



FIN 366: INVESTMENTS
RISK AND RETURN
CRITICAL THINKING & CONCEPTUAL QUESTIONS

1. When should an investor consider computing and using arithmetic returns? When should an investor consider computing and using geometric returns?
2. A friend tells you “The arithmetic average of a fund’s annual returns over the last 20 years is 12%. Therefore, an investor who invested 20 years ago in this fund earned 12% per year.” Critique this claim.
3. A friend tells you “The geometric average of a fund’s annual returns over the last 20 years is 12%. Therefore, a reasonable forecast for this fund’s next period return is 12%.” Critique this claim.
4. A friend tells you “The geometric average of a fund’s annual returns over the last 20 years is 12%. Therefore, an investor who invested 20 years ago in this fund earned 12% per year.” Critique this claim.
5. How can an analyst find or develop the probabilities of economic states and portfolio returns in each state when conducting scenario analysis?
6. What is the interpretation of the standard deviation and what are its units?
7. Can a security’s standard deviation be greater than its expected return? Why or why not?
8. Can a security’s standard deviation be negative? Why or why not?
9. What is the difference between a risk premium and excess return?
10. Is a portfolio with a 30% expected return “better” than a portfolio with a 20% expected return?
11. Is a portfolio with a standard deviation of 8% “better” than a portfolio with a standard deviation of 14%?
12. **CHALLENGE** Over the past 100 years, the monthly return of the stock market overall has been about 0.67%, with a standard deviation of about 5.34%. Given our interpretation of standard deviations and the 68.26%, 95.44%, 99.74% rule, about how many months out of the 1200 (12 months \times 100 years) would we expect the market to return less than **-15.35%**? How many months out of 1200 would we expect the S&P 500 to return **+16.69%**? In reality, 0.87% of months have returns below -15.35% and 0.52% of months with returns greater than 16.69%. What does this imply about the distribution of stock returns? Are they normally distributed? What does this mean for forecasting *next* period’s return?
13. **CHALLENGE Black swan** events are highly unlikely and highly impactful events in markets. The name is derived from a story: a person having only observed white swans at a local pond over 100 years of their life might conclude that black swans do not exist (while they certainly do). What lesson can we take away from the existence of black swans in financial markets? Do we think extreme events are predicted by assumptions of normal distributions?

