

Executive Summary: Abnormal Stock Returns

From time to time, there are market occurrences which swing cause market over-reactions. This tool helps to gauge how much of those swings are caused by actual market occurrences and what portion is attributable to over-reactions by the market.

A tool like this would be helpful in determining which stocks are overvalued and inflated. An example when a tool like this would be helpful is illustrated by Google on January 31, 2008. Google planned to release their earnings that day at 4:01 PM but hit the submit button too soon and released earlier that afternoon. This act inherently wasn't necessarily detrimental but the fact that they missed their earnings was. This sent the market into a frenzy and Google's stock fell 9% in roughly 4 hours. Much of this swing was due to investors scrambling to protect themselves.

This tool helps to gauge how much of a stock swing is truly due to stock fluctuations and what part is abnormal.

Implementation Documentation:

The tool compares the raw daily returns to that of a given market index (Dow Jones, NASDAQ, S&P). It also allows for the user to select any of the top 500 companies being traded for any given date between 1972 and the present.

Premise: Abnormal return = Alpha-Beta-(Daily Return on Stock-Market Return)

- Alpha is derived from the regression of the series of stock returns (Selected Company=Y-axis) and the market returns (Selected Index=X-axis)
- Beta is derived in the same manner.
- Daily return comes from the specific day in question from the Historic Data worksheet.
- Market return comes from the same worksheet but from the index set of data.

This tool estimates what portion of a daily return is attributable to an overreaction of the market vs actual market forces.

Final Number: The final number is found on worksheet Abnormal Return Calculator, Range("a6").

- Additional data – Range("D9:F14") is there for the user to copy and paste consecutive days into the range("e2:e7"). When the user pastes the result from B6 for different days, it will calculate the cumulative abnormal returns X days after the incident.

Steps to Use the Tool

Step 1: Custom Buttons

Open the document and go to the "Custom Buttons" ribbon tab. In this tab there are three buttons: Select Company and Get Data, Run Regression, and Delete Historic Data.



Step 2: Select Company and Get Data

The button will open up a Userform which will allow the user to select key data for the analysis including the company, date, and the comparison index.

Once the user selects the given data, the form will pull in the last 60 days prior to the date inserted. So the user will have to give a buffer in order to see data after a given date. (Ex – in order to see the market effects after January 1, 2016, they would need to select March 1, 2016.)

Company Accrual Selector

60 Days Ending

Day: End Day

Month: End Month

Note: Months begin at 0
Ex. - Jan=0, Feb=1, Mar=2, etc.

Year: End Year

Comparison Index: Index

Company Tickers

- 3M Company
- Abbott Laboratories
- AbbVie
- Accenture plc
- Activision Blizzard
- Adobe Systems Inc
- ADT Corp
- Advanced Auto Parts
- AES Corp
- Aetna Inc
- Affiliated Managers Group Inc
- AFLAC Inc
- Agilent Technologies Inc
- AGL Resources Inc.
- Air Products & Chemicals Inc

Find Data

Cancel

When the form pulls in the data, the macro creates another sheet titled Historic data. This has the opening, closing, high, low, adj closing prices, and finally the volume of stock. It pulls in the data for both the index selected and the company selected.

Note:

- The form will not let you “Find Data” without any of the necessary boxes selected. It will give you an error message and allow you to reselect the desired data.
- The form also pulls generated data for the form from a hidden sheet named Company Tickers. You could change the data available simply by adding the data to the bottom of the columns. The sheet is locked with password - tickers

Step 3: Run the Regression

Click on the Run Regression button. This button clears out the cells in Abnormal Return Calculator and erases all formatting so that the results of the regression can be placed in this sheet.

It then calculates the daily returns for the two selected sets of data, Ticker and Index. (See Column H and Column P on the Historic Data sheet)

	H
	9
	F
	Raw Stock Return [
L	0.12%
5	1.38%
L	-0.45%
9	3.03%
L	0.21%
3	0.86%
5	-0.88%
4	-1.72%
2	-0.15%
3	1.02%
3	-0.63%
3	-0.71%
	0.00%

Once this data has been collected, it runs a regression of each of the data points that are found in Columns H and P and places the data in the sheet Abnormal Return

<u>SUMMARY OUTPUT</u>						
<u>Regression Statistics</u>						
Multiple R		38.35%				
R Square		14.71%				
Adjusted R Square		13.35%				
Standard Error		1.26%				
Observations		6500.00%				
<u>ANOVA</u>						
	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>Significance F</u>	
Regression	100.00%	0.17%	0.17%	1086.45%	0.16%	
Residual	6300.00%	1.01%	0.02%			
Total	6400.00%	1.18%				
	<u>Coefficients</u>	<u>Standard Error</u>	<u>t Stat</u>	<u>P-value</u>	<u>Lower 95%</u>	<u>Upper 95%</u>
Intercept	0.11%	0.16%	67.27%	50.36%	-0.21%	0.42%
X Variable 1	58.29%	17.68%	329.61%	0.16%	22.95%	93.63%

Step 5: Calculate Contiguous Days Returns

Once you have the abnormal return calculated for the day, cells E2-E7 are used to calculate what the average abnormal return is over those given days.

Stock Ticker	GPS		Days After Incident	Abnormal Return	1+Abnormal Return
Alpha	0.11%		0	-1.21%	98.79%
Beta	58.29%		1	0.87%	100.87%
Raw Stock Return (t)	1.38%		2	0.29%	100.29%
Market Return (t)	-0.45%		3	3.27%	103.27%
Abnormal Return	1.77%		4	0.85%	100.85%
			5	1.77%	101.77%
			Days	Cumulative return after X days	
			1		-0.35%
			2		-0.06%
			3		3.20%
			4		4.08%
			5		5.92%

Step 6: Delete Historic Data

Once you have completed this analysis and are ready to move to the next stock, click on the delete Historic Data and repeat steps 1 through 5.