Financial Analytics: Portfolio Management Case Study

Group 3: ICICI

BACKGROUND

Ms. Jennifer Gonzalez is a renowned fund manager at ICICI AMC. ICICI Prudential Asset Management Company Ltd. is a leading asset management company (AMC) in the country focused on bridging the gap between savings & investments and creating long term wealth for investors through a range of simple and relevant investment solutions. The AMC is a joint venture between ICICI Bank, a well-known and trusted name in financial services in India and Prudential Plc, one of UK's largest players in the financial services sectors. Throughout these years of the joint venture, the company has forged a position of pre-eminence in the Indian Mutual Fund industry. The AMC manages significant Assets under Management (AUM) in the mutual fund segment. The AMC also caters to Portfolio Management Services for investors, spread across the country, along with International Advisory Mandates for clients across international markets in asset classes like Debt, Equity and Real Estate. The AMC has witnessed substantial growth in scale; from 2 locations and 6 employees at the inception of the joint venture in 1998, to a current strength of 1476 employees with a reach across over 215 locations reaching out to an investor base of more than 2.5 million investors (As on March 31, 2017). The company's growth momentum has been exponential and it has always focused on increasing accessibility for its investors. Driven by an entirely investor centric approach, the organization today is a suitable mix of investment expertise, resource bandwidth and process orientation. The AMC endeavors to simplify its investor's journey to meet their financial goals, and give a good investor experience through innovation, consistency and sustained risk adjusted performance.

PROBLEM AT HAND

With the growing competition, Jenny is worried about the various factors that affect the performance of the funds she manages. Mr. David has informed her that the below mentioned attributes have an impact on overall performance of the fund.

i. LOAD STRUCTURE

ii. EXPENSE RATIO

The expense ratio is per unit cost incurred in managing the mutual fund i.e., it is the total amount of annual expenses incurred by the mutual fund divided by their assets under management. These annual expenses include the management fee and operating expenses as the registrar and transfer agent fee,

audit fee, custodian fee, and marketing and distribution fee. The expense ratio of a mutual fund is disclosed yearly.

iii. MINIMUM INITIAL INVESTMENT

Minimum initial investment is the minimum amount needed initially by the investors to invest in a mutual fund scheme.

iv. RISK

For studying the risk and performance relationship of mutual funds, mostly two risk measures as standard deviation (σ) and beta (β) have been used in the past. Standard Deviation or Total Risk of Portfolio: Standard deviation is a statistic to measure the variation in individual returns from the average expected return over a certain period. It represents the total risk of the portfolio. This total risk consists of two components namely diversifiable and non-diversifiable risk. Diversifiable or unsystematic risk represents the portion of a portfolio risk that can be eliminated by holding enough stocks i.e., through diversification. This risk results from uncontrollable events unique to an industry or a company. Non diversifiable or systematic risk is external to an industry and is attributed to broad forces that impact all investments. The total risk or standard deviation is represented by sigma (σ) and is defined as the square root of the mean of the squares of deviation of individual returns taken from the average return. The standard deviation (σ) of all the sample mutual fund schemes is calculated on the yearly returns. Systematic Risk or Beta (β): Systematic risk is that component of total portfolio risk which is not controlled through the process of diversification. It is non diversifiable risk and shows how the price of a security responds to market forces. The more responsive the price of a security is to changes in the market, the higher will be its beta. It is calculated by relating the returns on a security with the returns for the market. Market return is measured by the average return of a large sample of stocks such as Sensex or BSE 100 index. The beta for overall market is equal to 1 and other betas are viewed in relation to this value. Mutual fund can be as volatile, less volatile or more volatile. For example, if a mutual fund has below market beta of 0.84, then the fund has 84 percent of the volatility of the market. That is relative to the market index it would decline by the 84 percent of the drop in down markets and would capture only 84 percent of the gain in the index in up markets. In order to obtain beta (β) of the portfolio, CAPM version of the market model has been applied. The estimation form of CAPM is:

$$R_{pt} = \alpha_p + \beta_p R_{mt} + \dot{\varepsilon}_p \qquad ....(ii)$$

Where, R_{pt} is the return on the mutual fund schemes for time t R_{mt} is the return on the market index for time t

α_p represents the coefficient term

β_p beta coefficient, the measure of sensitivity

$\dot{\varepsilon}_p$ is the error term

Beta (β) is a relative measure unlike absolute measure (σ). Higher value of beta indicates a high sensitivity of fund returns against market returns and lower value indicates a low sensitivity.

v. RISK ADJUSTED RETURN

Risk adjusted return of the mutual fund schemes under study is computed by Sharpe Ratio (Sp). This ratio is also called as the reward to variability ratio. Sharpe ratios for the sample mutual fund schemes are computed by using the following equation:

$$Sp = (Rp - Rf)/\sigma p$$

Where, Sp stands for the Sharpe ratio of the mutual fund

Rp is the average yearly return on the mutual fund scheme12 from April, 2006 to March, 2012

Rf is the average risk free rate of return (91 days T-Bills) from April, 2006 to March, 2012

σp stands for the total risk or the standard deviation of the yearly returns of portfolio

vi. AGE OF THE MUTUAL FUND SCHEMES

ix. ASSET RATIO

Asset ratio of the mutual fund has been calculated as shown below-

Asset Ratio =   Total Assets as on 31 March, current year /   Total Assets as on 31 March, previous year

Asset ratio above 1 indicates a positive asset flow and if it is less than one then it indicates a negative asset flow.

NEXT STEPS

Jenny is considering below hypothesis and is then interested to know what are the factors that she should work upon to be a successful fund manager in future.

The objective of the research is to study the performance of mutual funds in ICICI. To analyse the first objective, Jenny & David have formulated following hypothesis:

H0: The ICICI mutual fund schemes do not perform efficiently. H1: The ICICI mutual fund schemes perform efficiently.

Considering all the factors mentioned above, please help Jenny to prepare a cause and effect relationship of these factors over the performance of the funds.