

Volatility: The Ups and the Downs

Suggested Grade and Mastery Level:

High School-all levels

Suggested Time

One or more class periods

Project Background

In this series of activities students will gain a basic understanding of volatility. They will define volatility, conduct research into the indicators of a volatile market and explore ways to invest in this market. It is expected that students have a basic understanding of risk, risk tolerance, diversification and how the news influences the markets.

Teacher Background

The term volatility indicates how much and how quickly the value of an investment, market, or market sector (Industry) changes. High Volatility means the price of the security can change dramatically over a short time period in either direction. Low Volatility would mean that a security's value does not fluctuate dramatically, but changes in value at a steady pace over a period of time.

During the Internet bust that began in the year 2000 and following the terrorist attack of September 11, 2001, leading indexes were going up and down with great fluctuation within a day and over days. This also happened in the financial crisis that began in late 2007. This volatility occurs due to uncertain economic news that increases risk and decreases consumer confidence. Increased risk makes investors nervous and less likely to invest in the short term. Stock prices often decline in volatile markets due to a lack of confidence as investors rush into safer investments such as short-term Treasury Notes, which are bonds issued by the federal government. This is known in the financial media as a "flight to quality" or a "flight to safety".

Vocabulary

Corporate bond: The most common type of corporate bonds are backed by the general credit of the corporation. A bond is essentially a loan made by investors to the corporation that will be paid back at a certain time and pay a specific rate of interest.

Diversification: An investment strategy in which you spread your investment dollars among industry sectors.

High Volatility: Occurs when the price of a security or index changes dramatically over a short time period in either direction.

Index: Reports changes, usually expressed as a percentage, in a specific financial market. Each index measures the market from a specific starting point. Some indexes are: Dow (NYSE), S&P 500 (NYSE), Russell (NASDAQ), etc.

Low Volatility: Means a security's value does not fluctuate dramatically, but changes in value at a steady pace over a period of time.

Municipal bond: Issued by state and local governments.

Risk: The chance of losing all or part of the value of an investment.

Risk Tolerance: An individual investor's ability to accept loss of some or all of the money they have invested. An individual's Risk Tolerance is based on a number of factors including age, financial stability, amount of time before invested funds are needed for other purposes.

Treasury bond: Are backed by the full faith and credit of the United State government. When the government spends more than it collects in taxes and other revenues, it issues Treasury bonds to borrow the money to pay the difference.

VIX: Measures the volatility investors expect in the market: volatility high, risk high

Volatility: Indicates how much and how quickly the value of an investment, market, or market sector changes. A volatile market sees rapid and steep price fluctuations within weeks and days. A market that is not volatile experiences less dramatic price movements.

Performance Objectives

Students will be able to:

- Define volatility
- Conduct research into the indicators of a volatile market
- Explore ways to invest in this market

Subject Areas

Economics, Business, Math, English

Materials

- Fact Sheet 1: A Volatile Market
- Fact Sheet 2: Headlines
- Activity sheet 1: Tables
- Internet Access for SMG portfolio and research

Springboard Activity

In this activity students will examine market volatility by using one-year performance graphs for indices and selected stocks.

ASK

- How does this photograph reflect volatile market activity?



Responses will vary but should point to the significance of the picture being blurry and seemingly askew. Students might also mention that it is a picture of a roller coaster and that the picture was taken from the perspective of a person riding in the first car.

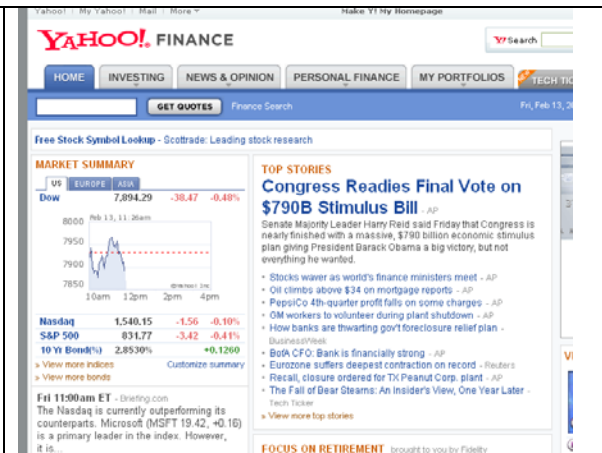
Introduce the term: volatility (Indicates how much and how quickly the value of an investment, market, or market sector changes. A volatile market sees rapid and steep price fluctuations within weeks and days. A market that is not volatile experiences less dramatic price movements.) Just like you react differently to straight sections on the rollercoaster than you do to the climbs and drops, investors react differently to low volatility than they do to high volatility. Today we will look at charts to determine the volatility in the markets.

Explain:

That Market indices especially the Dow and S&P 500 reflect major industries and companies in the markets. Their performance over time can be used to determine volatility of the markets. This is important because investors are nervous and less likely to invest when volatility is high and stock prices are unpredictable.

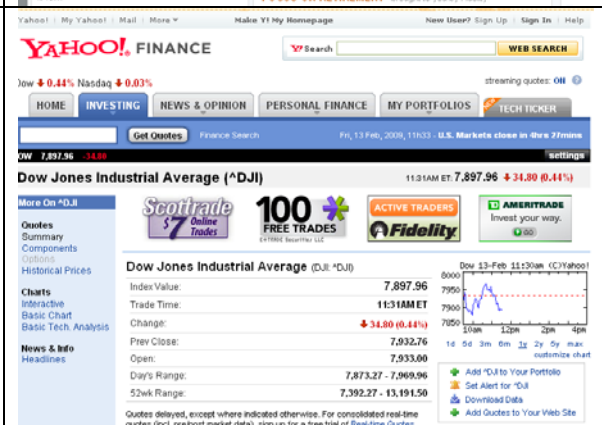
Activity 1: Interpreting Indexes

Go to <http://finance.yahoo.com>. Locate the Dow link under the Market Summary heading on the left side of the page.



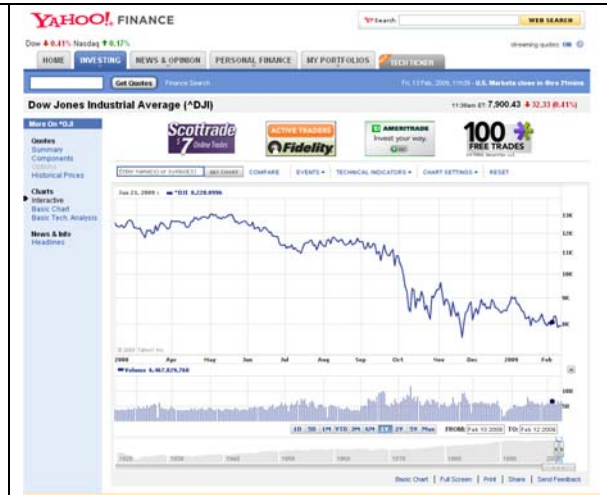
Clicking the Dow graph will open a new page containing quote information.

Customize your view of the Dow graph on the right side of the page by clicking "1y" underneath it.



Your screen should look similar to this:

(NOTE: This graph is provided only as an example. You are encouraged to go online to access the most current graphs and quotes.)



Students will now interpret the information on the graph.

Ask

- When did the Dow meet its high over the last year? What was it?
- When did it hit its low? What was it?
- When was the Dow most volatile? How do you know?

Discuss:

If you were invested in a stock on the Dow, how do you think it would have done if you had bought it in May 2008 through November 2008? Why?

Repeat the preceding process with the 1-Year graph for the S&P 500 Index.

ASK

- When did the S&P 500 meet its high over the last year? What was it?
- When did it hit its low? What was it?
- When was the S&P 500 most volatile? How do you know?

Discuss:

If you were invested in a stock on the S&P 500 Index, how do you think it would have done if you had bought it in May 2008 through November 2008? Why?



ASK

- Do you think the level of volatility in the S&P 500 in 2008 made investors nervous or confident? Why?

Record the student comments.

Assessment

Look up the following five stocks at <http://finance.yahoo.com>. Use the data provided and the 1-Year graph on their quote page to look at the performance of each over the last year. Complete the table in **Activity Sheet 1**. Answers will vary for this activity.

Based on the information above and your analysis of the one-year performance charts, what can you conclude about the performance of the companies listed? Why?

Which of these stocks appears to be volatile? Why?

Application

Visit <http://finance.yahoo.com> and look up the one-year performance chart for the stocks in your portfolio. Determine if they have been volatile for the past year.

Activity 2: Volatility & Beta

Students will analyze the usefulness of the beta number as a predictor of stock volatility.

Discuss:

If you had magic glasses that told you how volatile a stock is and it was right a lot of the time, would you use them? (**NOTE:** Avoid using "crystal ball." Analogies to fortune telling are considered inappropriate in professional securities industry conversation because they downplay the hard research and analysis involved in long term investment planning.)

Explain:

Some analysts use a **beta number** to determine how volatile a stock may be. The higher the beta number, the more sharply the value of the investment can be expected to change in relation to the S&P 500. If the S&P moves 2% in either direction, a stock with a beta of "1" would move 2% in the same direction. In a volatile market the S&P500 can fluctuate dramatically, a stock with a beta of "1" would also be fluctuating at the same pace as the S&P 500. In addition, the higher the beta number the greater the fluctuation of the stock in relation to the S&P500. In contrast, if the Beta number is less than "1" the stock is less volatile than the S&P 500 and it is considered a more stable stock.

ASK

- Is the beta a reliable indicator of volatility in a volatile Market?

Display:

Company	Beta
General Electric	1.11
Wal-Mart	.32
Consolidated Edison	.20
Walt Disney	.97
Target	1.08

Using the beta number alone

ASK

- Which stock appears the most volatile? Why?
- Which stock appears the least volatile? Why?
- Which stock most closely corresponds to the S&P 500? Why?

Go to <http://finance.yahoo.com> and look at the one-year chart of the S&P 500.

ASK

- During what months are the stocks listed in the chart most volatile? Why?
- When was the best time to purchase stock during the last year? Why?
- What is the overall trend in the market in the last year?
- Can the Beta number help you when deciding on which stock to buy in a volatile market? Explain.

Assessment

During a period of portfolio liquidation and financial loss is the beta the best indication of stock volatility? Explain?

Application

Go to <http://www.google.com/finance> and look up the beta number for the stocks in your portfolio.

Use the beta number and your knowledge of the S&P500 to determine if it is an accurate portrayal of the volatility of each stock.

Activity 3: In the Headlines

In this activity students will analyze the impact of economic news on the market. Use the news headlines in Fact Sheet 2.

Display:

Health Official Admits Faster Action Needed in Salmonella Outbreak

By Lyndsey Layton, Washington Post Staff Writer, Thursday, February 5, 2009; 4:38 PM.



A handout photo released by FEMA Wednesday, Feb. 4, 2009 shows an example of a MRE Kit that contains peanut butter packets. Kentucky stopped distributing FEMA emergency meal kits for victims of last week's ice storm Thursday, Feb. 5, 2009, after authorities warned that the kits may include packets of peanut butter recalled over potential salmonella. No illnesses have been reported, but several people consumed the suspect plastic packets of peanut butter. (AP Photo/FEMA)

ASK

- Would you feel confident about buying products with peanut butter in them?

Share student responses before displaying:

Recalled peanut butter was in meals sent to KY.

By Brett Barrouquere, Associated Press Writer, February 6, 2009

ASK

- If this was the headline the next day, would you be more or less confident about buying peanut products? Why? Why Not?

Explain:

In the market economic news can influence investor confidence. Investors can get nervous and sell stock anticipating that bad financial news will impact on their portfolio. Other investors will "wait and see", not buying stock reducing demand.

Display:

Oil below \$40 as investors eye US stimulus

By Alex Kennedy Associated Press Writer, Monday, February 9, 11:18PM

ASK

- What is the article telling us about the economy?
- What might be the impact on investors? Why?

Share student responses.

Display:

World stocks lower as investors await Senate vote

By Pan Pylas, AP Business Writer, Tuesday February 10, 6:26 am ET

ASK

- What is the article telling us about the economy?
- What might be the impact on investors? Why?

Discuss:

Looking at the headlines together what do you think may be the impact on investors during this time period? Why?

Instruct students go to a reliable news outlet or newspaper such as:

<http://www.street.com>

<http://www.yahoo.com>

<http://www.msn.com>

Look up news headlines for a week about the economy. Write a brief summary of the content and predict any impact on the financial markets. At the end of the week discuss the impact of the five news stories on the financial markets:

- Make a prediction
- Track the S&P 500 performance over the week using yahoofinance.com custom charts.
- Compare the prediction to the S&P500 performance
- Discuss the analysis

Assessment:

Create a line graph that tracks the S&P500 performance for the week. Find news headlines that you believe represent an influence on the financial markets. Plot the headline on the graph and write a paragraph explaining the relationship between the headlines and market movement.

Application

Looking at your SMG portfolio, find a stock that appears to be more volatile than the S&P500 by checking its beta number. Then look for headlines that may influence this stock. Write a paragraph explaining the impact of the news on investors as evidenced by the movement of the stock.

Activity 4: Bonds in a volatile market

In this activity students will determine how to purchase corporate bonds from the SMG bond universe when investing in a volatile market. In most volatile markets, investors fly to safety in two-year treasury notes, which pay a very low rate of interest (sometimes even zero interest), but are considered the safest haven for money in a stormy (i.e., volatile) market. Because SMG takes place over a short period of time, two-year notes are not offered as the students would never earn their commission back. However, investment grade corporate bonds are offered and while they are not as safe as Treasuries, they are much safer than stocks in a volatile market environment. Background knowledge is necessary to use this activity. A Bond Lesson with a teacher background and a suite of activities is available in the Teacher Support Center, under the In The Classroom section, and by choosing Lessons and Activities.

ASK

- How many of you know the story of the three little pigs?
- Which pig's house withstands the storm of the wolf's blowing? Why?

Explain :

In a volatile market, investors look for strong stable bonds with minimal price fluctuation.

Display:

Berkshire Hathaway Fin Corp	CUSIP	Date issued	Maturity Date	Previous payment	Next Payment	Interest rate	SP rating	Current price	Current yield
	084664AD3	10/06/03	10/15/13	10/15/08	4/25/09	4.65	AAA+	103.33100	4.475

If you were to play SMG in a spring window that ends on April 21, 2009

- How will you make money on this investment?
- What does the current yield tell you about the bond?
- What does the rating tell you?
- Is this a solid investment in a time of market volatility? Why/ Why not?

Hershey Co.	CUSIP	Date Issued	Maturity Date	Previous Payment	Next Payment	Interest Rate	SP Rating	Current Price	Current Yield
	427866AMO	8/15/05	8/15/15	8/15/08	2/15/09	4.85	A	98.57300	4.920

OR

ENERGEN Corp	CUSIP	Date Issued	Maturity Date	Previous Payment	Next Payment	Interest Rate	SP Rating	Current Price	Current Yield
	29265NAQ1	4/1/03	10/1/13	10/1/08	4/1/09	5	BBB+	89.46900	5.5885

If you were to play SMG in a spring window that opens February 23, 2009 ends on April 21, 2009

- How will you make money on this investment until the window closes?
- What does the current yield tell you about the bond?
- What does the rating tell you?
- Is this a solid investment in a time of market volatility? Why/ Why not?

Compare the two investments: Which is a more solid investment if playing the SMG in a volatile market? Why?

Assessment:

Go to your SMG investment portfolio. Go to enter a trade, Bonds, go to corporate bonds and find a bond you believe is a solid investment in a volatile market. Collect and present the data to support your position.

Application:

Go to your SMG investment portfolio. Go to the account summary page evaluate the bonds you hold to determine if they are solid investments in a volatile market. Or purchase a bond you believe is a solid investment in a volatile market.

Activity 5: Volatility Risk and Diversification

In this activity students will develop a long term investment strategy by developing a diversified portfolio. Using information excerpted from MSN news article, students will test 1 to 5 strategies for establishing a diversified portfolio in a volatile market.

ASK

- Is it wise to stand up in a moving roller coaster? Why Not?
- What can you do beyond sitting down for the ride to protect yourself even more?

Explain

A volatile market can be a precarious place without some safeguards in place. Financial markets run in cycles. After periods of prosperity and expansion there are periods of contraction and recession. The turbulence that occurs when the markets have a downturn no matter how long can be an opportunity to test your ability to plan for long term investing. Read the investment strategies for a volatile market from *5 Top Moves for Investors Right Now* written by Tim Middleton

1. Stick with Equities. If you wonder if you should sell in a market downturn it's already too late.
2. Love the Most Unloved. Look for industries and companies hit hard but still standing. The leaders in an upturn tend to be the losers in a downturn.
3. Get Paid to Wait. Dividend stocks that pay a quarterly dividend are a nice way to bring in a return in a down market.
4. Buy Your Age in Bonds. Double your age is the percent of your portfolio that should be in bonds.
5. Don't Double Down. Don't try to make up losses on risky investments. Remember the market goes back up.

Ask or have students answer:

- When may be the wrong time to sell your stocks? Why?
- About what percent of your portfolio should be in bonds? How did you decide?
- What is a possible advantage to buying a dividend stock?
- Does it pay to buy stock in companies in an industry that has lost a large share of its value? Why?
- Is there a benefit to buying really risky stocks? Why?

Explain:

Now that we have thought about one set of investment strategies, let's think about a diversified portfolio for a 36 year old investor. He does not have time to think about the portfolio and plans to work another 30 years, Working in SMG teams, use your knowledge of investing to decide:

What % of the portfolio should be in dividend bearing stock?

What % of the portfolio should be in bonds?

What % should be in stocks?

What % should be in Mutual funds?

What % should be in cash?

Review answers.

Get more specific:

In SMG teams develop a portfolio for our investor. Take your portfolio and using a virtual \$100,000 build the portfolio by purchasing stocks, bonds and mutual funds that you think will guard against long term risk even in a volatile market.

Review answers.

Assessment:

Track your investment portfolio and write an analysis of the investments predicting how well the portfolio will withstand a downturn. Use beta numbers, news headlines, volatility of Dow and S&P 500 to explain your answer.

Application:

Review your SMG portfolio. Write an essay explaining why it is diversified and how it will guard against risk in a volatile market. Use headlines, beta numbers, stock prices, volatility of the Dow and S&P 500 to explain your answer.

Fact Sheet 1: A Volatile Market

How does this photograph reflect volatile market activity?



Fact Sheet 2: Headlines

Health Official Admits Faster Action Needed in Salmonella Outbreak

By Lyndsey Layton, Washington Post Staff Writer, Thursday, February 5, 2009; 4:38 PM.



A handout photo released by FEMA Wednesday, Feb. 4, 2009 shows an example of a MRE Kit that contains peanut butter packets. Kentucky stopped distributing FEMA emergency meal kits for victims of last week's ice storm Thursday, Feb. 5, 2009, after authorities warned that the kits may include packets of peanut butter recalled over potential salmonella. No illnesses have been reported, but several people consumed the suspect plastic packets of peanut butter. (AP Photo/FEMA)

Meals sent to Ky., Ark. had recalled peanut butter

 Associated Press

By BRETT BARROUQUERE – Thu Feb 5, 5:06 pm ET

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AP – A handout photo released by FEMA Wednesday, Feb. 4, 2009 shows a peanut butter packet inside a MRE . . .

LOUISVILLE, Ky. – Officials on Thursday warned victims of last week's ice storm not to eat peanut butter packets from emergency meal kits distributed by the federal government because they had been recalled for possible salmonella contamination.

The kits were shipped to Arkansas and Kentucky to help feed some of the 1.3 million people left without power for days at the height of the storm. No illnesses have been reported and recalls were ordered out of "an abundance of caution," said Jay Blanton, a spokesman for Kentucky Gov. Steve Beshear.

Beshear had eaten some of the peanut butter while touring storm damage and said Thursday he felt "pretty good."

But people still in shelters because of the storm weren't so positive.

"You look forward to them helping and they're handing out things that are making it worse," said Rebecca Schmelz, who was at a shelter in downtown Greenville with her 6-month-old and 6-year-old sons.

She said her family had eaten several emergency meals but she did not believe any contained the peanut butter packets shown on a Federal Emergency Management Agency flier warning people about possible salmonella.

"I'm glad that my kids don't eat peanut butter, that's for sure," she said.

The salmonella outbreak is suspected of sickening at least 550 people across the country, eight of whom have died, and led to recalls of thousands of consumer products. A Blakely, Ga., peanut-processing plant that produces a fraction of U.S. peanut products is being investigated in the outbreak.

Full article: http://news.yahoo.com/s/ap/20090205/ap_on_re_us/salmonella_outbreak_fema

Oil below \$40 as investors eye US stimulus

By ALEX KENNEDY Associated Press Writer © 2009 The Associated Press
Feb. 9, 2009, 11:18PM

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SINGAPORE — Oil prices languished below \$40 a barrel Tuesday in Asia even as investors looked to a massive U.S. stimulus package as a possible tonic for flagging crude demand.

Light, sweet crude for March delivery rose 35 cents to \$39.91 a barrel by midday in Singapore on the New York Mercantile Exchange. The contract fell 61 cents overnight to settle at \$39.56.

The Senate passed an \$838 billion economic stimulus bill in a key test vote Monday, setting up final approval on Tuesday. The plan will

then have to be reconciled with an \$819 billion package from the House of Representatives.

The measure nearing approval in the Senate calls for more tax cuts and less spending than the House bill.

"There could be a \$3 or \$4 premium once the package comes through, but it's pretty much been priced in already," said Mark Pervan, senior commodity strategist with ANZ Bank in Melbourne. "Going forward, the market will be looking for evidence that it's really having an impact on demand."

Treasury Secretary Timothy Geithner also plans to outline rules on Tuesday for \$350 billion in bailout funds designed to help the financial industry as well as homeowners facing foreclosure.

The market largely brushed off comments Monday from OPEC Secretary General Abdalla el-Badri that the cartel would postpone 35 of 150 new oil and gas projects after crude prices have collapsed from near \$150 in July.

"I think this is really more posturing," Pervan said. "They're trying to manipulate the market into thinking prices are at pinch-point levels," he said. "I'd be very surprised if they can't turn a profit at \$40 a barrel."

El-Badri also said the Organization of Petroleum Exporting Countries, which accounts for about 40 percent of global crude supply, has completed about 80 percent of 4.2 million barrels per day of production cuts announced since September.

The worst U.S. recession in decades has led to a surge in layoffs, undermining consumer demand and sales of crude products. A report Tuesday by the American Petroleum Institute, the industry's trade association, is expected to show that oil stocks rose 3.4 million barrels last week, according to the average of estimates in a survey of analysts by Platts, the energy information arm of McGraw-Hill Cos.

Full article: <http://www.chron.com/disp/story.mpl/ap/business/6255266.html>

World stocks lower as investors await Senate vote

AP Associated Press

By PAN PYLAS, AP Business Writer – Tue Feb 10, 6:26 am ET

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AP – An investor looks at the electronic stock price board at a private securities company Tuesday Feb. 10, ...



 Slideshow: **Stock Markets**



 Barack Obama
Video: **Obamas enjoy Valentine's Day dinner in Chicago** AP

RELATED QUOTES

UBS	11.19	-0.54
^GSPC	826.84	-8.35
^IXIC	1,534.36	-7.35

LONDON – World stock markets mostly fell Tuesday as investors awaited a key Senate vote on the U.S. administration's economic stimulus plan and U.S. Treasury Secretary Tim Geithner's bank rescue plan.

The \$838 billion economic bill survived a key test vote in the Senate Monday, setting up a final vote Tuesday. The plan must then be reconciled with an \$819 billion version from the House of Representatives.

After Wall Street closed Monday, President Barack Obama pressed his case for the stimulus plan, warning that failing to act swiftly and boldly "could turn a crisis into a catastrophe."

"The big story for financial markets remains the progress of the U.S. bailout package through the Senate later," said James Hughes, market analyst at CMC Markets.

The FTSE 100 index of leading British shares dropped 56.02 points, or 1.3 percent, to 4,251.59, while Germany's DAX fell 82.84 points, or 1.8 percent, at 4,583.98. The CAC-40 index in France was 51.17 points, or 1.6 percent, lower at 3,083.70.

Earlier in Asia, Japan's Nikkei 225 stock average fell 23.09 points, or 0.3 percent, to 7,945.94, while Hong Kong's Hang Seng closed up 0.8 percent at 13,880.64 after swinging in and out of negative territory throughout the session.

For full article: http://news.yahoo.com/s/ap/20090210/ap_on_bi_ge/world_markets

Activity Sheet 1: Complete the Table

Company/ Ticker	Current price	52 week low	52 week high	Difference between high and low	% gain/loss (high/low)
General Electric Co/ GE					
Walt Disney Co./ DIS					
Wal-Mart Stores/WMT					
Target/ TGT					
Consolidated Edison/Ed					

Based on the information above and your analysis of the one year performance charts, what can you conclude about the performance of the companies listed? Why?

Which of these stocks appears to be volatile? Why?