

Statistics Project
Descriptive and Statistical Analysis of Financial Markets

Submit: Electronically

Data: Publicly available.

Submit the data used with your Project report in Word and Excel or related format. You will have the report (Word) and the data (Excel).

Area	Description	Due Date	Penalty	Miscellaneous
Topic Selection	<u>Email</u> your instructor on the selection of the topic of your preference. Each student must have a unique topic. First come; first assigned	No later than fourteen (14) days before Project Due Date	10% if not timely	Instructor approval required. <i>Every student must have a different project.</i> See Project Proposal Submission below.
Report format	Project report must be in APA or similar format			Non-APA format requires approval by instructor
Direction				If you need additional data or direction, please contact me.
Sources				www.yahoo.com www.msn.com www.morningstar.com www.briefing.com

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- 1) **Selection:** Select an exchange traded fund (ETF – a basket of publicly traded companies), publicly traded stock, or mining-related company for review. Typically, the companies in an ETF can be US-based companies but some ETFs do not restrict their selection to only US-based companies. There are some ETFs that relate to precious metals (gold, silver, zinc etc.) or even commodity related. Some ETFs are specific industry related (retail, technology, pharmaceutical, mining, consumer etc).
 - a. All selections
 - i. Must have a trading volume of greater than 1,000,000 shares per day unless authorized by your instructor.
 - ii. Must be US or Canadian-based companies or ETFs unless authorized by your instructor.
 - iii. Daily analysis: must have a minimum of sixty (60) days of trading.
 - iv. Weekly analysis: must have a minimum of thirty (30) weeks of trading.
 - v. Monthly analysis: must have a minimum of twenty-four (24) months of trading.
 - vi. Quarterly analysis: must have a minimum of twenty (20) quarters of trading.
- 2) **Selection Acceptance:** Email your instructor your selection and the reason for your selection and reasons why you selected what you did. I will review and approve or make suggestions on your selection and approach. No two similar reviews are allowed. All selection must be unique! See Syllabus for Subject line requirements.

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3) **Selection Options**

- a. **Stocks:** If a stock, then perform your analysis on this stock in one, but not both, of the following areas:
 - i. Price and volume changes: Publicly available stocks have price and volume. Review these areas of changes in stock price and changes in stock volumes.
 - ii. Quarterly earnings results. These are publicly available results of the company's earnings. You can find this on most news-related websites (Yahoo. MSN etc) or simply search for the company quarterly reports. For this project you can just get the financial results and numbers.
 - 1. Look at stock price changes (\$ and %) vs the earnings (expected and actual). You could review several quarter results and what happened to the stock price over the days, weeks, months etc. after the reported earnings.
 - 2. Look at several quarters.
- b. **ETF:** If an ETF, then you perform your analysis on this ETF in one, but not both, of the following areas:
 - i. Price and volume changes: Publicly available ETFs have price and volume. Review these areas of changes in ETF price and changes in ETF volumes.
- c. **Mining and precious metals:** If a mining or precious metals stock or ETF then you could perform your analysis in the following areas:
 - i. **Stocks:** If a stock, then perform your analysis on this stock in one, but not both, of the following areas:
 - 1. Price and volume changes: Publicly available mining and precious metal stocks have price and volume. Review these areas of changes in stock price and changes in stock volumes.
 - 2. Quarterly earnings results. These are publicly available results of the company's earnings. You can find this on most news-related websites (Yahoo. MSN etc) or simply search for the company quarterly reports. For this project you can just get the financial results and numbers.
 - a. Look at stock price changes (\$ and %) vs the earnings (expected and actual). You could review several quarter results and what happened to the stock price over the days, weeks, months etc. after the reported earnings.
 - b. Look at several quarters.
 - ii. **ETF:** If an ETF, then you could perform your analysis on this ETF in one, but not both, of the following areas:
 - 1. **ETF:** If a ETF, then you could perform your analysis on this stock in the following areas:
 - a. Price and volume changes: Publicly available stocks have price and volume. You could review these areas of changes in ETF price and changes in stock volumes.
 - b. Quarterly earnings results. These are publicly available results of the company's earnings. You can find this on most news-related websites or simply search for the company quarterly reports. For this project you can just get the financial results and numbers.
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4) **Analysis:** See above general reviews and suggestions. Use Excel and Minitab!

a. Volume

- i. Select any two (2): Daily, weekly, monthly, or quarterly. It's easier if you select the same basis as price.
 1. Determine the 5# summary for your selections, such as daily and weekly.
 - a. Required analysis:
 1. Boxplots: Daily and weekly price *and* % change from previous daily or weekly close. Use absolute values that convert negative value to positive so as to see absolute change. For example, if a stock closed at \$50/share on Friday and Monday closed at \$49/share your result would be \$1 not a negative \$1. Your percentage would be based on the prior close so in this example $(50-49)/50$. Use % with two (2) decimals such as 1.38%. Draw a boxplot of the results identifying any outliers.
 2. Graph, using a histogram, the daily and weekly absolute values you have calculated. Is it normal or ?
 2. Determine the mean and standard deviation of the volume.
 3. Consider price changes as a ratio with volume. Possibly setup a scatterplot here. See below also.

b. Price

- i. Select any two (2): Daily, weekly, monthly, or quarterly. It's easier if you select the same basis as volume.
 1. Determine the 5# summary for the weekly price ranges.
 - a. Required analysis:
 1. Boxplot: Daily and weekly price and % change from previous daily or weekly close. Use absolute values that convert negative value to positive so as to see absolute change. For example, if a stock closed at \$50/share on Friday and Monday closed at \$49/share your result would be \$1. Your percentage would be based on the prior close so in this example $(50-49)/50$. Use % with two (2) decimals such as 1.38%. Draw a boxplot of the results identifying any outliers.
 2. Graph, using a histogram, the daily and weekly absolute values you have calculated. Is it normal or ?
 2. Determine the mean and standard deviation of the price ranges.

c. Scatterplot (percentage change)

- i. Select any two (2): Daily, weekly, monthly or quarterly
 1. (Two scatterplots: Create a scatterplot of the percentage change, in absolute values, of the stock or ETF selection with the percentage change, in absolute values, in the S&P500.
 2. Determine
 - a. The linear regression line equation
 - b. Correlation coefficient
 - c. Correlation of determination.

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d. Scatterplot (your choice)

- i. Select something else that could appear to be related to your selection and perform a scatterplot analysis. For example, if you select an oil company or an energy related ETF you could run an analysis of the stock or ETF price changes with the price changes in the price of oil or coal etc. (even electricity or gas). Same approach if you selected a precious metals or mining stock/ETF to compare to the underlying price of the specific precious metal.

5) Conclusions

- a. State your conclusion whether you would have invested in your selected stock, ETF or mining company. Justify your decision(s). Don't just say to invest because it *has gone up* or not to invest because it *has gone down*!
- b. State what you would do next for your next analysis of a stock, ETF or mining company.
- c. Submission
 - i. Submit your Project paper (Word document) with the appropriate Excel and data files that you used. If you used a software application, such as Minitab, Excel etc., indicate what functions you used and why.
- d. Expectations
 - i. The analysis and Word document is probably going to be no less than 5-7 pages and less than twenty (20) with your charts, graphs, reviews and analysis.

6) Data Sources

- a. A lot of data can be obtained from the referenced sites above. If you can't find the data you want, please let me know.

Text me at 317-201-8741 if you have specific questions or need clarification.