R_m - R_f)] \]

But \( (R_p - R_f) = \alpha_p + \beta_p (R_m - R_f) + \mu_i \)

Where,

- Dependent variable is \( (R_p - R_f) \), is the excess return on the fund \( p \) portfolio;
- Independent variable \( (R_m - R_f) \), is the excess return on the benchmark market portfolio, represent a specific fund’s investment style.
- \( \alpha_p \) = Jensen’s alpha, measures the performance of the fund and the manager’s investment ability. The sign and significance of alpha reflects whether the Mutual Fund outperformed the market proxy and vice versa.

\[ R_p = \text{Average return of the portfolio} \]

\[ R_f = \text{Average return of risk} - \text{free rate proxy} \]

\[ R_m = \text{Average return of the benchmark market proxy} \]

\[ \beta_p = \text{Beta of the portfolio} \]

It is also called the differential return model because it seeks to analyze the returns generated by the fund relative to the expected actual returns of the fund with its associated systematic risk. The difference between the expected returns and the actual return is called alpha, which measures the performance of the fund relative to the actual return over the period (Kumar, 2012). This model relies on only systematic
risk in relation to the portfolio which in fact happens to be its limitation. A positive alpha means the asset manager has outperformed the market with his stock picking skills. The higher the value gives indication of the level of superiority of the fund performance. For the ordinary retail investor, alpha value indicates the surplus return generated by the fund in relation to its benchmark for the period.

\[ R_a - R_t = \alpha + \beta (R_m - R_t) + e_t \]

In the above equation, \( R_a \) is the arithmetic average of the returns, \( R_t \) is the arithmetic average of the risk-free interest rate returns, \( R_m \) is the return of the benchmark portfolio, \( \beta \) is the fund’s systematic risk and \( e_t \) is the random error term of the fund at period \( t \).

A positive value of alpha indicates superior risk-adjusted performance, while a negative value indicates inferior risk-adjusted performance (Cesari and Panetta, 2002:106). Jensen performance criterion does not evaluate the ability of portfolio managers to diversify, since the risk premiums are calculated in terms of beta (Gürsoy and Erzurumlu, 2001)

**EMPIRICAL RESULTS**

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<th>Table 1: Jensen’s Alpha (( \alpha )) Estimated Over the Period 2010-2014</th>
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<td><strong>FUND NAME</strong></td>
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Source: Author’s computations: Significant at 5% (t-static in brackets).

A positive alpha value means the fund manager has the potential to beat the market with his stock picking skills. Higher alpha value indicates superior performance of it. This value is essential for a retail investor as it measures the surplus returns a fund earns relative to the returns earned by its benchmark. The results given in Table 1 indicate that the Jensen alpha for the study period 2010-2014 was 90% positive and significant for majority of the Mutual Funds meaning that the Fund Managers were able to generate excess returns for the investors. Positive Jensen alpha means the Mutual Fund managers had superior and better performance for the period in question. A passive investor couldn’t have generated enough returns than the one earned by the Mutual Funds in Ghana. Only 10% of the Mutual Funds earned negative Jensen alpha and significant for the study period indicating the inability of the Fund Manager in this case to earn excess return for the investor. It was observed from Table 1, that the best superior performing Mutual Fund as Fund 10 with statistically significant Jensen alpha of 0.1040 and the worse performing Mutual Fund being Fund 8 with a statistically significant Jensen -0.0707.

The average Jensen alpha for all the Mutual Funds was 0.0250, at statistically significant level. It was also observed that 50% of the Mutual Fund outperformed the average Jensen alpha of all the Mutual Funds at statistically significant level whiles 50% performed poorly relative to the average Jensen alpha of all the Mutual Funds. Jensen alpha depicts the stock selectivity skills of the fund managers. According to the results in Table 1, the Jensen alpha values show that 90% of the Mutual Funds had stock selection skills whiles 10% have no stock selection skills. On average, a Jensen alpha of 0.0250 suggests that the Mutual Funds had superior stock selection skills. The positive Jensen alpha values mean the fund manager improved the returns of the Mutual Funds for the investors through quality and timely decisions. The negative Jensen alpha value means the decisions of the fund manager worsened the return of the fund.

According to Musah (2014), a well-diversified portfolio either eliminates or reduces the diversifiable risk and gets the total risk closer to the systematic risk of the market it is operating in. According to investment answers (2016) Undiversifiable risk is the fluctuation in returns caused by macroeconomic variables that impact all risky assets in the market whereas diversifiable risk is the risk of uncertainty at the company or industry level that something can happen such as industrial strike, mismanagement, merger or acquisition, bankruptcy, arson, investment opportunity etc.

Diversifiable risk, also called unsystematic risk is the risk most investors like to reduce or eliminate from their portfolio of assets. The R-square evaluates the extent of diversification of the portfolio by measuring the variance of the portfolio returns explained by the market. It is the true reflection of the Mutual funds’ degree of diversification and demonstrates its performance in percent relative to the market. With reference to the results given in Table 5, the highest R-square is 96.80% whiles the lowest is -21.85%. About 80% of the Mutual Funds
were highly diversified with positive and high values for R-square as compared to 20% which had negative values of R-square, meaning they were not well diversified as the others. The average R-square for all the Mutual Funds is 59.88%, which means the extent of diversification of all the Mutual Funds is moderately high. This result shows that the Mutual Funds are 59.88% as diversified as the GSE-CI.

CONCLUSION

Based on the results obtained from the analyses in Table 1 revealed that fund 1,2,3,4,5,6,7,8 and 10 summing up to 90 percent of the mutual fund were able to generate excess returns for the investors because all values obtained were positive and significant and also shows that the managers for the 10 funds with the exception of fund 8 were able to add value to their portfolios. The mean of the 10 listed mutual funds performance was (0.0250) which demonstrates that the mutual funds had a superior stock selection skills and the fund managers were able to improve the returns of the mutual funds of investors exhibiting good and opportune expertise. All the mutual funds depicted positive significant Jensen Alpha values with the exception of fund 8 which recorded a negative significant Jensen Alpha value of (-0.0707). Based on the variance of portfolio returns illuminated in the market, fund 6, fund 7 and fund 3 documented high values of 96 percent, 93 percent and 91 percent respectively which displays that most risk averters will really consider eliminating diversifiable risk from their portfolios when considering and investors decision and fund manager’s choice of financial assets allocation in a portfolio.

REFERENCES