

# STOCK MARKET PREDICTION USING RECENT NEWS AND EVENTS

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## PROBLEM:

Almost every stock market prediction model fails to incorporate current news resulting in inaccurate stock prediction. Through this research, a procedure was formulated to integrate recent news about a company and use it to predict stock price.

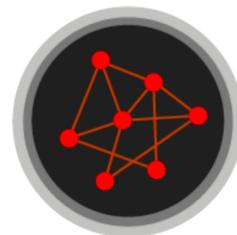
## RESEARCH METHODOLOGY:

We used predefined sets of stocks chosen for the research and used the New York Times API to deliver latest news about the companies to a Python script. The script provided the score points of each company by dividing the articles into list of phrases and comparing the phrases against our dictionary of indicators like “scam”, “collapse”, “scandal”, “misconduct”, etc. Each of these indicators was assigned points depending on the intensity of consequence on stock value. The final score point varied from 0 to 100, where 0 was strong approval and 100 was strong disapproval of the company. To ensure accuracy, the news articles were also processed through IBM’s Alchemy Natural Language Processing API to understand the market’s sentiment towards these companies. The sentiment point varied between -1 to 1, with -1 being the highest dissatisfaction and 1 being the highest satisfaction.

Step 1:  
New York Times



Step 2:  
IBM Bluemix



Step 3:  
Result



## ALGORITHM:

Using the scores from above and indicators like Forward Price Earnings Ratio, Current Price Earnings Ratio (CR), Beta Score, Risk Score (from python script and IBM Alchemy) and current stock prices, the following formulas were derived to predict score depending on the cases:

if ((Forward P/E Ratio < Trailing P/E) && (CR > 1) && (CR<3))

Change is Stock Percentage = ((RiskScore-10-5)\*Beta Score)/4;

if ((Forward P/E Ratio > Trailing P/E) && (CR > 1) && (CR<3))

Change is Stock Percentage = (((RiskScore-5)\*Beta Score)/4);

if ((Forward P/E Ratio > Trailing P/E) && (CR < 1 || CR > 3))

Change is Stock Percentage = (((Risk Score+5))\*Beta Score)/4;

## RESULT AND CONCLUSION

The algorithm was tested on seven companies and the predicted results obtained by using the given algorithm had error margin of only +/- 2%.

Company	Stock	Prediction	Actual	Offset
Wells Fargo	WFC	-9.00%	-9.80%	0.80%
COSTCO	COST	0.73%	-0.71%	0.98%
Microsoft	MSFT	2.60%	4.21%	1.61%
AT & T	T	-1.96%	-3%	1.05%
JP Morgan Chase	JPM	1.80%	0.87%	0.94%
Walmart	WMT	-1.35%	0.57%	0.78%
American International Group	AIG	-1.40%	-3.50%	1.90%

Even though the results of this algorithm was comparatively precise, we believe that even better results can be obtained. The next step of this research will be to use Twitter feed instead of news articles to determine the Risk Score of the companies.