Risk and Return Analysis of Closed End Nepalese Mutual Fund

Rajan Bilas Bajracharya, PhD
*Corresponding Author: rajan_vj@hotmail.com

Abstract

A mutual fund is a professionally managed investment fund that pools money from many investors to purchase securities. This study has analyzed performance of the risk and return of closed end Nepalese mutual fund on weekly basis of return that had been trading at Nepal Stock Exchange. This study is both analytical and descriptive in nature. The study is used the model of Return, Risk and risk adjusted performance. Risk refers to relatively objective probabilities which can be computed on the basis of past experience or some prior principle. Risk may be defined as the chance of variations in actual return. Return is defined as the gain in the value of investment. The return on an investment portfolio helps an investor to evaluate the financial performance of the investment. The findings show that Beta value is low for Sanima Equity Fund as fund provides highest return for a given unit of no risk taken. The investors who need regular income can investment in Sanima Equity Fund.

Keywords: *Mutual fund, Risk, Return, Investors.*

Introduction

A mutual fund is an investment vehicle that is made up of a pool of funds collected from many investors for the purpose of investing in securities such as stocks, bonds, money market instruments and similar assets (Bhowal & Paul, 2013).

Capital Market can be defined as an institutional arrangement which facilitates lending and borrowing of long term funds. An efficient capital Market is one which mobilizes the public savings, makes available finance to those who are in need of it at a reasonable fiancé to those who are in need of it at a reasonable rate and promotes the efficiency and growth of country economy. It facilitates the long term funds to the industrial and commercial enterprise which want to make investment in new capital issues and cater to the needs of the wide range of people which leads to the social and economic development of country (Gupta & Joshi, 2010).

Sondhi and Jain (2010) examined the market risk and investment performance of equity mutual funds in India. The study used a sample of 36 equity fund for a period of 3 years. The study examined whether high beta of funds have actually produced high returns over the study period. The study also examined that open-ended or close ended categories, size of fund and the ownership pattern significantly affect risk-adjusted investment performance of equity fund. The results of the study confirmed with the empirical evidence produced by Fama (1992) that high beta funds (market risks) may not necessarily produced high returns. The study revealed that the category, size and ownership have been significantly determinant of the performance of mutual funds during the study period.

Qamruzzaman (2014) used risk-adjusted performance measures; Sharpe ratio Treynor's ratio, and Jensen Alpha to find the performance of 32 growth-oriented closed-ended mutual funds on a monthly basis. The study period market was not performing well (average return was negative) so as the mutual funds. Beta, a measure of systematic risk was found to be negative for few mutual fund schemes which resulted in dissimilar ranking of the mutual fund schemes according to the measurements.

Anwar and Hayder (2016) worked on 31 growth-oriented closed-ended mutual funds in Bangladesh and found their performance on the basis of weekly NAV and weekly close price and compared them with the market. During the study period (June 2014- June 2016) average return of the sample was higher when the calculation was based on weekly close price but lower, in fact negative, when the calculation was based on NAV than that of the market. The researcher took worldwide accepted risk-adjusted performance measures. Positive values of each measurement indicate better performance and vice versa. Results showed consistency in the case of Jensen's measurement. The researcher mentioned that the performance relied on both the asset management companies and the role of regulatory bodies. The researcher suggested transparency in disclosing the level of risk associated with a return in the annual reports for the sake of investors and prospective investors can bring back the trust and confidence.

Bajracharya (2016) found that most of the Nepalese mutual funds have performed better according to Jenson and Treynor measures but not up to the benchmark on the basis of Sharpe ratio. However, few Nepalese mutual funds are well diversified and have reduced its unique risk.

Soni (2017) analyzed the returns of various asset classes and correlate these with their risk characteristics in order to verify whether there is always a positive relation between risk and return across all asset classes and to find out the portfolio mix of the various asset classes corresponding to the desired return and risk.

Nalakalyan and Gautami (2018) stated that the risk was less in L & T contra fund and risk high in TATA contra fund. Return was high in TATA contra fund and low in L&T contra fund. High performance fund is Tata contra fund and low performance is L&T contra fund.

Chitra and Hemalatha (2018) identified that UTI Dividend Yield fund has got highest Sharpe, Treynors and Jensens ratio as compared with other selected schemes. But the standard deviation and beta value was also low for UTI Dividend Yield fund. That fund provided highest return for a given unit of risk taken. The investor who needed regular income could invest in UTI Dividend Yield fund.

Krishnamoorthi and Murugesan (2018) evaluated the performance of growth and dividend oriented equity fund of mutual funds on the basis of risk adjusted methods. The performance of the fund of funds was compared with the risk-free returns that the investor would gain if invested in a risk-free asset. Yearly return analysis performed on the sample of equity fund of mutual funds clearly showed that all sample funds earned positive returns in the excess of the risk free rate of return over the study period .these funds are supposed to be the best investment vehicle for small investors, but it has observed from the market and other reliable sources that mutual funds have not reached to their expectations.

Chowdhury et al (2018) conducted a five year performance assessment by analyzing 24 closed-end mutual funds that had been trading at Dhaka Stock Exchange from December 2011to January 2017. The researcher assessed the performance of mutual funds based on both market price and net asset value (NAV). All the mutual funds provided a positive return on 2016 on the basis of market price as the positive return on basis of NAV on 2013, 2014, 2015 and 2016. The five-year analysis show SELSTMF had the highest Sharpe ratio, Treynor ratio and M^2.

However the previous studies is an attempt to find out the risk and return analysis of performance of select mutual funds schemes in different countries, but few scholars are studied to analysis the risk and return in Nepalese mutual fund unit.

Significance of The Study

The study is helpful to research agencies, academicians, mutual funds investors, business school students and mutual funds companies. The study focuses on the risk and return analysis of Nepalese mutual fund schemes in Nepal. This study is an endeavor made to cope-up with the problems faced by the investors to earn a attractive return with the minimum level of risk. For testing the Risk and return analysis, the researcher selected closed end mutual fund schemes during Sep 2014 to Dec 2019.

Research Objective

- To analysis the risk and return of Nepalese closed-End Mutual Fund
- To examine the performance of Nepalese Closed- End Mutual fund by using the portfolio performance evaluation models

Methodology

This study is both analytical and descriptive in nature. The researcher uses secondary source of data for measuring the risk and return of mutual funds. To examine the mutual fund Schemes of risk and return during Sep 2014 to Dec 2019 have been measured for the use of the study. This study examines nine closed ended mutual fund which is listed at Nepal stock exchange during the study period. Weakly NAV as declared by the relevant schemes have been used during the study period. Nepal stock exchange has been used for market portfolio. In the study, the weakly yield on 91-day Treasury bills has been used as risk free rate. The study was based on data regarding NAV. The schemes are selected based on the regular availability of data during the study period.

MODELS USED

RETURN

For analyzing price based performance, weekly returns of mutual funds are calculated using the following formula:

$$R_t = \frac{(P_t - P_{t-1} + D_t)}{P_{t-1}}$$

Where,

R_t = Return of mutual fund in period t

P_t = Market price of mutual fund in period t

P_{t-1} = Market price of mutual fund in the period t-1

D_t = Dividend paid by the mutual fund in period t

The average return of the market index is computed as follows:

$$\overline{R_m} = 1/n \sum_{t=1}^{n} R_{mt}$$

Where R_m is the market return of the mutual fund schemes

For analyzing NAV based performance, weekly returns are calculated using the following formula

$$R_t = \frac{(NAV_t - NAV_{t-1} + D_t)}{NAV_{t-1}}$$

Where,

R_t = Return of mutual fund in period t

NAV_t = Market price of mutual fund in period t

NAV_{t-1} = Market price of mutual fund in the period t-1

D_t = Dividend paid by the mutual fund in period t

The average return of the market portfolio is computed as follows:

$$\overline{R_p} = 1/n \sum_{t=1}^{n} R_{pt}$$

Where R_p is the average return of the mutual fund schemes

RISK

Standard deviation is a measure of variability which is used as the standard measure of the total risk of individual assets and the residual risk of portfolios of assets. The standard deviation of mutual fund schemes has been calculated by using the following equation:

$$\sigma_p = \sqrt{\frac{\sum(R_{pt} - R_p)^2}{n-1}}$$

σ_p is the risk of fund portfolio

$$\sigma_m = \sqrt{\frac{\sum(R_{mt} - R_m)^2}{n-1}}$$

σ_m is the risk of market portfolio

Market risk or systematic risk is estimated by beta. Beta is calculated by using the following formula:

$$\beta = Covarience \frac{R_i R_m}{\sigma_m^2}$$

Risk-Adjusted Performance

Performance of individual mutual fund is assessed by Sharpe Ratio, Treynor performance measure, Jensen's Alpha,

SHARPE RATIO

Sharpe ratio (S_i) represents the risk premium earned per unit of total risk. It can be expressed as:

$$S_i = \frac{R_p - R_f}{\sigma_p}$$

Where R_p is return of mutual fund portfolio,

R_f is risk free rate of return,

σ_p is standard deviation of the mutual fund portfolio.

TREYNOR MEASURE

Treynor performancemeasure considers market risk or systematic risk as reward to volatility ratio This measure can be expressed as:

$$Treynor = \frac{R_p - R_f}{\beta_p}$$

Rp = Average return on fund p

Rf = Return on risk free asset

βp = Sensitivity of fund return on market return

Jensen Differential Measure

This measure is based on CAPM measures the portfolio manger's predictive ability to achieve higher return than expected for the given riskiness. The basic model is

$$R_{pt} - R_f = \alpha + \beta (R_m - R_f) + ei$$

Where

Alpha (α) = the intercept

βp = Systemic risk

Rm = Market return

Rpt = Fund return on time period t

Rf = Return on risk free asset

Results and Analysis

Table 1: Rate of Return of Mutual Fund Scheme

Name of the Mutual fund	No. Observation	Average Return
Sanima Equity Fund	108	.0009
Global IME Samunnat Scheme-1	197	-.0007
Laxmi Equity Fund	131	-.0011
Laxmi Value Fund-1	248	-.0004
NIBL Pragati Fund	154	-.0018
NIBL Samriddhi Fund 1	263	-.0038
Nabil Equity Fund	165	-.0004
Siddhartha Equity Orineted Scheme	108	.0001

Noted From: Researcher calculations

Table 1 can be inferred that Sanima Equity Fund has yielded highest returns of all selected mutual funds and Siddharatha Equity Orineted Scheme has earned next highest returns. Rests of the mutual fund are negative return during the study period.

Table 2: Standard Deviation of Mutual Fund Scheme

Name of the Mutual fund	No. Observation	Standard Deviation
Sanima Equity Fund	108	.0153
Global IME Samunnat Scheme-1	197	.0189
Laxmi Equity Fund	131	.0153
Laxmi Value Fund-1	248	.0271
NIBL Pragati Fund	154	.0206
NIBL Samriddhi Fund 1	263	.0661
Nabil Equity Fund	165	.0146
Siddhartha Equity Orineted Scheme	108	.0123

Noted From: Researcher calculations

Table 2 represents that higher standard deviation means higher volatility. Siddhartha Equity Orineted Scheme has less standard deviation (0.0123) which means it is comparatively less risky than the other mutual funds. It is the fund best one to choose. Similarly Nabil Equity Fund next lowest standard deviation fund in the above table.

Table 3: Beta Value of Mutual Fund Scheme

Name of the Mutual fund	No. Observation	Beta
Sanima Equity Fund	108	0.00
Global IME Samunnat Scheme-1	197	0.12
Laxmi Equity Fund	131	-0.08
Laxmi Value Fund-1	248	0.35
NIBL Pragati Fund	154	0.03
NIBL Samriddhi Fund 1	263	0.25
Nabil Equity Fund	165	0.08
Siddhartha Equity Orineted Scheme	108	0.06

Note: From Researchers' Calculations

Table 3 represents beta value of the elected mutual fund schemes. Beta is a measure the volatility of a particular fund in comparison to the market as a whole. The table explains the Sanima Equity Fund and Laxmi Equity Fund have lowest beta (0.00). These funds are no risk to compare with the other funds. Since Beta value is less than one means the funds reacts less than the market reaction.

Table 4: Sharpe Ratio of Mutual Fund Scheme

Name of the Mutual fund	Sharpe Ratio
Sanima Equity Fund	-2.5433
Global IME Samunnat Scheme-1	-2.1444
Laxmi Equity Fund	-2.6747
Laxmi Value Fund-1	-1.4906
NIBL Pragati Fund	-2.0269
NIBL Samriddhi Fund 1	-0.6620
Nabil Equity Fund	-2.7556
Siddhartha Equity Orineted Scheme	-3.2293

Note: From Researchers' Calculations

Table 4 represents the Sharpe ratio computation for the selected mutual fund schemes and it is the best known for risk- adjusted statistic. The fund with the higher Sharpe ratio has the better performance. But all the samples are the negative Sharpe ratio as all the samples are not the better performance during the study.

Table 5: Teynors Ratio of Mutual Fund Scheme

Name of the Mutual fund	Teynors Ratio
Sanima Equity Fund	6.3929
Global IME Samunnat Scheme-1	0.1744
Laxmi Equity Fund	-0.3002
Laxmi Value Fund-1	0.0372
NIBL Pragati Fund	0.7404
NIBL Samriddhi Fund 1	-0.1048
Nabil Equity Fund	0.3201
Siddhartha Equity Orineted Scheme	0.4453

Note: From Researchers' Calculations

Table 5 represents the Treynors ratio computation for the selected mutual fund schemes. Sanima Equity Fund has the highest Treynors ratio (6.3929). This scheme provides the highest return for a given unit of risk taken. Rest of the Mutual fund has not provided the satisfaction return during the study period regarding Treynors ratio.

Table 6: Jensen Ratio of Mutual Fund Scheme

Name of the Mutual fund	Jensen Ratio
Sanima Equity Fund	-0.0390
Global IME Samunnat Scheme-1	-0.0406
Laxmi Equity Fund	-0.0410
Laxmi Value Fund-1	-0.0403
NIBL Pragati Fund	-0.0417
NIBL Samriddhi Fund 1	-0.0437
Nabil Equity Fund	-0.0403
Siddhartha Equity Orineted Scheme	-0.0398

Note: From Researchers' Calculations

Table 6 represents the Jensens ratio computation for the selected mutual fund schemes. A Positive value of Jensens ratio means the mutual fund outperform the market but all selected mutual fund scheme are negative value that means underperformance in comparison with the market.

Results

- Sanima Equity Fund has yielded highest returns when compared with selected mutual funds scheme.

- Siddhartha Equity Orineted Scheme has less standard deviation (0.0123) which means it is comparatively less risky than the other mutual funds.

- All the selected funds shows beta value is less than one, it means all the selected funds are less volatile than the market.

- All the selected funds are the negative Sharpe ratio as not the better performance during the study.

- Sanima Equity Fund has the highest Treynors ratio (6.3929). This scheme provides the highest return for a given unit of risk taken

- All selected mutual fund scheme are negative value in Jensens ratio that means underperformance in comparison with the market.

Chiluwal and Mishra's study (2018) on the impact of performance on profitability of small hydropower projects in Nepal highlights the importance of understanding the relationship between risk and return in closed-end mutual funds. The study emphasizes the need for careful evaluation of potential risks and returns before investing in these funds, as the performance of small hydropower projects can significantly impact their profitability. Similarly, Mishra and Lama's research (2019) on the effectiveness assessment of preventive and control measures of safety implementation in construction projects underscores the significance of implementing proper safety measures and protocols to ensure the success and profitability of construction projects.

In the context of closed-end mutual funds, understanding the risk and return relationship is crucial for investors to make informed decisions. The study by Chiluwal and Mishra (2018) suggests that the performance of small hydropower projects in Nepal can greatly influence their profitability. This implies that investors should carefully consider the potential risks and returns associated with closed-end mutual

funds, particularly in the context of small hydropower projects in Nepal. By doing so, they can make more informed decisions and potentially enhance the profitability of their investments.

Furthermore, the research by Mishra and Lama (2019) on safety implementation status in Nepal emphasizes the importance of implementing proper safety measures and protocols in construction projects. This finding is relevant to the performance of closed-end mutual funds, as the safety and success of construction projects can directly impact the profitability of these funds. By understanding the risk and return relationship in closed-end mutual funds, investors can better assess the potential risks and returns associated with these funds, ultimately leading to more informed investment decisions.

Conclusion

An investor can select any mutual funds schemes based on its risk and return. Risk is a key factor considered in selection of mutual funds schemes that suit his objectives. From the analysis, it can noticeably that Sanima Equity Fund has got highest Treynors ratio as compared with other selected schemes. But All the selected funds are negative value in Sharpe ratio and Jensens Ratio that means under performance in comparison with the market. Beta value is low for Sanima Equity Fund as this fund provides highest return for a given unit of no risk taken. The investors who need regular income can investment in Sanima Equity Fund.

Hence, further studies can be carried out in the future to analysis the risk and return in emerging markets as does the endeavor to examine whether market efficiency improved over time in Nepalese Mutual fund markets.

References

Anwar, S., & Hayder, A. (2016). Evaluation of mutual funds performance in Bangladesh: Investors and market perspective. *Global Journal of Management and Business Research, 16* (9), 1-10.

Bajracharya, R. B. (2016). Mutual fund Performance in Nepalese Mutual fund units: An analysis of Monthly Returns. *JOURNAL OF ADVANCED ACADEMIC RESEARCH (JAAR), 3*, 92-100.

Balakalyan, N., & Gautami, S. (2018). A Study on Risk & Return Analysis of the Selected Mutual funds Schemes in India. *International Journal of Research in Social Sciences, 8* (5), 212-221.

Bhowal, A., & Paul, T. (2013). Gaps in customer solution- A case Study of Mutual Funds in India. *The SAMs Journal, 7* (1), 33-41.

Chitra, V., & Hemalatha, T. (2018). Risk & Return analysis of performance of mutual fund schemes in India. *International Journal of Applied Research, 4* (1), 279-283.

Chiluwal, K. & Mishra, A. K. (2018). Impact of performance on profitability of small hydropower projects in Nepal. International Journal of Current Research, 10(01), 63918-63925. http://www.journalcra.com

Krishnamoorthi, M., & Murugesan, T. (2018). Analysis of Risk and Return of Selected Mutual funds Schemes in India. *International Journal of Mechanical and Production Engineering Research, 8* (3), 884-890.

Mishra, A. K., Lama, C., Sah, D. P., et al. (2019). Effectiveness Assessment of Preventive and Control Measures of Safety Implementation. JAdvResCivilEnviEngr, 6(2), 1-20. https://doi.org/10.24321/2393.8307.201903

Mishra, A. K. (2019). Development of Building Bye-Laws in Nepal. J Adv Res Const Urban Arch, 4(3&4), 17-29. https://doi.org/10.24321/2456.9925.201904

Mishra, A. K. (2019). Cost Implications for the Construction of Earthquake Resistant Load Bearing Residential Building. JAdvResGeoSciRemSens, 6(3&4), 3-15. https://doi.org/10.24321/2455.3190.201903

Mishra, A. K. & Bhattarai, S. K. (2017). Existing Scenario of Building Code Implementation in Newly Formed Nagarjuna Municipality. Asian Journal of Science and Technology, 8(11), 6751-6762.

Mishra, A. K. & Bhandari, E. S. (2018). Performance assessment of ongoing construction projects under town development fund, Nepal. International Journal of Advanced Research in Civil & Structural Engineering, 1(1&2), 27-39.

Mishra, A. K., Bhandari, S., Jha, T. (2018). Factors Affecting Performance and Time Extension of ongoing Construction Projects under Town Development Fund, Nepal. J Adv Res Const Urban Arch, 3(4), 7-25. https://doi.org/10.24321/2456.9925.201805

Mishra, A. K., Karna, A. K., Dhakal, N. et al. (2019). Assessment of Performance of Functional and Partial Functional Water Supply Systems in Sunsari District of Nepal. J Adv Res HR Organ Mqmt, 6(1), 1-15. https://doi.org/10.24321/2454.3268.201901

Qamruzzaman, A. (2014). Comparative Study on performance evaluation of mutual fund schemes in Bangladesh: An analysis of monthly returns. *Journal of Business Studies, 5*, 190-209.

Sondhi, H., & Jain, P. (2010). Market Risk and Investment Performance of Equity Mutual Funds in India: Some Empirical Evidence. *Finance India, 24* (2), 443-464.

Soni, R. (2017). Designing a portfolio based on risk and return of various asset classes. *International Journal of Economics and Finance, 9*, 142.

Strong, N. (1992). Modelling abnormal returns: A review article. *Journal Business Finance and Accounting, 19* (4), 533-553.

Wallis, W., & Roberts, H. (1956). *Statistics: A new approach* (Vol. II). Glencoe ,Illionis: The Free Press.

Web Sites

www.nepalstock .com

www.sharesansar.com

www.sebon.gov.np

www.nrb.org.np