Welcome To The Stock Market: Student Activity

Calculating Long-Term Growth

This activity is designed to demonstrate the power of long-term compound growth. Students will select stocks, read their charts to determine average annual returns, and then calculate the value of an investment in those stocks after 15 and 20 years.

Part I: Pick 10 Stocks & Calculate

Students should form groups of 4-6 students and work on selecting stocks from their portfolios that they would like to investigate in more detail. Students should use the Rapunzl app to research information for the chart below. This includes recording the stock ticker symbol, the current share price, the share price in 2010, the percentage change since 2010, and the value of a $1,000 investment made in 2010.

Stock Ticker Symbol	Current Share Price	Share Price In 2010	Percentage Change	Value Of $1,000 Investment
SPY (S&P 500)				
QQQ (Nasdaq)				

Part 2: Share Your Findings

Prepare to discuss your findings with the class and think through an answer to each of following questions:

- Which stock had the highest return since 2010 and how much would your $1,000 investment be?
- Which stock had the lowest return since 2010? Would you have lost money?
- Why did you choose to investigate this company?
- Do you think that this company was a good investment since 2010?
- Do you think that this company will be a good investment for the next 10 years?
- Did your company outperform the S&P 500 and Nasdaq? If not, would you have rather bought an ETF?

Part 3: Calculate Future Value

Students should calculate the value of a $1,000 investment in each stock if the stock were to repeat its returns for the past 13 years for the next 26 years. Remember, that this means the returns are compounded! In the real world, this will likely not happen, but it's good practice to use the compound interest formula:

$$A = P (1 + R)^{(T)}$$

A is the amount of money accumulated after n years, including interest.
P is the principal amount (the initial amount of money; in this case, $1,000).
R is the interest rate or rate of return
T is the number of compounding periods

Copy over the percentage change since 2010 from the previous page and calculate the compound growth of an investment's value by 2049. Hint: the investment will double twice by 2049.

Stock Ticker Symbol	Percentage Change Since 2010	Value Of $1,000 Investment In 2049)
SPY		
QQQ		

Part 4: Discuss Your Findings

Look at the results in the table above.

- Which of the stocks would have resulted in the largest $1,000 investment by 2049? Is it the same as the previous table?
- Why do you think it is not safe to rely on past performance to predict future results?
- Would you invest in these companies for the next 10 years, or would you prefer to invest in an ETF like the S&P 500?

Part 5: Review Financial Calculations

Question 1: Jill invested $5,000 in a company's stocks that have been appreciating at an annual rate of 7%. If she kept her investment for 5 years, how much will her investment be worth at the end of the 5 years?

Question 2: Steve deposited $10,000 in a savings account that earns compound interest at a rate of 4% annually. If he doesn't make any additional deposits or withdrawals, how much will be in the account after 6 years?

Question 3: If you have a savings account that offers an annual interest rate of 6%, approximately how many years will it take for your initial deposit to double using the Rule of 72?

Question 4: The share price of XYZ company was $120 yesterday. Today, it increased by 15%. What is the new price of the stock today?

Question 5: Alex invested $12,000 in a mutual fund. Over the next 3 years, the mutual fund returned an annual average of 5%. How much would Alex's investment be worth at the end of 3 years?

Question 6: Kim has $15,000 to invest and she chooses a certificate of deposit (CD) that compounds annually with an annual interest rate of 3.5%. How much will Kim have in her account at the end of 10 years?

Question 7: If you invest in a fund that yields an 8% annual return, approximately how many years will it take for your investment to double according to the Rule of 72?

Part 6: Financial Theory Questions

Question 1:

Why are buy-and-hold investors often able to capture more market growth compared to frequent traders?

Question 2:

Although we used past performance to calculate future value in our activity, why might this not be a reliable indicator of future success? Can you think of any factors that could cause a company's future performance to differ from its past?

Question 3:

If you were investing for retirement 30 years from now, which strategy would you likely prefer: frequent trading or a buy-and-hold strategy? Discuss your reasoning, considering factors such as risk, effort, potential returns, and taxes.

Question 4:

Imagine you have two investment options: one has an average annual return of 8% but is highly volatile, and the other has a stable average annual return of 6%. Which would you choose for a long-term investment, and why? What might influence your decision?