

# SENSITIVITY ANALYSIS OF RISK-FREE INTEREST RATE TO OPTIMIZE PORTFOLIO GAIN WITH REFERENCE TO COLOMBO STOCK EXCHANGE

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Historically, investors made their investments based on the gain. Even though there had been high risk involved in high-return gaining investment activities, it was the habit of people to expect more gain from an investment. In the modern world, investment strategies and investment evaluation methods are rapidly used to create optimal portfolios. These methods were mainly used to optimize investments in financial assets such as stocks, bonds, deposits, treasury bills, etc. The main objective of this study is to explore a range of optimal portfolios an investor can approach with changes in risk-free rates and identify a safe range of risk-free rates for optimal risky portfolio investment. Identifying such an indifferent range of risk-free rates will allow a rational investor to make optimal decisions as an investor chooses risk-free instruments above risky investments in higher interest rate regimes. Hence, it will allow investors to invest in risky instruments indifferently. In order to conduct this study, the monthly closing stock prices of 18 companies listed under ASPI were used as the data sample. Data was analyzed using simple mathematical equations and statistical methods with MS Excel and MATLAB software. The findings of the study reveal that there is a safe risk-free rate range of 6.72% - 8.64%, where investors can diversify investment between Ceylon Cold Stores PLC and Teejay Lanka PLC, 83% and 17%, respectively.

**Key Words:** *Optimal risky portfolio, risk-free rate, Safe range*