

## HOW ONE'S RISK PREFERENCES AFFECT THEIR INVESTMENT DECISIONS

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ABSTRACT. The purpose of our project was to display how our personal risk preferences affect our investment decisions, if we invested on two assets: one risky asset (stock) and one risk-free asset (bank account). We considered the problem in both discrete and continuous case. In particular, the stock price follows a multinomial tree in the discrete case; and follows a Geometric Brownian motion in the continuous case. We then found the expected value of the stocks at varying times. By setting what we expect our bank account to be at those times equal to these expected values, we solved for the interest rates, at which investing on either asset are equivalent. We then incorporated risk aversion in the power utility function. Using different levels of risk aversion, we again solve for the interest rate, at which investing on either asset are equivalent. By comparing the first interest rate with the interest rate that incorporated the risk aversion, we saw how this risk aversion affects our investment decisions.

KEYWORDS: *risky asset, risk-free asset, binomial tree, Geometric Brownian Motion, risk aversion*

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