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Analysis Specific IT Stocks through the CAPM Model

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Abstract

In India, stocks are mainly traded on two important stock exchanges: the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). Most major companies in India are listed on both exchanges, offering various securities like equity shares, preference shares, debentures, warrants, bonds, and mutual funds. Investors use these platforms to buy and sell shares, aiming to earn extra income. Every investment involves two crucial elements: return and risk. Since there's no completely risk free investment, a certain level of risk is investible. Smart investors seek the highest return with minimal risk. This paper analyzes the risk and return of selected stocks in the Indian IT sector using the Capital Asset Pricing Model (CAPM). The CAPM model is employed to forecast stock price movements, providing valuable suggestions for IT sector investors on whether to buy or sell securities at the current time based on the analysis.

KEYWORDS: CAPM Model, Stock exchange, Investment, Return and Risk.

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INTRODUCTION

Investors face two types of risks: diversifiable (unsystematic) and non-diversifiable (systematic) risk. Unsystematic risk can be reduced by building a diversified portfolio, eliminating risks specific to individual securities. Systematic risk is tied to overall market movements and cannot be eliminated through diversification. The Capital Asset Pricing Model (CAPM) links the expected return of a security to its systematic risk, helping in managerial decisions like cost of capital,portfolio performance, and risk prediction.

While CAPM has been widely used, fama and french argued that market beta alone isn't enough to explain expected return. They introduced the fama and french three- factor model, considering size and book- to-market equity ratio. Some studies questioned the reliability of CAPM and alternative models emerged. This paper aims to assess the validity of CAPM by reviewing literature, checking if its assumptions still hold true. The conclusion will determine if CAPM effectively measures risk and return in all aspects.

The Capital asset Pricing Model (CAPM) is a financial model developed by **William Sharpe, john lintner and Jan mossin** in the mid-1960s. This model helps establish a relationship between the expected return and the risk associated with securities in the market. The Basic idea is that the expected return on a security can be calculated using the following equation:

$E(Ri) = Rf + \beta i(E(Rm) - Rf)$

Expected Return= Risk-free Rate + Beta * (Market Return- Risk-free Rate)

Here,

Risk-free Rate (Rf): The return on a completely risk-free investment.

Beta(βi): A measure of the security's risk in relation to the overall market.

Market Return (Rm): The expected return of the entire market.

ASSUMPTION ON CAPM

- Investors make decisions based on analyzing the relationship between risk and return.
- Investors prefer securities with lower risk, They are generally cautions
- Every portfolio includes risk-free assets, and borrowing or lending occurs at a risk-free rate.
- Investors aim to maximize their satisfaction or utility from their investments.
- No additional costs like taxes or fees when buying or selling securities.
- No changes in inflation or interest rates during the analysis.
- Unlimited buying and selling of securities without restrictions.
- All investors are assumed to have the same investment time horizon.

In the context of the paper, the CAPM model is applied to analyze stock price movements in the IT sector. The goal is to guide investors on whether to buy or sell based on this analysis. However, it's important to note that these recommendations rely on the mentioned assumptions, which may not always perfectly reflect real world conditions.

REVIEW OF LITERATURE

(K, 2019,), The paper explores risk and return in the Indian IT sector by analyzing selected stocks through the Capital Asset Pricing Model (CAPM). It aims to provide valuable insights for investors, assisting them in deciding whether to buy or sell securities based on the model's predictions.

(Frida Pacho, 2014), This paper examines the significance of the Capital Pricing Model (CAPM) in investment decisions. Through a literature review, it assesses the model's validity by scrutinizing its assumptions. The findings support CAPM's utility, confirming it as a valuable tool trusted by investors for project profitability assessment in the realm of investment management. In this study despite increasing criticism, research indicates that the CAPM remains a valuable tool in financial management. While doubts persist, CAPM is

crucial in understanding risk premiums and evaluating project profitability until a superior model emerges.

(Bajpai & Sharma, 2015), This Empirical study focuses on testing the CAPM model in the Indian equity market over a 10 year period from January 2004 to december 2013, utilizing daily data. Employing the rolling regression methodology, the analysis spans three- year rolling samples with a moving window for a quarter. The second-stage regression involves a constrained model, assuming a zero intercept term. Results indicate the significant relevance of CAPM in the Indian equity Market, with the developed model outperforming the traditional model.

OBJECTIVE OF THIS STUDY

- To look at how the returns and risks of specific stocks in the Indian IT sector change over time.
- To provide suggestions for investors in the IT sector to make a buy or sell decision based on the CAPM model.

RESEARCH METHODOLOGY

This study aimed to assess specific IT sector stocks using the Capital Asset Pricing Model (CAPM) and determine whether investing in these stocks is advisable at the present moment. Information was gathered from secondary sources, including Yahoo Finance and the reserve bank of India (RBI) website.

The study focused on five IT sector stocks: TCS, Infosys, Tech Mahindra, Wipro, and HCL. Monthly data from the 2022-2023 financial year was analyzed for the assessment.

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Table No: 1 Statement showing calculation of average return of selected companies.

Company Average	Average Return
TCS	0.15573
INFOSYS	0.33606
TECH MAHINDRA	0.31708
WIPRO	0.34933
HCL TECHNOLOGY	0.08346

Average Return of stocks can be ascertained by the following formula:

Average Return= [(closing stock price- opening stock price)/opening stock price] *100

Table No: 2 Statement showing expected return as per CAPM model

COMPANY	RISK FREE RATE OF RETURN(RF)	MARKET RETURN (Rm)	BETA (β)	EXPECTED RETURN (Ri)
TCS	7.7%	13.92%	0.53	17.53%
INFOSYS	7.7%	13.92%	0.56	17.30%
TECH MAHINDRA	7.7%	13.92%	0.60	17.00%
WIPRO	7.7%	13.92%	0.71	16.15%
HCL TECHNOLOGY	7.7%	13.92%	0.62	16.84%

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Under CAPM model the expected return from the stock can be calculated by:

E (Ri)= Rf + βi (E (Rm- Rf)

Where, E (Ri) = Expected return of investment

Rf = Risk -free rate

Bi = Beta of the Investment

Rm = Expected return of market

(Rm- Rf) = Market risk premium

The unique aspect of CAPM is that it doesn't focus on the day-to-day price fluctuations or calculates the standard deviation to assess a stock's risk. Instead, it uses a measure called "beta" to gauge the risk associated with investing in a particular stock. If a stock has a beta greater than one, it's considered riskier in the market. Rational investors typically prefer stocks with a beta between 0 and 1 because they are perceived as less risky. Beta helps investors understand how much a stock's price may move in relation to the overall market.

From the above analysis none of the selected securities is having beta value of more than one. Hence, all the selected securities from the IT sector are ideal for the investor to choose. Also, the Securities where beta value is more are having the highest expected return.

Here the market return (Rm) is 13.92%, which is the same for all the securities in the market portfolio.

Rm= Risk free rate + Risk premium

Where, risk free rate (Rf) = 7.70%

Risk premium = 6.22%

Risk free rate of return (Rf) is the rate of return where no risk is assumed on an investment. It is determined by RBI the current risk free rate of return for the financial year 2022-2023.

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Table No: 3 Statement showing comparison between actual return and expected return as per CAPM.

COMPANY	ACTUAL RETURN	EXPECTED RETURN
TCS	0.15573	0.17539
INFOSYS	0.33606	0.17308
TECH MAHINDRA	0.31708	0.1700
WIPRO	0.34933	0.16153
HCL TECHNOLOGY	0.08346	0.16846

FINDINGS AND SUGGESTIONS

The study has been conducted to analyze the performance of selected stocks in the IT sector using CAPM during the one-year period, from April 2022-March 2023 and to provide valuable suggestions for the investors to invest in securities.

From the analysis it was found that the actual return of INFOSYS is 0.33606 whereas according to CAPM the expected return was found to be 0.17308. The actual return is more than that of the expected return and hence it is recommended to take or buy the stock of INFOSYS at this point of time as it is found to be undervalued. In the case of TECH MAHINDRA, the actual return of the stock is 0.31708 and the expected return as per CAPM model was 0.1700. Here, the investors can also buy the securities as the actual return is more than the expected return. Similarly, the actual return of WIPRO is also more than the expected return. At this point in time, it is advisable for the investor to buy the stocks of selected IT sector companies.

CAPM model has been used to derive the relationship between expected risk and return of individual securities and portfolios. According to the CAPM model when beta value seems to

be higher it means the security is holding a larger amount of risk. Also, when beta value or risk is higher the expected return from the security will also be higher.

CONCLUSION

This study utilized the Capital Asset Pricing Model (CAPM) to assess stock behavior, establishing a correlation between risk and expected return for selected securities. The finding affirm the validity of the CAPM model in analyzing stock price movements, offering valuable insights for investors to guide their buy or sell decisions. Despite numerous factors influencing stock prices, the CAPM model focuses on the pivotal elements of return and risk. Rational investors prioritize these aspects, making the risk and return analysis provided by the CAPM model instrumental for informed decision-making in the stock market.

LIMITATIONS

This study has focused on five stocks within the Indian IT sector, narrowing its scope. To enhance the comprehensiveness of the analysis and provide a more comparative perspective on stock price movements, future research could expand to include stocks from diverse sectors. The CAPM model serves as a valuable tool in examining the relationship between expected risk and return, aiding in deciphering stock price dynamics and offering guidance for investor decision-making. It's worth noting that aside from risk and return, factors such as dividend earning per share(EPS), and price-to-earning(P/E) ratio also play crucial roles in predicting stock price movements. Future analyses could incorporate these additional factors to refine stock return estimates further.

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