



A MODEL FOR STOCK PRICING

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Abstract

The stock market measures the strength of numerous companies listed on various exchanges. To make money, economists and traders buy and sell companies' assets depending on the asset's strength. In an effort to predict the strength of assets, we researched and developed two models based on the historic prices of these assets. Although these models did not provide a high level of accuracy, we believe that improvements can be made to make these models useful for the modern stock trader.

Executive Summary

The purpose of the first part of this project was to experiment with deterministic and stochastic modeling techniques in order to create a working model which could accurately predict the price of a stock for varying lengths of time. There were two final models which were created and tested during the duration of our MQP. One utilized a combination of deterministic modeling techniques (linear regression and Fourier series approximation), and the other used a special case of the Box-Jenkins stochastic process, known as an autoregressive integrated moving average (ARIMA) model.

We each analyzed historic data from ten different stocks in different economic sectors and applied our models. In the initial stages of our project, we applied the Fourier series model and compared the results to the predicted data. Following research into other methods including the Kalman filter and Box-Jenkins process, we applied our second model using the ARIMA model and our data and also compared to the predicted data.

In general, the models performed with mixed results. Each member of the group had stocks which were accurately predicted by one or both of the models, while other stock predictions were not as reliable. The first (Fourier/regression) model had trouble predicting the prices of volatile stocks, and the second (ARIMA) model had virtually identical results compared to the first, only slightly more accurate. Overall effectiveness of each model was calculated through the use of average percent error between predictions and stock price.

There were several things we wished to incorporate into the models, but unfortunately we did not have enough time to use in the final versions. Finding an effective way of using industry standards or market indices to help weight changes in a stock's price, or creating a method to measure a stock's volatility were two of our ideas that did not come to fruition. However, overall after the trial and error of our various models in comparison with the actual data of our assets, we can conclude that stock pricing prediction and modeling is very difficult and further research can be done to improve on our models, or possibly create better, more accurate models based on our efforts.

In the second part of this project we examined the possibility of bringing our algorithm to market. We analyzed the current market for stock price prediction programs and assessed

any competitor. Our competitor analysis helped us identify any possible gaps in the market which helped us pick a niche market. Once we established a niche we researched the startup costs for such a company and forecasted the company's performance over a three year period. With this information we were able to provide the value of the initial investment through a net present value analysis. To come up with our results some necessary assumptions had to be made.

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Part I: A Model for Stock Pricing

Introduction

The stock market is a volatile and ever changing indication of the state of the world economy. It measures the values of companies and corporations and allows potential buyers to own a share of these groups based on these values. Buyers look to purchase stocks and, hopefully after the value has increased, sell them at a later time for a profit. The values of these stocks and shares are determined by numerous different factors, including the volatility of the market, the strength of the company, supply and demand, and many other things. In general, the price of a stock at any given can fluctuate and therefore makes it very hard to predict, making buying and selling risky. To try to minimize or eliminate this risk, many economists and stock traders try to create models or algorithms to predict stock prices.

Our motivation for this project was based on these efforts. We understand that there are many different, complex models that have already been developed that aim at predicting stock prices. Our motivation is in this same vein; we are aiming to create one or many models that can be used to model and predict stock prices for a short period of time. With accurate predictions, these models could be used to buy and sell assets to maximize profit and could be used in portfolio construction and management. It can also be helpful in make proper investments and can show how they are important for portfolio and economic education.

The objective of this MQP is to experiment with deterministic and stochastic modeling techniques in order to create a working model which could accurately predict the price of a stock for varying lengths of time within a confidence interval. There are a few reasons we would like to model stock prices; accurately predicting the price of a stock could significantly improve investment strategies, and it could help analysts identify problems or strengths of certain industries or the economy entirely. Predicting the price of the stock could lower the risk for weary buyers who are unsure of entering the market. Knowing the outcome of a seemingly random process could considerably impact our world.

Each group member chose ten different stocks from three different industries to model. Big data and analytics, biotechnology, and investment banking were the three that were

selected. Our goal is to incorporate several variables in the model so we can accurately determine the minute fluctuations of each stock's price. During the first term of this project, our initial modeling approach implemented deterministic models based on Fourier series expansions in an attempt to test its effectiveness. Stochastic modeling was later researched and implemented to improve the model based on random variables.

Methodology

Model A: Fourier Series and Regression Analysis

The first model we investigated for our project implemented the combination of Fourier series expansions with linear regression. Traditionally, Fourier series were used to approximate periodic functions by decomposing them into a potentially infinite series of oscillating functions. The more terms used in a Fourier series expansions, the more accurate the fit to the periodic function. The purpose of linear regression is to fit a straight line to a collection of data points with minimal absolute error between the fit line and the data points. In this model, regression was used to best estimate the long term behavior of given stock, whereas Fourier series expansions were used to capture the more minute fluctuations in the price of a stock. However, before we applied the model to the stock prices, we used an autocorrelation function to determine how much historic data we could use in order to avoid using erroneous data.

Autocorrelation

In order to determine how relevant past data was, we cross-correlated the prices of a stock (250 total points, or a year's worth of data) with themselves as a function of the time-lag between each individual point. This process is known as an autocorrelation. Its result is a "hidden signal" which we analyzed to conclude how far back the relevant prices reached into the past.

The equation for autocorrelation is just a special case of another mathematical tool called cross-correlation, whose equation is as follows:

$$R_{xx}(j) = \sum_n x_n \bar{x}_{n-j}.$$

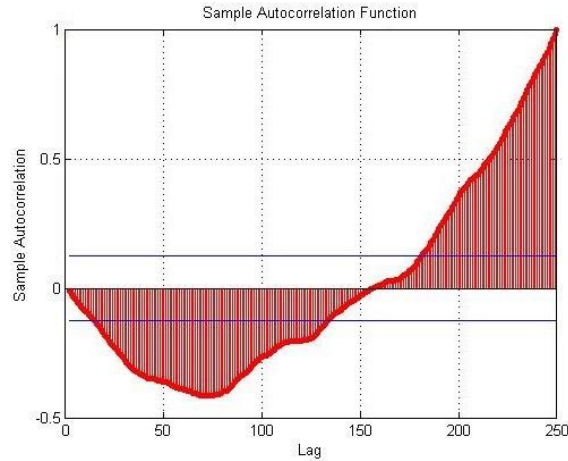


Figure 1: Autocorrelation example graph

Linear and Polynomial Regression

One major problem we encountered was deciding whether or not to use a linear or quadratic fit for our long term estimation of the stock's price. In some cases, the R^2 value for the quadratic fit was significantly better than the linear fit, and sometimes it didn't change at all. Attempting to standardize a certain regression fit to every stock returned mixed results, but most had the best outcome using linear regression. Another reason why the group was hesitant to use quadratic polynomial fits was because of the fact that as $t \rightarrow \infty$, the values of the fitted line tended to $\pm\infty$ (depending on the fit), which was incredibly unrealistic.

The general equation of simple linear regression is the basic matrix equation

$$\mathbf{y} = \mathbf{X}\boldsymbol{\beta} + \boldsymbol{\varepsilon}$$

$$\mathbf{y} = \begin{bmatrix} y_1 \\ y_2 \\ \dots \\ y_n \end{bmatrix}, \quad \mathbf{X} = \begin{bmatrix} \mathbf{x}_1^T \\ \mathbf{x}_2^T \\ \dots \\ \mathbf{x}_n^T \end{bmatrix} = \begin{bmatrix} x_{11} & \dots & x_{1m} \\ \vdots & \ddots & \vdots \\ x_{n1} & \dots & x_{nm} \end{bmatrix}, \quad \boldsymbol{\beta} = \begin{bmatrix} \beta_1 \\ \beta_2 \\ \dots \\ \beta_n \end{bmatrix}, \quad \boldsymbol{\varepsilon} = \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \dots \\ \varepsilon_n \end{bmatrix}.$$

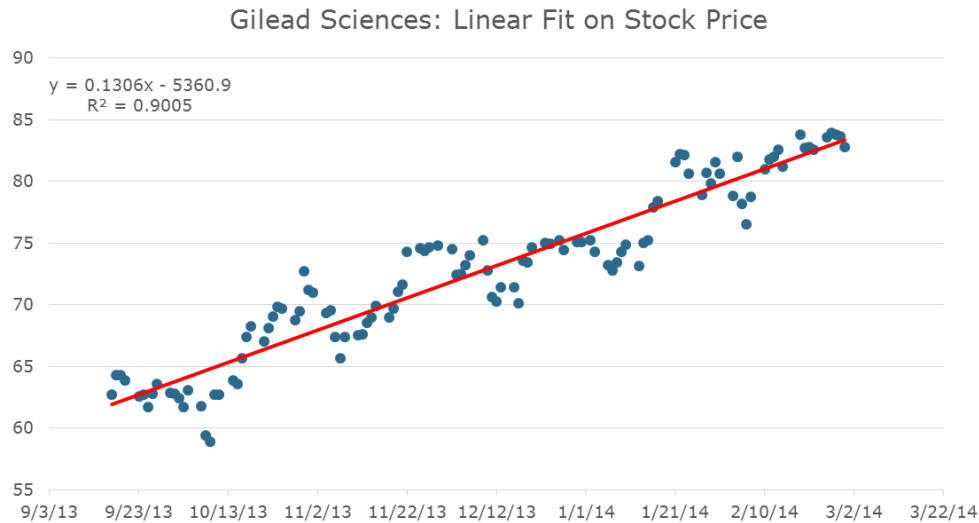


Figure 2: Example of linear regression

The solution to this equation provides the coefficients for the fitted line. Fortunately, this equation was built into Microsoft Excel, so its use was incredibly informal.

Fourier Series

After the linear regression line was fitted to the auto correlated data points, the difference between the fitted line and the actual price of the stock was calculated in order to create another signal which oscillated around 0. We then fit a 3-term Fourier series to these differences and added them back onto the graph's linear regression line. The equation for the Fourier series is seen below:

$$s_N(x) = \frac{a_0}{2} + \sum_{n=1}^N \left(a_n \cos\left(\frac{2\pi nx}{P}\right) + b_n \sin\left(\frac{2\pi nx}{P}\right) \right).$$

$$a_0 = \frac{1}{\pi} \int_{-\pi}^{\pi} f(x) dx$$

$$a_n = \frac{1}{\pi} \int_{-\pi}^{\pi} f(x) \cos(nx) dx$$

$$b_n = \frac{1}{\pi} \int_{-\pi}^{\pi} f(x) \sin(nx) dx$$

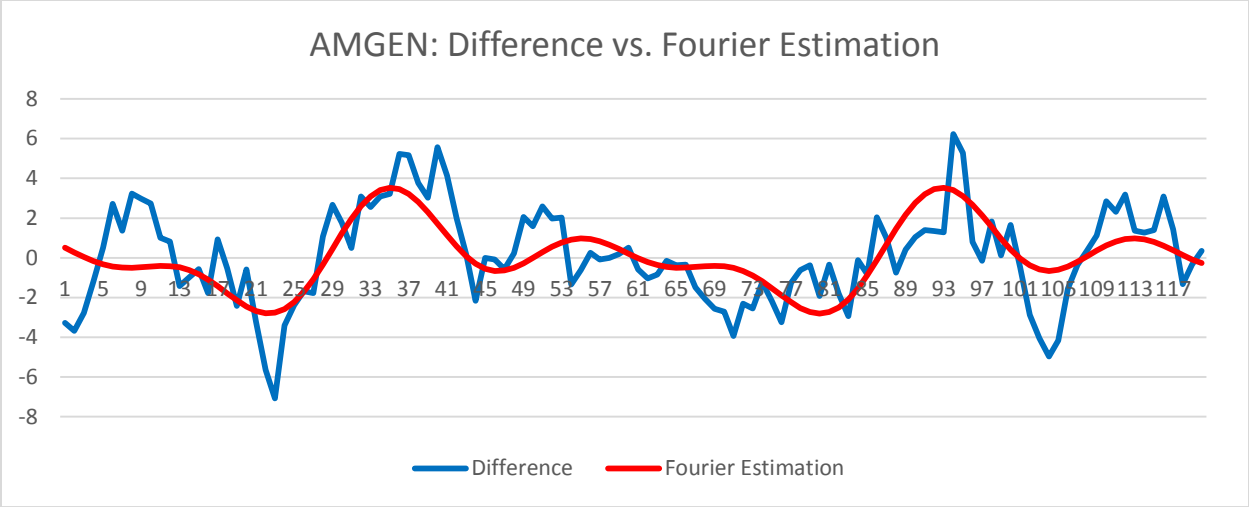


Figure 3: Regression differences, fit with a Fourier series approximation

This Fourier series approximation of the minute differences in stock price would hopefully more accurately predict minor changes, whereas the regression line predicted longer term stock behavior. With this final model, we constructed our prediction period of 15 business days within a 95% confidence interval.

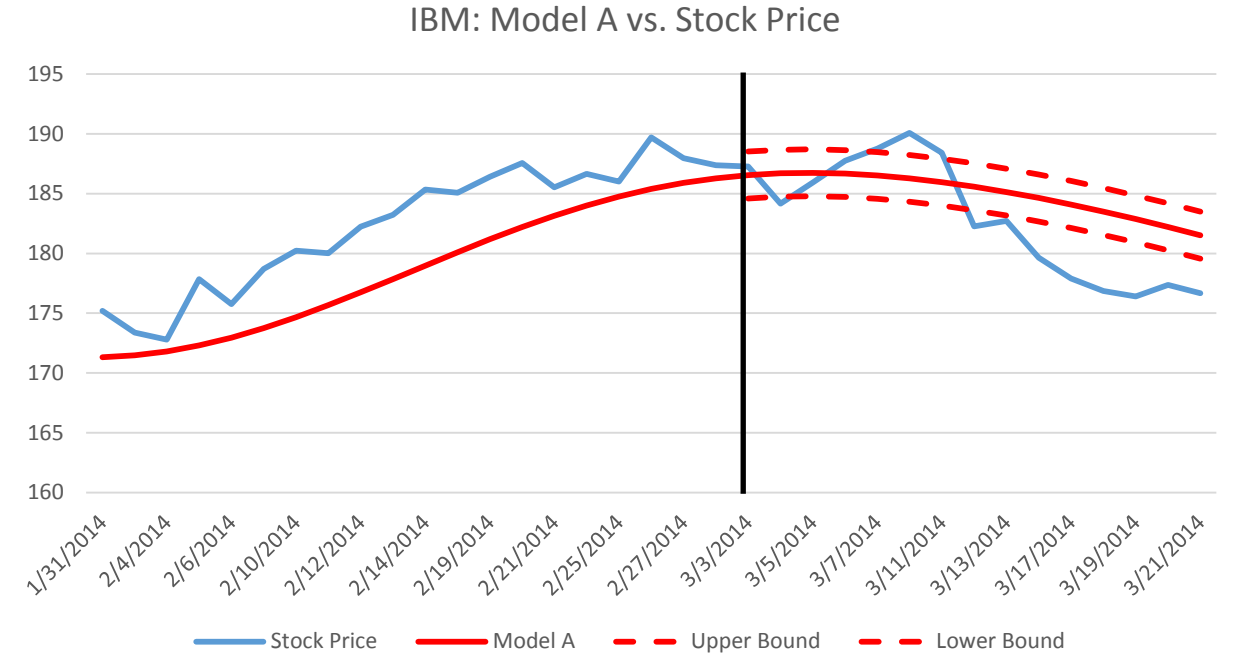


Figure 4: Model A prediction and confidence interval for IBM

The graph above demonstrates that the model prediction for this particular stock is within the

confidence interval for 5-6 days.

Model B: ARIMA Modeling and Fourier Estimation

The Box and Jenkins method is used when modeling time series data into the future. By using the differences between each individual consecutive data point, the Box and Jenkins method alters the given time series in such a way that it becomes stationary. Through making the given time series stationary the Box and Jenkins model is able to pick up on trends through means such as auto-regression, moving average and seasonality. In our studies we used a specific type of Box and Jenkins model called the ARIMA model. ARIMA is an acronym for Autoregressive Integrated Moving Average. ARIMA models can be used for forecasting time series data. The ARIMA model has three parameters: p , d , and q ; therefore it can often be seen written as $ARIMA(p, d, q)$. The parameters p , d , and q correspond to each of the components of the ARIMA model: the autoregressive part, the integrated part, and the moving average part, respectively. Choosing the optimal parameters for your ARIMA model should result in the best forecast. There are a few ways to go about calculating the optimal parameters for the ARIMA model, these methods will be discussed more in depth in the parameterization portion of this section. The ARIMA model is best when forecasting a few values out; in other words the first few values that it forecasts will not be the most accurate but as the model grows it should converge to more accurate predictions. This type of forecasting is ideal for our project because when developing a model for stock prices, the price of a stock the next day does not matter as much as the price of that stock a few weeks out. The farther out we are able to accurately predict the price of a stock the more legitimate and profitable our model is considered.

Parameterization

AR component (p):

The p parameter is the number of autoregressive terms in your data. You must calculate this parameter for each data set individually because the number of autoregressive terms may differ from stock to stock. The way we went about finding the p parameter is through first taking the natural log of each of the stock prices for the given company that was being analyzed

at the time. Once we had these values we found their first difference. The first differencing factor can be given by the equation:

$$1^{\text{st}} \text{ differencing value} = t - y(t - 1)$$

where $1 \leq t \leq n - 1$ and n is the number of terms being analyzed. To better explain the process of obtaining the parameters we will use the stock data from JP Morgan as an example. We analyzed the price of the stock for 87 when dealing with JP Morgan thus $n = 87$. The first two values of the log of the prices are (3.892024359, 3.871409323) respectively. The first differencing value is then equal to:

$$3.892024359 - 3.871409323 = -0.020615036$$

This process is repeated with each successive price value of the given company. After we obtain all of the differencing values we can move on to the next step which requires us to run the partial autocorrelation of this data set data set we just obtained containing the differencing values. If you plot the partial autocorrelation values you can see in the figure 5 that the only value that lies outside of the bounds given by the blue lines is the value at zero, this implies that our ideal p value for our model is 1.

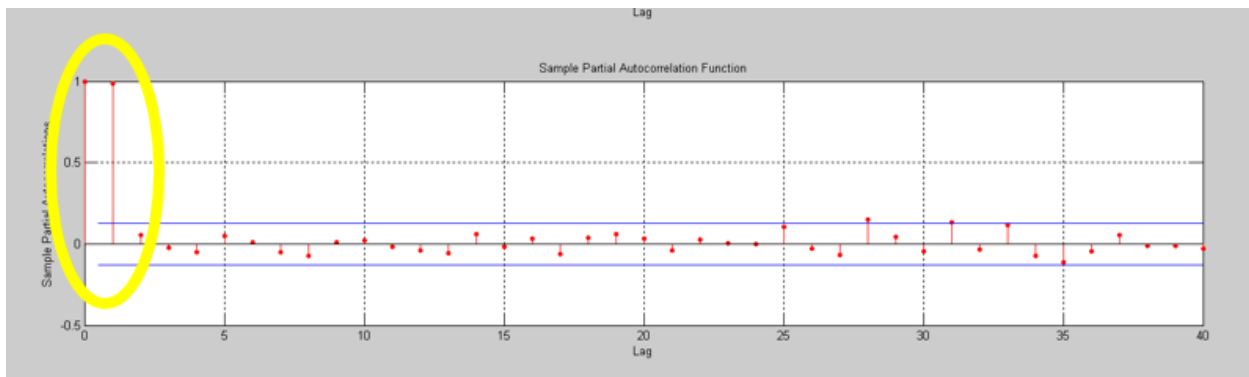


Figure 5: Partial Autocorrelation Values for the natural log of the daily stock prices of JP Morgan

I component (d):

The d parameter is the number of non-seasonal differences. The parameter can be obtained by noting the number of differences needed for the data to be stationary. The formula to obtain the differencing values is the same as we mentioned before. This time we take the differences of the actual daily stock prices and not of the natural log of the prices.

Once we obtain these values we plot them to determine whether they are stationary or not. In figure 2 we can see that the data seems to look stationary; the data seems to fluctuate pretty tight about 0. There are a couple of values that seem to spike which could make the first differencing data non stationary therefore there is an additional way to test whether it is stationary or not.

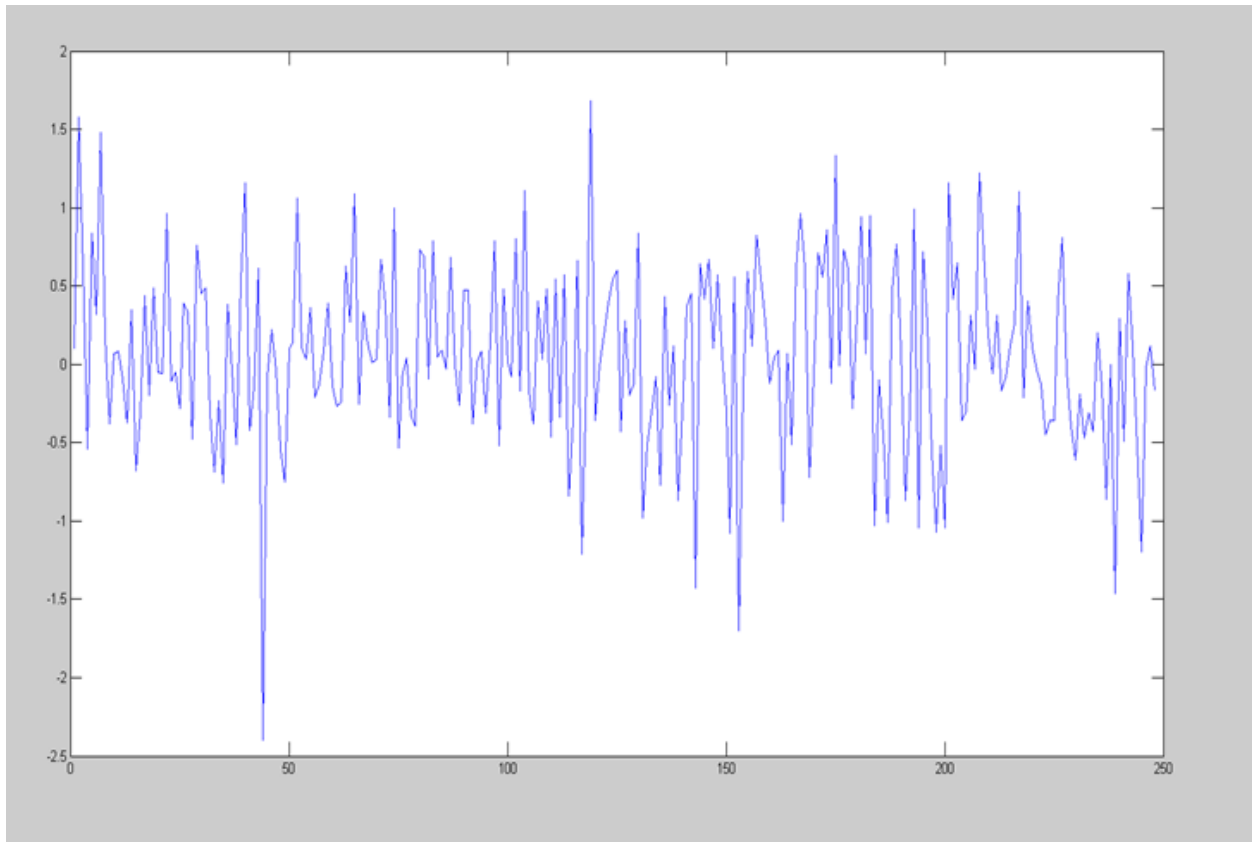


Figure 6: 1st differencing values for JP Morgan daily stock prices

With the differencing values obtained we can find autocorrelation of the values. If the autocorrelation drops immediately at the first term then 1st differencing suffices. In figure 6 we can see that the autocorrelation for the 0 value is incredibly high but for the first value it drops significantly and within the blue lines which mark the bounds. Therefore the ideal value for the d parameter for our example, JP Morgan, is 1 because we only conducted one differencing.

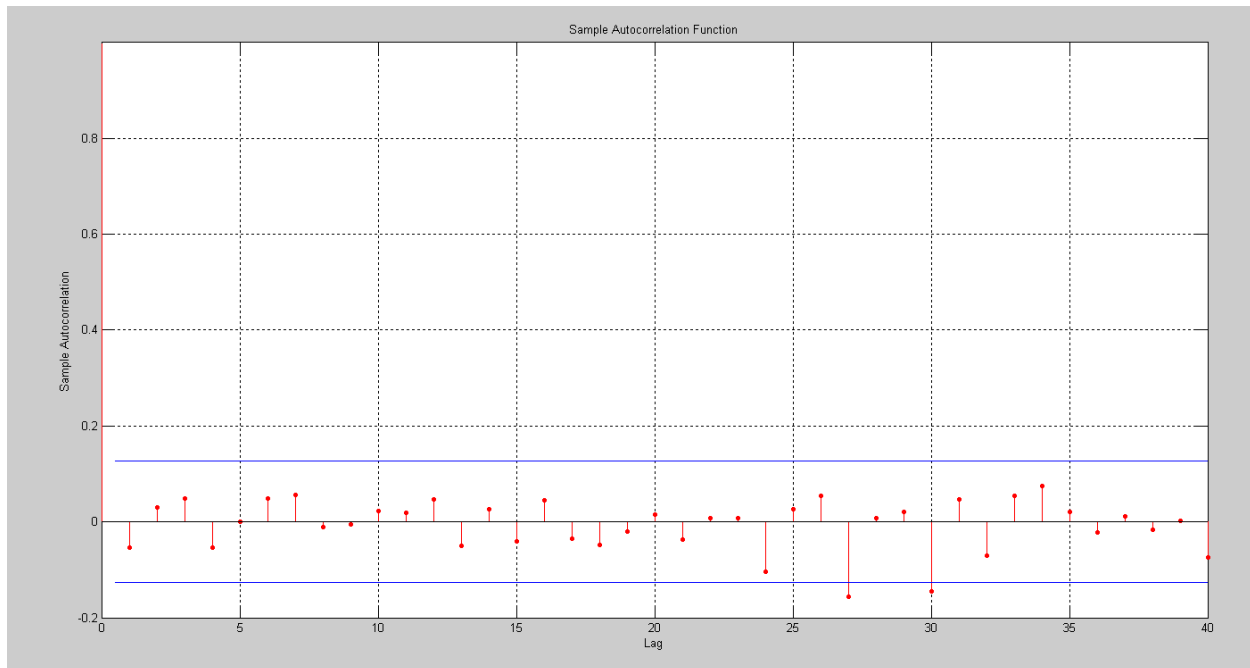


Figure 7: Autocorrelation of JP Morgan daily stock price values after 1st differencing

If the autocorrelation does not drop immediately after 0 then you must take the second difference of the original data which is just the first difference of the first differencing values. After you take the second difference you must check the same requirements. If the requirements are still not fulfilled you must repeat taking the third difference and so on until the requirements are fulfilled.

MA component (q):

MA is an acronym for moving average; this parameter is the number of lagged forecast errors in the prediction equation. When dealing with seasonal data this parameter is much easier to calculate. Seasonal data consist of data which contains clear even cycles. When dealing with seasonal data the length of each cycle is considered to be the optimal d parameter. Since there seems to be no clear even cycles in our data we must treat it as non-seasonal. We must again consider the differencing formula stated earlier. We must find the first differencing values of the natural log of our data. Once we have these values we must run an autocorrelation on itself and plot the results. In Figure 4 you can see the autocorrelation plot for the log of the JP Morgan stock prices. The optimal q value is suggested by the largest value which lies outside of the bounds marked in blue. In our example, this means that the

optimal value for q is 0.

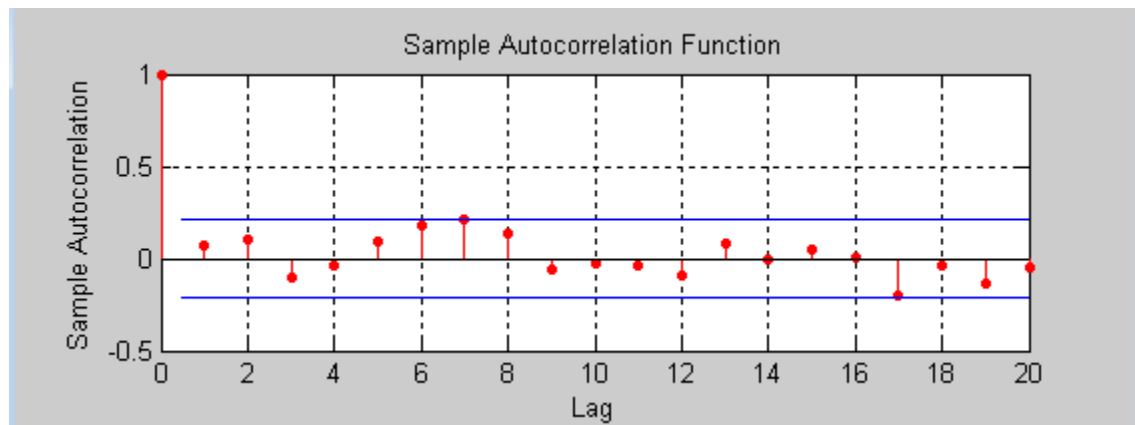


Figure 8: Autocorrelation of the natural log of JP Morgan daily stock prices

Guess and Check

Finally another more simple way to see which model is the best to use with your data is to guess and check. Several sources claim that a good model never has any of the three parameters greater than three; this leaves us with 64 combinations. If you run program such as TISEAN 3.0 which calculates the error and AIC for an ARIMA model using your data and the parameters you give it, you can guess and check for the best model parameters. The best parameters will yield the smallest error value and smallest AIC value as well. AIC stands for Akaike Information Criterion, this is a statistical measurement used to determine the relative quality of a model. The AIC value is not useful if used alone because it does not determine whether all of the models are bad to begin with, this is why it is important to use the AIC value in combination with the error value.

Constructing the Model

Once we have picked the optimal parameters for our data set we can run an application such as TISEAN 3.0 and obtain our coefficients. Luckily in TISEAN there is a built in function that can verify our choice of optimal parameters. When TISEAN is implemented on a model with chosen parameters, it outputs a log likelihood coefficient and an Akaike Information Criterion. This program should produce a set of coefficients needed to calculate future values. To

calculate future values we will need to use the equation provided below:

$$\hat{x}_{n+1} = \sum_{i=0}^{p-1} A^i \hat{x}_{n-i} + \text{noise}$$

To begin we must ignore the portion of the equation that is labeled noise and focus on the rest of the equation. Here x_{n+1} is the future value you want to calculate, A^i is the coefficient given to you by, in our case, TISEAN 3.0, and x_{n-i} are the historical values right before the future value you want to predict. The variable i depends on the number of coefficients provided to you by the application used, in our case TISEAN provides us with ten coefficients thus $i = 10$. When implementing this equation on the data we obtained for each stock we found out that our predictions were better if we only used the first four coefficients that TISEAN provided. The other coefficients would drag the model down and create an inaccurate forecast. We found that the closer the sum of the coefficients was to one, the better our forecast.

Once we constructed the ARIMA model, we took the difference between the ARIMA forecasts and the price of the asset. Much like Model A, we fit a 3-term Fourier series to these differences and added them back into the ARIMA model as the noise. This became our final Model B, and we predicted out 15 businesses and constructed our model with a 95% confidence interval.

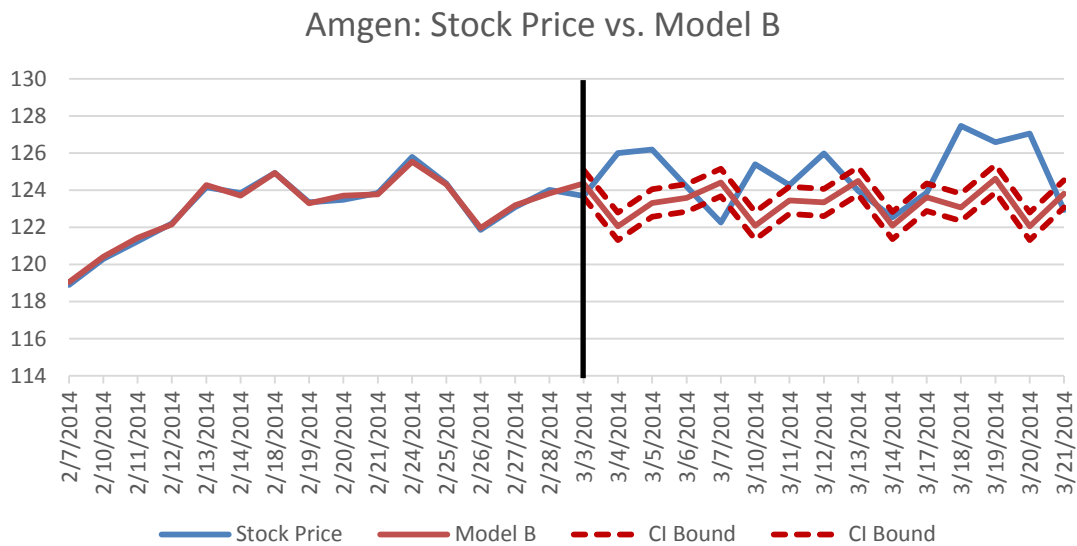


Figure 9: Model B prediction and confidence interval for Amgen

The graph above demonstrates that the model prediction for this particular stock is within the confidence interval for 10-11 days.

Attempted Modeling

Kalman Filter Research

Another method we researched in the modeling process was the Kalman filter. The Kalman filter is an algorithm that uses a series of measurements observed over time in a system in combination with noise and other errors to produce an estimate of unknown variables in this system. In other words, the Kalman filter is a recursive filter that estimates the state of a linear dynamic system from a series of “noisy” measurements. The Kalman filter is used in a wide range of engineering and econometric applications and runs in real-time, meaning it only needs the previously calculated and currently observed state of the system for the next prediction. However, because of the need for a current observation of the system for the next prediction, the Kalman filter can only be updated once another observed measurement of the system is made. For our data, the Kalman filter would produce a prediction of a selected stock price along with a prediction of the index it is listed under.

For use with our data, we used a simple form of a Kalman filter for a linear dynamic system. This simple Kalman filter used two equations based on the observed historic data and predictive we have, as well as covariance matrices based on the data. In the following formulas, x_k represents the output of the Kalman filter, x_{k-1} was the previous estimate of the Kalman filter, and z_k is the true observed measurement of the system:

$$\begin{aligned}x_k &= A_k x_{k-1} + B_k u_{k-1} + w_k \\z_k &= H_k x_k + v_k\end{aligned}$$

In these equations, A_k represents the state-transition matrix, which is a matrix whose product with the state vector x at an initial time t_0 gives x at a later time t . For our purposes, the state-transition matrix initially defaulted to the identity matrix. In x_k , the second element $B_k u_{k-1}$ the input-control matrix and vector, did not apply to our system and therefore defaulted to zero. In z_k , H_k represents the observation matrix, which maps the true state space into the observed

space. For our purposes, this matrix also initially defaulted to the identity matrix. For each model, w_k and v_k represent a Gaussian noise with respect to covariance matrices Q_k and R_k respectively, however v_k , the observation noise, is assumed to be zero. Q_k represents the process noise covariance matrix, which for our purposes defaults to the zero matrix, and R_k represents the noise covariance matrix. The noise covariance matrix was obtained by finding the covariance between the differences of a stock and its linear prediction and the stock's index and its linear prediction. With all of this taken into account, our updated simple Kalman filter utilized the same equations as above, with the removed zero elements:

$$\begin{aligned}x_k &= A_k x_{k-1} + w_k \\z_k &= H_k x_k\end{aligned}$$

With these inputs, the Kalman filter updates and produces two elements the next iteration: the state prediction, x_k , and the state covariance matrix, P_k . For our system, the state covariance matrix is simply the covariance between the historic data of the stock and the historic data of the index it is listed under.

To run the Kalman filter, we used a simple Matlab script we found on Matlab's exchange server. However, this script only produced a single iteration of the filter at a time and was very time consuming. Therefore, in an effort to save time, we produced a script that called the initial Kalman filter script, and produced all iterations of the Kalman at once as well as a graph of the Kalman filter vs. the observed data of the system. With these scripts, we only needed to input our initial conditions of the system, and the Kalman filter did the rest of the work. So, at initial state $k = 0, x_0$, the predicted state of the system, was taken from first data point of the original linear prediction of the historic data. It is a vector composed of the initial prediction of the stock price and its index. This state vector x_k is updated with each iteration of the Kalman filter. The observation k_0 was simply the first point of the historic data, again for the selected stock price and its index. The state-transition matrix A_k and observation matrix H_k again default to the identity matrix; the input-control vector u_0 and matrix B_0 default to zero and the zero matrix respectively; the process noise covariance matrix Q_k defaults to zero and the noise covariance matrix R_k is obtained as described above, and does not change. The initial state

covariance matrix P_0 is also obtained as described above, however the Kalman filter produces a new P_k with each iteration.

Running the Kalman filter with these initial conditions and inputs produced the following graph, with the actual data in red, and the Kalman filter data in blue:

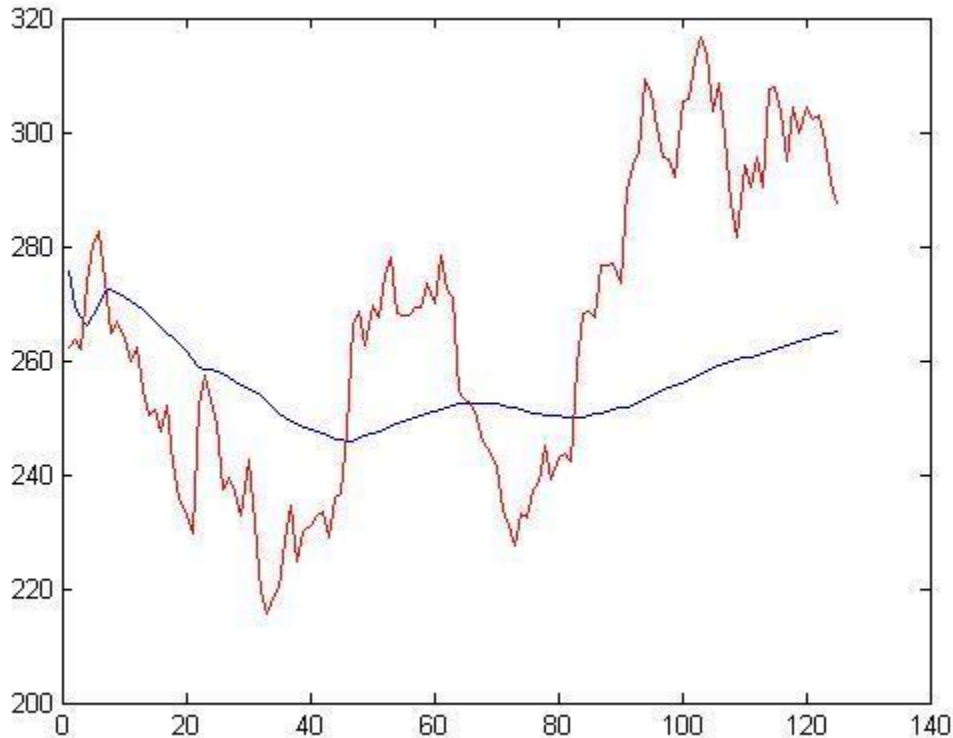


Figure 10: Kalman filter with initial conditions vs. asset price

As you can see, the data produced by the Kalman filter does not fit the historic data very well. However, when discussing how to work the Kalman filter, our advisor suggested altering the state-transition and observations matrices to produce different results. After some testing, we were able to produce some pretty respectable results. We found that by instead of using the identity matrices for A_k and H_k , if we used some $n \geq 3$ for the diagonal of A_k and some number close to 1, for example $(n+1)/n$ for large enough n , for the diagonal of H_k , the Kalman filter produces data that closely matches the historic data. Following the method just described, the Kalman filter produced the data below for $n = 6$, with the red representing the historic data and the blue representing the Kalman data:

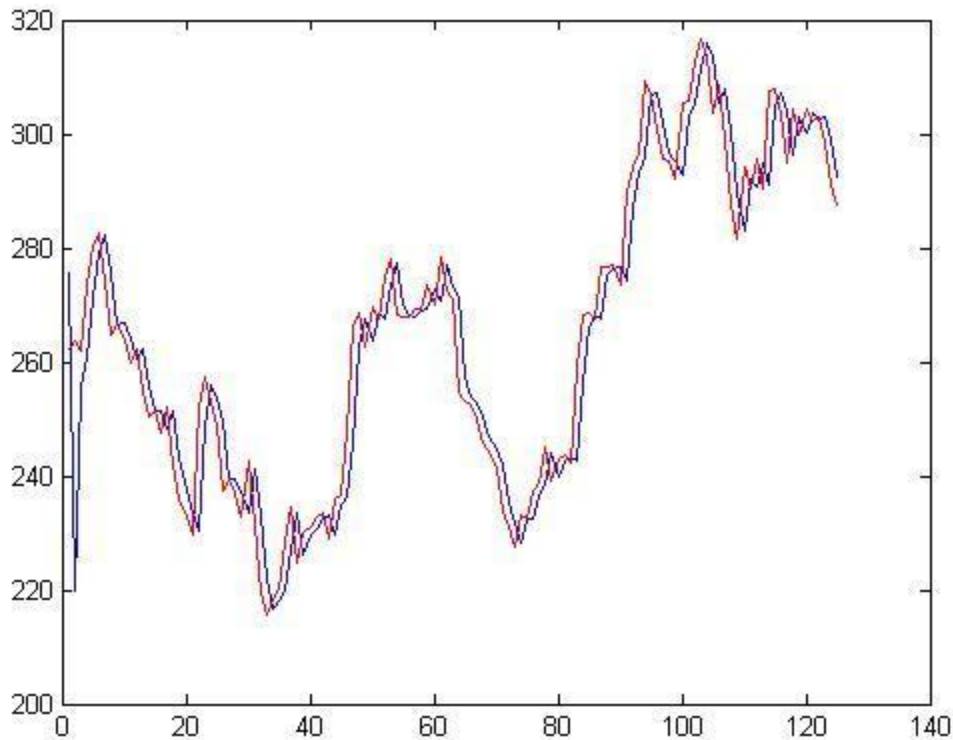


Figure 11: Kalman Filter with updated conditions vs. asset price

As you can see in this graph, changing the state-transition and observation matrices greatly affects the data produced by the Kalman filter, and in this case, produces more accurate, useful information.

Although the Kalman filter produced data that accurately fit the historic data, it is only able to produce future predictions one at a time, with observed data that we would need. Therefore, using the Kalman filter to produce predictions farther than a day in advance would be very difficult. We tried a number of different methods on the Kalman filter for future prediction that we've used before, however none of them provided any good, sound data. Therefore, we will continue trying other methods on the Kalman filter to produce better prediction data, such as using the ARIMA model on the Kalman data to reduce noise.

Data

The data used for the final implementations of this project can be found in the appendix of this paper. We each chose our data from an industry that appealed to each of us individually. The three industries that were chosen were the biotechnology industry, the big data storage industry and the investment banking industry. In this project we focused our efforts on the top ten most prominent firms in each sector. The top ten companies were determined through cross referencing several current online sources. The top ten firms in the investment banking industry consisted of JP Morgan, Goldman Sachs, Morgan Stanley, Barclays, Deutsche Bank, UBS, Credit Suisse, Bank of America, Citi and Wells Fargo. The top ten firms in the biotechnology industry were Aegerion, Alexion, Alnylam, Amgen, Bigoen Idec, Celgene, Gilead Sciences, Puma Biotechnology, Questcor, and Regeneron. The top ten firms in the big data storage industry were Amazon, EMC, HP, IBM, Microsoft, Oracle, SAP, Splunk, Teradata, and VMWare.

Results

Measurement

There are several ways to measure the goodness of fit of mathematical models. A couple of widely used methods consist of the R^2 and AIC values. These two measurements were previously mentioned and used in the construction of models A and B respectively. When analyzing the performance of each of our models we will be using the percent error for each model. The equation for percent error is given below.

$$\text{Percent Error}(\%) = \frac{|\text{Estimated Value} - \text{Actual Value}|}{\text{Actual Value}} * 100$$

First we individually calculated the percent error for each data point in the 3 week forecasting range of each stock. We then averaged these individual percent errors to obtain a single measurement of percent error corresponding to each stock. Once we had an average percent error for each stock we once again averaged all ten to obtain a percent error value for

the model as a whole. This ultimate averaged percent error was used to compare Model A and Model B. We also compared the average percent error of each stock side by side for both models to determine the better performing model.

Conclusions

Model Comparison and Summary

Overall Model B was out performed by Model A and seemed to be a better option when determining the price of the stock. It was a better estimator for 19 out of the 30 stocks. Model A was a better estimator for 6 out of the 30 stocks. Neither model performed well in 5 of the stocks. Model A had an 8.03 average percent error while Model B only had a 4.36 average percent error, further enforcing our conclusion of Model B being the better tool for forecasting.

Model A seemed to be a better predictor for stocks that had a more stable price and that was captured nicely by a linear regression. If the data for a given stock returned an R^2 value above .90 when a linear regression was executed, then Model A seemed to be a better choice. This would imply that the data points would closely follow a linear trend over, thus making the stock prices predictable and consistent. Even though Model A performed well in those stocks, we are more interested in less forecasting the price of less predictable stocks because this could yield a higher return on investment if our model is implemented in real life.

Potential Improvements

Due to time constraints, there were several improvements that our group would recommend to any one that may want to keep improving upon our project. We only had enough time to run our ARIMA models on two different programs; TISEAN 3.0 and NumXL. Neither of these software packages had in depth documentation and were not the most intuitive to use. There are software packages that can also run ARIMA models in R and SAS. R is similar to Matlab in that it is data analysis software that is widely used in mathematics. SAS is

also similar to both R and Matlab but is much more statistically oriented. The packages in either R or SAS could have potentially have had better documentation or offered other ARIMA features such as multivariate ARIMA modeling.

Multivariate ARIMA modeling is like univariate ARIMA modeling, which is what we used in our project, but it incorporates other sets of data when calculating the coefficients. In turn these coefficients take into consideration other variables. Data sets that could have been used if we ran multivariate ARIMA models would consist of sets such the DASDAQ or NYSE prices.

Other indices that could potentially be used to capture and patterns in the data could consist of volatility indices or sector indices. There are several volatility indices that are used in the stock market such as VIX, VXN and VXD. As for sector indices, we could have come up with our own by averaging the prices of our industry or other by using other methods that would incorporate data from several firms in a specified sector.

Finally we could look in to other external factors which may have an impact on the market. These factors consist of things such as holiday season or the trading day effect. During holiday season, sales for consumer firms tends to increase, this in turn could cause the price of a firms stock price to jump because their revenue would jump. The trading day effect takes into consideration how many of each given day of the week is in each month per year. An example would be the fact that January may have four or five weekends depending on what year it is. For companies that rely on sales that occur during the weekend this could be an influential factor. These are just a couple of examples of the hundreds of variables that contribute to stock market pricing trends and patterns. People have been trying to predict the prices of stocks since the market opened in order to make a financial gain. We believe that our models are a good foundation for forecasting stock prices. With the additional suggested improvements we believe that our models can in fact be used to turn a profit.

Part II: Wolf Analytics

Introduction

For many years people have attempted to accurately predict stock prices in order to optimize their return on investment. People have entertained the idea of striking it big in the stock market because of all the stories that have circulated about regular people becoming rich overnight. While these stories seem to be a strike of luck, some may have been to some extent calculated investments. Within the past century there have been several technological, mathematical, and economical advancements that could make predicting the price of shares a little bit easier and thus reduce risk. Due to the large data sets that are associated with the stock market, computational advancements in the personal computer definitely facilitated the creation process of stock price prediction software. There are currently several software programs that claim to give the best predications possible and they all seem to use their own methods to come up with their predictions.

Objective

The objective of this part of the project is to determine the financial viability of a software program that predicts stock market prices. Henceforth, we will assume that the models that were previously discussed are fully functional to and within the industry standard. This project aims to determine a market for our software, the size of the market, the initial investment needed to start up the company that will be in charge of selling the software and the net present value of the investment. Our company will be called Wolf Analytics.

Competitor Analysis:

There are several alternatives to our potential software, these alternatives do not all

consist of software. People could choose to consult investment firms such as Fidelity or E*Trade. Our approach software will have a more do-it-yourself process than services such as Fidelity in which you have financial advisors helping the customers make decisions. Our product will make the numbers speak for themselves and lets the consumer make an educated decision on their investment through the analytics our software will provide. Our product will not be the first of its kind available to the public for purchase. While we will not be the first launching this product, it seems as if this product is in the introductory stage of its life cycle. Figure 9 can give a more visual representation of the introductory stage of a product. Advancements in computing power have made the creating such software packages financially feasible. This competitor analysis will consist of five software packages that are currently out on the market and resemble our idea for a product the most.

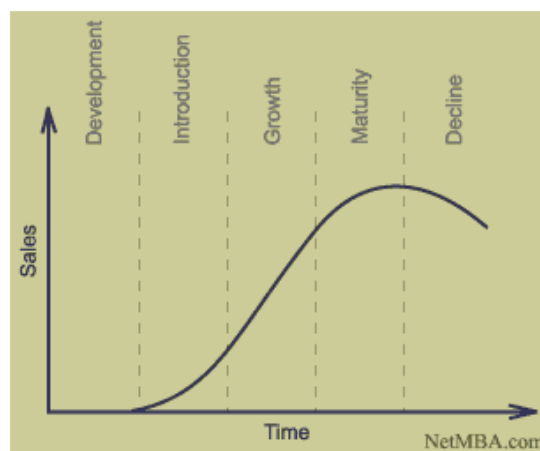


Figure 12: Product Life Cycle

iPredict

iPredict is a Microsoft Excel plug-in that predicts stock price through using time series analysis. We will be incorporating an ARIMA model combined with a Kalman filter in our prediction process, which are considered time series analysis processes. iPredict comes with an option pricing machine, it implements the Black-Scholes pricing model which is also a model we would use. iPredict also delves into optimization of portfolios through Capital asset pricing and

Markowitz modern portfolio theory. iPredict has been around since 2004 and has two main selling points for their software. The main selling point is that they offer over 100 different forecasting techniques in their package. All of the techniques offered are listed on their web page. Although they have a wide array of predication techniques they offer, they do not incorporate ARIMA models or the Kalman filter in their techniques. They also do not mention the possibility of combining different models, which is what our product will consist of. iPredict’s second big selling point is their claim of simplicity. They have the familiar interface of Excel working in their favor as well as a “two-step process“ in which you can obtain your output after only two easy steps. In Figure 10 you can see the cost of iPredict based on the time the

Time Period	Cost
1 Month	\$155
3 Months	\$345
6 Months	\$600
1 Year	\$1,020

Figure 13: Cost of iPredict with respect to time

license has until expiration. iPredict also offers slightly lower cost for renewal of your license.

Altredo

Another competitor to our product would be Altredo. Altredo refers to their software as an intelligent prediction software. Altredo seems to differ from our software because many aspects of it are automated, which could be both a positive and negative for them. They have trading robots that will do the trading for you at what they calculate to be the optimal time. Altredo could run displeas customers if their software doesn’t trade on time and a certain stock plummets or if they sell right before a stock skyrockets. Altredo claims that their software is 98% accurate but it does not specify within what constraints such as time period. Altredo also deals with other investment software packages that are geared towards the Forex market and Bitcoins. Their involvement with Bitcoins may raise a red flag for potential customers

because of the nature and novelty of them. They offer a separate software program that deals with call and put options. This feature would be incorporated into the software we provide. From their website it does not seem as if they are focused on being user friendly, they do not have much emphasis on support or training.

Addaptron

Addaptron takes a different approach to predict the price of stock. Addaptron uses Elliott Wave neural network prediction in their calculations. Elliott Wave neural network prediction is based on crowd psychology, it assumes that the sample population is for the most part reasonable. The prediction method has been out for over a century and is used in combination with other prediction models in Addaptron's software. In order to get a quote you had to register on their website, this may cause them to lose possible customers. From the demo videos and screen shots provided this software package does not seem to be too user friendly and to an extent seems to be in its development stages still. While this software may be in late development stages still, it is important to include it among our competitors because of their different method of predicting future stock prices.

Stock ROI

Stock ROI is the only software package that incorporates ARIMA modeling in their prediction process. They state that their results are based solely on the ARIMA algorithm. They have over 10 years of experience and declare that they have over 85% accuracy. Like in the case of Altredo, Stock ROI does not give any parameters to measure this 85% accuracy they claim. Their interface seems to be the most user friendly and allows for the historic data to download directly from the program. It downloads whole stock exchanges at a time. Stock ROI aims to minimize risk through offering different ways of analyzing the stock data. Using Stock ROI you can analyze what stocks have increased a desired percentage amount in a given month. An example would be if you wanted to invest in April and expected a 5% increase in price, Stock ROI will tell you which companies have consistently had a 5% increase in April. To get a hold of

this software you must subscribe to their website and sign up to their recommended broker with a minimum deposit of \$25,000. Once you have done that you can sign in and designate an amount of money you wish to trade that day. The \$25,000 deposit may be a barrier of entry for beginners or people that may not have that money to spare but it is an insignificant amount for a veteran day trader.

GMDH Shell

The last software package that was similar to our product is GMDH Shell. GMDH Shell uses group method of data handling (GMDH) to analyze the prices of different stocks. GMDH has been out since 1968 and GMDH Shell uses a modified version. In simplest term GMDH uses datasets with multiple parameters and optimizes several models to come up with the best one. GMDH Shell also offers their software through licensing but the licenses are perpetual. The Enterprise and Business licenses come with additional perks as well as licenses for 50 and 10 computers respectively. You can find the pricing for all the different types of licenses for GMDH

Type of License	Cost
Student	\$199
Personal	\$499
Commercial	\$999
Business	\$4,999
Enterprise	\$24,999

Figure 14: Licensing costs for GMDH Shell

Shell in Figure 14.

Niche Market: Identifying a Gap

The market for stock price prediction software is relatively unsaturated. Currently our software program would only have a few competitors, some of which are mentioned in the

competitor analysis. Before fine tuning our market and really digging down in to a niche market we must first identify our most broad market. As a start-up operating out of the United States we are looking to first target the US market. For the first three years our program will only be geared towards the US stock market. As our company grows, we will be expanding our services to other well developed stock markets such as Hong Kong and London.

Within our broad market of the US population, only certain people will be interested in modeling stock prices. Some of the people that may follow stock prices closely are stock brokers, investment banks, private veteran investors, private amateur investors, and students. Within this group of possible users there are many specific needs each of them requires. Well versed investors will be more willing to learn a new software with little to no guidance opposed to amateur investors that may be discouraged if they do cannot easily begin to use the software. For investment banks as well as experienced investors, the sophistication of the model used in the software may be one of the most important features; these potential customers would not be price sensitive. On the other hand, amateur investors and students are not willing to put up as much money and would find the intuitive use of the product to be important.

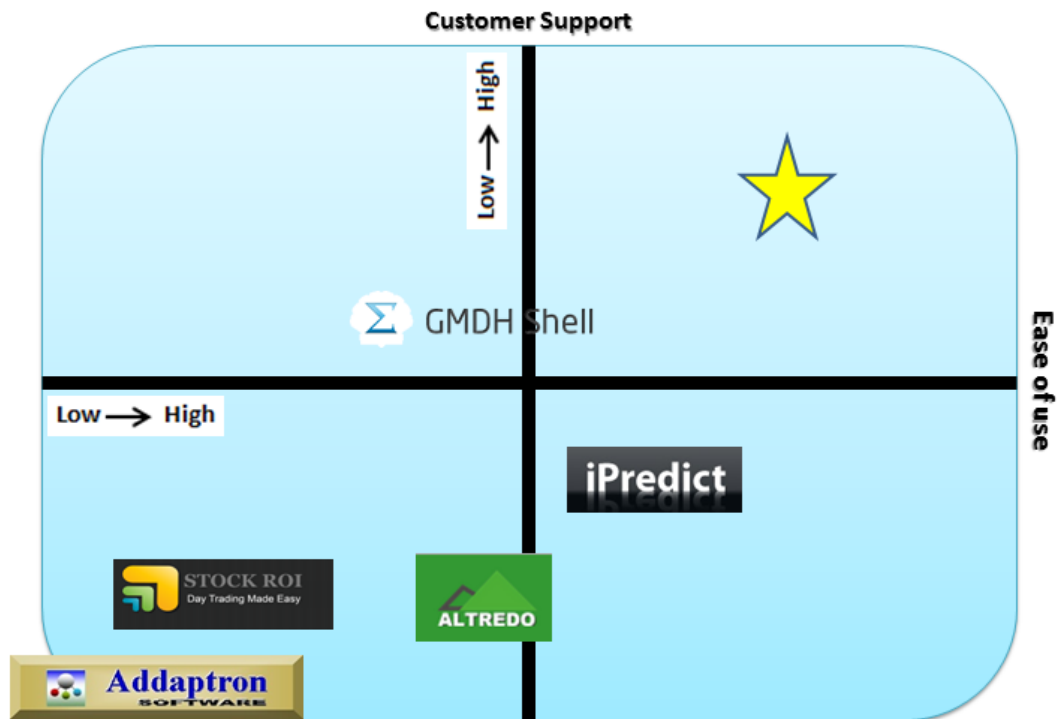


Figure 15: Customer Support vs. Ease of use Matrix for competitors and Wolf Analytics 33

Each of the competitors has their own set of strengths and weaknesses. By comparing the price with sophistication and the ease of use with customer service provided by each company we can determine whether there is a gap in the market. The following two matrices make it easier to locate these potential gaps.

The yellow star pictured in the above diagram is the positioning of our company's desired standing. None of our direct competitors offer a software that provides extensive customer service as well as an easy to use, intuitive software environment. This gap in the market is most appealing to students as well as amateur investors. The ease of use will make our customers feel comfortable using our program and the our outstanding customer service will provide a sense of security and support for our customers.

The diagram below demonstrates a comparison between price and sophistication of the model. The yellow star highlights the positioning that our company would like to achieve within these two parameters. This lines up nicely with the students and amateur investor market we defined using the previous diagram. Both students and amateur investors may not pay as much attention to the sophistication of the model, but are rather price sensitive. If we price our product correctly and offer the right level of sophistication in our model, we can once again fill a gap in the market.

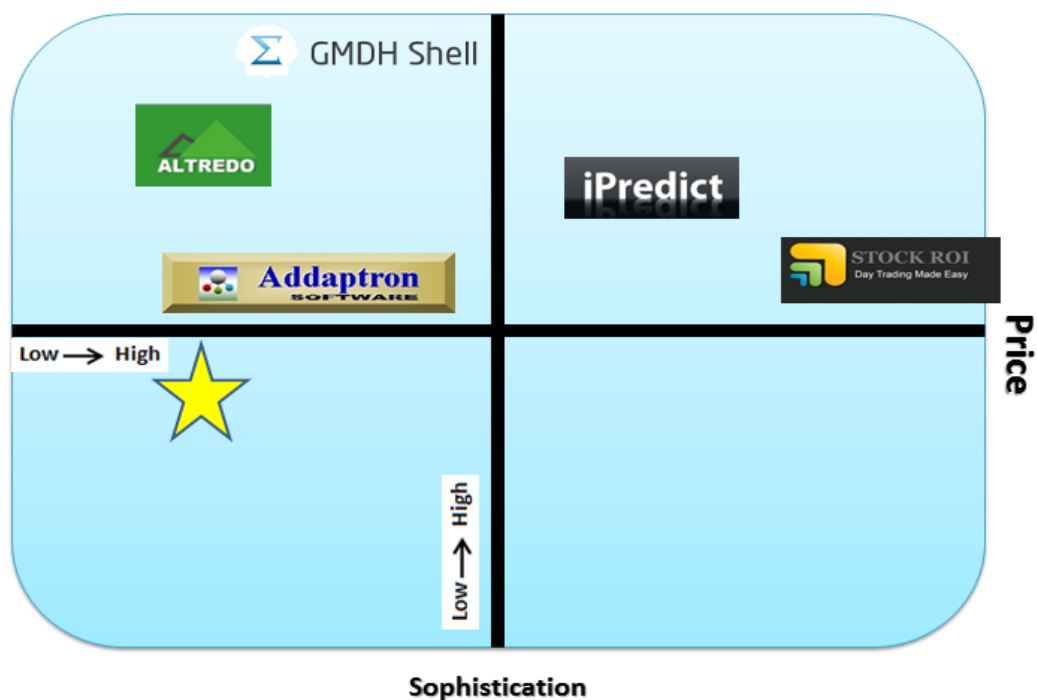


Figure 16: Sophistication vs. Price Matrix of competitors and Wolf Analytics

We will be marketing towards students instead of amateur investors. This will enable the placement of our marketing to be easier and more effective. We will have two pricing categories, one will be for personal student licenses and the other will be for institutional licenses that will be issued to schools. Our institutional licenses will consist of 50 user licenses and schools may have to buy multiple institutional licenses to fulfill their quota. Our primary target will be colleges that contain business departments, while our secondary target will consist of all college undergraduates including non-business majors.

Product Definition

Wolf Analytics plans to launch a stock price prediction software package as their first product. The software package will be aim to predict stock prices within a reasonable range for up to three weeks out.

Our software will incorporate ARIMA modeling combined with Fourier series estimation in its prediction algorithm. While our competitors may use some components of our algorithm, it is still unique in the industry. No other stock price prediction software combines multiple mathematical methods to obtain an end result. We believe that through the diversification of our model we can narrow the margin of error when forecasting stock prices thus increasing efficiency and overall return on investment of our product. Our product will be able to be used as an actual investment tool or as a learning tool.

When used for learning purposes, our software will evaluate your investments and keep track of your gains and losses over time. The money invested by the user will not be real but the calculations will be executed using real time data. When used for investment purposes our product will work exactly the same only the people using it will have their money actually invested in the stock market.

Our original product will not allow the user to invest directly through the application; instead the user will have to invest using a different application or a different channel of their

liking. Some channels may consist of stock brokers, websites or financial advisors. In the future we are looking into incorporate the feature of investing directly through our app.

Wolf Analytics' software aims to make the experience as intuitive as possible. Wolf Analytics will also include extensive tutorial videos that explain how to use our program and will provide multiple means of communication for customer support. These three elements are essential in order to offer the most user friendly software in the market.

While our product will work for any stock index worldwide, it will initially be geared to optimize compatibility with the United States stock indices such as NYSE and NASDAQ.

Marketing Mix:

Our target market has already been identified the Market Analysis section of the report, essentially it will consist of undergraduate level business institutions, individual students interested in learning more about educated investment, and amateur investors that need guidance when investment but do not want to rely on a human third party.

Product

Wolf Analytics' product is described in depth in the "Product Description" section. To quickly summarize our product; it is a software package that can be downloaded through our website and predicts stock prices as far as three weeks out. It can be used for investment and educational purposes.

Price

Wolf Analytics will focus on penetration pricing at first. We want to have a lower price than our competitors in order to penetrate the market. After the first three years we will reassess the value of our product and potentially increase the price if the demand of our product is increasing. The price of our product will be \$300 for each personal license and \$25,000 for each institutional license. Most schools will need several institutional licenses

because each institutional license is only good for 100 computers. The prices suggested were derived from the average of the industry standard pricing. A more in depth analysis of the pricing structure and expenses is given in the “Financial Statements” section.

Placement

Our marketing will initially be done through our sales representatives directly to the institutions that will buy our product. We plan to target undergraduate institutions with business programs first then spread our product to the general public. Our product will be available to download directly from our website and will also be available in form of a compact disc if the customer would like a hard copy.

Promotion

Wolf Analytics is looking into giving rebates to students that purchase our product for personal use. We want to put an emphasis on our educational stance. The licensing fees we offer are lower if the institutional licenses are bought rather than on an individual basis. Our company will rely heavily on online advertisement with appropriate placement on high traffic educational websites.

Business Model Canvas

A new technique used to organize and plan the operations and key elements of a startup is known as the business model canvas. It consists of nine different parts that go into building a business. The nine parts are key partners, key activities, key resources, value proposition, customer relationships, channels, customer segments, cost structure, and revenue streams.

Key Partners

Our key partners will consist of the freelance programmers that we will need to hire to build and maintain our website and software. These programmers will be treated like contractors and will only be employed when needed. The payment service needed for our transactions will also be considered a key partner because all of our sales will be electronic. Other key partners will be the websites which we will be conducting our advertisement on. Finally the company we use to produce the physical compact discs will also be considered a key partner.

Key Activities

Our key activities will consist of the following:

- Research and Development
 - ❖ We want to try to constantly be improving our software algorithm to offer a higher quality product.
- Maintenance
 - ❖ Maintaining our website and software up to date
- Sales
 - ❖ Our sales representatives making trips directly to our target
- Marketing
 - ❖ Heavy online marketing

Key Resources

Our key resources will consist of the following:

- Algorithm used in our software
- Patent used to protect our algorithm
- Our companies team and employees
- Our company's headquarters physical location

- Our company's Website

Value Proposition

Our value proposition is talked about the more in depth in our product description. To summarize our customers will benefit from our software because it will be not only useful to predicting stock market prices but will also be able to be used as an educational tool. Our easy to use and user friendly interface will eliminate the steep learning curve that our competitors' products have. We also offer our product at a lower price than our competitors, thus incentivizing purchasing our product over others.

Customer Relationships

Our sales representatives will have a close relationship with the corresponding personnel of the institution the complete a sales with. Our sales representatives will be our face to our customers initially. We will look into offering longer licenses to our loyal customers for longer periods of time. For our customers that are not institutions, Wolf Analytics plans to give students rebates for their purchases if they buy our product through their own means.

Channels

Our channels of distribution will be direct for our first three years. Our customers will be able to purchase our software directly from our website our through our sales representatives. If demand is favorable in our first three years we will look to expand our sales to third party software vendors.

Customer Segments

Our company will have one main customer segment and a secondary customer segment. Wolf Analytics will focus their efforts on capturing the business school institutions first. Our second market segment will consist of students that may not attend a business school

but may want to learn more about stock market trading and pricing.

Cost Structure

We will have mostly fixed costs and not much variable costs. Our only variable costs will be consist of and maintenance charges and for the production of the hard copies of our software, which we do not anticipate to be much. Please look into our financial statements section for further detail.

Revenue Streams

Our revenue streams will come from each of our customer segments. We will offer and institutional license for our product and an individual license for our product. In the future we can look into coming out with new products or obtaining sponsorships from institutions.

Business Model Canvas

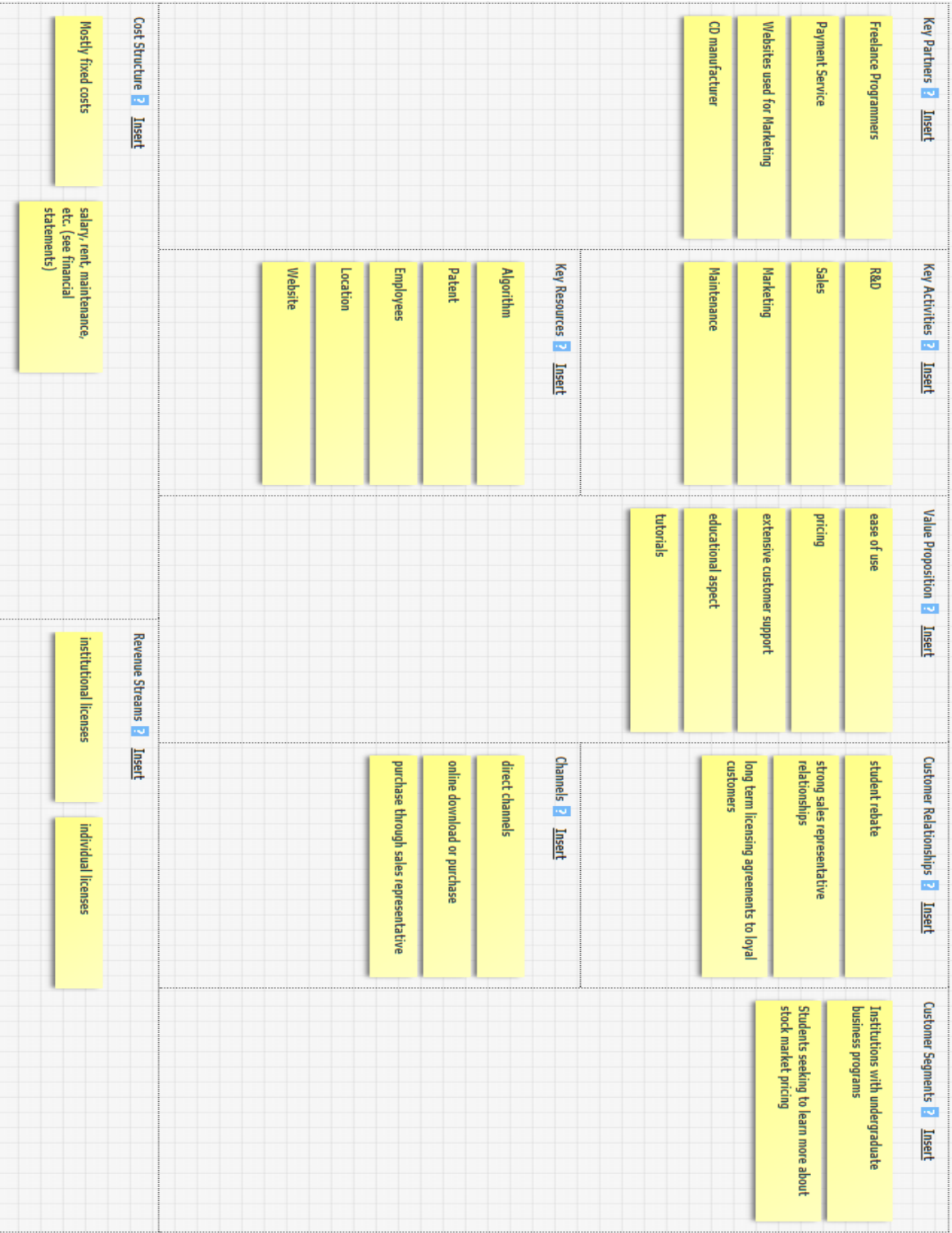


Figure 17: Business Model Canvas

Financial Statements

Pro Forma Profit and Loss

Pro Forma Profit and Loss	Year 1	Year 2	Year 3
Sales			
Sales	\$849,357	\$1,197,159	\$1,685,638
Direct Cost of Sales (Person Rep Salary(5))	(\$500,000)	(\$600,000)	(\$700,000)
Total Cost of Sales	(\$500,000)	(\$600,000)	(\$700,000)
Gross Margin			
Gross Margin	\$349,357	\$597,159	\$985,638
Gross Margin %	41%	50%	58%
Expenses			
<i>Payroll</i>			
CEO	(\$160,000)	(\$170,000)	(\$210,000)
CFO	(\$145,000)	(\$150,000)	(\$160,000)
CMO	(\$145,000)	(\$150,000)	(\$160,000)
<i>Location</i>			
office rent space	(\$6,000)	(\$6,000)	(\$6,000)
Hardware (laptops, Printers, ect.)	(\$5,000)	(\$1,000)	(\$500)
furniture (desks, Chairs, ect.)	(\$1,350)	(\$500)	(\$200)
Phone and internet	(\$1,500)	(\$1,500)	(\$1,500)
<i>Software Program</i>			
freelance programmers	(\$120,000)	(\$7,000)	(\$5,000)
Research and development			
<i>Website Design</i>			
Domain name	(\$10)	(\$10)	(\$10)
Hosting	(\$30)	(\$50)	(\$70)
maintenance	(\$800)	(\$600)	(\$400)
marketing website online	(\$1,500)	(\$1,200)	(\$850)
Interface Design	(\$3,500)	(\$1,700)	(\$1,200)
Images and Graphics	(\$200)	(\$100)	(\$50)
Buttons to compliment design	(\$150)	(\$100)	(\$50)
responsive programming	(\$50,006)	(\$10,908)	(\$9,309)
cost for content creation and insertion	(\$750)	(\$300)	(\$300)
training and documentation	(\$700)	\$0	\$0
Ecommerce portion	(\$4,000)	\$0	\$0
Email marketing campaign	(\$1,300)	(\$1,100)	(\$900)
logo design	(\$2,000)	\$0	\$0
Basic Style Guide	(\$1,440)	(\$500)	(\$300)
targeted landing pages	(\$800)	(\$600)	(\$600)
contact forms and surveys	(\$400)	(\$300)	(\$200)
Advertising integration	(\$200)	(\$200)	(\$200)
Metrics	(\$1,500)	(\$1,000)	(\$500)
google analytics	(\$1,200)	(\$1,200)	(\$1,200)
search engine optimization	(\$4,000)	(\$3,800)	(\$3,400)
social media	(\$500)	(\$500)	(\$500)
maintenance cost	(\$3,600)	(\$3,600)	(\$3,600)
<i>Patent</i>			
Attorney	(\$3,500)	(\$3,500)	(\$3,500)
filing fee	(\$130)	\$0	\$0
cost per page	(\$625)	\$0	\$0
Total Operating Expenses	(\$666,691)	(\$517,268)	(\$570,339)
Profit before interest and Taxes	(\$317,333)	\$79,891	\$415,299
EBITDA	\$152,838	\$1,013,073	\$2,479,340
Taxes (Corporate excise tax 8%)	(\$25,387)	\$6,391	\$33,224
Net Profit	(\$291,946)	\$73,500	\$382,075
Net Profit/Sales	-34%	6%	23%

Figure 18: Wolf Analytics Pro Forma profit and loss chart

Sales Forecast

	Sales Forecast	Year 1	Year 2	Year 3	
School Licensing Market	Total Schools of Business		364	370	373
	Licenses needed per School (Average)		38	38	38
School Licensing Market	Total Market Value (\$25,000 per license)		\$341,250,000	\$346,875,000	\$349,687,500
	Market Captured projection		0.110%	0.150%	0.200%
	Gross Revenue from School Licensing		\$375,375	\$520,313	\$699,375
Individual Licensing Market	Total Undergrads (not including Business Schools)		10,833,884	11,050,562	11,271,573
	Upper Classmen (35%)		3,791,859	3,867,697	3,945,051
	Total Market Value (\$300(\$250 with rebate))		\$947,964,850	\$966,924,147	\$986,262,630
	Market Captured projection		0.050%	0.070%	0.100%
	Gross Revenue from Personal Licensing		\$473,982	\$676,847	\$986,263
Total	Total Gross Revenue		\$849,357	\$1,197,159	\$1,685,638

Figure 19: Wolf Analytics Sales Forecast

Net Present Value Analysis

NPV Analysis	Variable
	12% Annual Discount Rate
(\$1,166,691)	Initial investment Cost
\$849,357	Return from first year
\$1,197,159	Return from second year
\$1,685,638	Return from third year
\$1,558,782	NPV

Figure 20: Wolf Analytics Net Present Value Analysis

Conclusion

Results

In conclusion an investment of \$1,166,691 in Wolf Analytics is valued at \$1,558,782 over a three year period; this can be seen by analyzing the net present value. Wolf Analytics would be turning a profit of about 73 thousand dollars in its second year of operations. There seems

to be a gap in the market for stock price prediction software. This gap consists of a software that is easy to use, has extensive customer service and support, and is priced in a reasonable range with a level of sophistication that is adequate enough to perform well. Of course when calculating all of these numbers there were several assumptions that needed to be made in order to obtain these figures. The assumptions were determined with a neutral to pessimistic attitude in order to not over estimate profit.

Assumptions

Sales forecast

I will cover some of the assumptions made throughout the paper in this section. Most of the assumptions made were in the financial statements due to the forecasting performance of a company that has no historical data to base its performance off of. There are 364 schools that have a business program in the United States. Out of these schools of business the average size is about 10,000 students. If our institutional license can be used for up to 100 users, on average each school will need 37 licenses. From this market we plan to capture .11% the first year and grow .04 to .05% each year. On the other market segment there are 10,833,884 undergraduate students not in a school of business and there is a 2% increase each year in college enrollment. 35% of the students enrolled are upper classmen that we would like to target, some freshmen may fall in the target as well. Since this market is so big we only plan on capturing .05% of it the first year and plan to grow .02 to .03% per year.

Pro Forma Profit and Loss

All the figures used in the Pro Forma sheet were estimated using industry standards. The location pricing was based off of the rent cost of an office on Main St. in Worcester, MA. The website development costs were obtained through quotes from a website development site as well as the programming costs. The annual discount rate was set at 12% because many articles argued that this would be a reasonable discount rate for a startup company.

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Appendix

In this appendix, we tabulate the data for the 30 stocks modeled, and the results of each model that has been used to make the predictions. Also included is MATLAB code used to obtain our data.

I: MATLAB Code, Autocorrelation

```
function varargout = autocorrMQP(y,numLags,numMA,numSTD)
%AUTOCORR Sample autocorrelation
%
% Syntax:
%
%   [acf,lags,bounds] = autocorr(y)
%   [acf,lags,bounds] = autocorr(y,numLags,numMA,numSTD)
%   autocorr(...)
%
% Description:
%
%   Compute the sample autocorrelation function (ACF) of a univariate,
%   stochastic time series y. When called with no output arguments,
%   AUTOCORR plots the ACF sequence with confidence bounds.
%
% Input Arguments:
%
%   y - Vector of observations of a univariate time series for which the
%       sample ACF is computed or plotted. The last element of y contains the
%       most recent observation.
%
% Optional Input Arguments:
%
%   numLags - Positive integer indicating the number of lags of the ACF
%             to compute. If empty or missing, the default is to compute the ACF at
%             lags 0,1,2, ... T = min[20,length(y)-1]. Since ACF is symmetric
%             about lag zero, negative lags are ignored.
%
%   numMA - Nonnegative integer indicating the number of lags beyond which
%           the theoretical ACF is deemed to have died out. Under the hypothesis
%           that the underlying y is really an MA(numMA) process, the large-lag
%           standard error is computed via Bartlett's approximation for lags >
%           numMA as an indication of whether the ACF is effectively zero beyond
%           lag numMA. If numMA is empty or missing, the default is numMA = 0, in
%           which case y is assumed to be Gaussian white noise. If y is a
```

```

% Gaussian white noise process of length N, the standard error will be
% approximately 1/sqrt(N). numMA must be less than numLags.
%
% numSTD - Positive scalar indicating the number of standard deviations
% of the sample ACF estimation error to compute, assuming the
% theoretical ACF of y is zero beyond lag numMA. When numMA = 0 and y
% is a Gaussian white noise process of length numMA, specifying numSTD
% will result in confidence bounds at +/- (numSTD/sqrt(numMA)). If empty
% or missing, the default is numSTD = 2 (approximate 95% confidence).
%
% Output Arguments:
%
% acf - Sample autocorrelation function of y. acf is a vector of
% length numLags+1 corresponding to lags 0,1,2,...,numLags. The first
% element of acf is unity (i.e., acf(1) = 1 at lag 0).
%
% lags - Vector of lags corresponding to acf (0,1,2,...,numLags).
%
% bounds - Two-element vector indicating the approximate upper and lower
% confidence bounds, assuming that y is an MA(numMA) process. Note that
% bounds is approximate for lags > numMA only.
%
% Example:
%
% % Create an MA(2) process from a sequence of 1000 Gaussian deviates,
% % and assess whether the ACF is effectively zero for lags > 2:
%
% x = randn(1000,1); % 1000 Gaussian deviates ~ N(0,1)
% y = filter([1 -1 1],1,x); % Create an MA(2) process
% autocorr(y,[],2) % Inspect the ACF with 95% confidence
%
% Reference:
%
% [1] Box, G. E. P., G. M. Jenkins, and G. C. Reinsel. Time Series
% Analysis: Forecasting and Control. 3rd edition. Upper Saddle River,
% NJ: Prentice-Hall, 1994.
%
% See also CROSSCORR, PARCORR, FILTER.
%
% Copyright 1999-2010 The MathWorks, Inc.
% $Revision: 1.1.8.4 $ $Date: 2010/10/08 16:41:02 $
%
% Ensure the sample data is a vector:
%
[rows,columns] = size(y);

if (rows ~= 1) && (columns ~= 1)

    error(message('econ:autocorr:NonVectorInput'))

end

rowSeries = (size(y,1) == 1);

y = y(:); % Ensure a column vector

```

```

N = length(y); % Sample size
defaultLags = 20; % Recommendation of [1]

% Ensure numLags is a positive integer or set default:

if (nargin >= 2) && ~isempty(numLags)

    if numel(numLags) > 1

        error(message('econ:autocorr:NonScalarLags'))

    end

    if (round(numLags) ~= numLags) || (numLags <= 0)

        error(message('econ:autocorr:NonPositiveInteger'))

    end

    if numLags > (N-1)

        error(message('econ:autocorr:LagsTooLarge'))

    end

else

    numLags = min(defaultLags,N-1); % Default

end

% Ensure numMA is a nonnegative integer or set default:

if (nargin >= 3) && ~isempty(numMA)

    if numel(numMA) > 1

        error(message('econ:autocorr:NonScalarNMA'))

    end

    if (round(numMA) ~= numMA) || (numMA < 0)

        error(message('econ:autocorr:NegativeIntegerNMA'))

    end

    if numMA >= numLags

        error(message('econ:autocorr:NMATooLarge'))

    end

end

```



```

    end

else

    numMA = 0; % Default

end

% Ensure numSTD is a positive scalar or set default:
if (nargin >= 4) && ~isempty(numSTD)

    if numel(numSTD) > 1

        error(message('econ:autocorr:NonScalarSTDs'))

    end

    if numSTD < 0

        error(message('econ:autocorr:NegativeSTDs'))

    end

else

    numSTD = 2; % Default

end

% Convolution, polynomial multiplication, and FIR digital filtering are all
% the same operation. The FILTER command could be used to compute the ACF
% (by convolving the de-meanned y with a flipped version of itself), but
% FFT-based computation is significantly faster for large data sets.

% The ACF computation is based on [1], pages 30-34, 188:

nFFT = 2^(nextpow2(length(y))+1);
F = fft(y-mean(y),nFFT);
F = F.*conj(F);
acf = ifft(F);
acf = acf(1:(numLags+1)); % Retain non-negative lags
acf = acf./acf(1); % Normalize
acf = real(acf);

acfpos = find(acf<0,1);
acfpos = acfpos-2;
disp(acfpos)

% Compute approximate confidence bounds using the approach in [1],
% equations 2.1.13 and 6.2.2, pp. 33 and 188, respectively:

sigmaNMA = sqrt((1+2*(acf(2:numMA+1)'*acf(2:numMA+1)))/N);

```

```

bounds = sigmaNMA*[numSTD;-numSTD];
lags = (0:numLags)';

if nargout == 0

% Plot the sample ACF:

lineHandles = stem(lags,acf,'filled','r-o');
set(lineHandles(1),'MarkerSize',4)
grid('on')
xlabel('Lag')
ylabel('Sample Autocorrelation')
title('Sample Autocorrelation Function')
hold('on')

% Plot confidence bounds (horizontal lines) under the hypothesis that the
% underlying y is really an MA(numMA) process. Bartlett's approximation
% gives an indication of whether the ACF is effectively zero beyond lag
% numMA. For this reason, the confidence bounds appear over the ACF only
% for lags greater than numMA (i.e., numMA+1, numMA+2, ... numLags). In
% other words, the confidence bounds enclose only those lags for which the
% null hypothesis is assumed to hold.

plot([numMA+0.5 numMA+0.5; numLags numLags],[bounds([1 1]) bounds([2
2])], '-b');
plot([0 numLags],[0 0], '-k');
hold('off')
a = axis;
axis([a(1:3) 1]);

else

% Re-format outputs for compatibility with the y input. When y is input as
% a row vector, then pass the outputs as a row vectors; when y is a column
% vector, then pass the outputs as a column vectors.

if rowSeries

    acf = acf';
    lags = lags';
    bounds = bounds';

end

varargout = {acf,lags,bounds};

end

```

```
function [] = autoCorrelation(~)

input = xlsread('/Users/Ryan/Documents/MQP/Data
Update.xlsx','Sheet1','B1:K252');
    for i = 1:10
        figure(i)
        autocorrMQP(input(:,i),251);
    end
end
```

II: MATLAB Code, Kalman Filter

```
% KALMANF - updates a system state vector estimate based upon an
%           observation, using a discrete Kalman filter.
%
% Version 1.0, June 30, 2004
%
% This tutorial function was written by Michael C. Kleder
%
% INTRODUCTION
%
% Many people have heard of Kalman filtering, but regard the topic
% as mysterious. While it's true that deriving the Kalman filter and
% proving mathematically that it is "optimal" under a variety of
% circumstances can be rather intense, applying the filter to
% a basic linear system is actually very easy. This Matlab file is
% intended to demonstrate that.
%
% An excellent paper on Kalman filtering at the introductory level,
% without detailing the mathematical underpinnings, is:
% "An Introduction to the Kalman Filter"
% Greg Welch and Gary Bishop, University of North Carolina
% http://www.cs.unc.edu/~welch/kalman/kalmanIntro.html
%
% PURPOSE:
%
% The purpose of each iteration of a Kalman filter is to update
% the estimate of the state vector of a system (and the covariance
% of that vector) based upon the information in a new observation.
% The version of the Kalman filter in this function assumes that
% observations occur at fixed discrete time intervals. Also, this
% function assumes a linear system, meaning that the time evolution
% of the state vector can be calculated by means of a state transition
% matrix.
%
% USAGE:
%
% s = kalmanf(s)
%
% "s" is a "system" struct containing various fields used as input
% and output. The state estimate "x" and its covariance "P" are
% updated by the function. The other fields describe the mechanics
% of the system and are left unchanged. A calling routine may change
% these other fields as needed if state dynamics are time-dependent;
% otherwise, they should be left alone after initial values are set.
% The exceptions are the observation vector "z" and the input control
% (or forcing function) "u." If there is an input function, then
% "u" should be set to some nonzero value by the calling routine.
%
% SYSTEM DYNAMICS:
%
% The system evolves according to the following difference equations,
% where quantities are further defined below:
%
%  $x = Ax + Bu + w$  meaning the state vector  $x$  evolves during one time
% step by premultiplying by the "state transition
```

```

%           matrix" A. There is optionally (if nonzero) an input
%           vector u which affects the state linearly, and this
%           linear effect on the state is represented by
%           premultiplying by the "input matrix" B. There is also
%           gaussian process noise w.
% z = Hx + v meaning the observation vector z is a linear function
%           of the state vector, and this linear relationship is
%           represented by premultiplication by "observation
%           matrix" H. There is also gaussian measurement
%           noise v.
% where w ~ N(0,Q) meaning w is gaussian noise with covariance Q
%           v ~ N(0,R) meaning v is gaussian noise with covariance R
%
% VECTOR VARIABLES:
%
% s.x = state vector estimate. In the input struct, this is the
%       "a priori" state estimate (prior to the addition of the
%       information from the new observation). In the output struct,
%       this is the "a posteriori" state estimate (after the new
%       measurement information is included).
% s.z = observation vector
% s.u = input control vector, optional (defaults to zero).
%
% MATRIX VARIABLES:
%
% s.A = state transition matrix (defaults to identity).
% s.P = covariance of the state vector estimate. In the input struct,
%       this is "a priori," and in the output it is "a posteriori."
%       (required unless autoinitializing as described below).
% s.B = input matrix, optional (defaults to zero).
% s.Q = process noise covariance (defaults to zero).
% s.R = measurement noise covariance (required).
% s.H = observation matrix (defaults to identity).
%
% NORMAL OPERATION:
%
% (1) define all state definition fields: A,B,H,Q,R
% (2) define intial state estimate: x,P
% (3) obtain observation and control vectors: z,u
% (4) call the filter to obtain updated state estimate: x,P
% (5) return to step (3) and repeat
%
% INITIALIZATION:
%
% If an initial state estimate is unavailable, it can be obtained
% from the first observation as follows, provided that there are the
% same number of observable variables as state variables. This "auto-
% intitialization" is done automatically if s.x is absent or NaN.
%
% x = inv(H)*z
% P = inv(H)*R*inv(H')
%
% This is mathematically equivalent to setting the initial state estimate
% covariance to infinity.
%
% SCALAR EXAMPLE (Automobile Voltimeter):
%

```

```

% % Define the system as a constant of 12 volts:
% clear s
% s.x = 12;
% s.A = 1;
% % Define a process noise (stdev) of 2 volts as the car operates:
% s.Q = 2^2; % variance, hence stdev^2
% % Define the voltmeter to measure the voltage itself:
% s.H = 1;
% % Define a measurement error (stdev) of 2 volts:
% s.R = 2^2; % variance, hence stdev^2
% % Do not define any system input (control) functions:
% s.B = 0;
% s.u = 0;
% % Do not specify an initial state:
% s.x = nan;
% s.P = nan;
% % Generate random voltages and watch the filter operate.
% tru=[]; % truth voltage
% for t=1:20
%     tru(end+1) = randn*2+12;
%     s(end).z = tru(end) + randn*2; % create a measurement
%     s(end+1)=kalmanf(s(end)); % perform a Kalman filter iteration
% end
% figure
% hold on
% grid on
% % plot measurement data:
% hz=plot([s(1:end-1).z], 'r. ');
% % plot a-posteriori state estimates:
% hk=plot([s(2:end).x], 'b- ');
% ht=plot(tru, 'g- ');
% legend([hz hk ht], 'observations', 'Kalman output', 'true voltage', 0)
% title('Automobile Voltmeter Example')
% hold off

function s = kalmanf(s)

% set defaults for absent fields:
if ~isfield(s, 'x'); s.x=nan*z; end
if ~isfield(s, 'P'); s.P=nan; end
if ~isfield(s, 'z'); error('Observation vector missing'); end
if ~isfield(s, 'u'); s.u=0; end
if ~isfield(s, 'A'); s.A=eye(length(x)); end
if ~isfield(s, 'B'); s.B=0; end
if ~isfield(s, 'Q'); s.Q=zeros(length(x)); end
if ~isfield(s, 'R'); error('Observation covariance missing'); end
if ~isfield(s, 'H'); s.H=eye(length(x)); end

if isnan(s.x)
    % initialize state estimate from first observation
    if diff(size(s.H))
        error('Observation matrix must be square and invertible for state
autoinitialization. ');
    end
    s.x = inv(s.H)*s.z;
    s.P = inv(s.H)*s.R*inv(s.H');

```

```

else

    % This is the code which implements the discrete Kalman filter:

    % Prediction for state vector and covariance:
    s.x = s.A*s.x + s.B*s.u;
    s.P = s.A * s.P * s.A' + s.Q;

    % Compute Kalman gain factor:
    K = s.P*s.H'*inv(s.H*s.P*s.H'+s.R);

    % Correction based on observation:
    s.x = s.x + K*(s.z-s.H*s.x);
    s.P = s.P - K*s.H*s.P;

    % Note that the desired result, which is an improved estimate
    % of the sytem state vector x and its covariance P, was obtained
    % in only five lines of code, once the system was defined. (That's
    % how simple the discrete Kalman filter is to use.) Later,
    % we'll discuss how to deal with nonlinear systems.

end

return

```

```

function K = callKalman(~)

% input a structure "s" (with fields A,B,H,Q,R,x,P,z)

nasdaqDiff = xlsread('/Users/Ryan/Documents/MQP/C-term
Work.xlsx', 'NYSE', 'E2:E190');
nasdaqPriceVal = xlsread('/Users/Ryan/Documents/MQP/C-term
Work.xlsx', 'NYSE', 'B2:B190');
nasdaqTrendVal = xlsread('/Users/Ryan/Documents/MQP/C-term
Work.xlsx', 'NYSE', 'D2:D190');
regnTrendVal = xlsread('/Users/Ryan/Documents/MQP/C-term
Work.xlsx', 'PBYI2', 'D2:D190');
regnDiff = xlsread('/Users/Ryan/Documents/MQP/C-term
Work.xlsx', 'PBYI2', 'E2:E190');
regnPriceVal = xlsread('/Users/Ryan/Documents/MQP/C-term
Work.xlsx', 'PBYI2', 'B2:B190');
Z = [regnPriceVal nasdaqPriceVal]';

A = [6 0;0 6];
B = zeros(2);
H = [7/6 0;0 7/6];
P = cov(regnPriceVal, nasdaqPriceVal);
Q = zeros(2);
R = cov(regnDiff, nasdaqDiff);
z = Z(:,1);
x = [regnTrendVal(1) nasdaqTrendVal(1)]';
u = [0 0]';

s = struct;
    s.A = A;
    s.B = B;
    s.H = H;
    s.P = P;
    s.Q = Q;
    s.R = R;
    s.z = z;
    s.x = x;
    s.u = u;

F = size(Z);

for i = 1:F(2)-1
    s(i+1) = kalmanf(s(i));
    z = Z(:,i+1);
    s(i+1).z = z;
end

save('s')
disp(s)

KFregn = [];
KFnasdaq = [];

for i = 1:F(2)
    KFregn(i) = s(i).x(1);

```



```
        KFnasdaq(i) = s(i).x(2);  
end  
disp(KFregn')  
  
L = [1:F(2)];  
  
plot(L,KFregn,'b-',L,regnPriceVal,'r-')
```

III: Biotechnology Industry Data

Regeneron	Price		Trendline	Differenc	Model A			Coefficient	ARIMA	Differenc	Fourier	Model B
9/13/2013	289.97	1	318.0665	-28.0965	292.337		#x_1(n-0)	0.826971	291.6954	-1.72537	2.0786	293.774
9/16/2013	294.36	2	316.6196	-22.2596	294.9836		#x_1(n-1)	0.287193	293.1174	1.242587	-2.1017	291.0157
9/17/2013	296.62	3	315.1993	-18.5793	297.2156		#x_1(n-2)	-0.21168	298.4114	-1.79139	1.1244	299.5358
9/18/2013	309.17	4	313.8056	-4.6356	299.0716		#x_1(n-3)	0.097512	309.0425	0.127528	-0.9427	308.0998
9/19/2013	307.11	5	312.4385	-5.3285	300.5877				306.5302	0.579813	0.0852	306.6154
9/20/2013	300.8	6	311.098	-10.298	301.7976				299.7213	1.078698	0.0667	299.788
9/23/2013	295.76	7	309.7841	-14.0241	302.7328				297.2732	-1.51324	-0.471	296.8022
9/24/2013	295.11	8	308.4968	-13.3868	303.4227				293.105	2.005005	0.4674	293.5724
9/25/2013	292.23	9	307.2361	-15.0061	303.8944				295.2216	-2.99163	-0.3782	294.8434
9/26/2013	305.53	10	306.002	-0.472	304.1733				305.0931	0.436854	0.2988	305.3919
9/27/2013	305.65	11	304.7945	0.8555	304.2828		Percent Error		306.1814	-0.53138	0.0175	306.1989
9/30/2013	312.87	12	303.6136	9.2564	304.2443		Model A	Model B	312.8736	-0.00364	0.031	312.9046
10/1/2013	316.63	13	302.4593	14.1707	304.0777		4.81%	2.63%	317.7614	-1.13138	0.1293	317.8907
10/2/2013	313.67	14	301.3316	12.3384	303.8012				310.4072	3.262837	0.1796	310.5868
10/3/2013	303.57	15	300.2305	3.3395	303.4315				304.4431	-0.87306	-0.4153	304.0278
10/4/2013	308.6	16	299.156	9.444	302.9835				307.6201	0.979882	0.8928	308.5129
10/7/2013	298.95	17	298.1081	0.8419	302.471				298.9195	0.030503	-1.4738	297.4457
10/8/2013	287.68	18	297.0868	-9.4068	301.9064				284.8231	2.856871	1.8226	286.6457
10/9/2013	281.56	19	296.0921	-14.5321	301.3007				284.6776	-3.11761	-2.4661	282.2115
10/10/2013	294.08	20	295.124	-1.044	300.664				292.3104	1.76961	2.3729	294.6833
10/11/2013	290.3	21	294.1825	-3.8825	300.0048				293.4951	-3.19506	-2.7781	290.717
10/14/2013	295.63	22	293.2676	2.3624	299.331				292.7848	2.84518	2.1428	294.9276
10/15/2013	290.43	23	292.3793	-1.9493	298.6493				292.9663	-2.53629	-2.1963	290.77
10/16/2013	307.65	24	291.5176	16.1324	297.9656				307.3318	0.318191	1.2304	308.5622
10/17/2013	307.86	25	290.6825	17.1775	297.2846				309.0419	-1.18189	-1.058	307.9839
10/18/2013	303.56	26	289.874	13.686	296.6107				300.5056	3.054448	0.1712	300.6768
10/21/2013	294.89	27	289.0921	5.7979	295.9471				297.5391	-2.64914	-0.0079	297.5312

10/22/2013	304.49	28	288.3368	16.1532	295.2967				302.9356	1.554395	-0.4472	302.4884
10/23/2013	299.79	29	287.6081	12.1819	294.6614				300.9102	-1.12021	0.4583	301.3685
10/24/2013	304.42	30	286.906	17.514	294.0429				303.5286	0.891382	-0.4089	303.1197
10/25/2013	302.24	31	286.2305	16.0095	293.4422				302.1526	0.087364	0.3286	302.4812
10/28/2013	302.96	32	285.5816	17.3784	292.8598				302.6856	0.274393	-0.0173	302.6683
10/29/2013	298.53	33	284.9593	13.5707	292.2957				297.4876	1.042429	0.0451	297.5327
10/30/2013	291.17	34	284.3636	6.8064	291.7499				290.3601	0.809904	0.1446	290.5047
10/31/2013	287.6	35	283.7945	3.8055	291.2216				289.7645	-2.16445	0.1391	289.9036
11/1/2013	285.79	36	283.252	2.538	290.7102				281.3582	4.431802	-0.3342	281.024
11/4/2013	281.7	37	282.7361	-1.0361	290.2144				285.7719	-4.07193	0.8061	286.578
11/5/2013	302.32	38	282.2468	20.0732	289.733				301.7696	0.550419	-1.3638	300.4058
11/6/2013	288.27	39	281.7841	6.4859	289.2647				285.2467	3.023263	1.7403	286.987
11/7/2013	276.99	40	281.348	-4.358	288.8077				279.2337	-2.2437	-2.3924	276.8413
11/8/2013	283.07	41	280.9385	2.1315	288.3607				280.5776	2.492441	2.3509	282.9285
11/11/2013	279.2	42	280.5556	-1.3556	287.9218				282.7709	-3.57092	-2.7879	279.983
11/12/2013	286.89	43	280.1993	6.6907	287.4893				283.0246	3.865418	2.2003	285.2249
11/13/2013	277.2	44	279.8696	-2.6696	287.0617				279.6714	-2.47141	-2.2854	277.386
11/14/2013	288.83	45	279.5665	9.2635	286.6373				287.8883	0.941664	1.3349	289.2232
11/15/2013	280	46	279.29	0.71	286.2146				279.1788	0.821155	-1.1742	278.0046
11/18/2013	274.37	47	279.0401	-4.6701	285.7921				274.3367	0.033267	0.2615	274.5982
11/19/2013	273.79	48	278.8168	-5.0268	285.3684				275.4305	-1.64053	-0.0883	275.3422
11/20/2013	274.68	49	278.6201	-3.9401	284.9425				273.0487	1.631316	-0.4169	272.6318
11/21/2013	276.41	50	278.45	-2.04	284.5133				279.4497	-3.03973	0.4433	279.893
11/22/2013	293.68	51	278.3065	15.3735	284.0799				293.4178	0.262203	-0.4362	292.9816
11/25/2013	294.1	52	278.1896	15.9104	283.6419				294.6278	-0.52778	0.3569	294.9847
11/26/2013	295.12	53	278.0993	17.0207	283.1987				294.8965	0.223507	-0.0544	294.8421
11/27/2013	292.88	54	278.0356	14.8444	282.7502				291.8303	1.049654	0.063	291.8933
11/29/2013	293.86	55	277.9985	15.8615	282.2964				295.3754	-1.51544	0.1536	295.529
12/2/2013	296.69	56	277.988	18.702	281.8378				294.7314	1.958642	0.1044	294.8358
12/3/2013	287.5	57	278.0041	9.4959	281.3748				287.8771	-0.37712	-0.2585	287.6186

12/4/2013	287.26	58	278.0468	9.2132	280.9083				286.2931	0.9669	0.7221	287.0152
12/5/2013	283.2	59	278.1161	5.0839	280.4396				283.2974	-0.09739	-1.2539	282.0435
12/6/2013	282.74	60	278.212	4.528	279.9699				281.6754	1.064552	1.6548	283.3302
12/9/2013	279.49	61	278.3345	1.1555	279.501				280.3877	-0.89772	-2.3125	278.0752
12/10/2013	277.5	62	278.4836	-0.9836	279.0348				275.3213	2.178663	2.3213	277.6426
12/11/2013	270.02	63	278.6593	-8.6393	278.5735				271.101	-1.08096	-2.7889	268.3121
12/12/2013	274	64	278.8616	-4.8616	278.1198				272.7264	1.27357	2.2508	274.9772
12/13/2013	269.59	65	279.0905	-9.5005	277.6764				271.1023	-1.51233	-2.3686	268.7337
12/16/2013	268.45	66	279.346	-10.896	277.2463				266.0757	2.374267	1.4375	267.5132
12/17/2013	261.88	67	279.6281	-17.7481	276.8328				264.5099	-2.62993	-1.2908	263.2191
12/18/2013	271.72	68	279.9368	-8.2168	276.4394				270.522	1.198048	0.3558	270.8778
12/19/2013	270.55	69	280.2721	-9.7221	276.07				271.8099	-1.25986	-0.1743	271.6356
12/20/2013	278.69	70	280.634	-1.944	275.7285				279.1249	-0.43486	-0.3801	278.7448
12/23/2013	278.01	71	281.0225	-3.0125	275.4192				277.1158	0.894232	0.4223	277.5381
12/24/2013	275.69	72	281.4376	-5.7476	275.1463				276.4845	-0.79451	-0.4595	276.025
12/26/2013	278.64	73	281.8793	-3.2393	274.9144				277.9675	0.672513	0.3832	278.3507
12/27/2013	277.04	74	282.3476	-5.3076	274.7282				277.4808	-0.44079	-0.0933	277.3875
12/30/2013	278.08	75	282.8425	-4.7625	274.5925				277.3859	0.694132	0.0843	277.4702
12/31/2013	275.24	76	283.364	-8.124	274.5121				275.1699	0.070054	0.1564	275.3263
1/2/2014	274.59	77	283.9121	-9.3221	274.4921				274.9366	-0.34657	0.0755	275.0121
1/3/2014	271.75	78	284.4868	-12.7368	274.5374				270.5996	1.150432	-0.1886	270.411
1/6/2014	268.86	79	285.0881	-16.2281	274.653				269.2532	-0.39318	0.6413	269.8945
1/7/2014	274.07	80	285.716	-11.646	274.844				275.3018	-1.23184	-1.1447	274.1571
1/8/2014	273.5	81	286.3705	-12.8705	275.1153				271.155	2.344983	1.5668	272.7218
1/9/2014	267.62	82	287.0516	-19.4316	275.4718				272.5257	-4.90571	-2.227	270.2987
1/10/2014	274.38	83	287.7593	-13.3793	275.9181				268.5305	5.849501	2.2846	270.8151
1/13/2014	268.68	84	288.4936	-19.8136	276.4589				275.9109	-7.23094	-2.7811	273.1298
1/14/2014	300.32	85	289.2545	11.0655	277.0986				297.9069	2.4131	2.294	300.2009
1/15/2014	287.49	86	290.042	-2.552	277.8412				288.1946	-0.70462	-2.4454	285.7492
1/16/2014	290.48	87	290.8561	-0.3761	278.6907				290.2894	0.190606	1.5374	291.8268

1/17/2014	292	88	291.6968	0.3032	279.6506				292.3072	-0.30717	-1.4071	290.9001
1/21/2014	295.7	89	292.5641	3.1359	280.724				294.9091	0.790887	0.4535	295.3626
1/22/2014	295.38	90	293.458	1.922	281.9136				295.227	0.153032	-0.2654	294.9616
1/23/2014	291.59	91	294.3785	-2.7885	283.2217				291.303	0.286985	-0.3368	290.9662
1/24/2014	279.61	92	295.3256	-15.7156	284.6501				277.4498	2.160231	0.3949	277.8447
1/27/2014	270.74	93	296.2993	-25.5593	286.1998				272.899	-2.15904	-0.4783	272.4207
1/28/2014	278.67	94	297.2996	-18.6296	287.8714				277.4346	1.235404	0.407	277.8416
1/29/2014	281.54	95	298.3265	-16.7865	289.6647				283.5517	-2.01166	-0.1333	283.4184
1/30/2014	292.97	96	299.38	-6.41	291.5788				293.0913	-0.12133	0.1084	293.1997
1/31/2014	288.59	97	300.4601	-11.8701	293.612				286.8527	1.737263	0.1533	287.006
2/3/2014	283.81	98	301.5668	-17.7568	295.7616				285.5105	-1.70049	0.0523	285.5628
2/4/2014	287.23	99	302.7001	-15.4701	298.0241				286.9664	0.26365	-0.1248	286.8416
2/5/2014	281.9	100	303.86	-21.96	300.3949				281.7414	0.158564	0.5642	282.3056
2/6/2014	287.03	101	305.0465	-18.0165	302.8685				290.9532	-3.92321	-1.0368	289.9164
2/7/2014	299.79	102	306.2596	-6.4696	305.4382				297.3488	2.441245	1.4768	298.8256
2/10/2014	304	103	307.4993	-3.4993	308.0959				309.2412	-5.24117	-2.1363	307.1049
2/11/2014	326.52	104	308.7656	17.7544	310.8325				324.4126	2.107446	2.2409	326.6535
2/12/2014	320.38	105	310.0585	10.3215	313.6373				322.7205	-2.34048	-2.7646	319.9559
2/13/2014	326.98	106	311.378	15.602	316.4985				324.6381	2.341914	2.3296	326.9677
2/14/2014	323.99	107	312.7241	11.2659	319.4024				326.7901	-2.80008	-2.5154	324.2747
2/18/2014	332.78	108	314.0968	18.6832	322.3341				331.6686	1.111391	1.6342	333.3028
2/19/2014	324.36	109	315.4961	8.8639	325.2767				325.3164	-0.95639	-1.5224	323.794
2/20/2014	327.62	110	316.922	10.698	328.2118				326.6938	0.926232	0.5542	327.248
2/21/2014	334.98	111	318.3745	16.6055	331.119				337.7234	-2.74341	-0.3613	337.3621
2/24/2014	347.62	112	319.8536	27.7664	333.9762				346.864	0.755959	-0.287	346.577
2/25/2014	339.86	113	321.3593	18.5007	336.7592				338.451	1.408992	0.3611	338.8121
2/26/2014	336.48	114	322.8916	13.5884	339.4415				338.1063	-1.62629	-0.4924	337.6139
2/27/2014	338.54	115	324.4505	14.0895	341.9948				336.7819	1.758103	0.4277	337.2096
2/28/2014	332.5	116	326.036	6.464	344.3883				333.4399	-0.93991	-0.1738	333.2661
3/3/2014	339.51	117			346.5888				338.2167		0.135	338.3517

3/4/2014	345.61	118			348.5608				338.7245		0.1446	338.8691
3/5/2014	345.49	119			350.2662				335.7078		0.0347	335.7425
3/6/2014	338.45	120			351.6641				333.9143		-0.0673	333.847
3/7/2014	328.11	121			352.7112				338.474		0.491	338.965
3/10/2014	329.2	122			353.3609				338.8519		-0.9308	337.9211
3/11/2014	328.77	123			353.5639				334.9138		1.3854	336.2992
3/12/2014	339.75	124			353.2678				334.2761		-2.0411	332.235
3/13/2014	328.07	125			352.4171				338.9268		2.1906	341.1174
3/14/2014	329.5	126			350.9529				338.6968		-2.7396	335.9572
3/17/2014	328.09	127			348.813				334.2501		2.3576	336.6077
3/18/2014	333.14	128			345.9317				334.6735		-2.5781	332.0954
3/19/2014	329.33	129			342.2396				339.436		1.7272	341.1632
3/20/2014	328.69	130			337.6636				338.3434		-1.6361	336.7073
3/21/2014	310.79	131			332.127				333.6731		0.6572	334.3303

Amgen	Price		Trendline	Differenc	Model A			Coefficient	ARIMA	Differenc	Fourier	Model B
9/9/2013	111.67	1	114.9434	-3.2734	115.4534		#x_1(n-0)	0.979691	111.7302	-0.06021	-0.0673	111.6629
9/10/2013	111.16	2	114.8398	-3.6798	115.1164		#x_1(n-1)	-0.08292	111.3162	-0.15625	-0.0324	111.2838
9/11/2013	111.97	3	114.7392	-2.7692	114.7837		#x_1(n-2)	0.111985	112.1469	-0.17686	0.0227	112.1696
9/12/2013	113.46	4	114.6416	-1.1816	114.4788		#x_1(n-3)	-0.00876	113.724	-0.26404	0.015	113.739
9/13/2013	115.06	5	114.547	0.513	114.2199				114.9377	0.122302	-0.0222	114.9155
9/16/2013	117.18	6	114.4554	2.7246	114.0175				117.3383	-0.15831	-0.0581	117.2802
9/17/2013	115.73	7	114.3668	1.3632	113.8736				115.7341	-0.00414	0.0083	115.7424
9/18/2013	117.52	8	114.2812	3.2388	113.7809				117.4948	0.025208	0.0148	117.5096
9/19/2013	117.18	9	114.1986	2.9814	113.7246				116.9899	0.190148	0.0191	117.009
9/20/2013	116.85	10	114.119	2.731	113.6838				116.8057	0.044286	-0.089	116.7167
9/23/2013	115.05	11	114.0424	1.0076	113.6345		Percent Error		114.8039	0.246149	-0.0028	114.8011
9/24/2013	114.78	12	113.9688	0.8112	113.5529		Model A	Model B	114.7685	0.011493	0.0219	114.7904
9/25/2013	112.48	13	113.8982	-1.4182	113.4186		1.20%	1.62%	112.5337	-0.05373	0.0504	112.5841
9/26/2013	112.85	14	113.8306	-0.9806	113.2179				112.7025	0.147489	-0.1194	112.5831
9/27/2013	113.19	15	113.766	-0.576	112.9458				113.4521	-0.26211	-0.0085	113.4436
9/30/2013	111.92	16	113.7044	-1.7844	112.6074				111.8341	0.085897	0.033	111.8671
10/1/2013	114.58	17	113.6458	0.9342	112.2187				114.3332	0.246807	0.0676	114.4008
10/2/2013	113.06	18	113.5902	-0.5302	111.805				113.2289	-0.16894	-0.1427	113.0862
10/3/2013	111.12	19	113.5376	-2.4176	111.3993				110.9002	0.219789	-0.0091	110.8911
10/4/2013	112.91	20	113.488	-0.578	111.0388				112.6144	0.295612	0.0439	112.6583
10/7/2013	110.22	21	113.4414	-3.2214	110.7616				109.9854	0.234613	0.0703	110.0557
10/8/2013	107.76	22	113.3978	-5.6378	110.6026				108.0972	-0.3372	-0.153	107.9442
10/9/2013	106.28	23	113.3572	-7.0772	110.5894				106.448	-0.16801	-0.007	106.441
10/10/2013	109.92	24	113.3196	-3.3996	110.7395				110.0122	-0.09215	0.0504	110.0626
10/11/2013	110.89	25	113.285	-2.395	111.0573				110.8647	0.025309	0.0612	110.9259
10/14/2013	111.58	26	113.2534	-1.6734	111.5334				111.8566	-0.27658	-0.1466	111.71
10/15/2013	111.44	27	113.2248	-1.7848	112.1447				111.6679	-0.22789	-0.0061	111.6618
10/16/2013	114.28	28	113.1992	1.0808	112.8554				114.2271	0.052909	0.05	114.2771
10/17/2013	115.85	29	113.1766	2.6734	113.6204				115.6765	0.173525	0.0456	115.7221

10/18/2013	114.92	30	113.157	1.763	114.3887				115.164	-0.24403	-0.1234	115.0406
10/21/2013	113.64	31	113.1404	0.4996	115.1076				113.6318	0.008191	-0.0106	113.6212
10/22/2013	116.21	32	113.1268	3.0832	115.7278				116.2527	-0.04269	0.0423	116.295
10/23/2013	115.67	33	113.1162	2.5538	116.2071				115.6755	-0.00555	0.0294	115.7049
10/24/2013	116.2	34	113.1086	3.0914	116.515				116.4105	-0.21045	-0.0866	116.3239
10/25/2013	116.32	35	113.104	3.216	116.6345				116.3668	-0.0468	-0.0235	116.3433
10/28/2013	118.33	36	113.1024	5.2276	116.564				118.1918	0.138226	0.0294	118.2212
10/29/2013	118.27	37	113.1038	5.1662	116.3175				118.1431	0.126949	0.0178	118.1609
10/30/2013	116.88	38	113.1082	3.7718	115.9226				117.1406	-0.26055	-0.0425	117.0981
10/31/2013	116.14	39	113.1156	3.0244	115.4183				116.065	0.075025	-0.0457	116.0193
11/1/2013	118.69	40	113.126	5.564	114.8511				118.4563	0.233694	0.0146	118.4709
11/4/2013	117.28	41	113.1394	4.1406	114.2707				117.0698	0.210163	0.0139	117.0837
11/5/2013	115.14	42	113.1558	1.9842	113.7254				114.8467	0.293274	0.0015	114.8482
11/6/2013	113.33	43	113.1752	0.1548	113.2578				113.5087	-0.17868	-0.0748	113.4339
11/7/2013	111.03	44	113.1976	-2.1676	112.9014				111.0742	-0.04417	0.0016	111.0758
11/8/2013	113.21	45	113.223	-0.013	112.6774				113.1545	0.055478	0.018	113.1725
11/11/2013	113.17	46	113.2514	-0.0814	112.5939				113.2288	-0.05884	0.0379	113.2667
11/12/2013	112.71	47	113.2828	-0.5728	112.6453				112.9245	-0.21449	-0.1063	112.8182
11/13/2013	113.53	48	113.3172	0.2128	112.814				113.5146	0.015403	-0.0066	113.508
11/14/2013	115.41	49	113.3546	2.0554	113.0724				115.5146	-0.10465	0.0278	115.5424
11/15/2013	114.98	50	113.395	1.585	113.3866				114.9416	0.038392	0.0617	115.0033
11/18/2013	116.03	51	113.4384	2.5916	113.7196				116.0577	-0.02773	-0.1336	115.9241
11/19/2013	115.46	52	113.4848	1.9752	114.0361				115.1135	0.346485	-0.0094	115.1041
11/20/2013	115.56	53	113.5342	2.0258	114.3052				115.5652	-0.00515	0.0393	115.6045
11/21/2013	112.25	54	113.5866	-1.3366	114.5041				112.3644	-0.11438	0.0707	112.4351
11/22/2013	113.03	55	113.642	-0.612	114.6196				113.0176	0.012363	-0.1503	112.8673
11/25/2013	113.96	56	113.7004	0.2596	114.6489				113.9673	-0.00732	-0.0081	113.9592
11/26/2013	113.67	57	113.7618	-0.0918	114.5997				113.6965	-0.02647	0.0482	113.7447
11/27/2013	113.82	58	113.8262	-0.0062	114.4883				113.8745	-0.05447	0.0664	113.9409
11/29/2013	114.08	59	113.8936	0.1864	114.337				113.986	0.094045	-0.1516	113.8344

12/2/2013	114.47	60	113.964	0.506	114.1718				114.4076	0.062394	-0.0061	114.4015
12/3/2013	113.45	61	114.0374	-0.5874	114.0181				113.4644	-0.01444	0.0511	113.5155
12/4/2013	113.07	62	114.1138	-1.0438	113.8981				113.1564	-0.0864	0.053	113.2094
12/5/2013	113.35	63	114.1932	-0.8432	113.8281				113.3501	-0.00013	-0.1357	113.2144
12/6/2013	114.12	64	114.2756	-0.1556	113.8161				114.1387	-0.01874	-0.0076	114.1311
12/9/2013	113.98	65	114.361	-0.381	113.8613				113.8783	0.101749	0.0466	113.9249
12/10/2013	114.1	66	114.4494	-0.3494	113.9542				114.0327	0.067283	0.0364	114.0691
12/11/2013	113.05	67	114.5408	-1.4908	114.0778				112.9983	0.051722	-0.1044	112.8939
12/12/2013	112.57	68	114.6352	-2.0652	114.2102				112.5674	0.002648	-0.0165	112.5509
12/13/2013	112.16	69	114.7326	-2.5726	114.327				112.0284	0.131578	0.0357	112.0641
12/16/2013	112.12	70	114.833	-2.713	114.405				112.277	-0.15698	0.0222	112.2992
12/17/2013	111	71	114.9364	-3.9364	114.4257				111.0092	-0.00919	-0.0627	110.9465
12/18/2013	112.73	72	115.0428	-2.3128	114.3774				112.8822	-0.15224	-0.0347	112.8475
12/19/2013	112.6	73	115.1522	-2.5522	114.2581				112.5517	0.048319	0.0212	112.5729
12/20/2013	114.03	74	115.2646	-1.2346	114.0761				113.8966	0.1334	0.0146	113.9112
12/23/2013	113.2	75	115.38	-2.18	113.8502				113.3919	-0.19186	-0.0177	113.3742
12/24/2013	112.25	76	115.4984	-3.2484	113.6083				112.3681	-0.11806	-0.0611	112.307
12/26/2013	114.36	77	115.6198	-1.2598	113.3849				114.426	-0.06598	0.007	114.433
12/27/2013	115.12	78	115.7442	-0.6242	113.218				114.9669	0.1531	0.0153	114.9822
12/30/2013	115.49	79	115.8716	-0.3816	113.145				115.6506	-0.16056	0.0229	115.6735
12/31/2013	114.08	80	116.002	-1.922	113.1991				113.9863	0.093693	-0.0923	113.894
1/2/2014	115.8	81	116.1354	-0.3354	113.4053				115.645	0.15504	-0.0036	115.6414
1/3/2014	114.47	82	116.2718	-1.8018	113.7774				114.7592	-0.28923	0.0229	114.7821
1/6/2014	113.48	83	116.4112	-2.9312	114.316				113.4568	0.023223	0.0528	113.5096
1/7/2014	116.43	84	116.5536	-0.1236	115.0075				116.7374	-0.30743	-0.1223	116.6151
1/8/2014	115.88	85	116.699	-0.819	115.825				115.8621	0.017853	-0.0088	115.8533
1/9/2014	118.89	86	116.8474	2.0426	116.7297				118.696	0.19397	0.0342	118.7302
1/10/2014	117.99	87	116.9988	0.9912	117.6742				118.0871	-0.09705	0.0685	118.1556
1/13/2014	116.4	88	117.1532	-0.7532	118.6066				116.5038	-0.1038	-0.1444	116.3594
1/14/2014	117.72	89	117.3106	0.4094	119.4748				117.7887	-0.06867	-0.009	117.7797

1/15/2014	118.51	90	117.471	1.039	120.231				118.5321	-0.02207	0.0448	118.5769
1/16/2014	119.03	91	117.6344	1.3956	120.8362				118.9979	0.032076	0.0698	119.0677
1/17/2014	119.15	92	117.8008	1.3492	121.2634				119.6873	-0.5373	-0.1531	119.5342
1/21/2014	119.25	93	117.9702	1.2798	121.5002				119.3122	-0.06224	-0.0068	119.3054
1/22/2014	124.37	94	118.1426	6.2274	121.5496				123.9162	0.453809	0.0507	123.9669
1/23/2014	123.6	95	118.318	5.282	121.4296				123.4139	0.186107	0.0598	123.4737
1/24/2014	119.29	96	118.4964	0.7936	121.1716				119.5128	-0.2228	-0.145	119.3678
1/27/2014	118.52	97	118.6778	-0.1578	120.8171				118.3913	0.128728	-0.0062	118.3851
1/28/2014	120.7	98	118.8622	1.8378	120.414				120.8635	-0.16347	0.0495	120.913
1/29/2014	119.17	99	119.0496	0.1204	120.0121				119.0239	0.146066	0.0439	119.0678
1/30/2014	120.89	100	119.24	1.65	119.6585				120.632	0.258007	-0.1201	120.5119
1/31/2014	118.95	101	119.4334	-0.4834	119.3935				118.8114	0.138593	-0.0115	118.7999
2/3/2014	116.75	102	119.6298	-2.8798	119.2471				116.6483	0.101749	0.0412	116.6895
2/4/2014	115.78	103	119.8292	-4.0492	119.2369				115.844	-0.06403	0.0279	115.8719
2/5/2014	115.07	104	120.0316	-4.9616	119.3669				115.3702	-0.30019	-0.0823	115.2879
2/6/2014	116.07	105	120.237	-4.167	119.6279				116.2638	-0.19376	-0.0254	116.2384
2/7/2014	118.9	106	120.4454	-1.5454	119.999				119.017	-0.11697	0.0279	119.0449
2/10/2014	120.3	107	120.6568	-0.3568	120.4505				120.4022	-0.10223	0.017	120.4192
2/11/2014	121.24	108	120.8712	0.3688	120.947				121.4627	-0.22268	-0.0378	121.4249
2/12/2014	122.21	109	121.0886	1.1214	121.4519				122.2078	0.002235	-0.0484	122.1594
2/13/2014	124.15	110	121.309	2.841	121.9306				124.2712	-0.12118	0.0131	124.2843
2/14/2014	123.84	111	121.5324	2.3076	122.3544				123.697	0.143019	0.014	123.711
2/18/2014	124.94	112	121.7588	3.1812	122.703				124.919	0.020991	0.0057	124.9247
2/19/2014	123.35	113	121.9882	1.3618	122.9664				123.373	-0.02302	-0.0781	123.2949
2/20/2014	123.49	114	122.2206	1.2694	123.1448				123.7101	-0.2201	0.0005	123.7106
2/21/2014	123.85	115	122.456	1.394	123.2486				123.7637	0.086325	0.0188	123.7825
2/24/2014	125.79	116	122.6944	3.0956	123.2962				125.4922	0.297796	0.041	125.5332
2/25/2014	124.36	117	122.9358	1.4242	123.3113				124.4269	-0.06694	-0.1094	124.3175
2/26/2014	121.86	118	123.1802	-1.3202	123.3199				121.9782	-0.11825	-0.0072	121.971
2/27/2014	123.08	119	123.4276	-0.3476	123.3471				123.1625	-0.08254	0.029	123.1915

2/28/2014	124.02	120	123.678	0.342	123.4135				123.7651	0.25488	0.0633	123.8284
3/3/2014	123.69	121			123.533				124.4942		-0.1359	124.3583
3/4/2014	126	122			123.7112				122.0581		-0.0094	122.0487
3/5/2014	126.19	123			123.9448				123.2714		0.0404	123.3118
3/6/2014	124.19	124			124.2218				123.5178		0.0709	123.5887
3/7/2014	122.26	125			124.5236				124.5678		-0.1512	124.4166
3/10/2014	125.4	126			124.827				122.099		-0.0078	122.0912
3/11/2014	124.27	127			125.1079				123.4064		0.0488	123.4552
3/12/2014	125.98	128			125.3441				123.2729		0.0654	123.3383
3/13/2014	123.96	129			125.5186				124.6538		-0.1508	124.503
3/14/2014	122.54	130			125.6225				122.0997		-0.006	122.0937
3/17/2014	123.86	131			125.6567				123.5686		0.0509	123.6195
3/18/2014	127.47	132			125.6327				123.0244		0.0514	123.0758
3/19/2014	126.58	133			125.5721				124.7583		-0.1332	124.6251
3/20/2014	127.05	134			125.505				122.0581		-0.0082	122.0499
3/21/2014	122.93	135			125.4671				123.7602		0.0457	123.8059

Alnylam	Price		Trendline	Differenc	Model A			Coefficient	ARIMA	Differenc	Fourier	Model B
9/24/2013	63.6	1	52.1707	11.4293	58.5553		#x_1(n-0)	0.985792	63.65772	-0.05772	0.0483	63.70602
9/25/2013	62.91	2	52.4534	10.4566	59.5078		#x_1(n-1)	-0.08255	62.95387	-0.04387	0.037	62.99087
9/26/2013	63.78	3	52.7361	11.0439	60.4131		#x_1(n-2)	0.154207	63.67549	0.104514	0.1166	63.79209
9/27/2013	64.07	4	53.0188	11.0512	61.2525		#x_1(n-3)	-0.05745	64.22282	-0.15282	0.0496	64.27242
9/30/2013	64.01	5	53.3015	10.7085	62.0082				64.16541	-0.15541	0.0412	64.20661
10/1/2013	65.8	6	53.5842	12.2158	62.665				65.63096	0.169036	0.1113	65.74226
10/2/2013	66.14	7	53.8669	12.2731	63.2094				66.34021	-0.20021	0.0485	66.38871
10/3/2013	64.45	8	54.1496	10.3004	63.6312				64.33573	0.114274	0.0504	64.38613
10/4/2013	64.63	9	54.4323	10.1977	63.9227				64.39858	0.231416	0.106	64.50458
10/7/2013	61.03	10	54.715	6.315	64.0796				60.29499	0.735007	0.037	60.33199
10/8/2013	57	11	54.9977	2.0023	64.1009				57.48335	-0.48335	0.036	57.51935
10/9/2013	53.35	12	55.2804	-1.9304	63.9887		Percent Error		53.43641	-0.08641	0.1008	53.53721
10/10/2013	59	13	55.5631	3.4369	63.7484		Model A	Model B	59.03486	-0.03486	0.0354	59.07026
10/11/2013	59.2	14	55.8458	3.3542	63.3886		25.15%	14.78%	59.02539	0.174606	0.053	59.07839
10/14/2013	59.43	15	56.1285	3.3015	62.9203				59.80461	-0.37461	0.0271	59.83171
10/15/2013	59.26	16	56.4112	2.8488	62.3573				59.151	0.109	0.0504	59.2014
10/16/2013	62.07	17	56.6939	5.3761	61.7155				62.02186	0.048137	0.0503	62.07216
10/17/2013	60.24	18	56.9766	3.2634	61.0121				60.1807	0.059303	0.0902	60.2709
10/18/2013	59.75	19	57.2593	2.4907	60.2659				59.74354	0.006461	0.0346	59.77814
10/21/2013	59.31	20	57.542	1.768	59.4961				59.28533	0.024672	0.0673	59.35263
10/22/2013	59.48	21	57.8247	1.6553	58.7222				59.57644	-0.09644	0.1006	59.67704
10/23/2013	59.77	22	58.1074	1.6626	57.9632				59.84435	-0.07435	0.0178	59.86215
10/24/2013	60.73	23	58.3901	2.3399	57.2372				60.52668	0.203318	0.0842	60.61088
10/25/2013	60.74	24	58.6728	2.0672	56.5613				61.06617	-0.32617	0.0797	61.14587
10/28/2013	59.7	25	58.9555	0.7445	55.9503				59.49804	0.201962	0.0006	59.49864
10/29/2013	61.49	26	59.2382	2.2518	55.4172				61.38722	0.102782	0.0704	61.45762
10/30/2013	58.57	27	59.5209	-0.9509	54.9726				58.55657	0.013433	-0.0468	58.50977
10/31/2013	57.61	28	59.8036	-2.1936	54.6243				57.44384	0.166163	0.0459	57.48974
11/1/2013	57.06	29	60.0863	-3.0263	54.3772				57.29693	-0.23693	0.0555	57.35243

11/4/2013	56.13	30	60.369	-4.239	54.2333				56.15218	-0.02218	-0.0677	56.08448
11/5/2013	57.32	31	60.6517	-3.3317	54.192				56.77639	0.54361	0.0311	56.80749
11/6/2013	54.97	32	60.9344	-5.9644	54.2496				54.99689	-0.02689	0.1043	55.10119
11/7/2013	50.92	33	61.2171	-10.2971	54.3999				51.18817	-0.26817	-0.0887	51.09947
11/8/2013	52.98	34	61.4998	-8.5198	54.6343				52.99057	-0.01057	-0.0288	52.96177
11/11/2013	54.98	35	61.7825	-6.8025	54.9423				55.0068	-0.0268	0.1132	55.12
11/12/2013	54.19	36	62.0652	-7.8752	55.3117				53.76369	0.426314	0.0586	53.82229
11/13/2013	53.17	37	62.3479	-9.1779	55.729				53.49365	-0.32365	0.0597	53.55335
11/14/2013	50.79	38	62.6306	-11.8406	56.1799				50.73288	0.057125	0.0756	50.80848
11/15/2013	53.95	39	62.9133	-8.9633	56.65				53.94801	0.001991	-0.1305	53.81751
11/18/2013	53.05	40	63.196	-10.146	57.1249				52.92163	0.12837	-0.0003	52.92133
11/19/2013	53.31	41	63.4787	-10.1687	57.5908				53.45898	-0.14898	0.1467	53.60568
11/20/2013	53.56	42	63.7614	-10.2014	58.0352				53.70279	-0.14279	0.0794	53.78219
11/21/2013	56.28	43	64.0441	-7.7641	58.4469				56.4075	-0.1275	0.027	56.4345
11/22/2013	58.33	44	64.3268	-5.9968	58.8167				58.42962	-0.09962	0.0459	58.47552
11/25/2013	59.97	45	64.6095	-4.6395	59.1375				60.04243	-0.07243	-0.1724	59.87003
11/26/2013	61.02	46	64.8922	-3.8722	59.4045				60.95916	0.060842	0.0303	60.98946
11/27/2013	61.46	47	65.1749	-3.7149	59.6155				61.57462	-0.11462	0.1185	61.69312
11/29/2013	61.2	48	65.4576	-4.2576	59.7711				61.09789	0.10211	0.0376	61.13549
12/2/2013	61.93	49	65.7403	-3.8103	59.8742				61.89656	0.033435	-0.0065	61.89006
12/3/2013	61.1	50	66.023	-4.923	59.9304				61.23568	-0.13568	0.0182	61.25388
12/4/2013	61.66	51	66.3057	-4.6457	59.9476				61.77756	-0.11756	-0.0889	61.68866
12/5/2013	62.98	52	66.5884	-3.6084	59.936				62.88423	0.09577	-0.0038	62.88043
12/6/2013	62.98	53	66.8711	-3.8911	59.9072				63.00314	-0.02314	0.0898	63.09294
12/9/2013	61.26	54	67.1538	-5.8938	59.8747				60.80911	0.45089	-0.2154	60.59371
12/10/2013	60.03	55	67.4365	-7.4065	59.8526				60.26744	-0.23744	-0.0406	60.22684
12/11/2013	57.13	56	67.7192	-10.5892	59.8559				57.04582	0.084179	0.1153	57.16112
12/12/2013	59.79	57	68.0019	-8.2119	59.8994				59.92184	-0.13184	-0.1308	59.79104
12/13/2013	59.42	58	68.2846	-8.8646	59.9979				59.34341	0.076588	-0.0374	59.30601
12/16/2013	60.92	59	68.5673	-7.6473	60.1648				61.16715	-0.24715	0.1864	61.35355

12/17/2013	61.06	60	68.85	-7.79	60.4127				60.73574	0.32426	-0.2573	60.47844
12/18/2013	63	61	69.1327	-6.1327	60.7523				63.4562	-0.4562	0.0521	63.5083
12/19/2013	62	62	69.4154	-7.4154	61.192				61.96738	0.032618	0.0866	62.05398
12/20/2013	66.44	63	69.6981	-3.2581	61.7379				66.4346	0.005397	-0.5091	65.9255
12/23/2013	65.73	64	69.9808	-4.2508	62.3937				65.90591	-0.17591	0.0553	65.96121
12/24/2013	66.2	65	70.2635	-4.0635	63.1598				66.0781	0.121904	-0.0142	66.0639
12/26/2013	66.91	66	70.5462	-3.6362	64.034				66.83431	0.075694	-0.2991	66.53521
12/27/2013	65.16	67	70.8289	-5.6689	65.0111				65.15572	0.004278	0.0195	65.17522
12/30/2013	64.51	68	71.1116	-6.6016	66.083				64.5058	0.004197	0.1049	64.6107
12/31/2013	64.3	69	71.3943	-7.0943	67.2388				64.34299	-0.04299	-0.089	64.25399
1/2/2014	63.86	70	71.677	-7.817	68.4655				63.57824	0.281758	-0.0645	63.51374
1/3/2014	63.14	71	71.9597	-8.8197	69.7476				63.15187	-0.01187	0.1295	63.28137
1/6/2014	61.07	72	72.2424	-11.1724	71.0681				61.15412	-0.08412	-0.0043	61.14982
1/7/2014	62.31	73	72.5251	-10.2151	72.4084				62.36146	-0.05146	-0.1009	62.26056
1/8/2014	63.68	74	72.8078	-9.1278	73.7495				62.2748	1.405203	0.154	62.4288
1/9/2014	64.83	75	73.0905	-8.2605	75.0716				67.67114	-2.84114	-0.4675	67.20364
1/10/2014	66.21	76	73.3732	-7.1632	76.3554				66.54985	-0.33985	-0.0109	66.53895
1/13/2014	93.28	77	73.6559	19.6241	77.5822				92.52371	0.756286	0.0537	92.57741
1/14/2014	89.76	78	73.9386	15.8214	78.7346				90.08708	-0.32708	-0.3828	89.70428
1/15/2014	84.61	79	74.2213	10.3887	79.7966				84.37217	0.237834	0.0776	84.44977
1/16/2014	88.23	80	74.504	13.726	80.7547				88.49414	-0.26414	0.1723	88.66644
1/17/2014	87.36	81	74.7867	12.5733	81.5977				87.67849	-0.31849	-0.1727	87.50579
1/21/2014	90.93	82	75.0694	15.8606	82.3173				91.02996	-0.09996	-0.0049	91.02506
1/22/2014	92.13	83	75.3521	16.7779	82.9081				91.66906	0.460943	0.0716	91.74066
1/23/2014	89.49	84	75.6348	13.8552	83.3681				88.95966	0.530337	0.0372	88.99686
1/24/2014	83.6	85	75.9175	7.6825	83.6984				83.96714	-0.36714	0.0835	84.05064
1/27/2014	81.05	86	76.2002	4.8498	83.9036				80.84186	0.208139	0.0971	80.93896
1/28/2014	84.53	87	76.4829	8.0471	83.9912				84.887	-0.357	-0.4259	84.4611
1/29/2014	83.37	88	76.7656	6.6044	83.9717				83.47528	-0.10528	-0.0776	83.39768
1/30/2014	85.9	89	77.0483	8.8517	83.8584				85.43571	0.464291	0.2157	85.65141

1/31/2014	83.66	90	77.331	6.329	83.6667				83.6485	0.011502	-0.4663	83.1822
2/3/2014	78.68	91	77.6137	1.0663	83.4142				78.40598	0.274016	0.0124	78.41838
2/4/2014	77.82	92	77.8964	-0.0764	83.1195				77.63196	0.188039	0.2412	77.87316
2/5/2014	75.34	93	78.1791	-2.8391	82.8026				75.56763	-0.22763	-0.2564	75.31123
2/6/2014	75.72	94	78.4618	-2.7418	82.4834				75.97579	-0.25579	-0.0711	75.90469
2/7/2014	79.02	95	78.7445	0.2755	82.1821				78.9377	0.082302	0.2657	79.2034
2/10/2014	80.71	96	79.0272	1.6828	81.9177				80.68475	0.025248	-0.0465	80.63825
2/11/2014	79.92	97	79.3099	0.6101	81.7083				80.19891	-0.27891	0.0173	80.21621
2/12/2014	80.44	98	79.5926	0.8474	81.5701				80.03692	0.403079	0.0396	80.07652
2/13/2014	81.56	99	79.8753	1.6847	81.5172				81.88258	-0.32258	-0.5096	81.37298
2/14/2014	78.72	100	80.158	-1.438	81.5612				78.23403	0.485971	-0.1438	78.09023
2/18/2014	81.23	101	80.4407	0.7893	81.7105				81.39707	-0.16707	0.1583	81.55537
2/19/2014	79.14	102	80.7234	-1.5834	81.9706				79.9638	-0.8238	-0.2994	79.6644
2/20/2014	84.7	103	81.0061	3.6939	82.3438				84.58702	0.112977	-0.0548	84.53222
2/21/2014	90.64	104	81.2888	9.3512	82.8289				90.4675	0.172503	0.1828	90.6503
2/24/2014	87.68	105	81.5715	6.1085	83.4213				87.55385	0.126154	-0.0895	87.46435
2/25/2014	86.13	106	81.8542	4.2758	84.1135				86.57777	-0.44777	-0.1378	86.43997
2/26/2014	85.79	107	82.1369	3.6531	84.8947				84.94074	0.849264	0.2078	85.14854
2/27/2014	87.03	108	82.4196	4.6104	85.7515				87.55827	-0.52827	-0.5527	87.00557
2/28/2014	81.24	109	82.7023	-1.4623	86.6682				81.00707	0.232931	-0.0493	80.95777
3/3/2014	79.9	110			87.6273				87.18413		-0.0178	87.16633
3/4/2014	81.31	111			88.6095				83.98918		-0.5931	83.39608
3/5/2014	80.2	112			89.595				88.24643		0.0396	88.28603
3/6/2014	75.2	113			90.5633				80.54112		0.1009	80.64202
3/7/2014	73.12	114			91.4942				87.99331		-0.3832	87.61011
3/10/2014	72.79	115			92.3682				82.87599		-0.0444	82.83159
3/11/2014	72.55	116			93.1671				89.152		0.1259	89.2779
3/12/2014	74.14	117			93.8743				79.79131		-0.1732	79.61811
3/13/2014	71.98	118			94.4753				89.06562		0.0456	89.11122
3/14/2014	71.19	119			94.9585				81.52663		0.1514	81.67803

3/17/2014	72.75	120			95.3147				90.34949		-0.6364	89.71309
3/18/2014	74.77	121			95.538				78.68675		-0.1155	78.57125
3/19/2014	74.04	122			95.6258				90.48219		0.1759	90.65809
3/20/2014	73.28	123			95.5787				79.84588		-0.6768	79.16908
3/21/2014	69.99	124			95.4004				91.93614		-0.0271	91.90904

Alexion	Price		Trendline	Differenc	Model A			Coefficient	ARIMA	Differenc	Fourier	Model B
9/17/2013	114.24	1	118.4621	-4.2221	116.192		#x_1(n-0)	1.055986	114.1127	0.127302	0.1277	114.2404
9/18/2013	115.93	2	118.032	-2.102	116.1075		#x_1(n-1)	-0.06134	115.9662	-0.0362	-0.04	115.9262
9/19/2013	114.03	3	117.6197	-3.5897	116.0612		#x_1(n-2)	-0.0539	114.1097	-0.0797	-0.0027	114.107
9/20/2013	113.65	4	117.2252	-3.5752	116.0035		#x_1(n-3)	0.059251	113.6882	-0.03822	-0.0699	113.6183
9/23/2013	112.5	5	116.8485	-4.3485	115.8859				112.6091	-0.1091	-0.1582	112.4509
9/24/2013	113.59	6	116.4896	-2.8996	115.6648				113.6625	-0.07253	0.05	113.7125
9/25/2013	113.05	7	116.1485	-3.0985	115.305				112.8735	0.176475	0.1414	113.0149
9/26/2013	115.97	8	115.8252	0.1448	114.7832				116.0163	-0.04629	-0.1423	115.874
9/27/2013	116.42	9	115.5197	0.9003	114.0897				116.4032	0.01678	-0.1891	116.2141
9/30/2013	116.16	10	115.232	0.928	113.2302				115.9378	0.222193	0.1338	116.0716
10/1/2013	117.39	11	114.9621	2.4279	112.2259				117.5438	-0.15382	0.1887	117.7325
10/2/2013	116.75	12	114.71	2.04	111.1123		Percent Error		116.788	-0.03799	-0.0121	116.7759
10/3/2013	114.22	13	114.4757	-0.2557	109.9378		Model A	Model B	113.7286	0.491417	-0.0202	113.7084
10/4/2013	116.44	14	114.2592	2.1808	108.7602		14.11%	5.27%	116.3398	0.100214	-0.0273	116.3125
10/7/2013	114.49	15	114.0605	0.4295	107.6436				115	-0.51004	-0.1586	114.8414
10/8/2013	108.47	16	113.8796	-5.4096	106.6536				108.6628	-0.19277	-0.0337	108.6291
10/9/2013	105.48	17	113.7165	-8.2365	105.8533				105.1955	0.284497	0.1619	105.3574
10/10/2013	108.67	18	113.5712	-4.9012	105.2989				108.7254	-0.0554	-0.0449	108.6805
10/11/2013	108.81	19	113.4437	-4.6337	105.0355				109.0785	-0.26852	-0.2327	108.8458
10/14/2013	107.01	20	113.334	-6.324	105.0942				106.9456	0.064374	0.034	106.9796
10/15/2013	108.24	21	113.2421	-5.0021	105.4891				107.947	0.293023	0.2212	108.1682
10/16/2013	110.96	22	113.168	-2.208	106.2163				110.8058	0.154206	0.0416	110.8474
10/17/2013	110.79	23	113.1117	-2.3217	107.2539				111.0175	-0.2275	-0.0386	110.9789
10/18/2013	108.43	24	113.0732	-4.6432	108.5626				108.6976	-0.26756	-0.0025	108.6951
10/21/2013	105.88	25	113.0525	-7.1725	110.0878				106.2045	-0.3245	-0.1285	106.076
10/22/2013	107.72	26	113.0496	-5.3296	111.7633				108.1509	-0.43093	-0.1071	108.0438
10/23/2013	109.66	27	113.0645	-3.4045	113.5147				109.2537	0.406271	0.1347	109.3884
10/24/2013	116.7	28	113.0972	3.6028	115.264				116.2135	0.486502	0.0539	116.2674
10/25/2013	125.17	29	113.1477	12.0223	116.9347				125.3078	-0.1378	-0.2229	125.0849

10/28/2013	124.2	30	113.216	10.984	118.4557				124.0632	0.13677	-0.0762	123.987
10/29/2013	124.08	31	113.3021	10.7779	119.7663				124.0111	0.068857	0.2108	124.2219
10/30/2013	125.5	32	113.406	12.094	120.8194				125.6195	-0.11948	0.1102	125.7297
10/31/2013	122.95	33	113.5277	9.4223	121.5841				122.7239	0.226117	-0.0426	122.6813
11/1/2013	123.36	34	113.6672	9.6928	122.0477				123.1751	0.184861	-0.0002	123.1749
11/4/2013	122.93	35	113.8245	9.1055	122.2156				122.971	-0.04102	-0.0821	122.8889
11/5/2013	119.54	36	113.9996	5.5404	122.1111				119.9057	-0.3657	-0.1525	119.7532
11/6/2013	116.32	37	114.1925	2.1275	121.7729				116.3875	-0.06746	0.0699	116.4574
11/7/2013	114.1	38	114.4032	-0.3032	121.2529				113.8802	0.21984	0.1288	114.009
11/8/2013	117.43	39	114.6317	2.7983	120.6119				117.5503	-0.12027	-0.1633	117.387
11/11/2013	116.17	40	114.878	1.292	119.9154				116.3996	-0.22958	-0.1708	116.2288
11/12/2013	115.72	41	115.1421	0.5779	119.2296				115.9317	-0.2117	0.1543	116.086
11/13/2013	116.6	42	115.424	1.176	118.6168				116.2496	0.350402	0.1754	116.425
11/14/2013	119.97	43	115.7237	4.2463	118.1312				119.5746	0.395448	-0.0217	119.5529
11/15/2013	124.07	44	116.0412	8.0288	117.8157				124.2662	-0.19621	-0.0152	124.251
11/18/2013	120.97	45	116.3765	4.5935	117.6994				121.2471	-0.27707	-0.0367	121.2104
11/19/2013	118.45	46	116.7296	1.7204	117.7959				118.5161	-0.06612	-0.1618	118.3543
11/20/2013	119.06	47	117.1005	1.9595	118.1035				118.9058	0.154167	-0.0129	118.8929
11/21/2013	121.3	48	117.4892	3.8108	118.6051				121.1973	0.102735	0.1614	121.3587
11/22/2013	122.79	49	117.8957	4.8943	119.2708				122.7842	0.00584	-0.0705	122.7137
11/25/2013	122.17	50	118.32	3.85	120.0599				122.3747	-0.20474	-0.2266	122.1481
11/26/2013	121.9	51	118.7621	3.1379	120.9249				121.9129	-0.01293	0.061	121.9739
11/27/2013	121.24	52	119.222	2.018	121.8148				120.9566	0.283432	0.2167	121.1733
11/29/2013	124.5	53	119.6997	4.8003	122.6796				124.5594	-0.05944	0.0262	124.5856
12/2/2013	123.8	54	120.1952	3.6048	123.4735				123.866	-0.066	-0.0348	123.8312
12/3/2013	122.16	55	120.7085	1.4515	124.1589				122.3243	-0.16434	-0.0066	122.3177
12/4/2013	122.65	56	121.2396	1.4104	124.7089				122.7175	-0.06754	-0.1382	122.5793
12/5/2013	122.17	57	121.7885	0.3815	125.1093				121.9535	0.216503	-0.0908	121.8627
12/6/2013	125.45	58	122.3552	3.0948	125.3594				125.2087	0.241259	0.1457	125.3544
12/9/2013	125.84	59	122.9397	2.9003	125.4718				125.8979	-0.05793	0.0305	125.9284

12/10/2013	125.25	60	123.542	1.708	125.4716				125.5378	-0.28776	-0.2304	125.3074
12/11/2013	121.6	61	124.1621	-2.5621	125.394				121.5705	0.029483	-0.049	121.5215
12/12/2013	122.35	62	124.8	-2.45	125.2816				122.2328	0.1172	0.2178	122.4506
12/13/2013	123.69	63	125.4557	-1.7657	125.1806				124.0123	-0.32232	0.0926	124.1049
12/16/2013	123.78	64	126.1292	-2.3492	125.1379				123.9747	-0.19466	-0.0437	123.931
12/17/2013	123.06	65	126.8205	-3.7605	125.1966				122.7518	0.308236	0.0012	122.753
12/18/2013	128.65	66	127.5296	1.1204	125.3928				128.5472	0.102754	-0.0943	128.4529
12/19/2013	130.75	67	128.2565	2.4935	125.7529				130.767	-0.01703	-0.1444	130.6226
12/20/2013	130.64	68	129.0012	1.6388	126.2912				130.7359	-0.09591	0.0887	130.8246
12/23/2013	130.9	69	129.7637	1.1363	127.0089				130.8215	0.078451	0.1135	130.935
12/24/2013	131.06	70	130.544	0.516	127.8936				131.0162	0.043793	-0.1822	130.834
12/26/2013	132.91	71	131.3421	1.5679	128.9204				133.0017	-0.09174	-0.1499	132.8518
12/27/2013	131.57	72	132.158	-0.588	130.0534				131.5409	0.02912	0.1725	131.7134
12/30/2013	132.7	73	132.9917	-0.2917	131.2489				132.591	0.108991	0.1606	132.7516
12/31/2013	132.88	74	133.8432	-0.9632	132.4582				132.7292	0.150766	-0.0296	132.6996
1/2/2014	133.44	75	134.7125	-1.2725	133.6317				133.7225	-0.28246	-0.0104	133.7121
1/3/2014	131.72	76	135.5996	-3.8796	134.7228				131.891	-0.17103	-0.047	131.844
1/6/2014	129.86	77	136.5045	-6.6445	135.6918				129.6833	0.176722	-0.1628	129.5205
1/7/2014	133.17	78	137.4272	-4.2572	136.5088				133.1915	-0.02145	0.0083	133.1998
1/8/2014	134	79	138.3677	-4.3677	137.1572				133.7296	0.270371	0.1577	133.8873
1/9/2014	134.07	80	139.326	-5.256	137.6349				134.3993	-0.32927	-0.0956	134.3037
1/10/2014	135.21	81	140.3021	-5.0921	137.9551				135.4679	-0.25795	-0.2172	135.2507
1/13/2014	130.61	82	141.296	-10.686	138.1463				130.3766	0.233354	0.0869	130.4635
1/14/2014	137.66	83	142.3077	-4.6477	138.2509				137.7042	-0.04423	0.2096	137.9138
1/15/2014	137.03	84	143.3372	-6.3072	138.3221				137.0439	-0.01387	0.012	137.0559
1/16/2014	139.81	85	144.3845	-4.5745	138.4215				139.7225	0.087467	-0.0303	139.6922
1/17/2014	139.71	86	145.4496	-5.7396	138.6144				139.373	0.33697	-0.0122	139.3608
1/21/2014	142.58	87	146.5325	-3.9525	138.9657				142.4126	0.167367	-0.1466	142.266
1/22/2014	140.75	88	147.6332	-6.8832	139.5358				140.658	0.092037	-0.0729	140.5851
1/23/2014	137.94	89	148.7517	-10.8117	140.3756				138.3493	-0.4093	0.154	138.5033

1/24/2014	133.64	90	149.888	-16.248	141.5239				133.9136	-0.2736	0.0059	133.9195
1/27/2014	129.82	91	151.0421	-21.2221	143.0033				131.3203	-1.50028	-0.2346	131.0857
1/28/2014	133.01	92	152.214	-19.204	144.8194				132.9273	0.082726	-0.0213	132.906
1/29/2014	133.73	93	153.4037	-19.6737	146.9592				131.8892	1.840779	0.2218	132.111
1/30/2014	162	94	154.6112	7.3888	149.3919				162.2526	-0.25259	0.075	162.3276
1/31/2014	158.73	95	155.8365	2.8935	152.0704				158.8636	-0.13363	-0.0432	158.8204
2/3/2014	154.67	96	157.0796	-2.4096	154.9339				154.747	-0.07699	0.0013	154.7483
2/4/2014	156.21	97	158.3405	-2.1305	157.9116				156.691	-0.48101	-0.1063	156.5847
2/5/2014	154.49	98	159.6192	-5.1292	160.9267				154.7444	-0.25438	-0.134	154.6104
2/6/2014	157.4	99	160.9157	-3.5157	163.9014				157.3419	0.058138	0.106	157.4479
2/7/2014	163.63	100	162.23	1.4	166.7613				163.3751	0.254933	0.0957	163.4708
2/10/2014	170.11	101	163.5621	6.5479	169.44				170.1211	-0.0111	-0.1986	169.9225
2/11/2014	174.43	102	164.912	9.518	171.883				174.4047	0.025309	-0.1269	174.2778
2/12/2014	175.86	103	166.2797	9.5803	174.051				175.6614	0.198619	0.1881	175.8495
2/13/2014	180	104	167.6652	12.3348	175.922				179.9334	0.066575	0.1445	180.0779
2/14/2014	180.55	105	169.0685	11.4815	177.4924				180.438	0.112021	-0.0357	180.4023
2/18/2014	181.06	106	170.4896	10.5704	178.7764				181.2349	-0.17492	-0.0062	181.2287
2/19/2014	180.41	107	171.9285	8.4815	179.8055				180.619	-0.20903	-0.0582	180.5608
2/20/2014	179.06	108	173.3852	5.6748	180.6252				178.8786	0.181369	-0.1617	178.7169
2/21/2014	181.52	109	174.8597	6.6603	181.2922				181.3979	0.122131	0.0295	181.4274
2/24/2014	183.55	110	176.352	7.198	181.8703				183.6794	-0.1294	0.151	183.8304
2/25/2014	182.63	111	177.8621	4.7679	182.426				182.2203	0.409664	-0.1197	182.1006
2/26/2014	182.57	112	179.39	3.18	183.024				182.7793	-0.2093	-0.2046	182.5747
2/27/2014	183.89	113	180.9357	2.9543	183.723				184.3491	-0.45907	0.1113	184.4604
2/28/2014	176.8	114	182.4992	-5.6992	184.5721				176.5925	0.207459	0.2002	176.7927
3/3/2014	172.43	115			185.6075				181.7379		-0.0009	181.737
3/4/2014	173.44	116			186.8508				182.9548		-0.0253	182.9295
3/5/2014	171	117			188.308				184.883		-0.0191	184.8639
3/6/2014	168.55	118			189.9697				176.4252		-0.1535	176.2717
3/7/2014	168.05	119			191.812				181.1789		-0.0537	181.1252

3/10/2014	180	120			193.7993				183.0832		0.1594	183.2426
3/11/2014	175.95	121			195.8873				185.4948		-0.0194	185.4754
3/12/2014	177.9	122			198.026				176.3122		-0.2353	176.0769
3/13/2014	175.17	123			200.1645				180.5411		0.0066	180.5477
3/14/2014	175.28	124			202.2545				183.1496		0.2229	183.3725
3/17/2014	177.99	125			204.2537				186.186		0.0579	186.2439
3/18/2014	180.94	126			206.1297				176.2693		-0.0414	176.2279
3/19/2014	175.92	127			207.8616				179.8238		0.0001	179.8239
3/20/2014	173.66	128			209.4418				183.1371		-0.1178	183.0193
3/21/2014	159.79	129			210.8762				186.9566		-0.1215	186.8351

Aegerion	Price		Trendline	Differenc	Model A			Coefficient	ARIMA	Differenc	Fourier	Model B
10/28/2013	90.11	1	77.9372	12.1728	84.9761		#x_1(n-0)	1.208686	88.75557	1.354434	-0.439	88.31657
10/29/2013	93.32	2	77.6984	15.6216	84.7476		#x_1(n-1)	-0.22367	94.96304	-1.64304	-0.5206	94.44244
10/30/2013	85.25	3	77.4596	7.7904	84.2817		#x_1(n-2)	-0.21695	85.90061	-0.65061	-0.0694	85.83121
10/31/2013	82.82	4	77.2208	5.5992	83.6002		#x_1(n-3)	0.231934	82.68039	0.13961	0.6318	83.31219
11/1/2013	82.8	5	76.982	5.818	82.7332				80.95601	1.843992	0.8263	81.78231
11/4/2013	83.42	6	76.7432	6.6768	81.7179				82.3598	1.060198	0.1765	82.5363
11/5/2013	82.76	7	76.5044	6.2556	80.5957				84.15629	-1.39629	-0.7263	83.42999
11/6/2013	75.41	8	76.2656	-0.8556	79.4097				78.98669	-3.57669	-0.9687	78.01799
11/7/2013	70.72	9	76.0268	-5.3068	78.2029				70.78169	-0.06169	-0.3405	70.44119
11/8/2013	70.43	10	75.788	-5.358	77.015				68.37463	2.055374	0.4804	68.85503
11/11/2013	81.65	11	75.5492	6.1008	75.8813		Percent Error		81.00999	0.640011	0.766	81.77599
11/12/2013	80.93	12	75.3104	5.6196	74.8301		Model A	Model B	79.68748	1.242523	0.4987	80.18618
11/13/2013	82.21	13	75.0716	7.1384	73.8821		4.81%	2.63%	80.67065	1.539348	0.1614	80.83205
11/14/2013	78.72	14	74.8328	3.8872	73.0498				79.52849	-0.80849	0.0015	79.52999
11/15/2013	74.74	15	74.594	0.146	72.3371				76.4724	-1.7324	-0.168	76.3044
11/18/2013	65.22	16	74.3552	-9.1352	71.7399				65.92487	-0.70487	-0.4491	65.47577
11/19/2013	65.74	17	74.1164	-8.3764	71.2471				66.80877	-1.06877	-0.5135	66.29527
11/20/2013	64.61	18	73.8776	-9.2676	70.8422				63.27544	1.334555	-0.0421	63.23334
11/21/2013	68.19	19	73.6388	-5.4488	70.5043				68.23617	-0.04617	0.6539	68.89007
11/22/2013	71.55	20	73.4	-1.85	70.211				72.01713	-0.46713	0.8157	72.83283
11/25/2013	68.8	21	73.1612	-4.3612	69.9395				67.94343	0.856566	0.1393	68.08273
11/26/2013	72.2	22	72.9224	-0.7224	69.6692				72.13128	0.068719	-0.7531	71.37818
11/27/2013	71.52	23	72.6836	-1.1636	69.3828				71.23812	0.281883	-0.9582	70.27992
11/29/2013	70.93	24	72.4448	-1.5148	69.068				71.32744	-0.39744	-0.3058	71.02164
12/2/2013	70.06	25	72.206	-2.146	68.7188				70.03166	0.02834	0.5046	70.53626
12/3/2013	68.37	26	71.9672	-3.5972	68.3353				67.96498	0.405017	0.7635	68.72848
12/4/2013	69.41	27	71.7284	-2.3184	67.9243				69.8932	-0.4832	0.4835	70.3767
12/5/2013	67.7	28	71.4896	-3.7896	67.4985				67.57428	0.125717	0.1519	67.72618
12/6/2013	67	29	71.2508	-4.2508	67.0758				66.17917	0.820827	-0.0032	66.17597

12/9/2013	67.59	30	71.012	-3.422	66.6777				68.24159	-0.65159	-0.1778	68.06379
12/10/2013	66.38	31	70.7732	-4.3932	66.3276				67.2149	-0.8349	-0.4589	66.756
12/11/2013	63.45	32	70.5344	-7.0844	66.0491				63.0756	0.374404	-0.5055	62.5701
12/12/2013	65.36	33	70.2956	-4.9356	65.8637				64.9628	0.397204	-0.0144	64.9484
12/13/2013	66.2	34	70.0568	-3.8568	65.7894				66.1056	0.094403	0.6751	66.7807
12/16/2013	66.25	35	69.818	-3.568	65.8385				66.29277	-0.04277	0.8037	67.09647
12/17/2013	65.29	36	69.5792	-4.2892	66.0164				65.60016	-0.31016	0.1016	65.70176
12/18/2013	64.99	37	69.3404	-4.3504	66.3207				66.10921	-1.11921	-0.7787	65.33051
12/19/2013	64.33	38	69.1016	-4.7716	66.7405				63.86847	0.461529	-0.9462	62.92227
12/20/2013	65.44	39	68.8628	-3.4228	67.2568				64.94959	0.490412	-0.2707	64.67889
12/23/2013	69.6	40	68.624	0.976	67.8425				69.76797	-0.16797	0.5279	70.29587
12/24/2013	68.34	41	68.3852	-0.0452	68.4645				68.50648	-0.16648	0.76	69.26648
12/26/2013	70.05	42	68.1464	1.9036	69.0842				69.99338	0.056624	0.4682	70.46158
12/27/2013	69.53	43	67.9076	1.6224	69.6604				69.36393	0.166073	0.1428	69.50673
12/30/2013	71.82	44	67.6688	4.1512	70.1513				72.29877	-0.47877	-0.0079	72.29087
12/31/2013	70.96	45	67.43	3.53	70.5166				69.53311	1.426887	-0.1879	69.34521
1/2/2014	72.36	46	67.1912	5.1688	70.7204				72.10467	0.255333	-0.4684	71.63627
1/3/2014	73.56	47	66.9524	6.6076	70.7332				75.60826	-2.04826	-0.4966	75.11166
1/6/2014	68.59	48	66.7136	1.8764	70.534				68.71305	-0.12305	0.0137	68.72675
1/7/2014	68.89	49	66.4748	2.4152	70.1118				66.14126	2.748737	0.6954	66.83666
1/8/2014	73.23	50	66.236	6.994	69.4665				71.84917	1.380832	0.7902	72.63937
1/9/2014	73.75	51	65.9972	7.7528	68.6098				75.25269	-1.50269	0.0637	75.31639
1/10/2014	65.77	52	65.7584	0.0116	67.5645				66.48604	-0.71604	-0.8031	65.68294
1/13/2014	60.8	53	65.5196	-4.7196	66.3638				61.07462	-0.27462	-0.9328	60.14182
1/14/2014	60.42	54	65.2808	-4.8608	65.0502				61.30223	-0.88223	-0.2355	61.06673
1/15/2014	59.06	55	65.042	-5.982	63.6731				58.8086	0.251402	0.5502	59.3588
1/16/2014	59.99	56	64.8032	-4.8132	62.2866				59.37447	0.61553	0.7556	60.13007
1/17/2014	62.51	57	64.5644	-2.0544	60.9467				62.00569	0.504308	0.4529	62.45859
1/21/2014	62.1	58	64.3256	-2.2256	59.7087				61.75003	0.349972	0.134	61.88403
1/22/2014	61.74	59	64.0868	-2.3468	58.6239				62.05299	-0.31299	-0.0127	62.04029

1/23/2014	59.22	60	63.848	-4.628	57.7374				59.70712	-0.48712	-0.1982	59.50892
1/24/2014	57.55	61	63.6092	-6.0592	57.0853				57.77516	-0.22516	-0.4774	57.29776
1/27/2014	56.74	62	63.3704	-6.6304	56.6928				57.10369	-0.36369	-0.4867	56.61699
1/28/2014	57.39	63	63.1316	-5.7416	56.5733				57.43832	-0.04832	0.0421	57.48042
1/29/2014	57.59	64	62.8928	-5.3028	56.7269				56.62299	0.967012	0.7147	57.33769
1/30/2014	59.73	65	62.654	-2.924	57.1409				59.75528	-0.02528	0.7753	60.53058
1/31/2014	59.98	66	62.4152	-2.4352	57.7901				60.4913	-0.5113	0.0255	60.5168
2/3/2014	57.72	67	62.1764	-4.4564	58.6384				57.53843	0.181567	-0.8262	56.71223
2/4/2014	58.2	68	61.9376	-3.7376	59.6402				59.13719	-0.93719	-0.9179	58.21929
2/5/2014	58.34	69	61.6988	-3.3588	60.7431				59.2781	-0.9381	-0.2001	59.078
2/6/2014	57.98	70	61.46	-3.48	61.8903				57.30111	0.678888	0.5714	57.87251
2/7/2014	62.17	71	61.2212	0.9488	63.0236				61.32712	0.842877	0.7504	62.07752
2/10/2014	65.62	72	60.9824	4.6376	64.0864				65.18056	0.439443	0.4377	65.61826
2/11/2014	66.24	73	60.7436	5.4964	65.0261				65.99852	0.241476	0.1256	66.12412
2/12/2014	65.67	74	60.5048	5.1652	65.797				66.17671	-0.50671	-0.0176	66.15911
2/13/2014	64.37	75	60.266	4.104	66.3625				64.25041	0.119589	-0.2087	64.04171
2/14/2014	62.9	76	60.0272	2.8728	66.6961				63.40279	-0.50279	-0.486	62.91679
2/18/2014	64.01	77	59.7884	4.2216	66.7829				64.73622	-0.72622	-0.4759	64.26032
2/19/2014	62.1	78	59.5496	2.5504	66.6199				61.85121	0.248791	0.0708	61.92201
2/20/2014	65.39	79	59.3108	6.0792	66.2154				64.69124	0.69876	0.733	65.42424
2/21/2014	66.59	80	59.072	7.518	65.5885				65.06595	1.524049	0.759	65.82495
2/24/2014	68.4	81	58.8332	9.5668	64.7675				68.59568	-0.19568	-0.0129	68.58278
2/25/2014	66.35	82	58.5944	7.7556	63.7877				65.93096	0.419039	-0.848	65.08296
2/26/2014	61.54	83	58.3556	3.1844	62.6897				64.18364	-2.64364	-0.9017	63.28194
2/27/2014	60.85	84	58.1168	2.7332	61.5164				61.88307	-1.03307	-0.1647	61.71837
2/28/2014	54.76	85	57.878	-3.118	60.3111				51.869	2.890995	0.5917	52.4607
3/3/2014	54.25	86			59.1146				63.93852		0.7444	64.68292
3/4/2014	56.81	87			57.9634				67.31298		0.4225	67.73548
3/5/2014	53.74	88			56.8879				64.93641		0.1175	65.05391
3/6/2014	50.21	89			55.9109				48.84963		-0.0226	48.82703

3/7/2014	55.53	90			55.0471				59.46763		-0.2194	59.24823
3/10/2014	52.46	91			54.3027				70.03051		-0.4941	69.53641
3/11/2014	48.79	92			53.6756				70.90253		-0.4642	70.43833
3/12/2014	51.66	93			53.1565				46.99437		0.0997	47.09407
3/13/2014	50.37	94			52.7301				51.73126		0.7501	52.48136
3/14/2014	52.52	95			52.3765				70.58884		0.7413	71.33014
3/17/2014	54.22	96			52.0736				80.33654		-0.0514	80.28514
3/18/2014	55.2	97			51.7985				48.54931		-0.8684	47.68091
3/19/2014	52.34	98			51.5297				40.5695		-0.8842	39.6853
3/20/2014	50.31	99			51.249				66.22742		-0.1293	66.09812
3/21/2014	47.73	100			50.9426				92.80143		0.6108	93.41223

Questcor	Price		Trendline	Differenc	Model A			Coefficient	ARIMA	Differenc	Fourier	Model B
10/15/2013	63.25	1	70.0964	-6.8464	66.0074		#x_1(n-0)	1.101587	63.11448	0.135519	-0.0009	63.11358
10/16/2013	66.73	2	69.3878	-2.6578	64.9305		#x_1(n-1)	0.160642	67.00535	-0.27535	-0.3157	66.68965
10/17/2013	65.93	3	68.6962	-2.7662	64.258		#x_1(n-2)	-0.19899	66.65155	-0.72155	-0.0021	66.64945
10/18/2013	65.8	4	68.0216	-2.2216	63.9632		#x_1(n-3)	-0.06324	65.92953	-0.12953	0.4341	66.36363
10/21/2013	63.27	5	67.364	-4.094	63.9649				61.9757	1.294297	0.4187	62.3944
10/22/2013	62.56	6	66.7234	-4.1634	64.1485				61.79353	0.766472	0.1423	61.93583
10/23/2013	67.52	7	66.0998	1.4202	64.391				67.4835	0.036501	0.0645	67.548
10/24/2013	68.56	8	65.4932	3.0668	64.5857				68.57771	-0.01771	0.0749	68.65261
10/25/2013	68.4	9	64.9036	3.4964	64.6601				68.59684	-0.19684	-0.2071	68.38974
10/28/2013	67.97	10	64.331	3.639	64.5852				70.25407	-2.28407	-0.5744	69.67967
10/29/2013	69.73	11	63.7754	5.9546	64.374				70.39368	-0.66368	-0.4206	69.97308
10/30/2013	60.01	12	63.2368	-3.2268	64.071		Percent Error		59.96204	0.047964	0.2242	60.18624
10/31/2013	61.37	13	62.7152	-1.3452	63.7342		Model A	Model B	61.16057	0.20943	0.5704	61.73097
11/1/2013	60.85	14	62.2106	-1.3606	63.4173		28.98%	24.64%	60.59408	0.255922	0.2057	60.79978
11/4/2013	61.58	15	61.723	-0.143	63.1525				62.09416	-0.51416	-0.2747	61.81946
11/5/2013	62.7	16	61.2524	1.4476	62.9422				63.35282	-0.65282	-0.1688	63.18402
11/6/2013	60.93	17	60.7988	0.1312	62.7577				60.29461	0.635391	0.3139	60.60851
11/7/2013	58.34	18	60.3622	-2.0222	62.5479				57.82093	0.519068	0.4804	58.30133
11/8/2013	61.6	19	59.9426	1.6574	62.2546				61.47956	0.120442	0.2348	61.71436
11/11/2013	62.29	20	59.54	2.75	61.8301				62.24722	0.042785	0.0615	62.30872
11/12/2013	62.4	21	59.1544	3.2456	61.2537				62.63824	-0.23824	0.0907	62.72894
11/13/2013	62.74	22	58.7858	3.9542	60.5423				63.05563	-0.31563	-0.069	62.98663
11/14/2013	61.83	23	58.4342	3.3958	59.7519				62.15989	-0.32989	-0.4753	61.68459
11/15/2013	61.29	24	58.0996	3.1904	58.9692				61.19739	0.092606	-0.5558	60.64159
11/18/2013	60	25	57.782	2.218	58.2946				60.12414	-0.12414	-0.0179	60.10624
11/19/2013	61	26	57.4814	3.5186	57.8205				61.34923	-0.34923	0.5295	61.87873
11/20/2013	60.39	27	57.1978	3.1922	57.6083				60.73683	-0.34683	0.3964	61.13323
11/21/2013	59.35	28	56.9312	2.4188	57.6708				60.10627	-0.75627	-0.1485	59.95777
11/22/2013	59.12	29	56.6816	2.4384	57.9637				59.26195	-0.14195	-0.2822	58.97975

11/25/2013	56.26	30	56.449	-0.189	58.3882				55.89422	0.36578	0.1463	56.04052
11/26/2013	56.53	31	56.2334	0.2966	58.806				56.29269	0.237306	0.483	56.77569
11/27/2013	57.76	32	56.0348	1.7252	59.0639				57.61201	0.147986	0.341	57.95301
11/29/2013	58.01	33	55.8532	2.1568	59.023				58.32411	-0.31411	0.0907	58.41481
12/2/2013	58.75	34	55.6886	3.0614	58.5879				59.22308	-0.47308	0.0787	59.30178
12/3/2013	57.62	35	55.541	2.079	57.7286				57.90637	-0.28637	0.0301	57.93647
12/4/2013	56.15	36	55.4104	0.7396	56.4913				57.20157	-1.05157	-0.3319	56.86967
12/5/2013	56.58	37	55.2968	1.2832	54.9952				57.21954	-0.63954	-0.6019	56.61764
12/6/2013	52.63	38	55.2002	-2.5702	53.4152				52.67812	-0.04812	-0.2577	52.42042
12/9/2013	51.69	39	55.1206	-3.4306	51.9526				51.53319	0.156809	0.3912	51.92439
12/10/2013	51.82	40	55.058	-3.238	50.8012				51.43913	0.380865	0.5285	51.96763
12/11/2013	52.03	41	55.0124	-2.9824	50.112				51.88763	0.142374	0.0377	51.92533
12/12/2013	53.43	42	54.9838	-1.5538	49.9664				53.2921	0.137896	-0.315	52.9771
12/13/2013	53.31	43	54.9722	-1.6622	50.3606				53.11287	0.197128	-0.0364	53.07647
12/16/2013	53.81	44	54.9776	-1.1676	51.2053				53.66589	0.14411	0.4159	54.08179
12/17/2013	54.11	45	55	-0.89	52.3418				54.64805	-0.53805	0.4341	55.08215
12/18/2013	55.18	46	55.0394	0.1406	53.5692				55.21954	-0.03954	0.1579	55.37744
12/19/2013	52.54	47	55.0958	-2.5558	54.6801				52.29406	0.245936	0.0621	52.35616
12/20/2013	53.26	48	55.1692	-1.9092	55.4964				53.0741	0.185899	0.081	53.1551
12/23/2013	53.89	49	55.2596	-1.3696	55.8999				53.54962	0.340381	-0.1786	53.37102
12/24/2013	54.01	50	55.367	-1.357	55.8505				54.08977	-0.07977	-0.5604	53.52937
12/26/2013	55.44	51	55.4914	-0.0514	55.3911				55.62849	-0.18849	-0.4527	55.17579
12/27/2013	54.7	52	55.6328	-0.9328	54.6361				54.64005	0.059954	0.1799	54.81995
12/30/2013	54.21	53	55.7912	-1.5812	53.7486				54.15156	0.058436	0.5706	54.72216
12/31/2013	54.45	54	55.9666	-1.5166	52.9094				55.03194	-0.58194	0.2447	55.27664
1/2/2014	55.19	55	56.159	-0.969	52.2842				55.40435	-0.21435	-0.2566	55.14775
1/3/2014	52.66	56	56.3684	-3.7084	51.9959				52.74102	-0.08102	-0.1956	52.54542
1/6/2014	52.76	57	56.5948	-3.8348	52.1064				53.41401	-0.65401	0.2847	53.69871
1/7/2014	53.02	58	56.8382	-3.8182	52.6108				53.18275	-0.16275	0.486	53.66875
1/8/2014	50.5	59	57.0986	-6.5986	53.445				49.79636	0.703643	0.2548	50.05116

1/9/2014	50.19	60	57.376	-7.186	54.5032				49.75049	0.439515	0.0642	49.81469
1/10/2014	52.95	61	57.6704	-4.7204	55.6626				52.4467	0.5033	0.0899	52.5366
1/13/2014	53.13	62	57.9818	-4.8518	56.8081				52.47157	0.658427	-0.0465	52.42507
1/14/2014	54.9	63	58.3102	-3.4102	57.8539				53.37409	1.525909	-0.4503	52.92379
1/15/2014	55.23	64	58.6556	-3.4256	58.7553				54.95679	0.27321	-0.5717	54.38509
1/16/2014	61.43	65	59.018	2.412	59.5118				60.74218	0.687821	-0.0653	60.67688
1/17/2014	59.32	66	59.3974	-0.0774	60.1584				58.57651	0.743488	0.5101	59.08661
1/21/2014	62.43	67	59.7938	2.6362	60.7506				62.08034	0.349657	0.4273	62.50764
1/22/2014	63.8	68	60.2072	3.5928	61.3456				64.03675	-0.23675	-0.1166	63.92015
1/23/2014	64.88	69	60.6376	4.2424	61.9847				65.10965	-0.22965	-0.2953	64.81435
1/24/2014	63.73	70	61.085	2.645	62.6811				63.37336	0.35664	0.1114	63.48476
1/27/2014	63.02	71	61.5494	1.4706	63.4165				62.32865	0.691347	0.4757	62.80435
1/28/2014	64.18	72	62.0308	2.1492	64.146				63.7464	0.433603	0.3607	64.1071
1/29/2014	66.15	73	62.5292	3.6208	64.8121				66.18605	-0.03605	0.1007	66.28675
1/30/2014	67.05	74	63.0446	4.0054	65.3612				67.63088	-0.58088	0.0751	67.70598
1/31/2014	67.01	75	63.577	3.433	65.7617				67.55983	-0.54983	0.0435	67.60333
2/3/2014	65.16	76	64.1264	1.0336	66.0168				65.31916	-0.15916	-0.3023	65.01686
2/4/2014	63.71	77	64.6928	-0.9828	66.1693				63.89326	-0.18326	-0.6004	63.29286
2/5/2014	64	78	65.2762	-1.2762	66.2966				63.46127	0.538735	-0.2996	63.16167
2/6/2014	62.61	79	65.8766	-3.2666	66.497				62.08305	0.526949	0.3554	62.43845
2/7/2014	65.01	80	66.494	-1.484	66.868				64.46455	0.54545	0.5441	65.00865
2/10/2014	65.81	81	67.1284	-1.3184	67.4843				65.02303	0.786972	0.077	65.10003
2/11/2014	66.97	82	67.7798	-0.8098	68.3772				66.70899	0.261012	-0.3109	66.39809
2/12/2014	69.5	83	68.4482	1.0518	69.5224				69.15793	0.342067	-0.0698	69.08813
2/13/2014	69.59	84	69.1336	0.4564	70.8391				67.96523	1.624766	0.3953	68.36053
2/14/2014	69.28	85	69.836	-0.556	72.2004				68.68051	0.599486	0.448	69.12851
2/18/2014	75.83	86	70.5554	5.2746	73.455				75.23121	0.598795	0.1746	75.40581
2/19/2014	74.86	87	71.2918	3.5682	74.4556				74.71948	0.14052	0.0604	74.77988
2/20/2014	77.84	88	72.0452	5.7948	75.0888				77.25276	0.587241	0.0855	77.33826
2/21/2014	76.51	89	72.8156	3.6944	75.2998				76.7035	-0.1935	-0.1509	76.5526

2/24/2014	79.46	90	73.603	5.857	75.1079				81.13281	-1.67281	-0.5439	80.58891
2/25/2014	78.65	91	74.4074	4.2426	74.6084				81.29344	-2.64344	-0.482	80.81144
2/26/2014	74.21	92	75.2288	-1.0188	73.9593				75.35773	-1.14773	0.1343	75.49203
2/27/2014	67.47	93	76.0672	-8.5972	73.3566				63.14095	4.32905	0.567	63.70795
2/28/2014	60.75	94	76.9226	-16.1726	73.0008				60.99214	-0.24214	0.2829	61.27504
3/3/2014	62.97	95			73.0613				85.23591		-0.2355	85.00041
3/4/2014	64.9	96			73.6464				75.62912		-0.2202	75.40892
3/5/2014	67.2	97			74.7825				57.60935		0.2539	57.86325
3/6/2014	65.28	98			76.4092				62.18802		0.4893	62.67732
3/7/2014	66	99			78.3894				90.64759		0.2751	90.92269
3/10/2014	64.48	100			80.5331				74.45928		0.0682	74.52748
3/11/2014	63.51	101			82.6309				50.70502		0.0882	50.79322
3/12/2014	63.93	102			84.4906				65.04413		-0.0257	65.01843
3/13/2014	61.74	103			85.9705				97.61437		-0.4239	97.19047
3/14/2014	63.3	104			87.002				71.05257		-0.5842	70.46837
3/17/2014	61.75	105			87.5995				42.38724		-0.1123	42.27494
3/18/2014	65.04	106			87.8547				70.51346		0.4872	71.00066
3/19/2014	63.39	107			87.917				106.0509		0.4558	106.5067
3/20/2014	64.14	108			87.9646				64.34174		-0.0826	64.25914
3/21/2014	62.3	109			88.1722				32.84868		-0.3052	32.54348

Gilead	Price		Trendline	Differenc	Model A			Coefficient	ARIMA	Differenc	Fourier	Model B
9/17/2013	62.69	1	61.6522	1.0378	61.1419		#x_1(n-0)	0.952983	62.74222	-0.05222	-0.0063	62.73592
9/18/2013	64.28	2	61.8444	2.4356	61.4012		#x_1(n-1)	0.025635	64.20694	0.073062	-0.0147	64.19224
9/19/2013	64.32	3	62.0366	2.2834	61.7106		#x_1(n-2)	-0.02948	64.27914	0.040859	-0.0202	64.25894
9/20/2013	63.86	4	62.2288	1.6312	62.0401		#x_1(n-3)	0.050865	63.75187	0.108134	-0.0222	63.72967
9/23/2013	62.58	5	62.421	0.159	62.3571				62.62035	-0.04035	-0.0206	62.59975
9/24/2013	62.74	6	62.6132	0.1268	62.6298				62.75303	-0.01303	-0.0159	62.73713
9/25/2013	61.73	7	62.8054	-1.0754	62.8311				61.76205	-0.03205	-0.0088	61.75325
9/26/2013	62.8	8	62.9976	-0.1976	62.9416				62.81691	-0.01691	-0.0004	62.81651
9/27/2013	63.54	9	63.1898	0.3502	62.9522				63.48666	0.053344	0.0081	63.49476
9/30/2013	62.87	10	63.382	-0.512	62.8654				62.82306	0.046941	0.0153	62.83836
10/1/2013	62.8	11	63.5742	-0.7742	62.6956				62.83409	-0.03409	0.0199	62.85399
10/2/2013	62.4	12	63.7664	-1.3664	62.4683		Percent Error		62.3314	0.068601	0.0211	62.3525
10/3/2013	61.71	13	63.9586	-2.2486	62.2176		Model A	Model B	61.62381	0.086189	0.018	61.64181
10/4/2013	63.04	14	64.1508	-1.1108	61.9836		8.47%	6.69%	62.90477	0.135231	0.0104	62.91517
10/7/2013	61.77	15	64.343	-2.573	61.8082				61.84268	-0.07268	-0.0014	61.84128
10/8/2013	59.38	16	64.5352	-5.1552	61.7316				59.437	-0.057	-0.0167	59.4203
10/9/2013	58.9	17	64.7274	-5.8274	61.7876				59.1395	-0.2395	-0.0345	59.105
10/10/2013	62.74	18	64.9196	-2.1796	62.0007				62.74915	-0.00915	-0.0533	62.69585
10/11/2013	62.69	19	65.1118	-2.4218	62.3834				62.84398	-0.15398	-0.0714	62.77258
10/14/2013	63.87	20	65.304	-1.434	62.9338				63.98812	-0.11812	-0.0874	63.90072
10/15/2013	63.6	21	65.4962	-1.8962	63.636				63.77618	-0.17618	-0.0995	63.67668
10/16/2013	65.65	22	65.6884	-0.0384	64.4608				65.68652	-0.03652	-0.1068	65.57972
10/17/2013	67.36	23	65.8806	1.4794	65.3677				67.42983	-0.06983	-0.1082	67.32163
10/18/2013	68.21	24	66.0728	2.1372	66.3081				68.22295	-0.01295	-0.1035	68.11945
10/21/2013	66.99	25	66.265	0.725	67.2298				67.1031	-0.1131	-0.093	67.0101
10/22/2013	68.09	26	66.4572	1.6328	68.0806				68.14316	-0.05316	-0.0772	68.06596
10/23/2013	69.01	27	66.6494	2.3606	68.8137				68.99703	0.012974	-0.0575	68.93953
10/24/2013	69.83	28	66.8416	2.9884	69.3911				69.8418	-0.0118	-0.0354	69.8064
10/25/2013	69.68	29	67.0338	2.6462	69.7871				69.81304	-0.13304	-0.0128	69.80024

10/28/2013	68.73	30	67.226	1.504	69.9909				68.7582	-0.0282	0.0085	68.7667
10/29/2013	69.5	31	67.4182	2.0818	70.0069				69.6065	-0.1065	0.0267	69.6332
10/30/2013	72.67	32	67.6104	5.0596	69.8549				72.51254	0.157455	0.0403	72.55284
10/31/2013	71.18	33	67.8026	3.3774	69.568				71.14545	0.034554	0.0482	71.19365
11/1/2013	70.97	34	67.9948	2.9752	69.1902				70.78675	0.183247	0.0498	70.83655
11/4/2013	69.34	35	68.187	1.153	68.7718				69.21479	0.125206	0.045	69.25979
11/5/2013	69.54	36	68.3792	1.1608	68.3657				69.48901	0.050985	0.0344	69.52341
11/6/2013	67.36	37	68.5714	-1.2114	68.0224				67.32299	0.037014	0.0189	67.34189
11/7/2013	65.63	38	68.7636	-3.1336	67.7861				65.71989	-0.08989	0	65.71989
11/8/2013	67.37	39	68.9558	-1.5858	67.6905				67.42399	-0.05399	-0.0204	67.40359
11/11/2013	67.51	40	69.148	-1.638	67.7563				67.55815	-0.04815	-0.0407	67.51745
11/12/2013	67.61	41	69.3402	-1.7302	67.9898				67.7084	-0.0984	-0.0589	67.6495
11/13/2013	68.5	42	69.5324	-1.0324	68.3822				68.49523	0.004769	-0.0735	68.42173
11/14/2013	68.98	43	69.7246	-0.7446	68.9115				69.03821	-0.05821	-0.0832	68.95501
11/15/2013	69.89	44	69.9168	-0.0268	69.5439				69.93373	-0.04373	-0.0871	69.84663
11/18/2013	68.97	45	70.109	-1.139	70.2377				69.06078	-0.09078	-0.0852	68.97558
11/19/2013	69.66	46	70.3012	-0.6412	70.9473				69.87281	-0.21281	-0.0775	69.79531
11/20/2013	71.08	47	70.4934	0.5866	71.6269				71.17909	-0.09909	-0.065	71.11409
11/21/2013	71.63	48	70.6856	0.9444	72.2352				71.74948	-0.11948	-0.0487	71.70078
11/22/2013	74.27	49	70.8778	3.3922	72.7388				74.29382	-0.02382	-0.0302	74.26362
11/25/2013	74.6	50	71.07	3.53	73.1149				74.6039	-0.0039	-0.0112	74.5927
11/26/2013	74.37	51	71.2622	3.1078	73.3534				74.37132	-0.00132	0.0067	74.37802
11/27/2013	74.63	52	71.4544	3.1756	73.4569				74.52545	0.104553	0.0221	74.54755
11/29/2013	74.81	53	71.6466	3.1634	73.4404				74.754	0.055995	0.0337	74.7877
12/2/2013	74.52	54	71.8388	2.6812	73.329				74.45896	0.061045	0.0409	74.49986
12/3/2013	72.42	55	72.031	0.389	73.1556				72.47844	-0.05844	0.0433	72.52174
12/4/2013	72.47	56	72.2232	0.2468	72.9566				72.582	-0.112	0.041	72.623
12/5/2013	73.19	57	72.4154	0.7746	72.7689				73.13222	0.057785	0.0348	73.16702
12/6/2013	73.99	58	72.6076	1.3824	72.6256				73.88363	0.106371	0.0256	73.90923
12/9/2013	75.19	59	72.7998	2.3902	72.5529				75.01376	0.176237	0.0147	75.02846

12/10/2013	72.81	60	72.992	-0.182	72.5676				72.75677	0.053231	0.0033	72.76007
12/11/2013	70.61	61	73.1842	-2.5742	72.6753				70.61919	-0.00919	-0.007	70.61219
12/12/2013	70.27	62	73.3764	-3.1064	72.8706				70.2554	0.014601	-0.0152	70.2402
12/13/2013	71.4	63	73.5686	-2.1686	73.1373				71.55082	-0.15082	-0.0204	71.53042
12/16/2013	71.42	64	73.7608	-2.3408	73.4508				71.42391	-0.00391	-0.0222	71.40171
12/17/2013	70.08	65	73.953	-3.873	73.7806				70.30417	-0.22417	-0.0204	70.28377
12/18/2013	73.59	66	74.1452	-0.5552	74.0939				73.62556	-0.03556	-0.0155	73.61006
12/19/2013	73.43	67	74.3374	-0.9074	74.3594				73.49336	-0.06336	-0.0083	73.48506
12/20/2013	74.66	68	74.5296	0.1304	74.5506				74.68708	-0.02708	0.0002	74.68728
12/23/2013	74.99	69	74.7218	0.2682	74.6494				74.95557	0.034427	0.0086	74.96417
12/24/2013	74.96	70	74.914	0.046	74.648				74.98729	-0.02729	0.0157	75.00299
12/26/2013	75.2	71	75.1062	0.0938	74.5503				75.17923	0.020775	0.0201	75.19933
12/27/2013	74.45	72	75.2984	-0.8484	74.3721				74.48564	-0.03564	0.021	74.50664
12/30/2013	75.08	73	75.4906	-0.4106	74.14				75.03802	0.041977	0.0176	75.05562
12/31/2013	75.1	74	75.6828	-0.5828	73.8892				75.03121	0.068792	0.0097	75.04091
1/2/2014	75.21	75	75.875	-0.665	73.6599				75.12166	0.088336	-0.0024	75.11926
1/3/2014	74.32	76	76.0672	-1.7472	73.4944				74.29397	0.026027	-0.0179	74.27607
1/6/2014	73.24	77	76.2594	-3.0194	73.4319				73.27564	-0.03564	-0.0358	73.23984
1/7/2014	72.78	78	76.4516	-3.6716	73.5056				72.85893	-0.07893	-0.0545	72.80443
1/8/2014	73.46	79	76.6438	-3.1838	73.7387				73.42369	0.036313	-0.0726	73.35109
1/9/2014	74.3	80	76.836	-2.536	74.1417				74.38391	-0.08391	-0.0883	74.29561
1/10/2014	74.87	81	77.0282	-2.1582	74.7114				74.84043	0.029575	-0.1002	74.74023
1/13/2014	73.14	82	77.2204	-4.0804	75.4301				73.36792	-0.22792	-0.1071	73.26082
1/14/2014	74.99	83	77.4126	-2.4226	76.2671				75.08381	-0.09381	-0.1081	74.97571
1/15/2014	75.23	84	77.6048	-2.3748	77.1806				75.52798	-0.29798	-0.103	75.42498
1/16/2014	77.9	85	77.797	0.103	78.1216				78.02202	-0.12202	-0.092	77.93002
1/17/2014	78.4	86	77.9892	0.4108	79.0374				78.56082	-0.16082	-0.076	78.48482
1/21/2014	81.58	87	78.1814	3.3986	79.8765				81.52975	0.050254	-0.0561	81.47365
1/22/2014	82.18	88	78.3736	3.8064	80.5928				82.05635	0.123647	-0.0339	82.02245
1/23/2014	82.15	89	78.5658	3.5842	81.1496				82.1325	0.017505	-0.0113	82.1212

1/24/2014	80.62	90	78.758	1.862	81.5229				80.53424	0.085757	0.0099	80.54414
1/27/2014	78.86	91	78.9502	-0.0902	81.7037				79.01251	-0.15251	0.0278	79.04031
1/28/2014	80.67	92	79.1424	1.5276	81.6982				80.6229	0.047098	0.0411	80.664
1/29/2014	79.85	93	79.3346	0.5154	81.5281				79.81734	0.032657	0.0486	79.86594
1/30/2014	81.52	94	79.5268	1.9932	81.2279				81.60244	-0.08244	0.0497	81.65214
1/31/2014	80.65	95	79.719	0.931	80.8424				80.43579	0.214207	0.0445	80.48029
2/3/2014	78.83	96	79.9112	-1.0812	80.4227				78.81331	0.016691	0.0334	78.84671
2/4/2014	82.02	97	80.1034	1.9166	80.0216				81.91721	0.102793	0.0177	81.93491
2/5/2014	78.15	98	80.2956	-2.1456	79.689				78.23396	-0.08396	-0.0013	78.23266
2/6/2014	76.5	99	80.4878	-3.9878	79.468				76.69518	-0.19518	-0.0219	76.67328
2/7/2014	78.75	100	80.68	-1.93	79.3909				78.88256	-0.13256	-0.042	78.84056
2/10/2014	80.98	101	80.8722	0.1078	79.4767				81.05081	-0.07081	-0.06	80.99081
2/11/2014	81.8	102	81.0644	0.7356	79.7299				81.75301	0.046995	-0.0743	81.67871
2/12/2014	82	103	81.2566	0.7434	80.1401				82.12945	-0.12945	-0.0836	82.04585
2/13/2014	82.55	104	81.4488	1.1012	80.6837				82.48613	0.063868	-0.0872	82.39893
2/14/2014	81.21	105	81.641	-0.431	81.3257				81.31411	-0.10411	-0.0848	81.22931
2/18/2014	83.81	106	81.8332	1.9768	82.0239				83.74897	0.061027	-0.0768	83.67217
2/19/2014	82.7	107	82.0254	0.6746	82.7322				82.75032	-0.05032	-0.0639	82.68642
2/20/2014	82.81	108	82.2176	0.5924	83.4053				82.83994	-0.02994	-0.0475	82.79244
2/21/2014	82.59	109	82.4098	0.1802	84.0027				82.63708	-0.04708	-0.0289	82.60818
2/24/2014	83.57	110	82.602	0.968	84.492				83.57673	-0.00673	-0.01	83.56673
2/25/2014	83.95	111	82.7942	1.1558	84.852				83.89625	0.053747	0.0078	83.90405
2/26/2014	83.81	112	82.9864	0.8236	85.0739				83.84036	-0.03036	0.023	83.86336
2/27/2014	83.65	113	83.1786	0.4714	85.1621				83.63038	0.019624	0.0344	83.66478
2/28/2014	82.79	114	83.3708	-0.5808	85.1327				82.83014	-0.04014	0.0412	82.87134
3/3/2014	81.45	115			85.0121				83.84843		0.0433	83.89173
3/4/2014	82.94	116			84.8336				83.86517		0.0407	83.90587
3/5/2014	82.87	117			84.6341				83.61538		0.0343	83.64968
3/6/2014	79.92	118			84.4501				82.86567		0.0249	82.89057
3/7/2014	79.58	119			84.314				83.80574		0.0139	83.81964

3/10/2014	80.23	120			84.2511				83.88521		0.0026	83.88781
3/11/2014	79.84	121			84.2768				83.60427		-0.0076	83.59667
3/12/2014	79.72	122			84.3955				82.89728		-0.0157	82.88158
3/13/2014	78.01	123			84.6004				83.76751		-0.0207	83.74681
3/14/2014	75.05	124			84.8741				83.90115		-0.0222	83.87895
3/17/2014	75.45	125			85.1912				83.59643		-0.0202	83.57623
3/18/2014	77.77	126			85.5208				82.92555		-0.0151	82.91045
3/19/2014	76.54	127			85.8299				83.73315		-0.0077	83.72545
3/20/2014	75.53	128			86.0878				83.91355		0.0008	83.91435
3/21/2014	72.07	129			86.2688				83.59134		0.0092	83.60054

Puma BT	Price		Trendline	Differenc	Model A			Coefficient	ARIMA	Differenc	Fourier	Model B
8/2/2013	50.68	1	28.089	22.591	53.0578		#x_1(n-0)	1.066383	50.30117	0.378826	0.2979	50.59907
8/5/2013	55.31	2	28.729	26.581	52.8024		#x_1(n-1)	-0.09726	55.18212	0.127875	0.1475	55.32962
8/6/2013	55.91	3	29.369	26.541	52.5514		#x_1(n-2)	-0.0093	56.02008	-0.11008	-0.0796	55.94048
8/7/2013	53.67	4	30.009	23.661	52.311		#x_1(n-3)	0.040177	53.71683	-0.04683	-0.1454	53.57143
8/8/2013	53.2	5	30.649	22.551	52.087				53.23313	-0.03313	-0.0617	53.17143
8/9/2013	52.6	6	31.289	21.311	51.8847				52.4829	0.1171	-0.0019	52.481
8/12/2013	53.45	7	31.929	21.521	51.7088				53.33986	0.110143	-0.0184	53.32146
8/13/2013	52.63	8	32.569	20.061	51.5634				52.58965	0.040348	0.0004	52.59005
8/14/2013	51.75	9	33.209	18.541	51.4522				52.01844	-0.26844	0.0957	52.11414
8/15/2013	48.33	10	33.849	14.481	51.3778				48.3465	-0.0165	0.1236	48.4701
8/16/2013	48.5	11	34.489	14.011	51.3425				48.44508	0.054924	-0.0337	48.41138
8/19/2013	49.4	12	35.129	14.271	51.3475				49.43504	-0.03504	-0.2386	49.19644
8/20/2013	49.4	13	35.769	13.631	51.3937		Percent Error		49.41451	-0.01451	-0.2294	49.18511
8/21/2013	49.52	14	36.409	13.111	51.481		Model A	Model B	49.5614	-0.0414	0.0308	49.5922
8/22/2013	50.3	15	37.049	13.251	51.6084		22.85%	9.97%	50.27115	0.028846	0.2729	50.54405
8/23/2013	50.26	16	37.689	12.571	51.7747				50.01961	0.240388	0.2458	50.26541
8/26/2013	52.61	17	38.329	14.281	51.9775				52.87135	-0.26135	0.0178	52.88915
8/27/2013	50.02	18	38.969	11.051	52.214				50.03515	-0.01515	-0.1406	49.89455
8/28/2013	49.91	19	39.609	10.301	52.4807				49.78581	0.124185	-0.1089	49.67691
8/29/2013	52.22	20	40.249	11.971	52.7735				52.525	-0.305	-0.0185	52.5065
8/30/2013	50.64	21	40.889	9.751	53.0879				50.67844	-0.03844	-0.0066	50.67184
9/3/2013	52.58	22	41.529	11.051	53.4188				52.40487	0.175133	-0.0201	52.38477
9/4/2013	56.07	23	42.169	13.901	53.7606				56.06768	0.002324	0.0473	56.11498
9/5/2013	57.55	24	42.809	14.741	54.1077				57.53912	0.01088	0.1309	57.67002
9/6/2013	57.82	25	43.449	14.371	54.4539				57.58678	0.233215	0.0611	57.64788
9/9/2013	60	26	44.089	15.911	54.793				60.00126	-0.00126	-0.1542	59.84706
9/10/2013	58.5	27	44.729	13.771	55.1185				58.50661	-0.00661	-0.2713	58.23531
9/11/2013	57.45	28	45.369	12.081	55.424				57.58184	-0.13184	-0.1105	57.47134
9/12/2013	55.81	29	46.009	9.801	55.7033				55.82104	-0.01104	0.1827	56.00374

9/13/2013	55.5	30	46.649	8.851	55.9501				55.52173	-0.02173	0.2961	55.81783
9/16/2013	56.31	31	47.289	9.021	56.1583				56.42462	-0.11462	0.1333	56.55792
9/17/2013	55.45	32	47.929	7.521	56.3223				55.22596	0.224043	-0.0892	55.13676
9/18/2013	57.99	33	48.569	9.421	56.4367				57.94444	0.045559	-0.1431	57.80134
9/19/2013	57.47	34	49.209	8.261	56.4966				57.49034	-0.02034	-0.056	57.43434
9/20/2013	56.49	35	49.849	6.641	56.4976				56.57742	-0.08742	-0.0014	56.57602
9/23/2013	55.25	36	50.489	4.761	56.436				55.27879	-0.02879	-0.0195	55.25929
9/24/2013	55.09	37	51.129	3.961	56.3086				55.04527	0.044728	0.0045	55.04977
9/25/2013	55.34	38	51.769	3.571	56.1129				55.25317	0.086832	0.1012	55.35437
9/26/2013	55.6	39	52.409	3.191	55.8473				55.71442	-0.11442	0.1195	55.83392
9/27/2013	54.7	40	53.049	1.651	55.5107				54.8293	-0.1293	-0.0471	54.7822
9/30/2013	53.66	41	53.689	-0.029	55.1031				53.49399	0.166006	-0.246	53.24799
10/1/2013	55.82	42	54.329	1.491	54.6252				55.86003	-0.04003	-0.2195	55.64053
10/2/2013	55.66	43	54.969	0.691	54.0785				55.6664	-0.0064	0.0489	55.7153
10/3/2013	55.22	44	55.609	-0.389	53.4656				54.83526	0.384742	0.2798	55.11506
10/4/2013	56.29	45	56.249	0.041	52.7896				55.86722	0.422785	0.2356	56.10282
10/7/2013	54.9	46	56.889	-1.989	52.0547				55.16778	-0.26778	0.004	55.17178
10/8/2013	48.16	47	57.529	-9.369	51.266				48.81485	-0.65485	-0.1436	48.67125
10/9/2013	40.52	48	58.169	-17.649	50.429				40.48564	0.034355	-0.1032	40.38244
10/10/2013	41.92	49	58.809	-16.889	49.5504				41.67609	0.24391	-0.0152	41.66089
10/11/2013	44.52	50	59.449	-14.929	48.6374				44.59903	-0.07903	-0.008	44.59103
10/14/2013	43.98	51	60.089	-16.109	47.6979				44.22172	-0.24172	-0.0188	44.20292
10/15/2013	42.62	52	60.729	-18.109	46.7403				42.4682	0.151798	0.0535	42.5217
10/16/2013	44.74	53	61.369	-16.629	45.7737				44.50772	0.232278	0.1323	44.64002
10/17/2013	46.88	54	62.009	-15.129	44.8077				46.91217	-0.03217	0.0509	46.96307
10/18/2013	44.96	55	62.649	-17.689	43.852				44.90794	0.052057	-0.1667	44.74124
10/21/2013	44.19	56	63.289	-19.099	42.9168				44.42298	-0.23298	-0.2698	44.15318
10/22/2013	42.41	57	63.929	-21.519	42.0124				42.56981	-0.15981	-0.0939	42.47591
10/23/2013	41.21	58	64.569	-23.359	41.1495				40.90486	0.305141	0.1969	41.10176
10/24/2013	44.99	59	65.209	-20.219	40.3384				44.98976	0.00024	0.2932	45.28296

10/25/2013	44.08	60	65.849	-21.769	39.5896				43.95898	0.121022	0.119	44.07798
10/28/2013	43.43	61	66.489	-23.059	38.9135				43.36271	0.067294	-0.0982	43.26451
10/29/2013	42.42	62	67.129	-24.709	38.3199				42.6757	-0.2557	-0.1403	42.5354
10/30/2013	39.11	63	67.769	-28.659	37.8185				39.20852	-0.09852	-0.0505	39.15802
10/31/2013	38.31	64	68.409	-30.099	37.4186				38.27794	0.03206	-0.0012	38.27674
11/1/2013	39.82	65	69.049	-29.229	37.1288				39.80479	0.015212	-0.0205	39.78429
11/4/2013	39.79	66	69.689	-29.899	36.9571				39.60411	0.18589	0.009	39.61311
11/5/2013	41.51	67	70.329	-28.819	36.9109				41.5712	-0.0612	0.1063	41.6775
11/6/2013	39.76	68	70.969	-31.209	36.9967				39.69955	0.060449	0.1146	39.81415
11/7/2013	39.32	69	71.609	-32.289	37.2202				39.31619	0.003809	-0.0606	39.25559
11/8/2013	38.29	70	72.249	-33.959	37.5864				38.59651	-0.30651	-0.2526	38.34391
11/11/2013	36.85	71	72.889	-36.039	38.0989				37.00717	-0.15717	-0.2087	36.79847
11/12/2013	36.16	72	73.529	-37.369	38.7608				35.8288	0.331199	0.0669	35.8957
11/13/2013	41.94	73	74.169	-32.229	39.5737				42.07619	-0.13619	0.2856	42.36179
11/14/2013	40.27	74	74.809	-34.539	40.5385				40.07335	0.196647	0.2247	40.29805
11/15/2013	42.86	75	75.449	-32.589	41.6548				42.97039	-0.11039	-0.0093	42.96109
11/18/2013	41.5	76	76.089	-34.589	42.9212				41.59523	-0.09523	-0.1459	41.44933
11/19/2013	41.93	77	76.729	-34.799	44.3351				42.0544	-0.1244	-0.0974	41.957
11/20/2013	42.1	78	77.369	-35.269	45.893				42.02402	0.075981	-0.0122	42.01182
11/21/2013	45.05	79	78.009	-32.959	47.5902				45.08065	-0.03065	-0.0095	45.07115
11/22/2013	46.16	80	78.649	-32.489	49.4211				46.03298	0.127023	-0.0172	46.01578
11/25/2013	48.29	81	79.289	-30.999	51.3789				48.2515	0.038498	0.0597	48.3112
11/26/2013	49.25	82	79.929	-30.679	53.456				49.21283	0.037169	0.1331	49.34593
11/27/2013	48.87	83	80.569	-31.699	55.644				48.71585	0.154155	0.0402	48.75605
11/29/2013	49.79	84	81.209	-31.419	57.9336				49.89239	-0.10239	-0.1787	49.71369
12/2/2013	47.53	85	81.849	-34.319	60.3146				48.81084	-1.28084	-0.2672	48.54364
12/3/2013	46.95	86	82.489	-35.539	62.7765				48.33501	-1.38501	-0.0769	48.25811
12/4/2013	46.21	87	83.129	-36.919	65.3078				44.47656	1.733439	0.2104	44.68696
12/5/2013	77.7	88	83.769	-6.069	67.8969				76.94428	0.755724	0.2893	77.23358
12/6/2013	86.75	89	84.409	2.341	70.5315				86.35857	0.391431	0.1044	86.46297

12/9/2013	88.68	90	85.049	3.631	73.1993				89.15089	-0.47089	-0.1065	89.04439
12/10/2013	83.34	91	85.689	-2.349	75.8875				83.70045	-0.36045	-0.137	83.56345
12/11/2013	80.89	92	86.329	-5.439	78.5835				80.70168	0.188318	-0.0451	80.65658
12/12/2013	85.67	93	86.969	-1.299	81.2745				86.08558	-0.41558	-0.0013	86.08428
12/13/2013	86.92	94	87.609	-0.689	83.948				87.08834	-0.16834	-0.0212	87.06714
12/16/2013	89.17	95	88.249	0.921	86.5917				88.4819	0.688103	0.0137	88.4956
12/17/2013	99.85	96	88.889	10.961	89.1935				99.93687	-0.08687	0.1111	100.048
12/18/2013	99.55	97	89.529	10.021	91.7418				99.58529	-0.03529	0.1091	99.69439
12/19/2013	100.3	98	90.169	10.131	94.2258				100.5657	-0.26568	-0.0742	100.4915
12/20/2013	101.39	99	90.809	10.581	96.6348				101.3882	0.001808	-0.2582	101.13
12/23/2013	102.67	100	91.449	11.221	98.9592				101.9591	0.71088	-0.197	101.7621
12/24/2013	110.1	101	92.089	18.011	101.1902				110.2254	-0.12538	0.0846	110.31
12/26/2013	106.46	102	92.729	13.731	103.3195				106.6297	-0.16965	0.2904	106.9201
12/27/2013	103.84	103	93.369	10.471	105.3401				103.857	-0.01696	0.2131	104.0701
12/30/2013	102.96	104	94.009	8.951	107.2458				102.9591	0.000863	-0.0223	102.9368
12/31/2013	103.53	105	94.649	8.881	109.0315				103.6246	-0.09459	-0.1475	103.4771
1/2/2014	102.06	106	95.289	6.771	110.693				101.8923	0.167746	-0.0915	101.8008
1/3/2014	104.11	107	95.929	8.181	112.2273				104.4843	-0.37426	-0.0096	104.4747
1/6/2014	102.46	108	96.569	5.891	113.6327				102.6744	-0.21442	-0.0111	102.6633
1/7/2014	102.94	109	97.209	5.731	114.9083				102.8078	0.132167	-0.0151	102.7927
1/8/2014	109.16	110	97.849	11.311	116.0544				109.0853	0.074651	0.0659	109.1512
1/9/2014	110.51	111	98.489	12.021	117.0726				110.2192	0.290827	0.1332	110.3524
1/10/2014	116.46	112	99.129	17.331	117.9653				116.8968	-0.43681	0.0289	116.9257
1/13/2014	112.26	113	99.769	12.491	118.7362				112.0346	0.22544	-0.1902	111.8444
1/14/2014	118.08	114	100.409	17.671	119.3899				118.407	-0.327	-0.2636	118.1434
1/15/2014	117.54	115	101.049	16.491	119.9319				117.9324	-0.39236	-0.0595	117.8729
1/16/2014	121.96	116	101.689	20.271	120.3687				121.7391	0.220886	0.2231	121.9622
1/17/2014	125.81	117	102.329	23.481	120.7077				124.4278	1.382214	0.2844	124.7122
1/21/2014	139.92	118	102.969	36.951	120.9569				140.505	-0.58503	0.0898	140.5948
1/22/2014	129.94	119	103.609	26.331	121.1252				130.0119	-0.07186	-0.114	129.8979

1/23/2014	126.52	120	104.249	22.271	121.2218				126.4325	0.087504	-0.1332	126.2993
1/24/2014	127.22	121	104.889	22.331	121.2567				127.5854	-0.36535	-0.04	127.5454
1/27/2014	122.82	122	105.529	17.291	121.2402				122.6255	0.194524	-0.0016	122.6239
1/28/2014	125.18	123	106.169	19.011	121.1829				124.9077	0.272265	-0.0217	124.886
1/29/2014	125.19	124	106.809	18.381	121.0958				124.7523	0.437705	0.0188	124.7711
1/30/2014	124.24	125	107.449	16.791	120.9897				124.5906	-0.35058	0.1156	124.7062
1/31/2014	118.21	126	108.089	10.121	120.8756				118.5142	-0.30416	0.1028	118.617
2/3/2014	110.38	127	108.729	1.651	120.7645				109.6863	0.693658	-0.0878	109.5985
2/4/2014	115.16	128	109.369	5.791	120.6671				116.4443	-1.28433	-0.2629	116.1814
2/5/2014	106.12	129	110.009	-3.889	120.5938				106.9716	-0.85157	-0.1845	106.7871
2/6/2014	103.7	130	110.649	-6.949	120.5547				102.5481	1.151947	0.1021	102.6502
2/7/2014	122.59	131	111.289	11.301	120.5593				122.4639	0.126124	0.2941	122.758
2/10/2014	125.27	132	111.929	13.341	120.6167				125.3702	-0.1002	0.201	125.5712
2/11/2014	125.75	133	112.569	13.181	120.7353				125.5412	0.208816	-0.0348	125.5064
2/12/2014	126.67	134	113.209	13.461	120.9229				126.3802	0.289778	-0.1484	126.2318
2/13/2014	129.25	135	113.849	15.401	121.1862				129.4432	-0.19316	-0.0856	129.3576
2/14/2014	123.59	136	114.489	9.101	121.5315				123.3231	0.26686	-0.0074	123.3157
2/18/2014	124.99	137	115.129	9.861	121.9639				125.7605	-0.77052	-0.0126	125.7479
2/19/2014	119.37	138	115.769	3.601	122.4876				119.7037	-0.33366	-0.0128	119.6909
2/20/2014	119.36	139	116.409	2.951	123.1062				118.6852	0.674769	0.072	118.7572
2/21/2014	129.26	140	117.049	12.211	123.8218				129.0434	0.216607	0.1327	129.1761
2/24/2014	129.94	141	117.689	12.251	124.6358				130.004	-0.06402	0.0171	130.0211
2/25/2014	128.98	142	118.329	10.651	125.5486				128.8198	0.160196	-0.2012	128.6186
2/26/2014	125.45	143	118.969	6.481	126.5596				125.4063	0.043675	-0.2588	125.1475
2/27/2014	128.17	144	119.609	8.561	127.6671				129.2113	-1.04127	-0.0418	129.1695
2/28/2014	116.26	145	120.249	-3.989	128.8685				115.4737	0.786282	0.2349	115.7086
3/3/2014	114.02	146			130.1604				128.6119		0.2785	128.8904
3/4/2014	119.35	147			131.5383				125.2574		0.0752	125.3326
3/5/2014	120.12	148			132.9971				130.3941		-0.1208	130.2733
3/6/2014	114.09	149			134.5308				114.7044		-0.129	114.5754

3/7/2014	112.33	150			136.1326				128.3629		-0.0351	128.3278
3/10/2014	112.86	151			137.7952				124.9808		-0.0022	124.9786
3/11/2014	108.71	152			139.5107				131.7215		-0.022	131.6995
3/12/2014	114.04	153			141.2706				113.9641		0.0241	113.9882
3/13/2014	110.43	154			143.0662				128.0821		0.1196	128.2017
3/14/2014	114.86	155			144.8883				124.5523		0.0958	124.6481
3/17/2014	112.8	156			146.7275				133.1943		-0.1014	133.0929
3/18/2014	121.31	157			148.5745				113.2651		-0.2666	112.9985
3/19/2014	122.06	158			150.4196				127.7825		-0.1711	127.6114
3/20/2014	119.5	159			152.2533				123.9465		0.1192	124.0657
3/21/2014	113.88	160			154.0664				134.8114		0.2967	135.1081

Celgene	Price		Trendline	Differenc	Model A			Coefficient	ARIMA	Differenc	Fourier	Model B
9/18/2013	148.67	1	146.9197	1.7503	148.1112		#x_1(n-0)	1.113852	148.8501	-0.18011	-0.2167	148.6334
9/19/2013	148.52	2	147.3242	1.1958	148.6055		#x_1(n-1)	-0.16953	148.2057	0.314274	0.1798	148.3855
9/20/2013	149.86	3	147.7235	2.1365	149.2392		#x_1(n-2)	0.084385	150.217	-0.357	-0.098	150.119
9/23/2013	146.78	4	148.1176	-1.3376	149.9809		#x_1(n-3)	-0.02871	146.6454	0.134606	0.0822	146.7276
9/24/2013	146.44	5	148.5065	-2.0665	150.7855				146.6457	-0.20573	0.0125	146.6582
9/25/2013	145.56	6	148.8902	-3.3302	151.601				145.3433	0.216707	0.0401	145.3834
9/26/2013	149.89	7	149.2687	0.6213	152.3756				149.2386	0.651408	0.096	149.3346
9/27/2013	154.61	8	149.642	4.968	153.0644				154.8703	-0.26034	-0.1989	154.6714
9/30/2013	154.14	9	150.0101	4.1299	153.6349				153.8159	0.324056	0.1896	154.0055
10/1/2013	157.2	10	150.373	6.827	154.0718				157.0268	0.173198	-0.1279	156.8989
10/2/2013	155.93	11	150.7307	5.1993	154.378				156.6634	-0.73335	0.0871	156.7505
10/3/2013	152.62	12	151.0832	1.5368	154.5745				152.0546	0.56538	0.0105	152.0651
10/4/2013	157.27	13	151.4305	5.8395	154.6976		Percent Error		157.4075	-0.13746	0.0582	157.4657
10/7/2013	153.87	14	151.7726	2.0974	154.7935		Model A	Model B	154.2225	-0.35247	0.0742	154.2967
10/8/2013	148.53	15	152.1095	-3.5795	154.9126		4.04%	4.97%	149.0174	-0.48742	-0.1735	148.8439
10/9/2013	146.87	16	152.4412	-5.5712	155.1018				146.2242	0.645757	0.1943	146.4185
10/10/2013	152.55	17	152.7677	-0.2177	155.3983				152.5184	0.031579	-0.1573	152.3611
10/11/2013	153.17	18	153.089	0.081	155.8232				152.999	0.170978	0.0955	153.0945
10/14/2013	154.34	19	153.4051	0.9349	156.3777				154.3599	-0.01992	0.0064	154.3663
10/15/2013	155.25	20	153.716	1.534	157.041				154.9765	0.273482	0.0703	155.0468
10/16/2013	158.33	21	154.0217	4.3083	157.7707				158.2084	0.121613	0.0549	158.2633
10/17/2013	160	22	154.3222	5.6778	158.5067				159.8177	0.182334	-0.1421	159.6756
10/18/2013	160.55	23	154.6175	5.9325	159.176				160.814	-0.26404	0.193	161.007
10/21/2013	159.23	24	154.9076	4.3224	159.7005				159.0585	0.171495	-0.184	158.8745
10/22/2013	160.84	25	155.1925	5.6475	160.0053				160.8858	-0.0458	0.1074	160.9932
10/23/2013	160	26	155.4722	4.5278	160.0272				160.0946	-0.09459	-0.0013	160.0933
10/24/2013	157.96	27	155.7467	2.2133	159.7225				158.2664	-0.30645	0.0772	158.3436
10/25/2013	155.74	28	156.016	-0.276	159.073				155.7476	-0.00755	0.0392	155.7868
10/28/2013	156.23	29	156.2801	-0.0501	158.0905				156.1939	0.036138	-0.107	156.0869

10/29/2013	155.31	30	156.539	-1.229	156.8172				155.5257	-0.21575	0.1856	155.7113
10/30/2013	151.32	31	156.7927	-5.4727	155.3242				151.8161	-0.49614	-0.2055	151.6106
10/31/2013	148.49	32	157.0412	-8.5512	153.7065				148.1355	0.354485	0.1222	148.2577
11/1/2013	151.31	33	157.2845	-5.9745	152.0757				151.5577	-0.24774	-0.0135	151.5442
11/4/2013	150.72	34	157.5226	-6.8026	150.5508				150.3554	0.364592	0.08	150.4354
11/5/2013	150.74	35	157.7555	-7.0155	149.2481				151.3666	-0.62658	0.0276	151.3942
11/6/2013	144.49	36	157.9832	-13.4932	148.271				144.6645	-0.1745	-0.0705	144.594
11/7/2013	144.99	37	158.2057	-13.2157	147.7012				144.4914	0.498638	0.1726	144.664
11/8/2013	148.92	38	158.423	-9.503	147.5908				149.0256	-0.1056	-0.2202	148.8054
11/11/2013	148.48	39	158.6351	-10.1551	147.9582				148.3462	0.133793	0.1387	148.4849
11/12/2013	149.41	40	158.842	-9.432	148.7862				149.433	-0.02302	-0.0307	149.4023
11/13/2013	149.28	41	159.0437	-9.7637	150.0239				149.2061	0.073868	0.0804	149.2865
11/14/2013	150	42	159.2402	-9.2402	151.5912				149.9358	0.064186	0.02	149.9558
11/15/2013	151.11	43	159.4315	-8.3215	153.3859				150.9471	0.162917	-0.035	150.9121
11/18/2013	152.98	44	159.6176	-6.6376	155.2933				152.786	0.193973	0.1548	152.9408
11/19/2013	154.44	45	159.7985	-5.3585	157.1959				154.3519	0.088146	-0.2264	154.1255
11/20/2013	155.53	46	159.9742	-4.4442	158.9838				155.424	0.105975	0.1557	155.5797
11/21/2013	158.61	47	160.1447	-1.5347	160.5639				158.1229	0.487091	-0.053	158.0699
11/22/2013	163.33	48	160.31	3.02	161.8667				163.2836	0.046394	0.0801	163.3637
11/25/2013	163.96	49	160.4701	3.4899	162.8519				163.9068	0.053173	0.0157	163.9225
11/26/2013	163.43	50	160.625	2.805	163.5094				163.6229	-0.1929	-0.0025	163.6204
11/27/2013	161.52	51	160.7747	0.7453	163.8589				161.6574	-0.13744	0.1336	161.791
11/29/2013	161.77	52	160.9192	0.8508	163.9455				161.4364	0.333623	-0.2235	161.2129
12/2/2013	163.11	53	161.0585	2.0515	163.8337				163.3524	-0.24236	0.1712	163.5236
12/3/2013	159.93	54	161.1926	-1.2626	163.5992				160.1061	-0.17612	-0.0794	160.0267
12/4/2013	160.07	55	161.3215	-1.2515	163.3207				159.5686	0.5014	0.0807	159.6493
12/5/2013	164.51	56	161.4452	3.0648	163.0713				164.4689	0.041107	0.0135	164.4824
12/6/2013	166.43	57	161.5637	4.8663	162.9112				166.2002	0.229758	0.0252	166.2254
12/9/2013	170.01	58	161.677	8.333	162.8818				169.6759	0.334089	0.1108	169.7867
12/10/2013	170.77	59	161.7851	8.9849	163.0032				171.2957	-0.52568	-0.2113	171.0844

12/11/2013	166.05	60	161.888	4.162	163.2728				166.1195	-0.06947	0.1838	166.3033
12/12/2013	165.52	61	161.9857	3.5343	163.6677				165.5803	-0.06033	-0.1085	165.4718
12/13/2013	164.9	62	162.0782	2.8218	164.1488				164.8803	0.019662	0.0836	164.9639
12/16/2013	163.38	63	162.1655	1.2145	164.6668				163.7247	-0.34475	0.0119	163.7366
12/17/2013	160.79	64	162.2476	-1.4576	165.1686				160.584	0.206017	0.0472	160.6312
12/18/2013	162.48	65	162.3245	0.1555	165.6053				162.4723	0.007682	0.088	162.5603
12/19/2013	164.02	66	162.3962	1.6238	165.9377				163.7012	0.318791	-0.1907	163.5105
12/20/2013	167.48	67	162.4627	5.0173	166.1417				167.2798	0.200213	0.1919	167.4717
12/23/2013	168.35	68	162.524	5.826	166.2112				168.5577	-0.20767	-0.1386	168.4191
12/24/2013	167.42	69	162.5801	4.8399	166.1586				167.211	0.208953	0.0897	167.3007
12/26/2013	169.14	70	162.631	6.509	166.0134				169.167	-0.02698	0.0093	169.1763
12/27/2013	168.93	71	162.6767	6.2533	165.8174				168.8385	0.091524	0.0632	168.9017
12/30/2013	168.98	72	162.7172	6.2628	165.62				169.2076	-0.22765	0.067	169.2746
12/31/2013	168.97	73	162.7525	6.2175	165.4706				168.7197	0.250286	-0.1629	168.5568
1/2/2014	171.94	74	162.7826	9.1574	165.412				171.7251	0.214923	0.1945	171.9196
1/3/2014	169.81	75	162.8075	7.0025	165.4738				170.6576	-0.84756	-0.1673	170.4903
1/6/2014	162.62	76	162.8272	-0.2072	165.6674				162.5165	0.1035	0.0993	162.6158
1/7/2014	164.61	77	162.8417	1.7683	165.9825				164.3227	0.287314	0.0041	164.3268
1/8/2014	167.46	78	162.851	4.609	166.3874				167.5216	-0.0616	0.0733	167.5949
1/9/2014	168.7	79	162.8551	5.8449	166.8298				168.2388	0.461176	0.0489	168.2877
1/10/2014	169.81	80	162.854	6.956	167.2424				170.5367	-0.72668	-0.13	170.4067
1/13/2014	164.9	81	162.8477	2.0523	167.5484				164.4977	0.402334	0.1911	164.6888
1/14/2014	167.04	82	162.8362	4.2038	167.6705				167.3738	-0.33375	-0.1923	167.1815
1/15/2014	165.35	83	162.8195	2.5305	167.5384				165.0193	0.3307	0.1124	165.1317
1/16/2014	167.6	84	162.7976	4.8024	167.0982				167.7068	-0.10677	-0.005	167.7018
1/17/2014	167.04	85	162.7705	4.2695	166.3186				166.9888	0.051246	0.0786	167.0674
1/21/2014	168.55	86	162.7382	5.8118	165.1964				168.518	0.031962	0.0346	168.5526
1/22/2014	169.98	87	162.7007	7.2793	163.759				169.8768	0.103153	-0.0941	169.7827
1/23/2014	168.55	88	162.658	5.892	162.0639				169.0024	-0.45243	0.1816	169.184
1/24/2014	161.22	89	162.6101	-1.3901	160.195				162.0338	-0.81376	-0.2116	161.8222

1/27/2014	156.27	90	162.557	-6.287	158.257				155.8916	0.378386	0.1279	156.0195
1/28/2014	159.98	91	162.4987	-2.5187	156.3665				159.9625	0.017502	-0.019	159.9435
1/29/2014	158.46	92	162.4352	-3.9752	154.6424				158.9515	-0.49154	0.0804	159.0319
1/30/2014	153.98	93	162.3665	-8.3865	153.1956				153.9445	0.035547	0.0245	153.969
1/31/2014	151.93	94	162.2926	-10.3626	152.1195				152.4901	-0.56009	-0.0577	152.4324
2/3/2014	148.6	95	162.2135	-13.6135	151.4813				148.2589	0.341065	0.1667	148.4256
2/4/2014	151.51	96	162.1292	-10.6192	151.3163				151.3327	0.177314	-0.2234	151.1093
2/5/2014	150.85	97	162.0397	-11.1897	151.6248				151.3525	-0.50253	0.1448	151.4973
2/6/2014	149.91	98	161.945	-12.035	152.3719				149.0075	0.902488	-0.0381	148.9694
2/7/2014	156.88	99	161.8451	-4.9651	153.4909				157.0747	-0.19468	0.0803	157.155
2/10/2014	156.62	100	161.74	-5.12	154.8894				156.1599	0.46009	0.0181	156.178
2/11/2014	159.91	101	161.6297	-1.7197	156.4575				160.0954	-0.18536	-0.023	160.0724
2/12/2014	160.54	102	161.5142	-0.9742	158.0779				159.9619	0.578115	0.1476	160.1095
2/13/2014	164.74	103	161.3935	3.3465	159.6358				165.0201	-0.2801	-0.2264	164.7937
2/14/2014	163.93	104	161.2676	2.6624	161.0287				163.5378	0.392223	0.1614	163.6992
2/18/2014	165.84	105	161.1365	4.7035	162.1749				166.2706	-0.43057	-0.062	166.2086
2/19/2014	163	106	161.0002	1.9998	163.0194				162.6991	0.300924	0.0801	162.7792
2/20/2014	163.58	107	160.8587	2.7213	163.5373				164.0437	-0.46368	0.0147	164.0584
2/21/2014	160.97	108	160.712	0.258	163.7341				160.7539	0.216116	0.0079	160.7618
2/24/2014	164.09	109	160.5601	3.5299	163.6432				163.7703	0.319723	0.1256	163.8959
2/25/2014	164.34	110	160.403	3.937	163.3204				164.9569	-0.6169	-0.2202	164.7367
2/26/2014	159.98	111	160.2407	-0.2607	162.837				159.6156	0.364419	0.1761	159.7917
2/27/2014	161.67	112	160.0732	1.5968	162.2714				162.1623	-0.49232	-0.0895	162.0728
2/28/2014	160.75	113	159.9005	0.8495	161.7004				159.9005	0.849457	0.0814	159.9819
3/3/2014	160.28	114			161.1912				165.7717		0.0129	165.7846
3/4/2014	161.83	115			160.7952				159.0311		0.0337	159.0648
3/5/2014	163.24	116			160.543				162.9402		0.1026	163.0428
3/6/2014	156.61	117			160.4429				158.7446		-0.2049	158.5397
3/7/2014	156.56	118			160.4817				166.8773		0.1872	167.0645
3/10/2014	158.42	119			160.6275				158.119		-0.1192	157.9998

3/11/2014	158.39	120			160.835				164.1222		0.0854	164.2076
3/12/2014	157.92	121			161.0523				157.1587		0.0112	157.1699
3/13/2014	156	122			161.2276				168.4086		0.0536	168.4622
3/14/2014	149.41	123			161.316				156.7248		0.0803	156.8051
3/17/2014	150.23	124			161.2856				165.8768		-0.1815	165.6953
3/18/2014	153.69	125			161.1215				154.9646		0.1935	155.1581
3/19/2014	150.84	126			160.8269				170.5616		-0.149	170.4126
3/20/2014	150.01	127			160.4234				154.6275		0.0927	154.7202
3/21/2014	144.4	128			159.9474				168.445		0.0079	168.4529

Biogen Idec	Price		Trendline	Differenc	Model A			Coefficient	ARIMA	Differenc	Fourier	Model B
9/16/2013	239.57	1	222.9899	16.5801	242.0711		#x_1(n-0)	0.931191	239.5423	0.027656	0.0288	239.5711
9/17/2013	240.05	2	223.9098	16.1402	243.087		#x_1(n-1)	0.070009	240.4767	-0.42665	-0.1187	240.358
9/18/2013	246.35	3	224.8297	21.5203	243.3038		#x_1(n-2)	0.031391	246.6399	-0.28992	0.0517	246.6916
9/19/2013	247.98	4	225.7496	22.2304	242.8495		#x_1(n-3)	-0.03259	247.9685	0.011479	-0.2916	247.6769
9/20/2013	248.13	5	226.6695	21.4605	241.8841				247.8194	0.310584	-0.0599	247.7595
9/23/2013	242.67	6	227.5894	15.0806	240.5812				242.6821	-0.01211	-0.1259	242.5562
9/24/2013	243.54	7	228.5093	15.0307	239.1104				243.3408	0.199217	-0.1155	243.2253
9/25/2013	241.51	8	229.4292	12.0808	237.6215				241.7462	-0.23616	0.4189	242.1651
9/26/2013	243.05	9	230.3491	12.7009	236.2328				243.0411	0.008912	-0.0026	243.0385
9/27/2013	244.82	10	231.269	13.551	235.0251				244.4929	0.327052	-0.1547	244.3382
9/30/2013	240.76	11	232.1889	8.5711	234.0399				241.4485	-0.68847	-0.043	241.4055
10/1/2013	244.92	12	233.1088	11.8112	233.2837				244.8145	0.105526	-0.3083	244.5062
10/2/2013	246.23	13	234.0287	12.2013	232.7359		Percent Error		245.4906	0.739388	0.0322	245.5228
10/3/2013	233.84	14	234.9486	-1.1086	232.3598		Model A	Model B	234.6504	-0.81039	-0.0762	234.5742
10/4/2013	240.3	15	235.8685	4.4315	232.1148		4.04%	4.97%	240.1118	0.188197	-0.0787	240.0331
10/7/2013	236.59	16	236.7884	-0.1984	231.9674				235.4925	1.097451	0.404	235.8965
10/8/2013	225.5	17	237.7083	-12.2083	231.9003				225.3535	0.146454	-0.0538	225.2997
10/9/2013	223.85	18	238.6282	-14.7782	231.9178				224.4277	-0.57769	-0.1833	224.2444
10/10/2013	234.17	19	239.5481	-5.3781	232.0465				234.2857	-0.11574	-0.1177	234.168
10/11/2013	234.8	20	240.468	-5.668	232.3319				234.9273	-0.12733	-0.3008	234.6265
10/14/2013	238.84	21	241.3879	-2.5479	232.8309				238.4783	0.361668	0.1351	238.6134
10/15/2013	236.47	22	242.3078	-5.8378	233.601				236.8587	-0.38869	-0.0262	236.8325
10/16/2013	241.18	23	243.2277	-2.0477	234.6888				241.6496	-0.46963	-0.0596	241.59
10/17/2013	247.1	24	244.1476	2.9524	236.1184				246.7054	0.394593	0.3535	247.0589
10/18/2013	244.9	25	245.0675	-0.1675	237.8818				244.7481	0.151906	-0.1172	244.6309
10/21/2013	243.07	26	245.9874	-2.9174	239.933				243.6494	-0.57943	-0.1951	243.4543
10/22/2013	250.6	27	246.9073	3.6927	242.1876				250.539	0.061015	-0.1649	250.3741
10/23/2013	251.12	28	247.8272	3.2928	244.5262				250.9149	0.205108	-0.2717	250.6432
10/24/2013	249.22	29	248.7471	0.4729	246.8042				249.4279	-0.20788	0.2368	249.6647

10/25/2013	252.26	30	249.667	2.593	248.8655				252.5867	-0.32666	0.0136	252.6003
10/28/2013	254.43	31	250.5869	3.8431	250.5586				254.5889	-0.15891	-0.0605	254.5284
10/29/2013	254.39	32	251.5068	2.8832	251.7547				254.0569	0.333086	0.2741	254.331
10/30/2013	248.95	33	252.4267	-3.4767	252.3641				248.7225	0.227474	-0.1834	248.5391
10/31/2013	244.19	34	253.3466	-9.1566	252.3494				243.9886	0.201403	-0.1828	243.8058
11/1/2013	243.1	35	254.2665	-11.1665	251.7349				243.0686	0.031424	-0.1816	242.887
11/4/2013	240.07	36	255.1864	-15.1164	250.6089				240.5888	-0.51883	-0.2269	240.3619
11/5/2013	244.06	37	256.1063	-12.0463	249.1195				243.5055	0.554456	0.3247	243.8302
11/6/2013	238.48	38	257.0262	-18.5462	247.4644				238.0337	0.446298	0.0347	238.0684
11/7/2013	231.19	39	257.9461	-26.7561	245.8742				231.5437	-0.35368	-0.0797	231.464
11/8/2013	236.69	40	258.866	-22.176	244.5917				236.5426	0.147377	0.176	236.7186
11/11/2013	234.79	41	259.7859	-24.9959	243.8498				234.7983	-0.0083	-0.2424	234.5559
11/12/2013	235.62	42	260.7058	-25.0858	243.8482				235.4065	0.213505	-0.1429	235.2636
11/13/2013	236.1	43	261.6257	-25.5257	244.734				236.3173	-0.21732	-0.1695	236.1478
11/14/2013	237.58	44	262.5456	-24.9656	246.5863				237.9648	-0.38479	-0.1747	237.7901
11/15/2013	245.09	45	263.4655	-18.3755	249.407				244.8006	0.28939	0.3877	245.1883
11/18/2013	241.27	46	264.3854	-23.1154	253.1192				241.3519	-0.08187	0.0322	241.3841
11/19/2013	245.46	47	265.3053	-19.8453	257.5734				244.4162	1.043848	-0.1116	244.3046
11/20/2013	246.12	48	266.2252	-20.1052	262.5597				246.18	-0.05997	0.0718	246.2518
11/21/2013	252.43	49	267.1451	-14.7151	267.8268				254.9192	-2.48917	-0.2856	254.6336
11/22/2013	285.62	50	268.065	17.555	273.1037				286.1831	-0.56311	-0.0759	286.1072
11/25/2013	295.88	51	268.9849	26.8951	278.1235				295.508	0.371993	-0.1347	295.3733
11/26/2013	289.2	52	269.9048	19.2952	282.6458				289.3959	-0.19589	-0.1244	289.2715
11/27/2013	293.83	53	270.8247	23.0053	286.4763				293.8593	-0.0293	0.4174	294.2767
11/29/2013	290.97	54	271.7446	19.2254	289.4808				291.308	-0.33802	0.0054	291.3134
12/2/2013	294.84	55	272.6645	22.1755	291.5929				294.3845	0.45551	-0.1479	294.2366
12/3/2013	287.76	56	273.5844	14.1756	292.8155				287.4327	0.327303	-0.0257	287.407
12/4/2013	285.82	57	274.5043	11.3157	293.2148				285.9047	-0.08472	-0.3069	285.5978
12/5/2013	284.92	58	275.4242	9.4958	292.9085				285.3681	-0.44811	0.0129	285.381
12/6/2013	290.9	59	276.3441	14.5559	292.0506				290.8107	0.089312	-0.0864	290.7243

12/9/2013	286.18	60	277.264	8.916	290.8131				286.1288	0.051199	-0.0847	286.0441
12/10/2013	285.23	61	278.1839	7.0461	289.3681				284.8186	0.411428	0.4099	285.2285
12/11/2013	278.04	62	279.1038	-1.0638	287.8713				278.0874	-0.04742	-0.0424	278.045
12/12/2013	277.87	63	280.0237	-2.1537	286.4497				277.7647	0.105285	-0.1787	277.586
12/13/2013	275.32	64	280.9436	-5.6236	285.1931				274.9066	0.413397	-0.105	274.8016
12/16/2013	273.6	65	281.8635	-8.2635	284.1525				273.557	0.042983	-0.3041	273.2529
12/17/2013	271.51	66	282.7834	-11.2734	283.3421				271.9426	-0.43256	0.1145	272.0571
12/18/2013	280.64	67	283.7033	-3.0633	282.7469				280.453	0.186991	-0.0355	280.4175
12/19/2013	277.21	68	284.6232	-7.4132	282.3332				277.6652	-0.45516	-0.0618	277.6034
12/20/2013	283.34	69	285.5431	-2.2031	282.0601				283.1996	0.140375	0.366	283.5656
12/23/2013	281.61	70	286.463	-4.853	281.8915				281.679	-0.06902	-0.1042	281.5748
12/24/2013	280.65	71	287.3829	-6.7329	281.8056				280.6243	0.025735	-0.1945	280.4298
12/26/2013	281.34	72	288.3028	-6.9628	281.8011				281.0502	0.289815	-0.158	280.8922
12/27/2013	277.17	73	289.2227	-12.0527	281.8994				277.3104	-0.14037	-0.2789	277.0315
12/30/2013	279.57	74	290.1426	-10.5726	282.1422				279.6646	-0.09458	0.2174	279.882
12/31/2013	279.57	75	291.0625	-11.4925	282.5842				279.705	-0.13501	0.007	279.712
1/2/2014	280.33	76	291.9824	-11.6524	283.2841				280.1786	0.151438	-0.0588	280.1198
1/3/2014	277.4	77	292.9023	-15.5023	284.2921				276.6971	0.702888	0.2916	276.9887
1/6/2014	274.97	78	293.8222	-18.8522	285.6387				274.8589	0.111091	-0.1707	274.6882
1/7/2014	273.52	79	294.7421	-21.2221	287.3244				274.3434	-0.82341	-0.1874	274.156
1/8/2014	290.01	80	295.662	-5.652	289.3125				290.4904	-0.48036	-0.1807	290.3097
1/9/2014	289.75	81	296.5819	-6.8319	291.5278				289.9768	-0.22684	-0.2366	289.7402
1/10/2014	299.31	82	297.5018	1.8082	293.8586				298.2417	1.068297	0.309	298.5507
1/13/2014	283.67	83	298.4217	-14.7517	296.1654				284.7091	-1.03912	0.0323	284.7414
1/14/2014	297.47	84	299.3416	-1.8716	298.2932				297.3082	0.161758	-0.0747	297.2335
1/15/2014	296.72	85	300.2615	-3.5415	300.088				296.1043	0.61567	0.1963	296.3006
1/16/2014	294	86	301.1814	-7.1814	301.4138				294.2225	-0.22253	-0.2318	293.9907
1/17/2014	297.48	87	302.1013	-4.6213	302.1701				298.2318	-0.7518	-0.153	298.0788
1/21/2014	310.5	88	303.0212	7.4788	302.3061				310.8677	-0.36768	-0.1739	310.6938
1/22/2014	310.54	89	303.9411	6.5989	301.8305				311.0442	-0.50419	-0.1851	310.8591

1/23/2014	314.96	90	304.861	10.099	300.8163				313.932	1.028039	0.3777	314.3097
1/24/2014	303.6	91	305.7809	-2.1809	299.3981				303.2033	0.396722	0.0347	303.238
1/27/2014	297.88	92	306.7008	-8.8208	297.7628				297.9971	-0.11706	-0.1046	297.8925
1/28/2014	305.65	93	307.6207	-1.9707	296.1348				305.8054	-0.15535	0.0922	305.8976
1/29/2014	305.46	94	308.5406	-3.0806	294.7561				306.7481	-1.28814	-0.2787	306.4694
1/30/2014	318.28	95	309.4605	8.8195	293.864				317.6527	0.627264	-0.0911	317.5616
1/31/2014	312.64	96	310.3804	2.2596	293.6682				312.0566	0.583389	-0.1429	311.9137
2/3/2014	300.39	97	311.3003	-10.9103	294.3302				300.9007	-0.51073	-0.1338	300.7669
2/4/2014	308.18	98	312.2202	-4.0402	295.9464				307.1375	1.042517	0.4144	307.5519
2/5/2014	299.93	99	313.1401	-13.2101	298.5377				299.908	0.021995	0.0125	299.9205
2/6/2014	301.01	100	314.06	-13.05	302.0462				301.9463	-0.93628	-0.1408	301.8055
2/7/2014	315.54	101	314.9799	0.5601	306.3387				315.5993	-0.05934	-0.0075	315.5918
2/10/2014	317.96	102	315.8998	2.0602	311.2185				317.9023	0.057736	-0.3046	317.5977
2/11/2014	319.82	103	316.8197	3.0003	316.4424				320.0456	-0.22562	-0.006	320.0396
2/12/2014	323.04	104	317.7396	5.3004	321.7419				323.2063	-0.16632	-0.0964	323.1099
2/13/2014	328.62	105	318.6595	9.9605	326.847				328.8021	-0.18208	-0.0913	328.7108
2/14/2014	328.29	106	319.5794	8.7106	331.509				328.5411	-0.25112	0.4143	328.9554
2/18/2014	334.98	107	320.4993	14.4807	335.521				334.1316	0.848407	-0.0316	334.1
2/19/2014	328.45	108	321.4192	7.0308	338.7332				328.9421	-0.4921	-0.1736	328.7685
2/20/2014	335.11	109	322.3391	12.7709	341.0627				335.9157	-0.80565	-0.0912	335.8245
2/21/2014	347.11	110	323.259	23.851	342.4959				347.1081	0.001936	-0.3066	346.8015
2/24/2014	345.63	111	324.1789	21.4511	343.0846				345.6586	-0.02863	0.094	345.7526
2/25/2014	346.3	112	325.0988	21.2012	342.9353				346.1902	0.109762	-0.0452	346.145
2/26/2014	343.21	113	326.0187	17.1913	342.195				343.079	0.13104	-0.0648	343.0142
2/27/2014	343.86	114	326.9386	16.9214	341.033				343.736	0.124028	0.3773	344.1133
2/28/2014	340.68	115	327.8585	12.8215	339.6229				341.0415	-0.36148	-0.0913	340.9502
3/3/2014	338.38	116			338.1258				346.0632		-0.193	345.8702
3/4/2014	343.15	117			336.6763				342.9637		-0.1499	342.8138
3/5/2014	339	118			335.3738				343.6456		-0.2855	343.3601
3/6/2014	340.69	119			334.2785				341.3685		0.1977	341.5662

3/7/2014	328.75	120			333.413				345.9233		-0.0003	345.923
3/10/2014	338	121			332.7686				342.8649		-0.0578	342.8071
3/11/2014	335.99	122			332.3148				343.5831		0.3083	343.8914
3/12/2014	339.55	123			332.0115				341.6622		-0.1577	341.5045
3/13/2014	332.05	124			331.8204				345.7746		-0.1909	345.5837
3/14/2014	332.49	125			331.7155				342.7826		-0.1786	342.604
3/17/2014	345.6	126			331.6902				343.5435		-0.2459	343.2976
3/18/2014	351.94	127			331.7607				341.924		0.2925	342.2165
3/19/2014	350.01	128			331.964				345.6206		0.029	345.6496
3/20/2014	347.04	129			332.3526				342.7165		-0.0702	342.6463
3/21/2014	318.53	130			332.9852				343.5223		0.2162	343.7385

IV: Computing Industry Data

Amazon	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
10/29/2013	288.80	1	295.34	6.54	302.00		#x_1(n-0)	1.31	286.97	1.83	16.74	303.71
10/30/2013	293.64	2	296.51	2.87	301.47		#x_1(n-1)	-0.55	293.00	0.64	-5.67	287.33
10/31/2013	294.10	3	297.68	3.58	301.19		#x_1(n-2)	0.47	294.30	-0.20	8.57	302.87
11/1/2013	295.86	4	298.85	2.99	301.15		#x_1(n-3)	-0.24	294.97	0.89	0.78	295.75
11/4/2013	299.71	5	300.02	0.31	301.36				299.52	0.19	1.42	300.94
11/5/2013	300.36	6	301.19	0.83	301.81				300.63	-0.27	5.75	306.37
11/6/2013	299.64	7	302.36	2.72	302.48				300.10	-0.46	-4.06	296.04
11/7/2013	298.86	8	303.53	4.67	303.38				296.80	2.06	8.77	305.57
11/8/2013	297.92	9	304.70	6.78	304.49				298.56	-0.64	-7.49	291.07
11/11/2013	296.06	10	305.88	9.82	305.78				295.36	0.70	9.68	305.03
11/12/2013	304.17	11	307.05	2.88	307.25				300.69	3.48	-8.71	291.98
11/13/2013	312.03	12	308.22	-3.81	308.87				314.18	-2.15	8.54	322.72
11/14/2013	312.06	13	309.39	-2.67	310.62				308.94	3.12	-7.89	301.05
11/15/2013	316.34	14	310.56	-5.78	312.48				318.84	-2.50	5.71	324.55
11/18/2013	311.49	15	311.73	0.24	314.42				309.01	2.48	-5.42	303.59
11/19/2013	314.13	16	312.90	-1.23	316.42				316.39	-2.26	1.77	318.15
11/20/2013	312.65	17	314.07	1.42	318.46				311.23	1.42	-1.92	309.31
11/21/2013	318.12	18	315.24	-2.88	320.51				316.02	2.10	-2.56	313.46
11/22/2013	316.01	19	316.41	0.40	322.55				319.14	-3.13	1.90	321.03
11/25/2013	312.64	20	317.58	4.94	324.56				311.28	1.36	-6.48	304.80
11/26/2013	320.95	21	318.75	-2.20	326.52				318.72	2.23	5.26	323.98
11/27/2013	320.51	22	319.92	-0.59	328.41				325.47	-4.96	-9.26	316.21
11/29/2013	314.76	23	321.09	6.33	330.21				312.90	1.86	7.48	320.38
12/2/2013	319.04	24	322.26	3.22	331.90				321.46	-2.42	-10.27	311.19
12/3/2013	310.03	25	323.43	13.40	333.48				309.35	0.68	8.04	317.38
12/4/2013	303.23	26	324.60	21.37	334.94				305.09	-1.86	-9.11	295.98
12/5/2013	298.23	27	325.77	27.54	336.26				297.44	0.79	6.62	304.06
12/6/2013	305.17	28	326.94	21.77	337.44				304.34	0.83	-5.65	298.69
12/9/2013	310.89	29	328.11	17.22	338.48				308.97	1.92	3.19	312.16

12/10/2013	310.70	30	329.29	18.59	339.37				312.95	-2.25	-0.05	312.90
12/11/2013	306.40	31	330.46	24.06	340.13				300.88	5.52	-2.02	298.86
12/12/2013	310.49	32	331.63	21.14	340.75				315.28	-4.79	7.26	322.54
12/13/2013	310.77	33	332.80	22.03	341.25				303.02	7.75	-8.53	294.49
12/16/2013	328.93	34	333.97	5.04	341.62				332.52	-3.59	15.64	348.16
12/17/2013	326.44	35	335.14	8.70	341.88				321.86	4.58	-15.68	306.18
12/18/2013	332.54	36	336.31	3.77	342.05				328.26	4.28	24.27	352.53
12/19/2013	326.76	37	337.48	10.72	342.14				333.65	-6.89	-22.70	310.94
12/20/2013	332.21	38	338.65	6.44	342.15				320.08	12.13	32.30	352.38
12/23/2013	363.39	39	339.82	-23.57	342.12				366.49	-3.10	-28.82	337.68
12/24/2013	358.16	40	340.99	-17.17	342.04				355.65	2.51	38.89	394.54
12/26/2013	362.70	41	342.16	-20.54	341.95				365.10	-2.40	-33.33	331.77
12/27/2013	361.08	42	343.33	-17.75	341.86				359.03	2.05	43.36	402.39
12/30/2013	364.03	43	344.50	-19.53	341.77				365.52	-1.49	-35.71	329.80
12/31/2013	359.00	44	345.67	-13.33	341.71				359.76	-0.76	45.26	405.02
1/2/2014	358.74	45	346.84	-11.90	341.70				361.04	-2.30	-35.69	325.35
1/3/2014	358.89	46	348.01	-10.88	341.73				355.16	3.73	44.39	399.55
1/6/2014	356.18	47	349.18	-7.00	341.84				360.78	-4.60	-33.25	327.53
1/7/2014	343.56	48	350.35	6.79	342.02				343.55	0.01	40.85	384.40
1/8/2014	350.31	49	351.52	1.21	342.28				346.30	4.01	-28.65	317.65
1/9/2014	354.38	50	352.70	-1.68	342.64				354.84	-0.46	35.05	389.89
1/10/2014	349.53	51	353.87	4.34	343.09				349.64	-0.11	-22.40	327.25
1/13/2014	356.22	52	355.04	-1.18	343.65				353.83	2.39	27.60	381.42
1/14/2014	367.40	53	356.21	-11.19	344.31				366.43	0.97	-15.18	351.25
1/15/2014	369.17	54	357.38	-11.79	345.07				370.38	-1.21	19.28	389.66
1/16/2014	366.18	55	358.55	-7.63	345.93				364.51	1.67	-7.80	356.71
1/17/2014	364.94	56	359.72	-5.22	346.88				366.38	-1.44	10.95	377.33
1/21/2014	362.57	57	360.89	-1.68	347.93				360.35	2.22	-1.02	359.32
1/22/2014	368.92	58	362.06	-6.86	349.06				367.75	1.17	3.42	371.17
1/23/2014	372.31	59	363.23	-9.08	350.27				370.80	1.51	4.44	375.24
1/24/2014	376.64	60	364.40	-12.24	351.54				374.77	1.87	-2.62	372.15
1/27/2014	381.37	61	365.57	-15.80	352.88				381.63	-0.26	8.09	389.72
1/28/2014	386.71	62	366.74	-19.97	354.26				386.03	0.68	-6.69	379.34

1/29/2014	393.62	63	367.91	-25.71	355.68				391.92	1.70	9.63	401.55
1/30/2014	392.30	64	369.08	-23.22	357.13				395.36	-3.06	-8.57	386.79
1/31/2014	384.66	65	370.25	-14.41	358.60				383.32	1.34	9.08	392.40
2/3/2014	385.96	66	371.42	-14.54	360.08				387.49	-1.53	-8.33	379.16
2/4/2014	384.49	67	372.59	-11.90	361.56				382.54	1.95	6.70	389.25
2/5/2014	386.95	68	373.76	-13.19	363.04				389.61	-2.66	-6.30	383.30
2/6/2014	384.89	69	374.93	-9.96	364.50				382.88	2.01	3.02	385.91
2/7/2014	387.78	70	376.11	-11.68	365.95				388.61	-0.83	-3.03	385.58
2/10/2014	382.19	71	377.28	-4.91	367.37				382.07	0.12	-1.27	380.80
2/11/2014	381.25	72	378.45	-2.80	368.78				381.74	-0.49	0.77	382.51
2/12/2014	384.24	73	379.62	-4.62	370.16				380.47	3.77	-5.40	375.07
2/13/2014	388.97	74	380.79	-8.18	371.52				391.53	-2.56	4.34	395.87
2/14/2014	387.65	75	381.96	-5.69	372.87				383.19	4.46	-8.59	374.61
2/18/2014	395.96	76	383.13	-12.83	374.20				397.69	-1.73	6.97	404.66
2/19/2014	395.19	77	384.30	-10.89	375.53				394.03	1.16	-10.18	383.86
2/20/2014	402.20	78	385.47	-16.73	376.87				399.87	2.33	8.07	407.94
2/21/2014	402.92	79	386.64	-16.28	378.21				406.81	-3.89	-9.70	397.11
2/24/2014	399.20	80	387.81	-11.39	379.59				397.19	2.01	7.26	404.45
2/25/2014	404.39	81	388.98	-15.41	381.00				403.98	0.41	-6.93	397.05
2/26/2014	398.08	82	390.15	-7.93	382.46				401.04	-2.96	4.42	405.46
2/27/2014	393.37	83	391.32	-2.05	383.99				391.83	1.54	-1.94	389.89
2/28/2014	398.79	84	392.49	-6.30	385.60				399.35	-0.56	-0.29	399.06
3/3/2014	397.97	85			387.30				400.95	-2.98	4.92	405.88
3/4/2014	396.44	86			389.11				405.33	-8.89	-6.48	398.85
3/5/2014	393.63	87			391.04				388.81	4.82	13.06	401.87
3/6/2014	398.03	88			393.10				403.80	-5.77	-13.52	390.28
3/7/2014	401.92	89			395.31				392.12	9.80	21.71	413.83
3/10/2014	401.01	90			397.68				416.84	-15.83	-20.66	396.18
3/11/2014	397.66	91			400.22				375.48	22.18	30.01	405.48
3/12/2014	390.98	92			402.93				423.11	-32.13	-27.12	395.98
3/13/2014	397.54	93			405.81				363.29	34.25	37.10	400.40
3/14/2014	395.87	94			408.88				455.27	-59.40	-32.18	423.10
3/17/2014	395.80	95			412.12				324.57	71.23	42.27	366.84

3/18/2014	399.61	96			415.55				494.62	-95.01	-35.24	459.38
3/19/2014	407.05	97			419.15				263.19	143.86	44.98	308.17
3/20/2014	404.54	98			422.91				591.39	-186.85	-35.96	555.44
3/21/2014	399.87	99			426.82				138.65	261.22	44.94	183.58

EMC	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
12/26/2013	23.91	1	24.29	-0.38	23.51		#x_1(n-0)	1.17	23.93	-0.02	0.22	24.15
12/27/2013	23.87	2	24.29	-0.42	23.87		#x_1(n-1)	-0.29	23.84	0.03	0.08	23.92
12/30/2013	23.95	3	24.29	-0.34	24.23		#x_1(n-2)	0.14	24.01	-0.06	-0.05	23.96
12/31/2013	23.87	4	24.29	-0.42	24.60		#x_1(n-3)	-0.02	23.81	0.06	-0.15	23.66
1/2/2014	24.25	5	24.31	-0.06	24.97				24.20	0.05	-0.22	23.98
1/3/2014	24.21	6	24.30	-0.09	25.34				24.32	-0.11	-0.26	24.07
1/6/2014	23.74	7	24.29	-0.55	25.71				23.69	0.05	-0.26	23.43
1/7/2014	24.00	8	24.30	-0.30	26.10				24.00	0.00	-0.22	23.78
1/8/2014	23.92	9	24.29	-0.37	26.48				23.94	-0.02	-0.17	23.77
1/9/2014	23.84	10	24.29	-0.45	26.87				23.84	0.00	-0.10	23.74
1/10/2014	23.87	11	24.29	-0.42	27.26				23.88	-0.01	-0.03	23.85
1/13/2014	23.94	12	24.29	-0.35	27.66				23.88	0.06	0.04	23.92
1/14/2014	24.09	13	24.30	-0.21	28.05				24.12	-0.03	0.09	24.21
1/15/2014	23.75	14	24.29	-0.54	28.44				23.82	-0.07	0.12	23.94
1/16/2014	23.54	15	24.28	-0.74	28.82				23.49	0.05	0.13	23.62
1/17/2014	23.85	16	24.29	-0.44	29.20				23.84	0.01	0.12	23.96
1/21/2014	23.85	17	24.29	-0.44	29.56				23.85	0.00	0.09	23.95
1/22/2014	23.72	18	24.28	-0.56	29.91				23.76	-0.04	0.05	23.81
1/23/2014	23.60	19	24.28	-0.68	30.25				23.57	0.03	0.00	23.57
1/24/2014	23.82	20	24.29	-0.47	30.59				23.82	0.00	-0.05	23.78
1/27/2014	23.90	21	24.29	-0.39	30.92				23.85	0.05	-0.09	23.76
1/28/2014	24.00	22	24.30	-0.30	31.25				24.05	-0.05	-0.11	23.94
1/29/2014	23.68	23	24.28	-0.60	31.60				23.67	0.01	-0.12	23.55
1/30/2014	23.60	24	24.28	-0.68	31.96				23.62	-0.02	-0.10	23.52
1/31/2014	23.33	25	24.27	-0.94	32.34				23.37	-0.04	-0.07	23.30
2/3/2014	23.15	26	24.26	-1.11	32.76				23.17	-0.02	-0.03	23.14
2/4/2014	23.30	27	24.27	-0.97	33.20				23.21	0.09	0.02	23.23
2/5/2014	23.70	28	24.28	-0.58	33.67				23.73	-0.03	0.06	23.79
2/6/2014	23.53	29	24.28	-0.75	34.18				23.55	-0.02	0.10	23.65
2/7/2014	23.61	30	24.28	-0.67	34.72				23.59	0.02	0.13	23.71
2/10/2014	24.02	31	24.30	-0.28	35.28				23.99	0.03	0.13	24.12
2/11/2014	24.54	32	24.32	0.22	35.85				24.44	0.10	0.12	24.56

2/12/2014	25.07	33	24.34	0.73	36.44				25.08	-0.01	0.08	25.17
2/13/2014	25.01	34	24.33	0.68	37.02				25.00	0.01	0.04	25.04
2/14/2014	25.02	35	24.34	0.68	37.59				25.03	-0.01	-0.02	25.01
2/18/2014	25.00	36	24.33	0.67	38.14				25.00	0.00	-0.08	24.93
2/19/2014	25.06	37	24.34	0.72	38.66				25.04	0.02	-0.12	24.91
2/20/2014	25.15	38	24.34	0.81	39.14				25.17	-0.02	-0.15	25.02
2/21/2014	25.07	39	24.34	0.73	39.59				25.03	0.04	-0.15	24.88
2/24/2014	25.07	40	24.34	0.73	40.00				25.19	-0.12	-0.12	25.07
2/25/2014	24.86	41	24.33	0.53	40.38				24.74	0.12	-0.06	24.68
2/26/2014	25.55	42	24.36	1.19	40.72				25.54	0.01	0.03	25.57
2/27/2014	25.51	43	24.35	1.16	41.03				25.54	-0.03	0.15	25.69
2/28/2014	25.33	44	24.35	0.98	41.32				25.30	0.03	0.28	25.58
3/3/2014	25.32	45			41.60				24.61	0.71	0.42	25.03
3/4/2014	25.14	46			41.87				25.52	-0.38	0.55	26.07
3/5/2014	25.74	47			42.14				25.49	0.25	0.66	26.15
3/6/2014	26.29	48			42.42				25.52	0.77	0.75	26.27
3/7/2014	26.37	49			42.71				24.44	1.93	0.79	25.24
3/10/2014	26.33	50			43.00				25.55	0.78	0.79	26.35
3/11/2014	26.33	51			43.31				25.34	0.99	0.75	26.09
3/12/2014	26.06	52			43.64				25.84	0.22	0.67	26.51
3/13/2014	26.22	53			43.97				24.22	2.00	0.56	24.77
3/14/2014	25.49	54			44.32				25.69	-0.20	0.42	26.11
3/17/2014	25.35	55			44.67				25.03	0.32	0.27	25.30
3/18/2014	25.38	56			45.02				26.30	-0.92	0.12	26.43
3/19/2014	24.65	57			45.38				23.86	0.79	-0.01	23.85
3/20/2014	24.62	58			45.75				26.00	-1.38	-0.12	25.87
3/21/2014	24.24	59			46.11				24.49	-0.25	-0.20	24.28

HP	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
12/12/2013	23.88	1	24.45	-0.57	24.81		#x_1(n-0)	0.99	23.89	-0.01	-0.07	23.82
12/13/2013	24.00	2	24.52	-0.52	25.41		#x_1(n-1)	0.06	23.94	0.06	0.01	23.95
12/16/2013	23.86	3	24.60	-0.74	26.17		#x_1(n-2)	0.11	23.82	0.04	0.07	23.88
12/17/2013	23.84	4	24.68	-0.84	27.07		#x_1(n-3)	-0.16	23.59	0.25	0.10	23.69
12/18/2013	24.20	5	24.76	-0.56	28.07				24.15	0.05	0.11	24.27
12/19/2013	24.37	6	24.84	-0.47	29.11				24.45	-0.08	0.11	24.56
12/20/2013	25.92	7	24.92	1.00	30.14				25.91	0.01	0.10	26.01
12/23/2013	25.77	8	25.00	0.77	31.11				25.75	0.02	0.08	25.83
12/24/2013	25.47	9	25.08	0.39	32.01				25.43	0.04	0.06	25.49
12/26/2013	25.61	10	25.16	0.45	32.84				25.53	0.08	0.03	25.56
12/27/2013	25.69	11	25.24	0.45	33.61				25.70	-0.01	0.00	25.70
12/30/2013	25.94	12	25.32	0.62	34.35				25.91	0.03	-0.02	25.89
12/31/2013	26.35	13	25.40	0.95	35.06				26.56	-0.21	-0.04	26.52
1/2/2014	26.22	14	25.47	0.75	35.75				26.27	-0.05	-0.06	26.21
1/3/2014	26.49	15	25.55	0.94	36.39				26.50	-0.01	-0.07	26.43
1/6/2014	25.07	16	25.63	-0.56	36.99				25.08	-0.01	-0.07	25.01
1/7/2014	25.21	17	25.71	-0.50	37.54				25.22	-0.01	-0.07	25.14
1/8/2014	25.00	18	25.79	-0.79	38.07				24.99	0.01	-0.07	24.92
1/9/2014	24.99	19	25.87	-0.88	38.60				24.95	0.04	-0.05	24.89
1/10/2014	24.94	20	25.95	-1.01	39.20				24.92	0.02	-0.04	24.88
1/13/2014	25.03	21	26.03	-1.00	39.92				25.07	-0.04	-0.02	25.05
1/14/2014	25.26	22	26.11	-0.85	40.80				24.91	0.35	0.00	24.91
1/15/2014	25.32	23	26.19	-0.87	41.85				25.21	0.11	0.03	25.24
1/16/2014	25.09	24	26.27	-1.18	43.04				25.13	-0.04	0.05	25.18
1/17/2014	27.36	25	26.35	1.01	44.31				27.33	0.03	0.07	27.40
1/21/2014	27.35	26	26.43	0.92	45.58				27.24	0.11	0.09	27.33
1/22/2014	27.32	27	26.50	0.82	46.75				27.44	-0.12	0.10	27.54
1/23/2014	27.50	28	26.58	0.92	47.76				27.48	0.02	0.12	27.59
1/24/2014	28.13	29	26.66	1.47	48.55				28.17	-0.04	0.12	28.29
1/27/2014	27.25	30	26.74	0.51	49.15				27.31	-0.06	0.12	27.43
1/28/2014	27.70	31	26.82	0.88	49.60				27.71	-0.01	0.11	27.83
1/29/2014	27.25	32	26.90	0.35	49.98				27.31	-0.06	0.10	27.41

1/30/2014	27.04	33	26.98	0.06	50.38				27.03	0.01	0.08	27.11
1/31/2014	26.99	34	27.06	-0.07	50.87				26.96	0.03	0.06	27.02
2/3/2014	26.60	35	27.14	-0.54	51.52				26.51	0.09	0.04	26.54
2/4/2014	26.77	36	27.22	-0.45	52.32				26.74	0.03	0.01	26.74
2/5/2014	26.90	37	27.30	-0.40	53.26				26.82	0.08	-0.03	26.79
2/6/2014	27.45	38	27.38	0.07	54.28				27.47	-0.02	-0.06	27.41
2/7/2014	27.51	39	27.45	0.06	55.32				27.49	0.02	-0.09	27.40
2/10/2014	28.04	40	27.53	0.51	56.33				28.01	0.03	-0.11	27.89
2/11/2014	27.79	41	27.61	0.18	57.28				27.76	0.03	-0.14	27.63
2/12/2014	28.05	42	27.69	0.36	58.16				28.06	-0.01	-0.15	27.91
2/13/2014	28.16	43	27.77	0.39	58.97				28.19	-0.03	-0.16	28.03
2/14/2014	28.31	44	27.85	0.46	59.74				28.33	-0.02	-0.16	28.17
2/18/2014	28.19	45	27.93	0.26	60.47				28.24	-0.05	-0.14	28.10
2/19/2014	28.07	46	28.01	0.06	61.17				27.97	0.10	-0.12	27.86
2/20/2014	27.98	47	28.09	-0.11	61.85				27.95	0.03	-0.08	27.88
2/21/2014	27.66	48	28.17	-0.51	62.48				27.69	-0.03	-0.02	27.67
2/24/2014	28.34	49	28.25	0.09	63.06				28.46	-0.12	0.05	28.51
2/25/2014	28.29	50	28.33	-0.04	63.61				28.30	-0.01	0.13	28.42
2/26/2014	28.18	51	28.41	-0.23	64.13				28.15	0.03	0.22	28.37
2/27/2014	27.45	52	28.48	-1.03	64.68				27.38	0.07	0.33	27.71
2/28/2014	27.61	53	28.56	-0.95	65.31				27.47	0.14	0.45	27.92
3/3/2014	27.70	54			66.07				28.32	-0.62	0.57	28.89
3/4/2014	28.12	55			66.99				28.00	0.12	0.70	28.70
3/5/2014	28.85	56			68.09				27.39	1.46	0.83	28.23
3/6/2014	28.84	57			69.31				27.60	1.24	0.97	28.57
3/7/2014	29.56	58			70.59				28.31	1.25	1.09	29.40
3/10/2014	29.80	59			71.84				27.86	1.94	1.21	29.08
3/11/2014	29.90	60			72.97				27.44	2.46	1.32	28.75
3/12/2014	29.84	61			73.91				27.70	2.14	1.40	29.10
3/13/2014	29.37	62			74.65				28.28	1.09	1.47	29.74
3/14/2014	28.49	63			75.20				27.75	0.74	1.50	29.25
3/17/2014	28.60	64			75.62				27.50	1.10	1.50	29.00
3/18/2014	29.00	65			76.00				27.77	1.23	1.47	29.24

3/19/2014	29.02	66			76.42				28.24	0.78	1.39	29.62
3/20/2014	29.25	67			76.95				27.66	1.59	1.26	28.92
3/21/2014	29.00	68			77.64				27.57	1.43	1.08	28.66

IBM	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
10/29/2013	190.70	1	175.16	15.54	190.94		#x_1(n-0)	0.97	190.79	-0.09	-0.38	190.41
10/30/2013	190.73	2	175.16	15.57	191.12		#x_1(n-1)	0.00	190.73	0.00	-0.18	190.56
10/31/2013	192.17	3	175.08	17.09	191.18		#x_1(n-2)	-0.03	192.30	-0.13	-0.03	192.27
11/1/2013	193.15	4	175.03	18.12	191.14		#x_1(n-3)	0.06	193.12	0.03	0.08	193.20
11/4/2013	192.16	5	175.09	17.07	191.00				192.01	0.15	0.16	192.17
11/5/2013	194.42	6	174.97	19.45	190.78				194.37	0.05	0.21	194.58
11/6/2013	193.39	7	175.02	18.37	190.48				193.27	0.12	0.24	193.50
11/7/2013	190.02	8	175.20	14.82	190.11				189.99	0.03	0.24	190.24
11/8/2013	190.99	9	175.15	15.84	189.67				190.99	0.00	0.24	191.23
11/11/2013	189.97	10	175.20	14.77	189.19				189.79	0.18	0.22	190.01
11/12/2013	189.47	11	175.23	14.24	188.65				189.31	0.16	0.19	189.51
11/13/2013	190.22	12	175.19	15.03	188.08				190.16	0.06	0.16	190.32
11/14/2013	186.92	13	175.36	11.56	187.46				186.82	0.10	0.12	186.95
11/15/2013	185.18	14	175.46	9.72	186.81				185.12	0.06	0.09	185.20
11/18/2013	186.38	15	175.39	10.99	186.12				186.33	0.05	0.05	186.38
11/19/2013	184.96	16	175.47	9.49	185.40				184.82	0.14	0.01	184.83
11/20/2013	183.86	17	175.53	8.33	184.66				183.63	0.23	-0.02	183.62
11/21/2013	184.10	18	175.51	8.59	183.88				184.11	-0.01	-0.04	184.07
11/22/2013	182.01	19	175.62	6.39	183.09				182.18	-0.17	-0.07	182.11
11/25/2013	178.72	20	175.80	2.92	182.28				178.95	-0.23	-0.09	178.86
11/26/2013	181.32	21	175.66	5.66	181.46				181.49	-0.17	-0.10	181.39
11/27/2013	184.77	22	175.48	9.29	180.65				184.70	0.07	-0.11	184.59
11/29/2013	186.16	23	175.40	10.76	179.84				186.24	-0.08	-0.11	186.13
12/2/2013	186.97	24	175.36	11.61	179.05				186.29	0.68	-0.11	186.18
12/3/2013	184.66	25	175.48	9.18	178.30				184.38	0.28	-0.10	184.27
12/4/2013	186.73	26	175.37	11.36	177.59				186.34	0.39	-0.09	186.25
12/5/2013	174.83	27	176.00	-1.17	176.95				174.90	-0.07	-0.08	174.82
12/6/2013	173.78	28	176.06	-2.28	176.38				173.85	-0.07	-0.06	173.79
12/9/2013	172.86	29	176.11	-3.25	175.90				173.05	-0.19	-0.04	173.00
12/10/2013	174.97	30	176.00	-1.03	175.52				174.98	-0.01	-0.02	174.96

12/11/2013	175.77	31	175.95	-0.18	175.25				175.83	-0.06	0.00	175.83
12/12/2013	177.80	32	175.85	1.95	175.09				178.05	-0.25	0.02	178.08
12/13/2013	176.85	33	175.90	0.95	175.05				176.86	-0.01	0.04	176.91
12/16/2013	177.35	34	175.87	1.48	175.12				177.38	-0.03	0.07	177.44
12/17/2013	182.12	35	175.62	6.50	175.31				182.05	0.07	0.09	182.13
12/18/2013	180.15	36	175.72	4.43	175.61				180.18	-0.03	0.10	180.29
12/19/2013	179.21	37	175.77	3.44	175.99				179.10	0.11	0.12	179.22
12/20/2013	179.23	38	175.77	3.46	176.46				179.28	-0.05	0.13	179.41
12/23/2013	180.27	39	175.72	4.55	176.98				180.28	-0.01	0.14	180.43
12/24/2013	177.85	40	175.84	2.01	177.53				177.90	-0.05	0.15	178.05
12/26/2013	179.19	41	175.77	3.42	178.10				179.37	-0.18	0.15	179.53
12/27/2013	180.00	42	175.73	4.27	178.65				180.08	-0.08	0.15	180.23
12/30/2013	179.99	43	175.73	4.26	179.17				180.10	-0.11	0.15	180.25
12/31/2013	182.88	44	175.58	7.30	179.62				182.82	0.06	0.14	182.96
1/2/2014	183.07	45	175.57	7.50	179.99				183.11	-0.04	0.13	183.24
1/3/2014	183.55	46	175.54	8.01	180.25				183.61	-0.06	0.12	183.73
1/6/2014	182.21	47	175.61	6.60	180.40				182.31	-0.10	0.10	182.41
1/7/2014	183.19	48	175.56	7.63	180.42				183.24	-0.05	0.08	183.31
1/8/2014	184.47	49	175.49	8.98	180.29				184.43	0.04	0.05	184.48
1/9/2014	185.25	50	175.45	9.80	180.03				185.06	0.19	0.03	185.09
1/10/2014	185.19	51	175.45	9.74	179.63				184.96	0.23	0.00	184.96
1/13/2014	184.13	52	175.51	8.62	179.11				183.91	0.22	-0.03	183.88
1/14/2014	181.30	53	175.66	5.64	178.48				181.29	0.01	-0.06	181.24
1/15/2014	178.94	54	175.79	3.15	177.75				178.98	-0.04	-0.09	178.89
1/16/2014	177.31	55	175.87	1.44	176.96				177.25	0.06	-0.11	177.13
1/17/2014	178.97	56	175.78	3.19	176.12				178.86	0.11	-0.14	178.72
1/21/2014	179.68	57	175.75	3.93	175.27				179.57	0.11	-0.16	179.41
1/22/2014	177.48	58	175.86	1.62	174.43				177.45	0.03	-0.18	177.27
1/23/2014	176.08	59	175.94	0.14	173.65				176.17	-0.09	-0.20	175.97
1/24/2014	175.74	60	175.96	-0.22	172.93				175.77	-0.03	-0.21	175.56
1/27/2014	176.08	61	175.94	0.14	172.32				176.10	-0.02	-0.22	175.88
1/28/2014	177.67	62	175.85	1.82	171.84				177.55	0.12	-0.22	177.33
1/29/2014	177.46	63	175.86	1.60	171.50				177.30	0.16	-0.22	177.09

1/30/2014	177.12	64	175.88	1.24	171.32				177.00	0.12	-0.21	176.79
1/31/2014	175.20	65	175.98	-0.78	171.31				175.42	-0.22	-0.19	175.23
2/3/2014	173.37	66	176.08	-2.71	171.47				173.36	0.01	-0.17	173.19
2/4/2014	172.80	67	176.11	-3.31	171.80				173.05	-0.25	-0.14	172.91
2/5/2014	177.85	68	175.84	2.01	172.30				177.95	-0.10	-0.11	177.84
2/6/2014	175.76	69	175.95	-0.19	172.96				175.86	-0.10	-0.07	175.79
2/7/2014	178.70	70	175.80	2.90	173.75				178.86	-0.16	-0.02	178.84
2/10/2014	180.22	71	175.72	4.50	174.66				180.32	-0.10	0.03	180.35
2/11/2014	180.02	72	175.73	4.29	175.67				180.22	-0.20	0.08	180.30
2/12/2014	182.23	73	175.61	6.62	176.74				182.29	-0.06	0.13	182.42
2/13/2014	183.22	74	175.56	7.66	177.85				183.34	-0.12	0.18	183.52
2/14/2014	185.35	75	175.45	9.90	178.98				185.44	-0.09	0.22	185.66
2/18/2014	185.08	76	175.46	9.62	180.10				185.03	0.05	0.26	185.29
2/19/2014	186.41	77	175.39	11.02	181.19				186.45	-0.04	0.29	186.75
2/20/2014	187.57	78	175.33	12.24	182.21				187.51	0.06	0.31	187.82
2/21/2014	185.53	79	175.44	10.09	183.16				185.75	-0.22	0.32	186.07
2/24/2014	186.64	80	175.38	11.26	184.01				186.61	0.03	0.30	186.91
2/25/2014	186.00	81	175.41	10.59	184.76				186.02	-0.02	0.26	186.28
2/26/2014	189.71	82	175.22	14.49	185.39				189.64	0.07	0.18	189.83
2/27/2014	187.97	83	175.31	12.66	185.90				187.78	0.19	0.08	187.85
2/28/2014	187.38	84	175.34	12.04	186.29				187.40	-0.02	-0.08	187.33
3/3/2014	187.26	85			186.55				186.05	1.21	-0.28	185.77
3/4/2014	184.16	86			186.70				189.51	-5.35	-0.54	188.97
3/5/2014	185.92	87			186.74				187.93	-2.01	-0.86	187.07
3/6/2014	187.74	88			186.68				187.36	0.38	-1.26	186.10
3/7/2014	188.76	89			186.52				186.07	2.69	-1.74	184.33
3/10/2014	190.09	90			186.28				189.38	0.71	-2.32	187.06
3/11/2014	188.43	91			185.96				188.07	0.36	-3.00	185.07
3/12/2014	182.25	92			185.57				187.33	-5.08	-3.80	183.53
3/13/2014	182.73	93			185.13				186.09	-3.36	-4.73	181.35
3/14/2014	179.64	94			184.63				189.26	-9.62	-5.81	183.46
3/17/2014	177.90	95			184.09				188.20	-10.30	-7.04	181.16
3/18/2014	176.85	96			183.50				187.31	-10.46	-8.44	178.87

3/19/2014	176.40	97			182.88				186.09	-9.69	-10.04	176.06
3/20/2014	177.36	98			182.21				189.15	-11.79	-11.84	177.31
3/21/2014	176.68	99			181.52				188.32	-11.64	-13.86	174.46

Microsoft	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
12/17/2013	35.52	1	37.23	-1.71	35.31		#x_1(n-0)	1.07	35.54	-0.02	0.11	35.65
12/18/2013	35.54	2	37.22	-1.68	35.39		#x_1(n-1)	-0.01	35.57	-0.03	0.28	35.85
12/19/2013	35.41	3	37.22	-1.81	35.60		#x_1(n-2)	-0.14	35.43	-0.02	0.06	35.49
12/20/2013	35.53	4	37.22	-1.69	35.92		#x_1(n-3)	0.08	35.57	-0.04	-0.04	35.53
12/23/2013	35.94	5	37.22	-1.28	36.30				35.74	0.20	0.32	36.06
12/24/2013	36.64	6	37.21	-0.57	36.71				36.59	0.05	0.04	36.63
12/26/2013	38.18	7	37.21	0.97	37.12				38.20	-0.02	-0.25	37.95
12/27/2013	37.50	8	37.21	0.29	37.47				37.47	0.03	-0.01	37.46
12/30/2013	37.78	9	37.21	0.57	37.73				37.87	-0.09	0.22	38.09
12/31/2013	37.59	10	37.20	0.39	37.89				37.54	0.05	0.22	37.77
1/2/2014	37.36	11	37.20	0.16	37.95				37.30	0.06	-0.08	37.21
1/3/2014	38.16	12	37.20	0.96	37.90				38.13	0.03	0.16	38.29
1/6/2014	38.02	13	37.20	0.82	37.78				38.04	-0.02	0.28	38.32
1/7/2014	37.84	14	37.19	0.65	37.60				37.94	-0.10	-0.19	37.76
1/8/2014	37.20	15	37.19	0.01	37.42				37.24	-0.04	-0.15	37.08
1/9/2014	36.74	16	37.19	-0.45	37.26				36.71	0.03	0.12	36.83
1/10/2014	37.08	17	37.19	-0.11	37.15				37.05	0.03	0.28	37.33
1/13/2014	37.40	18	37.18	0.22	37.13				37.36	0.04	0.05	37.41
1/14/2014	37.57	19	37.18	0.39	37.20				37.60	-0.03	-0.04	37.56
1/15/2014	37.64	20	37.18	0.46	37.35				37.69	-0.05	0.33	38.01
1/16/2014	37.35	21	37.18	0.17	37.57				37.32	0.03	0.04	37.36
1/17/2014	37.60	22	37.17	0.43	37.84				37.53	0.07	-0.25	37.28
1/21/2014	38.13	23	37.17	0.96	38.11				38.16	-0.03	-0.01	38.16
1/22/2014	38.45	24	37.17	1.28	38.35				38.35	0.10	0.23	38.57
1/23/2014	38.31	25	37.17	1.14	38.53				38.35	-0.04	0.22	38.57
1/24/2014	38.94	26	37.16	1.78	38.61				39.01	-0.07	-0.08	38.93
1/27/2014	38.00	27	37.16	0.84	38.59				37.90	0.10	0.17	38.07
1/28/2014	38.36	28	37.16	1.20	38.47				38.33	0.03	0.27	38.61
1/29/2014	38.71	29	37.16	1.55	38.24				38.76	-0.05	-0.19	38.56
1/30/2014	38.11	30	37.15	0.96	37.94				38.13	-0.02	-0.15	37.98
1/31/2014	37.61	31	37.15	0.46	37.60				37.69	-0.08	0.12	37.81
2/3/2014	37.22	32	37.15	0.07	37.25				37.22	0.00	0.28	37.50

2/4/2014	36.69	33	37.15	-0.46	36.94				36.70	-0.01	0.05	36.75
2/5/2014	36.89	34	37.14	-0.25	36.70				36.89	0.00	-0.04	36.85
2/6/2014	36.52	35	37.14	-0.62	36.54				36.58	-0.06	0.33	36.91
2/7/2014	36.58	36	37.14	-0.56	36.49				36.56	0.02	0.03	36.58
2/10/2014	36.25	37	37.14	-0.89	36.53				36.26	-0.01	-0.25	36.01
2/11/2014	36.80	38	37.13	-0.33	36.66				36.81	-0.01	0.00	36.81
2/12/2014	36.62	39	37.13	-0.51	36.84				36.55	0.07	0.23	36.78
2/13/2014	37.08	40	37.13	-0.05	37.03				37.06	0.02	0.21	37.28
2/14/2014	37.44	41	37.13	0.31	37.21				37.46	-0.02	-0.09	37.37
2/18/2014	37.29	42	37.12	0.17	37.33				37.26	0.03	0.17	37.44
2/19/2014	37.29	43	37.12	0.17	37.36				37.28	0.01	0.27	37.54
2/20/2014	37.41	44	37.12	0.29	37.30				37.38	0.03	-0.20	37.19
2/21/2014	37.16	45	37.12	0.04	37.13				37.25	-0.09	-0.14	37.11
2/24/2014	36.91	46	37.11	-0.20	36.86				36.90	0.01	0.13	37.03
2/25/2014	36.13	47	37.11	-0.98	36.53				36.13	0.00	0.28	36.41
2/26/2014	36.41	48	37.11	-0.70	36.17				36.51	-0.10	0.04	36.56
2/27/2014	35.76	49	37.11	-1.35	35.81				35.66	0.10	-0.03	35.63
2/28/2014	35.53	50	37.10	-1.57	35.50				35.62	-0.09	0.33	35.95
3/3/2014	36.04	51			35.29				36.16	-0.12	0.02	36.18
3/4/2014	34.98	52			35.18				36.62	-1.64	-0.24	36.38
3/5/2014	35.78	53			35.21				35.67	0.11	0.00	35.67
3/6/2014	36.76	54			35.36				35.48	1.28	0.23	35.71
3/7/2014	36.89	55			35.63				36.17	0.72	0.21	36.38
3/10/2014	36.38	56			35.99				36.76	-0.38	-0.09	36.67
3/11/2014	36.17	57			36.40				35.68	0.49	0.18	35.86
3/12/2014	35.93	58			36.81				35.31	0.62	0.26	35.57
3/13/2014	36.06	59			37.19				36.17	-0.11	-0.20	35.96
3/14/2014	36.81	60			37.49				36.93	-0.12	-0.14	36.79
3/17/2014	36.03	61			37.70				35.71	0.32	0.13	35.84
3/18/2014	36.27	62			37.81				35.10	1.17	0.28	35.38
3/19/2014	36.66	63			37.81				36.14	0.52	0.04	36.18
3/20/2014	36.86	64			37.71				37.14	-0.28	-0.03	37.11
3/21/2014	37.84	65			37.56				35.77	2.07	0.33	36.10

Oracle	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
12/6/2013	32.90	1	32.72	0.18	33.42		#x_1(n-0)	0.91	32.89	0.01	-0.11	32.78
12/9/2013	32.95	2	32.80	0.15	33.25		#x_1(n-1)	0.31	33.03	-0.08	-0.03	33.00
12/10/2013	32.90	3	32.88	0.02	33.08		#x_1(n-2)	-0.32	32.81	0.09	0.03	32.84
12/11/2013	32.70	4	32.97	-0.27	32.95		#x_1(n-3)	0.11	32.72	-0.02	0.06	32.78
12/12/2013	33.07	5	33.05	0.02	32.86				33.14	-0.07	0.06	33.20
12/13/2013	33.15	6	33.13	0.02	32.85				33.01	0.14	0.04	33.04
12/16/2013	33.14	7	33.21	-0.07	32.91				33.23	-0.09	0.01	33.23
12/17/2013	33.71	8	33.30	0.41	33.03				33.70	0.01	-0.02	33.68
12/18/2013	33.53	9	33.38	0.15	33.21				33.54	-0.01	-0.04	33.51
12/19/2013	33.50	10	33.46	0.04	33.43				33.44	0.06	-0.03	33.41
12/20/2013	33.53	11	33.55	-0.02	33.66				33.65	-0.12	-0.01	33.64
12/23/2013	33.71	12	33.63	0.08	33.89				33.56	0.15	0.01	33.57
12/24/2013	33.50	13	33.71	-0.21	34.10				33.60	-0.10	0.03	33.63
12/26/2013	34.07	14	33.79	0.28	34.27				33.99	0.08	0.04	34.03
12/27/2013	34.00	15	33.88	0.12	34.40				34.06	-0.06	0.03	34.09
12/30/2013	34.35	16	33.96	0.39	34.47				34.31	0.04	0.01	34.32
12/31/2013	34.37	17	34.04	0.33	34.51				34.27	0.10	-0.02	34.25
1/2/2014	34.70	18	34.12	0.58	34.52				34.92	-0.22	-0.04	34.88
1/3/2014	35.00	19	34.21	0.79	34.51				34.83	0.17	-0.04	34.79
1/6/2014	34.38	20	34.29	0.09	34.50				34.41	-0.03	-0.01	34.39
1/7/2014	34.92	21	34.37	0.55	34.52				34.96	-0.04	0.04	34.99
1/8/2014	34.93	22	34.46	0.47	34.55				34.94	-0.01	0.11	35.05
1/9/2014	34.76	23	34.54	0.22	34.63				34.71	0.05	0.19	34.90
1/10/2014	34.75	24	34.62	0.13	34.73				34.79	-0.04	0.26	35.05
1/13/2014	34.94	25	34.70	0.24	34.87				34.96	-0.02	0.31	35.26
1/14/2014	34.83	26	34.79	0.04	35.02				34.83	0.00	0.31	35.14
1/15/2014	34.78	27	34.87	-0.09	35.16				34.72	0.06	0.26	34.98
1/16/2014	34.93	28	34.95	-0.02	35.29				34.94	-0.01	0.16	35.10
1/17/2014	35.29	29	35.03	0.26	35.37				35.33	-0.04	0.04	35.37
1/21/2014	35.29	30	35.12	0.17	35.40				35.27	0.02	-0.10	35.17
1/22/2014	35.08	31	35.20	-0.12	35.36				35.06	0.02	-0.23	34.83

1/23/2014	35.07	32	35.28	-0.21	35.26				35.18	-0.11	-0.33	34.86
1/24/2014	35.07	33	35.37	-0.30	35.10				34.93	0.14	-0.37	34.55
1/27/2014	34.85	34	35.45	-0.60	34.90				34.80	0.05	-0.37	34.43
1/28/2014	35.48	35	35.53	-0.05	34.68				35.64	-0.16	-0.32	35.32
1/29/2014	35.60	36	35.61	-0.01	34.46				35.47	0.13	-0.24	35.24
1/30/2014	34.80	37	35.70	-0.90	34.28				34.94	-0.14	-0.14	34.80
1/31/2014	34.56	38	35.78	-1.22	34.16				34.58	-0.02	-0.05	34.53
2/3/2014	33.60	39	35.86	-2.26	34.13				33.51	0.09	0.02	33.53
2/4/2014	33.23	40	35.94	-2.71	34.21				33.34	-0.11	0.06	33.40
2/5/2014	33.54	41	36.03	-2.49	34.39				33.56	-0.02	0.06	33.62
2/6/2014	33.63	42	36.11	-2.48	34.68				33.27	0.36	0.04	33.31
2/7/2014	34.60	43	36.19	-1.59	35.06				34.89	-0.29	0.01	34.91
2/10/2014	36.60	44	36.27	0.33	35.52				36.50	0.10	-0.02	36.49
2/11/2014	36.37	45	36.36	0.01	36.01				36.38	-0.01	-0.03	36.34
2/12/2014	36.93	46	36.44	0.49	36.51				36.92	0.01	-0.03	36.88
2/13/2014	37.32	47	36.52	0.80	36.98				37.29	0.03	-0.02	37.27
2/14/2014	37.69	48	36.61	1.08	37.40				37.74	-0.05	0.00	37.75
2/18/2014	37.98	49	36.69	1.29	37.72				37.88	0.10	0.02	37.90
2/19/2014	37.99	50	36.77	1.22	37.95				38.08	-0.09	0.04	38.12
2/20/2014	38.26	51	36.85	1.41	38.08				38.25	0.01	0.03	38.29
2/21/2014	37.84	52	36.94	0.90	38.10				37.89	-0.05	0.02	37.91
2/24/2014	37.62	53	37.02	0.60	38.04				37.51	0.11	-0.01	37.50
2/25/2014	37.47	54	37.10	0.37	37.91				37.53	-0.06	-0.03	37.49
2/26/2014	37.85	55	37.18	0.67	37.74				37.90	-0.05	-0.04	37.86
2/27/2014	37.72	56	37.27	0.45	37.57				37.58	0.14	-0.02	37.55
2/28/2014	37.65	57	37.35	0.30	37.42				37.82	-0.17	0.02	37.84
3/3/2014	38.11	58			37.31				37.66	0.45	0.09	37.74
3/4/2014	37.75	59			37.27				37.80	-0.05	0.17	37.97
3/5/2014	38.21	60			37.29				37.65	0.56	0.25	37.89
3/6/2014	38.41	61			37.39				37.76	0.65	0.30	38.05
3/7/2014	38.29	62			37.54				37.71	0.58	0.31	38.03
3/10/2014	38.21	63			37.75				37.76	0.45	0.28	38.04
3/11/2014	38.11	64			37.98				37.67	0.44	0.19	37.87

3/12/2014	37.98	65			38.21				37.73	0.25	0.08	37.81
3/13/2014	38.15	66			38.43				37.74	0.41	-0.06	37.68
3/14/2014	37.11	67			38.62				37.74	-0.63	-0.20	37.55
3/17/2014	36.49	68			38.77				37.68	-1.19	-0.30	37.37
3/18/2014	37.10	69			38.86				37.73	-0.63	-0.37	37.36
3/19/2014	36.97	70			38.92				37.76	-0.79	-0.38	37.39
3/20/2014	37.40	71			38.94				37.73	-0.33	-0.34	37.39
3/21/2014	36.90	72			38.93				37.67	-0.77	-0.26	37.41

SAP	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
12/18/2013	78.80	1	80.99	-2.19	78.44		#x_1(n-0)	1.45	78.69	0.11	-18.77	59.92
12/19/2013	78.35	2	81.02	-2.67	78.31		#x_1(n-1)	-0.72	78.97	-0.62	10.28	89.24
12/20/2013	77.80	3	81.04	-3.24	78.30		#x_1(n-2)	0.50	76.93	0.87	-10.02	66.91
12/23/2013	78.53	4	81.06	-2.53	78.40		#x_1(n-3)	-0.23	79.39	-0.86	3.97	83.37
12/24/2013	77.78	5	81.08	-3.30	78.58				76.84	0.94	-3.01	73.83
12/26/2013	79.26	6	81.11	-1.85	78.84				79.20	0.06	-0.82	78.39
12/27/2013	78.71	7	81.13	-2.42	79.16				79.32	-0.61	2.40	81.72
12/30/2013	79.22	8	81.15	-1.93	79.52				77.78	1.44	-4.24	73.54
12/31/2013	81.19	9	81.17	0.02	79.89				81.99	-0.80	6.36	88.35
1/2/2014	79.82	10	81.19	-1.37	80.28				79.09	0.73	-6.43	72.67
1/3/2014	80.60	11	81.22	-0.62	80.66				81.16	-0.56	9.01	90.17
1/6/2014	80.74	12	81.24	-0.50	81.02				79.74	1.00	-7.53	72.21
1/7/2014	82.55	13	81.26	1.29	81.36				83.02	-0.47	10.48	93.50
1/8/2014	81.95	14	81.28	0.67	81.66				81.61	0.34	-7.69	73.93
1/9/2014	82.02	15	81.31	0.72	81.92				82.36	-0.34	10.93	93.29
1/10/2014	81.23	16	81.33	-0.10	82.14				81.18	0.05	-7.04	74.14
1/13/2014	81.64	17	81.35	0.29	82.30				81.35	0.29	10.49	91.83
1/14/2014	82.22	18	81.37	0.85	82.41				82.05	0.17	-5.74	76.31
1/15/2014	82.30	19	81.39	0.91	82.46				82.57	-0.27	9.30	91.88
1/16/2014	82.53	20	81.42	1.11	82.46				82.20	0.33	-3.92	78.28
1/17/2014	83.38	21	81.44	1.94	82.41				83.42	-0.04	7.51	90.93
1/21/2014	82.72	22	81.46	1.26	82.30				83.25	-0.53	-1.72	81.53
1/22/2014	81.70	23	81.48	0.22	82.16				81.61	0.09	5.27	86.87
1/23/2014	81.63	24	81.50	0.13	81.99				81.64	-0.01	0.72	82.36
1/24/2014	81.27	25	81.53	-0.26	81.81				81.39	-0.12	2.70	84.09
1/27/2014	81.40	26	81.55	-0.15	81.63				81.30	0.10	3.24	84.54
1/28/2014	82.22	27	81.57	0.65	81.48				81.87	0.35	-0.04	81.83
1/29/2014	82.40	28	81.59	0.81	81.37				82.96	-0.56	5.72	88.68
1/30/2014	81.41	29	81.62	-0.21	81.32				81.24	0.17	-2.82	78.42
1/31/2014	81.40	30	81.64	-0.24	81.35				81.40	0.00	8.00	89.40
2/3/2014	80.91	31	81.66	-0.75	81.46				81.32	-0.41	-5.49	75.83

2/4/2014	81.11	32	81.68	-0.57	81.68				80.19	0.92	9.95	90.14
2/5/2014	82.35	33	81.70	0.65	81.98				82.59	-0.24	-7.91	74.68
2/6/2014	81.60	34	81.73	-0.13	82.38				81.48	0.12	11.42	92.90
2/7/2014	82.30	35	81.75	0.55	82.85				81.75	0.55	-9.93	71.81
2/10/2014	83.57	36	81.77	1.80	83.37				83.39	0.18	12.28	95.66
2/11/2014	84.20	37	81.79	2.41	83.92				83.87	0.33	-11.43	72.44
2/12/2014	84.84	38	81.82	3.02	84.46				84.83	0.01	12.37	97.20
2/13/2014	85.15	39	81.84	3.31	84.97				84.73	0.42	-12.24	72.49
2/14/2014	85.71	40	81.86	3.85	85.40				85.78	-0.07	11.56	97.34
2/18/2014	85.80	41	81.88	3.92	85.74				86.06	-0.26	-12.24	73.82
2/19/2014	86.63	42	81.90	4.73	85.95				85.93	0.70	9.71	95.63
2/20/2014	87.14	43	81.93	5.21	86.03				87.98	-0.84	-11.28	76.70
2/21/2014	84.91	44	81.95	2.96	85.95				85.25	-0.34	6.66	91.92
2/24/2014	84.33	45	81.97	2.36	85.73				83.94	0.39	-9.21	74.73
2/25/2014	84.42	46	81.99	2.43	85.36				85.06	-0.64	2.29	87.35
2/26/2014	84.18	47	82.02	2.16	84.88				83.62	0.56	-5.90	77.72
2/27/2014	85.45	48	82.04	3.41	84.29				85.65	-0.20	-3.55	82.11
2/28/2014	84.62	49	82.06	2.56	83.64				85.02	-0.40	-1.20	83.82
3/3/2014	83.54	50			82.95				86.40	-2.86	-11.00	75.40
3/4/2014	83.02	51			82.25				82.22	0.80	5.03	87.25
3/5/2014	82.78	52			81.59				87.26	-4.48	-20.21	67.04
3/6/2014	83.01	53			80.99				82.13	0.88	12.92	95.06
3/7/2014	82.81	54			80.48				90.82	-8.01	-31.32	59.50
3/10/2014	82.32	55			80.06				76.59	5.73	22.64	99.22
3/11/2014	81.41	56			79.77				95.14	-13.73	-44.47	50.68
3/12/2014	80.06	57			79.59				70.15	9.91	34.30	104.45
3/13/2014	79.65	58			79.53				107.94	-28.29	-59.80	48.14
3/14/2014	77.47	59			79.57				52.87	24.60	48.07	100.94
3/17/2014	77.76	60			79.72				129.14	-51.38	-77.45	51.70
3/18/2014	77.56	61			79.95				20.88	56.68	64.07	84.95
3/19/2014	76.92	62			80.24				178.01	-101.09	-97.57	80.45
3/20/2014	77.62	63			80.58				-46.52	124.14	82.46	35.94
3/21/2014	76.42	64			80.95				271.49	-195.07	-120.29	151.19

Splunk	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
10/17/2013	48.92	1	64.39	-15.47	43.00		#x_1(n-0)	1.20	47.67	1.25	0.45	48.12
10/18/2013	55.21	2	65.49	-10.28	44.20		#x_1(n-1)	-0.35	55.24	-0.03	0.30	55.53
10/21/2013	55.24	3	65.50	-10.26	45.32		#x_1(n-2)	-0.17	55.53	-0.29	0.16	55.69
10/22/2013	55.33	4	65.51	-10.18	46.35		#x_1(n-3)	0.31	56.43	-1.10	0.05	56.48
10/23/2013	55.39	5	65.52	-10.13	47.30				55.94	-0.55	-0.04	55.90
10/24/2013	56.34	6	65.69	-9.35	48.17				56.05	0.29	-0.11	55.94
10/25/2013	59.43	7	66.23	-6.80	48.97				59.27	0.16	-0.16	59.11
10/28/2013	60.35	8	66.40	-6.05	49.69				59.80	0.55	-0.19	59.60
10/29/2013	61.00	9	66.51	-5.51	50.34				60.73	0.27	-0.21	60.52
10/30/2013	60.78	10	66.47	-5.69	50.92				61.05	-0.27	-0.22	60.83
10/31/2013	59.54	11	66.25	-6.71	51.44				60.01	-0.47	-0.21	59.80
11/1/2013	59.11	12	66.18	-7.07	51.91				59.49	-0.38	-0.19	59.30
11/4/2013	59.37	13	66.22	-6.85	52.31				59.48	-0.11	-0.17	59.31
11/5/2013	60.46	14	66.41	-5.95	52.67				59.99	0.47	-0.14	59.86
11/6/2013	61.33	15	66.57	-5.24	52.98				60.90	0.43	-0.10	60.79
11/7/2013	61.98	16	66.68	-4.70	53.25				62.19	-0.21	-0.06	62.13
11/8/2013	60.76	17	66.47	-5.71	53.48				61.33	-0.57	-0.03	61.30
11/11/2013	60.37	18	66.40	-6.03	53.68				60.43	-0.06	0.01	60.44
11/12/2013	60.44	19	66.41	-5.97	53.85				59.60	0.84	0.05	59.65
11/13/2013	61.97	20	66.68	-4.71	53.99				62.31	-0.34	0.08	62.39
11/14/2013	61.49	21	66.60	-5.11	54.11				61.99	-0.50	0.11	62.10
11/15/2013	60.04	22	66.34	-6.30	54.22				59.48	0.56	0.13	59.62
11/18/2013	61.50	23	66.60	-5.10	54.31				62.11	-0.61	0.15	62.26
11/19/2013	61.46	24	66.59	-5.13	54.39				61.05	0.41	0.16	61.21
11/20/2013	60.66	25	66.45	-5.79	54.47				58.79	1.87	0.16	58.95
11/21/2013	62.95	26	66.85	-3.90	54.55				63.01	-0.06	0.16	63.17
11/22/2013	60.04	27	66.34	-6.30	54.63				61.44	-1.40	0.15	61.59
11/25/2013	56.92	28	65.79	-8.87	54.71				57.41	-0.49	0.14	57.55
11/26/2013	56.68	29	65.75	-9.07	54.80				56.16	0.52	0.12	56.28
11/27/2013	59.22	30	66.20	-6.98	54.90				58.58	0.64	0.10	58.67

11/29/2013	59.45	31	66.24	-6.79	55.01				59.73	-0.28	0.07	59.80
12/2/2013	59.35	32	66.22	-6.87	55.13				61.05	-1.70	0.04	61.09
12/3/2013	57.50	33	65.89	-8.39	55.28				57.43	0.07	0.00	57.43
12/4/2013	59.19	34	66.19	-7.00	55.44				58.63	0.56	-0.03	58.60
12/5/2013	62.62	35	66.79	-4.17	55.61				62.99	-0.37	-0.06	62.92
12/6/2013	61.88	36	66.66	-4.78	55.81				61.46	0.42	-0.09	61.37
12/9/2013	62.68	37	66.81	-4.13	56.04				63.02	-0.34	-0.13	62.90
12/10/2013	62.99	38	66.86	-3.87	56.28				62.87	0.12	-0.15	62.72
12/11/2013	62.03	39	66.69	-4.66	56.55				61.09	0.94	-0.18	60.92
12/12/2013	63.77	40	67.00	-3.23	56.83				64.21	-0.44	-0.20	64.01
12/13/2013	61.96	41	66.68	-4.72	57.15				62.64	-0.68	-0.21	62.43
12/16/2013	60.96	42	66.50	-5.54	57.48				60.96	0.00	-0.22	60.74
12/17/2013	61.64	43	66.62	-4.98	57.83				61.29	0.35	-0.22	61.07
12/18/2013	62.83	44	66.83	-4.00	58.21				63.01	-0.18	-0.22	62.78
12/19/2013	62.71	45	66.81	-4.10	58.61				63.15	-0.44	-0.22	62.93
12/20/2013	62.44	46	66.76	-4.32	59.02				62.35	0.09	-0.20	62.15
12/23/2013	63.05	47	66.87	-3.82	59.45				62.21	0.84	-0.19	62.02
12/24/2013	63.98	48	67.03	-3.05	59.90				63.32	0.66	-0.16	63.15
12/26/2013	63.65	49	66.98	-3.33	60.36				64.03	-0.38	-0.14	63.90
12/27/2013	61.73	50	66.64	-4.91	60.84				62.14	-0.41	-0.11	62.04
12/30/2013	60.30	51	66.39	-6.09	61.32				60.45	-0.15	-0.08	60.37
12/31/2013	60.94	52	66.50	-5.56	61.81				61.26	-0.32	-0.05	61.21
1/2/2014	61.03	53	66.52	-5.49	62.31				61.20	-0.17	-0.02	61.18
1/3/2014	61.89	54	66.67	-4.78	62.81				61.67	0.22	0.02	61.69
1/6/2014	62.55	55	66.78	-4.23	63.31				62.36	0.19	0.04	62.40
1/7/2014	63.34	56	66.92	-3.58	63.81				63.38	-0.04	0.07	63.45
1/8/2014	62.71	57	66.81	-4.10	64.30				61.79	0.92	0.09	61.88
1/9/2014	62.90	58	66.84	-3.94	64.79				66.88	-3.98	0.11	66.99
1/10/2014	62.53	59	66.78	-4.25	65.27				64.28	-1.75	0.12	64.40
1/13/2014	59.90	60	66.32	-6.42	65.73				57.38	2.52	0.13	57.51
1/14/2014	73.56	61	68.72	4.84	66.19				74.26	-0.70	0.13	74.39
1/15/2014	71.03	62	68.27	2.76	66.62				70.38	0.65	0.12	70.50
1/16/2014	73.08	63	68.63	4.45	67.04				72.93	0.15	0.11	73.03

1/17/2014	72.71	64	68.57	4.14	67.45				72.37	0.34	0.09	72.46
1/21/2014	72.16	65	68.47	3.69	67.83				71.82	0.34	0.06	71.88
1/22/2014	71.69	66	68.39	3.30	68.18				72.17	-0.48	0.02	72.20
1/23/2014	70.48	67	68.18	2.30	68.52				70.47	0.01	-0.01	70.45
1/24/2014	69.66	68	68.03	1.63	68.83				69.07	0.59	-0.06	69.02
1/27/2014	70.79	69	68.23	2.56	69.12				70.73	0.06	-0.10	70.62
1/28/2014	69.68	70	68.04	1.64	69.38				69.26	0.42	-0.15	69.11
1/29/2014	69.07	71	67.93	1.14	69.62				69.32	-0.25	-0.20	69.12
1/30/2014	68.43	72	67.82	0.61	69.84				68.78	-0.35	-0.24	68.54
1/31/2014	66.99	73	67.56	-0.57	70.05				66.85	0.14	-0.29	66.56
2/3/2014	68.05	74	67.75	0.30	70.23				68.61	-0.56	-0.32	68.28
2/4/2014	67.73	75	67.69	0.04	70.40				67.58	0.15	-0.35	67.23
2/5/2014	68.12	76	67.76	0.36	70.56				67.66	0.46	-0.38	67.29
2/6/2014	69.50	77	68.01	1.49	70.71				69.98	-0.48	-0.39	69.59
2/7/2014	68.64	78	67.85	0.79	70.87				69.17	-0.53	-0.38	68.79
2/10/2014	68.49	79	67.83	0.66	71.03				68.31	0.18	-0.36	67.95
2/11/2014	69.52	80	68.01	1.51	71.20				69.34	0.18	-0.33	69.01
2/12/2014	70.64	81	68.21	2.43	71.39				70.28	0.36	-0.27	70.01
2/13/2014	70.22	82	68.13	2.09	71.61				69.90	0.32	-0.20	69.70
2/14/2014	70.57	83	68.19	2.38	71.88				70.80	-0.23	-0.11	70.70
2/18/2014	68.99	84	67.92	1.07	72.19				69.84	-0.85	0.01	69.85
2/19/2014	68.93	85	67.90	1.03	72.57				69.24	-0.31	0.15	69.39
2/20/2014	68.67	86	67.86	0.81	73.03				67.97	0.70	0.31	68.28
2/21/2014	71.46	87	68.35	3.11	73.58				72.98	-1.52	0.50	73.47
2/24/2014	70.98	88	68.27	2.71	74.24				71.55	-0.57	0.71	72.25
2/25/2014	70.78	89	68.23	2.55	75.02				69.66	1.12	0.94	70.60
2/26/2014	75.39	90	69.04	6.35	75.96				75.65	-0.26	1.19	76.84
2/27/2014	74.91	91	68.96	5.95	77.06				74.47	0.44	1.46	75.93
2/28/2014	74.58	92	68.90	5.68	78.35				74.70	-0.12	1.76	76.46
3/3/2014	75.24	93			79.85				68.34	6.90	2.06	70.40
3/4/2014	73.31	94			81.60				73.92	-0.61	2.39	76.31
3/5/2014	75.04	95			83.62				75.24	-0.20	2.72	77.96
3/6/2014	75.99	96			85.93				77.24	-1.25	3.06	80.30

3/7/2014	79.43	97			88.58				68.02	11.41	3.41	71.43
3/10/2014	79.67	98			91.59				71.06	8.61	3.77	74.82
3/11/2014	81.50	99			95.00				74.43	7.07	4.12	78.55
3/12/2014	82.24	100			98.85				80.63	1.61	4.47	85.10
3/13/2014	81.82	101			103.18				69.84	11.98	4.81	74.65
3/14/2014	76.99	102			108.04				67.89	9.10	5.14	73.03
3/17/2014	73.97	103			113.46				70.96	3.01	5.46	76.43
3/18/2014	75.27	104			119.50				83.52	-8.25	5.76	89.28
3/19/2014	73.03	105			126.21				74.63	-1.60	6.05	80.68
3/20/2014	77.42	106			133.65				66.31	11.11	6.30	72.61
3/21/2014	77.03	107			141.86				64.48	12.55	6.54	71.02

Teradata	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
12/18/2013	190.70	1	175.16	15.54	190.94		#x_1(n-0)	1.07	190.72	-0.02	-0.21	190.51
12/19/2013	190.73	2	175.16	15.57	191.12		#x_1(n-1)	-0.01	190.47	0.26	-0.07	190.40
12/20/2013	192.17	3	175.08	17.09	191.18		#x_1(n-2)	-0.17	192.41	-0.24	0.03	192.44
12/23/2013	193.15	4	175.03	18.12	191.14		#x_1(n-3)	0.11	192.97	0.18	0.11	193.08
12/24/2013	192.16	5	175.09	17.07	191.00				191.70	0.46	0.15	191.85
12/26/2013	194.42	6	174.97	19.45	190.78				194.79	-0.37	0.17	194.96
12/27/2013	193.39	7	175.02	18.37	190.48				193.45	-0.06	0.17	193.62
12/30/2013	190.02	8	175.20	14.82	190.11				189.96	0.06	0.16	190.12
12/31/2013	190.99	9	175.15	15.84	189.67				191.17	-0.18	0.14	191.31
1/2/2014	189.97	10	175.20	14.77	189.19				189.60	0.37	0.12	189.71
1/3/2014	189.47	11	175.23	14.24	188.65				189.42	0.05	0.08	189.50
1/6/2014	190.22	12	175.19	15.03	188.08				190.68	-0.46	0.05	190.72
1/7/2014	186.92	13	175.36	11.56	187.46				186.81	0.11	0.01	186.82
1/8/2014	185.18	14	175.46	9.72	186.81				185.06	0.12	-0.02	185.04
1/9/2014	186.38	15	175.39	10.99	186.12				186.57	-0.19	-0.06	186.51
1/10/2014	184.96	16	175.47	9.49	185.40				184.79	0.17	-0.09	184.70
1/13/2014	183.86	17	175.53	8.33	184.66				183.61	0.25	-0.11	183.49
1/14/2014	184.10	18	175.51	8.59	183.88				184.72	-0.62	-0.13	184.59
1/15/2014	182.01	19	175.62	6.39	183.09				182.46	-0.45	-0.15	182.31
1/16/2014	178.72	20	175.80	2.92	182.28				178.49	0.23	-0.16	178.34
1/17/2014	181.32	21	175.66	5.66	181.46				181.10	0.22	-0.16	180.93
1/21/2014	184.77	22	175.48	9.29	180.65				184.38	0.39	-0.16	184.21
1/22/2014	186.16	23	175.40	10.76	179.84				186.47	-0.31	-0.16	186.31
1/23/2014	186.97	24	175.36	11.61	179.05				185.70	1.27	-0.15	185.55
1/24/2014	184.66	25	175.48	9.18	178.30				185.10	-0.44	-0.13	184.97
1/27/2014	186.73	26	175.37	11.36	177.59				187.49	-0.76	-0.12	187.37
1/28/2014	174.83	27	176.00	-1.17	176.95				175.19	-0.36	-0.10	175.09
1/29/2014	173.78	28	176.06	-2.28	176.38				173.81	-0.03	-0.07	173.73
1/30/2014	172.86	29	176.11	-3.25	175.90				172.89	-0.03	-0.05	172.84
1/31/2014	174.97	30	176.00	-1.03	175.52				174.69	0.28	-0.02	174.67
2/3/2014	175.77	31	175.95	-0.18	175.25				175.74	0.03	0.00	175.75
2/4/2014	177.80	32	175.85	1.95	175.09				178.36	-0.56	0.03	178.38

2/5/2014	176.85	33	175.90	0.95	175.05				176.32	0.53	0.05	176.37
2/6/2014	177.35	34	175.87	1.48	175.12				177.04	0.31	0.08	177.12
2/7/2014	182.12	35	175.62	6.50	175.31				182.31	-0.19	0.10	182.41
2/10/2014	180.15	36	175.72	4.43	175.61				180.33	-0.18	0.12	180.44
2/11/2014	179.21	37	175.77	3.44	175.99				178.88	0.33	0.13	179.02
2/12/2014	179.23	38	175.77	3.46	176.46				179.45	-0.22	0.15	179.60
2/13/2014	180.27	39	175.72	4.55	176.98				180.44	-0.17	0.16	180.60
2/14/2014	177.85	40	175.84	2.01	177.53				177.71	0.14	0.16	177.87
2/18/2014	179.19	41	175.77	3.42	178.10				179.45	-0.26	0.16	179.62
2/19/2014	180.00	42	175.73	4.27	178.65				179.85	0.15	0.16	180.01
2/20/2014	179.99	43	175.73	4.26	179.17				179.84	0.15	0.16	179.99
2/21/2014	182.88	44	175.58	7.30	179.62				182.69	0.19	0.15	182.84
2/24/2014	183.07	45	175.57	7.50	179.99				183.22	-0.15	0.13	183.36
2/25/2014	183.55	46	175.54	8.01	180.25				183.72	-0.17	0.12	183.84
2/26/2014	182.21	47	175.61	6.60	180.40				182.15	0.06	0.10	182.25
2/27/2014	183.19	48	175.56	7.63	180.42				183.05	0.14	0.08	183.13
2/28/2014	184.47	49	175.49	8.98	180.29				184.31	0.16	0.05	184.36
3/3/2014	185.25	50	175.45	9.80	180.03				185.01	0.24	0.02	185.03
3/4/2014	185.19	51	175.45	9.74	179.63				185.17	0.02	-0.01	185.16
3/5/2014	184.13	52	175.51	8.62	179.11				184.28	-0.15	-0.03	184.25
3/6/2014	181.30	53	175.66	5.64	178.48				181.74	-0.44	-0.06	181.67
3/7/2014	178.94	54	175.79	3.15	177.75				179.03	-0.09	-0.09	178.94
3/10/2014	177.31	55	175.87	1.44	176.96				176.92	0.39	-0.12	176.80
3/11/2014	178.97	56	175.78	3.19	176.12				178.90	0.07	-0.15	178.75
3/12/2014	179.68	57	175.75	3.93	175.27				179.87	-0.19	-0.17	179.70
3/13/2014	177.48	58	175.86	1.62	174.43				177.63	-0.15	-0.19	177.44
3/14/2014	176.08	59	175.94	0.14	173.65				176.26	-0.18	-0.21	176.05
3/17/2014	175.74	60	175.96	-0.22	172.93				175.60	0.14	-0.22	175.38
3/18/2014	176.08	61	175.94	0.14	172.32				175.95	0.13	-0.22	175.72
3/19/2014	177.67	62	175.85	1.82	171.84				177.49	0.18	-0.23	177.27
3/20/2014	177.46	63	175.86	1.60	171.50				177.40	0.06	-0.22	177.17
3/21/2014	177.12	64	175.88	1.24	171.32				177.29	-0.17	-0.21	177.08

VMware	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
9/30/2013	86.02	1	87.36	-1.34	79.20		#x_1(n-0)	1.13	85.95	0.07	0.94	86.90
10/1/2013	85.88	2	87.34	-1.46	78.99		#x_1(n-1)	-0.25	85.70	0.18	0.06	85.76
10/2/2013	85.69	3	87.33	-1.64	78.83		#x_1(n-2)	0.08	85.90	-0.21	0.73	86.63
10/3/2013	83.96	4	87.20	-3.24	78.73		#x_1(n-3)	0.04	83.89	0.07	0.11	84.00
10/4/2013	83.97	5	87.20	-3.23	78.69				84.09	-0.12	0.54	84.63
10/7/2013	83.36	6	87.16	-3.80	78.71				83.49	-0.13	0.15	83.65
10/8/2013	83.44	7	87.16	-3.72	78.78				83.55	-0.11	0.37	83.91
10/9/2013	84.31	8	87.23	-2.92	78.91				84.39	-0.08	0.18	84.57
10/10/2013	85.46	9	87.31	-1.85	79.09				84.89	0.57	0.21	85.10
10/11/2013	87.80	10	87.49	0.31	79.31				87.61	0.19	0.21	87.82
10/14/2013	86.52	11	87.39	-0.87	79.57				87.02	-0.50	0.08	87.09
10/15/2013	83.39	12	87.16	-3.77	79.86				83.43	-0.04	0.22	83.65
10/16/2013	83.82	13	87.19	-3.37	80.16				83.62	0.20	-0.05	83.57
10/17/2013	84.86	14	87.27	-2.41	80.47				85.02	-0.16	0.22	85.24
10/18/2013	84.15	15	87.22	-3.07	80.78				84.12	0.03	-0.15	83.97
10/21/2013	84.63	16	87.25	-2.62	81.08				84.57	0.06	0.22	84.79
10/22/2013	84.97	17	87.28	-2.31	81.36				85.05	-0.08	-0.24	84.81
10/23/2013	84.90	18	87.27	-2.37	81.61				85.24	-0.34	0.21	85.45
10/24/2013	84.81	19	87.27	-2.46	81.83				84.70	0.11	-0.32	84.38
10/25/2013	87.08	20	87.43	-0.35	82.01				86.79	0.29	0.19	86.98
10/28/2013	88.78	21	87.56	1.22	82.13				88.77	0.01	-0.38	88.39
10/29/2013	88.37	22	87.53	0.84	82.21				88.41	-0.04	0.16	88.58
10/30/2013	87.95	23	87.50	0.45	82.23				88.04	-0.09	-0.44	87.61
10/31/2013	87.63	24	87.47	0.16	82.19				87.50	0.13	0.14	87.64
11/1/2013	88.32	25	87.53	0.79	82.10				88.61	-0.29	-0.47	88.14
11/4/2013	87.51	26	87.47	0.04	81.96				87.21	0.30	0.10	87.32
11/5/2013	89.16	27	87.59	1.57	81.77				88.95	0.21	-0.50	88.45
11/6/2013	88.89	28	87.57	1.32	81.53				88.74	0.15	0.07	88.81
11/7/2013	87.51	29	87.47	0.04	81.26				87.54	-0.03	-0.52	87.03
11/8/2013	85.33	30	87.30	-1.97	80.95				85.64	-0.31	0.03	85.67
11/11/2013	83.19	31	87.15	-3.96	80.62				83.21	-0.02	-0.53	82.68
11/12/2013	83.23	32	87.15	-3.92	80.28				82.96	0.27	-0.01	82.95

11/13/2013	83.80	33	87.19	-3.39	79.93				83.79	0.01	-0.52	83.27
11/14/2013	82.63	34	87.10	-4.47	79.58				83.01	-0.38	-0.05	82.96
11/15/2013	80.90	35	86.98	-6.08	79.24				80.70	0.20	-0.51	80.19
11/18/2013	82.04	36	87.06	-5.02	78.92				81.73	0.31	-0.09	81.63
11/19/2013	82.44	37	87.09	-4.65	78.63				82.91	-0.47	-0.50	82.41
11/20/2013	79.85	38	86.90	-7.05	78.37				79.55	0.30	-0.13	79.42
11/21/2013	81.06	39	86.99	-5.93	78.15				80.83	0.23	-0.47	80.36
11/22/2013	80.70	40	86.96	-6.26	77.97				81.17	-0.47	-0.18	80.99
11/25/2013	78.06	41	86.77	-8.71	77.84				78.05	0.01	-0.44	77.61
11/26/2013	78.93	42	86.83	-7.90	77.75				78.96	-0.03	-0.21	78.74
11/27/2013	79.52	43	86.87	-7.35	77.71				79.30	0.22	-0.40	78.90
11/29/2013	80.44	44	86.94	-6.50	77.72				80.24	0.20	-0.25	79.99
12/2/2013	80.28	45	86.93	-6.65	77.77				80.76	-0.48	-0.36	80.41
12/3/2013	77.91	46	86.75	-8.84	77.86				77.67	0.24	-0.29	77.38
12/4/2013	79.66	47	86.88	-7.22	77.99				80.14	-0.48	-0.31	79.83
12/5/2013	78.74	48	86.82	-8.08	78.15				78.62	0.12	-0.32	78.30
12/6/2013	81.43	49	87.01	-5.58	78.32				81.49	-0.06	-0.26	81.23
12/9/2013	82.65	50	87.11	-4.46	78.52				82.22	0.43	-0.34	81.87
12/10/2013	85.00	51	87.28	-2.28	78.72				85.29	-0.29	-0.21	85.08
12/11/2013	83.54	52	87.17	-3.63	78.93				83.17	0.37	-0.37	82.81
12/12/2013	84.78	53	87.26	-2.48	79.13				84.81	-0.03	-0.15	84.66
12/13/2013	83.39	54	87.16	-3.77	79.32				83.47	-0.08	-0.38	83.09
12/16/2013	82.26	55	87.08	-4.82	79.49				82.26	0.00	-0.09	82.16
12/17/2013	81.85	56	87.05	-5.20	79.63				81.87	-0.02	-0.39	81.47
12/18/2013	81.44	57	87.02	-5.58	79.75				81.42	0.02	-0.04	81.38
12/19/2013	81.28	58	87.00	-5.72	79.83				81.39	-0.11	-0.39	80.99
12/20/2013	80.75	59	86.96	-6.21	79.89				80.62	0.13	0.02	80.64
12/23/2013	81.32	60	87.01	-5.69	79.91				81.52	-0.20	-0.39	81.13
12/24/2013	80.52	61	86.95	-6.43	79.89				80.21	0.31	0.08	80.28
12/26/2013	81.65	62	87.03	-5.38	79.85				81.65	0.00	-0.37	81.28
12/27/2013	80.66	63	86.96	-6.30	79.78				80.98	-0.32	0.13	81.11
12/30/2013	79.28	64	86.86	-7.58	79.69				79.15	0.13	-0.35	78.80
12/31/2013	80.32	65	86.93	-6.61	79.59				80.06	0.26	0.19	80.25

1/2/2014	80.66	66	86.96	-6.30	79.47				80.59	0.07	-0.32	80.27
1/3/2014	79.58	67	86.88	-7.30	79.36				80.06	-0.48	0.24	80.30
1/6/2014	77.24	68	86.70	-9.46	79.26				76.93	0.31	-0.27	76.66
1/7/2014	78.96	69	86.83	-7.87	79.17				79.07	-0.11	0.29	79.36
1/8/2014	78.22	70	86.78	-8.56	79.11				78.32	-0.10	-0.22	78.10
1/9/2014	78.29	71	86.78	-8.49	79.08				78.59	-0.30	0.33	78.92
1/10/2014	78.42	72	86.79	-8.37	79.09				78.09	0.33	-0.15	77.94
1/13/2014	80.99	73	86.98	-5.99	79.15				80.85	0.14	0.37	81.22
1/14/2014	81.30	74	87.01	-5.71	79.27				81.49	-0.19	-0.07	81.42
1/15/2014	80.33	75	86.93	-6.60	79.44				80.25	0.08	0.40	80.65
1/16/2014	80.84	76	86.97	-6.13	79.68				80.79	0.05	0.02	80.81
1/17/2014	80.79	77	86.97	-6.18	79.99				80.70	0.09	0.43	81.13
1/21/2014	80.63	78	86.96	-6.33	80.36				80.97	-0.34	0.13	81.10
1/22/2014	79.51	79	86.87	-7.36	80.80				79.88	-0.37	0.45	80.33
1/23/2014	80.06	80	86.91	-6.85	81.30				79.72	0.34	0.25	79.98
1/24/2014	83.70	81	87.18	-3.48	81.86				83.94	-0.24	0.46	84.39
1/27/2014	84.16	82	87.22	-3.06	82.47				83.91	0.25	0.39	84.30
1/28/2014	86.48	83	87.39	-0.91	83.13				86.31	0.17	0.46	86.77
1/29/2014	87.10	84	87.44	-0.34	83.82				87.07	0.03	0.55	87.61
1/30/2014	86.62	85	87.40	-0.78	84.54				86.81	-0.19	0.46	87.27
1/31/2014	85.60	86	87.32	-1.72	85.27				85.47	0.13	0.72	86.19
2/3/2014	86.26	87	87.37	-1.11	86.01				86.45	-0.19	0.44	86.90
2/4/2014	85.62	88	87.33	-1.71	86.75				85.56	0.06	0.91	86.47
2/5/2014	86.49	89	87.39	-0.90	87.46				86.55	-0.06	0.42	86.97
2/6/2014	86.72	90	87.41	-0.69	88.14				86.69	0.03	1.12	87.81
2/7/2014	87.54	91	87.47	0.07	88.79				87.85	-0.31	0.38	88.23
2/10/2014	87.35	92	87.45	-0.10	89.38				86.85	0.50	1.34	88.19
2/11/2014	90.18	93	87.66	2.52	89.91				90.39	-0.21	0.33	90.72
2/12/2014	88.90	94	87.57	1.33	90.37				88.76	0.14	1.59	90.35
2/13/2014	89.44	95	87.61	1.83	90.76				89.54	-0.10	0.27	89.81
2/14/2014	88.85	96	87.56	1.29	91.07				88.88	-0.03	1.86	90.73
2/18/2014	88.96	97	87.57	1.39	91.30				88.99	-0.03	0.19	89.19
2/19/2014	89.15	98	87.59	1.56	91.45				89.05	0.10	2.14	91.19

2/20/2014	89.71	99	87.63	2.08	91.51				89.72	-0.01	0.11	89.82
2/21/2014	89.50	100	87.61	1.89	91.49				89.67	-0.17	2.45	92.13
2/24/2014	89.42	101	87.61	1.81	91.40				90.09	-0.67	0.00	90.09
2/25/2014	89.07	102	87.58	1.49	91.24				88.16	0.91	2.79	90.95
2/26/2014	94.71	103	88.00	6.71	91.02				94.82	-0.11	-0.12	94.70
2/27/2014	93.45	104	87.91	5.54	90.74				93.57	-0.12	3.14	96.71
2/28/2014	92.84	105	87.86	4.98	90.42				92.89	-0.05	-0.25	92.64
3/3/2014	93.26	106			90.07				87.12	6.14	3.52	90.64
3/4/2014	93.01	107			89.70				94.69	-1.68	-0.40	94.29
3/5/2014	96.73	108			89.31				93.25	3.48	3.93	97.18
3/6/2014	98.33	109			88.93				94.48	3.85	-0.57	93.91
3/7/2014	99.33	110			88.56				86.00	13.33	4.36	90.36
3/10/2014	98.20	111			88.21				94.72	3.48	-0.76	93.96
3/11/2014	97.36	112			87.89				92.40	4.96	4.81	97.22
3/12/2014	98.51	113			87.61				96.54	1.97	-0.97	95.57
3/13/2014	97.70	114			87.38				84.74	12.96	5.30	90.04
3/14/2014	94.94	115			87.21				95.09	-0.15	-1.19	93.89
3/17/2014	93.11	116			87.08				90.85	2.26	5.81	96.65
3/18/2014	94.94	117			87.02				99.15	-4.21	-1.44	97.71
3/19/2014	91.72	118			87.02				83.18	8.54	6.35	89.53
3/20/2014	90.77	119			87.08				96.05	-5.28	-1.71	94.34
3/21/2014	90.14	120			87.19				88.34	1.80	6.91	95.25

V: Financial Banking Data

JP Morgan	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
12/24/2013	58.25	5	58.0075	0.2425	57.9862		#x_1(n-0)	0.129752	53.59298	4.414518	3.4633	57.05628
12/26/2013	58.2	6	57.975	0.225	58.0785		#x_1(n-1)	-0.03518	53.51045	4.464551	3.6892	57.19965
12/27/2013	58.14	7	57.9425	0.1975	58.1642		#x_1(n-2)	-0.11757	53.89004	4.052457	3.8666	57.75664
12/30/2013	57.95	8	57.91	0.04	58.2422		#x_1(n-3)	0.957284	54.39977	3.510226	3.9821	58.38187
12/31/2013	58.48	9	57.8775	0.6025	58.3142				54.39268	3.484816	4.0267	58.41938
1/2/2014	58.21	10	57.845	0.365	58.3833				54.42733	3.417673	3.9971	58.42443
1/3/2014	58.66	11	57.8125	0.8475	58.4524		Percent error		54.33855	3.47395	3.8958	58.23435
1/6/2014	59	12	57.78	1.22	58.5227		Model A	Model B	54.16224	3.617761	3.7314	57.89364
1/7/2014	58.32	13	57.7475	0.5725	58.5924		0.032037	0.06214	54.72963	3.017871	3.5177	58.24733
1/8/2014	58.87	14	57.715	1.155	58.656				54.31806	3.396939	3.273	57.59106
1/9/2014	58.76	15	57.6825	1.0775	58.7043				54.80415	2.87835	3.0186	57.82275
1/10/2014	58.49	16	57.65	0.84	58.7251				55.17595	2.474045	2.777	57.95295
1/13/2014	57.7	17	57.6175	0.0825	58.7041				54.42917	3.188327	2.5705	56.99967
1/14/2014	57.74	18	57.585	0.155	58.6275				54.87561	2.709394	2.4191	57.29471
1/15/2014	59.49	19	57.5525	1.9375	58.4838				54.83503	2.717467	2.339	57.17403
1/16/2014	58.99	20	57.52	1.47	58.2657				54.89511	2.62489	2.3412	57.23631
1/17/2014	58.11	21	57.4875	0.6225	57.9723				54.00771	3.47979	2.4306	56.43831
1/21/2014	58.17	22	57.455	0.715	57.6102				53.74365	3.711345	2.6058	56.34945
1/22/2014	57.59	23	57.4225	0.1675	57.1939				55.51643	1.906068	2.8586	58.37503
1/23/2014	56.47	24	57.39	-0.92	56.745				55.06389	2.326111	3.1751	58.23899
1/24/2014	55.09	25	57.3575	-2.2675	56.2912				54.08951	3.267993	3.5365	57.62601
1/27/2014	55.09	26	57.325	-2.235	55.8634				54.07548	3.249519	3.9204	57.99588
1/28/2014	55.74	27	57.2925	-1.5525	55.4932				53.70049	3.59201	4.3029	58.00339
1/29/2014	55.53	28	57.26	-1.73	55.2095				52.87492	4.385076	4.66	57.53492
1/30/2014	56	29	57.2275	-1.2275	55.0355				51.50376	5.723743	4.9694	56.47316
1/31/2014	55.36	30	57.195	-1.835	54.9862				51.4957	5.699295	5.2126	56.7083
2/3/2014	54.31	31	57.1625	-2.8525	55.0663				52.04305	5.119447	5.3755	57.41855
2/4/2014	54.95	32	57.13	-2.18	55.2695				51.67304	5.456961	5.4501	57.12314

2/5/2014	55.21	33	57.0975	-1.8875	55.579				52.31819	4.779308	5.4344	57.75259
2/6/2014	56.48	34	57.065	-0.585	55.9685				51.8402	5.224797	5.3326	57.1728
2/7/2014	56.62	35	57.0325	-0.4125	56.405				50.91545	6.117054	5.1547	56.07015
2/10/2014	56.74	36	57	-0.26	56.852				51.47102	5.528976	4.9153	56.38632
2/11/2014	57.43	37	56.9675	0.4625	57.2726				51.58124	5.386256	4.6324	56.21364
2/12/2014	57.52	38	56.935	0.585	57.6333				52.86584	4.069159	4.3257	57.19154
2/13/2014	58.03	39	56.9025	1.1275	57.9073				52.97315	3.929345	4.0152	56.98835
2/14/2014	58.15	40	56.87	1.28	58.0765				53.06991	3.80009	3.7196	56.78951
2/18/2014	58.49	41	56.8375	1.6525	58.1329				53.71748	3.120018	3.4546	57.17208
2/19/2014	57.26	42	56.805	0.455	58.0794				53.78357	3.021431	3.2319	57.01547
2/20/2014	57.58	43	56.7725	0.8075	57.9284				54.08612	2.686383	3.0585	57.14462
2/21/2014	57.61	44	56.74	0.87	57.7001				54.24581	2.494191	2.9363	57.18211
2/24/2014	58.03	45	56.7075	1.3225	57.4203				54.70854	1.998963	2.8624	57.57094
2/25/2014	57.03	46	56.675	0.355	57.1169				53.54689	3.128105	2.8296	56.37649
2/26/2014	56.75	47	56.6425	0.1075	56.8174				53.70517	2.93733	2.8271	56.53227
2/27/2014	56.69	48	56.61	0.08	56.5457				53.68336	2.926643	2.8423	56.52566
2/28/2014	56.82	49	56.5775	0.2425	56.3203				54.20506	2.372443	2.8617	57.06676
3/3/2014	56.21	50	56.545	-0.335	56.1529				53.29967	3.245328	2.8726	56.17227
3/4/2014	57.26	51	56.5125	0.7475	56.0479				52.95496	3.557535	2.8642	55.81916
3/5/2014	58.16	52	56.48	1.68	56.0029				53.03994	3.440057	2.8291	55.86904
3/6/2014	58.9	53	56.4475	2.4525	56.0101				53.31595	3.131552	2.7637	56.07965
3/7/2014	59.4	54	56.415	2.985	56.0581				52.67291	3.742094	2.6687	55.34161
3/10/2014	59.2	55	56.3825	2.8175	56.1336				53.61108	2.771421	2.5494	56.16048
3/11/2014	58.19	56	56.35	1.84	56.224				54.34209	2.007911	2.4145	56.75659
3/12/2014	57.92	57	56.3175	1.6025	56.3186				54.86768	1.449822	2.2761	57.14378
3/13/2014	57.42	58	56.285	1.135	56.41				55.37033	0.914666	2.1478	57.51813
3/14/2014	56.8	59	56.2525	0.5475	56.4942				55.24225	1.01025	2.0439	57.28615
3/17/2014	57.58	60	56.22	1.36	56.571				54.24428	1.975718	1.9777	56.22198
3/18/2014	58.06	61	56.1875	1.8725	56.6423				54.16762	2.019878	1.96	56.12762
3/19/2014	58.3	62	56.155	2.145	56.7112				53.79672	2.358284	1.9981	55.79482
3/20/2014	60.11	63	56.1225	3.9875	56.7805				53.12575	2.996754	2.0951	55.22085
3/21/2014	60.17	64	56.09	4.08	56.8509				54.0424	2.0476	2.249	56.2914

Goldman	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
1/16/2014	175.17	24	173.8516	1.3184	175.9371		#x_1(n-0)	0.969686	154.0156	21.15438	21.2877	175.3033
1/17/2014	176.28	25	173.095	3.185	174.7758		#x_1(n-1)	-0.13287	150.3624	25.91764	25.1884	175.5508
1/21/2014	173.2	26	172.3148	0.8852	173.4273		#x_1(n-2)	0.050795	152.0043	21.19571	21.8248	173.8291
1/22/2014	173.68	27	171.5188	2.1612	171.9363		#x_1(n-3)	-0.02682	148.6307	25.04933	24.0227	172.6534
1/23/2014	170.75	28	170.7148	0.0352	170.3585				149.6578	21.09224	22.8948	172.5526
1/24/2014	167.64	29	169.9106	-2.2706	168.7568				146.5666	21.07342	22.0959	168.6625
1/27/2014	164.69	30	169.114	-4.424	167.1966		Percent error		144.0472	20.64284	23.1081	167.1553
1/28/2014	166.25	31	168.3328	-2.0828	165.7416		Model A	Model B	141.4381	24.81188	23.9519	165.39
1/29/2014	163.9	32	167.5748	-3.6748	164.4487		0.048697	0.021073	143.2634	20.63659	22.5065	165.7699
1/30/2014	165.84	33	166.8478	-1.0078	163.3644				140.7109	25.12907	23.6104	164.3213
1/31/2014	164.12	34	166.1596	-2.0396	162.5211				143.0627	21.05728	22.9377	166.0004
2/3/2014	159.82	35	165.518	-5.698	161.9351				140.9759	18.84411	21.3066	162.2825
2/4/2014	161.76	36	164.9308	-3.1708	161.6057				137.1963	24.56365	25.2202	162.4165
2/5/2014	160.42	37	164.4058	-3.9858	161.5157				139.5095	20.9105	21.7772	161.2867
2/6/2014	161.75	38	163.9508	-2.2008	161.6331				137.7801	23.96995	24.0549	161.835
2/7/2014	161.93	39	163.5736	-1.6436	161.9143				139.4616	22.46836	22.887	162.3486
2/10/2014	161	40	163.282	-2.282	162.3079				139.3394	21.66063	22.0247	161.3641
2/11/2014	164.39	41	163.0838	1.3062	162.7594				138.5171	25.87286	23.2543	161.7714
2/12/2014	163.5	42	162.9868	0.5132	163.2164				141.9014	21.59858	23.8154	165.7168
2/13/2014	164.06	43	162.9988	1.0612	163.6329				140.5359	23.5241	22.6044	163.1403
2/14/2014	163.72	44	163.1276	0.5924	163.9741				141.3943	22.32569	23.5549	164.9492
2/18/2014	164.65	45	163.381	1.269	164.2197				140.8541	23.79591	22.9261	163.7802
2/19/2014	163.26	46	163.7668	-0.5068	164.3664				141.8534	21.40661	21.3342	163.1876
2/20/2014	164.5	47	164.2928	0.2072	164.4285				140.3497	24.15033	25.2409	165.5906
2/21/2014	164.5	48	164.9668	-0.4668	164.4384				141.7931	22.70687	21.7393	163.5324
2/24/2014	166.54	49	165.7966	0.7434	164.4438				141.5328	25.00718	24.0803	165.6131
2/25/2014	163.48	50	166.79	-3.31	164.5057				143.6112	19.86876	22.8821	166.4933
2/26/2014	162.8	51	167.9548	-5.1548	164.6938				140.3397	22.46031	21.9535	162.2932
2/27/2014	165.38	52	169.2988	-3.9188	165.0819				140.1905	25.18949	23.401	163.5915
2/28/2014	166.45	53	170.8298	-4.3798	165.7432				142.5725	23.87749	23.677	166.2495

3/3/2014	164.74		164.65	0.09	158.8392				143.3148	21.42521	22.704	166.0188
3/4/2014	168.73		164.65	4.08	158.3097				142.9038	25.82624	23.4995	166.4033
3/5/2014	171.9		164.65	7.25	158.0104				143.319	28.58096	22.9108	166.2298
3/6/2014	172.6		164.65	7.95	157.9599				143.0492	29.55082	21.3707	164.4199
3/7/2014	174.26		164.65	9.61	158.1593				141.3482	32.91177	25.2503	166.5985
3/10/2014	173.51		164.65	8.86	158.5919				143.6822	29.82778	21.7112	165.3934
3/11/2014	169.89		164.65	5.24	159.225				142.1369	27.75314	24.0988	166.2357
3/12/2014	169.72		164.65	5.07	160.0124				143.2729	26.4471	22.8801	166.153
3/13/2014	166.7		164.65	2.05	160.8983				142.9612	23.7388	21.8828	164.844
3/14/2014	165.35		164.65	0.7	161.8216				141.778	23.57204	23.5473	165.3253
3/17/2014	166.84		164.65	2.19	162.721				142.3918	24.44822	23.5374	165.9292
3/18/2014	168.09		164.65	3.44	163.5396				142.8492	25.24083	22.8046	165.6538
3/19/2014	168.18		164.65	3.53	164.2291				142.5614	25.61859	23.4445	166.0059
3/20/2014	169.22		164.65	4.57	164.7538				142.9572	26.26275	22.8916	165.8488
3/21/2014	166.95		164.65	2.3	165.0925				142.728	24.22203	21.4161	164.1441

Barclays	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
1/16/2014	19.17	19	18.444	0.726	18.9518		#x_1(n-3)	0.046942	18.11847	1.051529	1.258	19.37647
1/17/2014	18.99	20	18.36	0.63	18.8736		#x_1(n-2)	-0.0937	17.70156	1.288442	1.2437	18.94526
1/21/2014	18.68	21	18.2616	0.4184	18.7751		#x_1(n-1)	0.013972	17.50956	1.170442	1.3545	18.86406
1/22/2014	18.64	22	18.1494	0.4906	18.6614		#x_1(n-0)	0.956936	17.26383	1.37617	1.4019	18.66573
1/23/2014	18.69	23	18.024	0.666	18.5381				17.21884	1.471159	1.2059	18.42474
1/24/2014	17.94	24	17.886	0.054	18.4107				17.28673	0.653275	1.0285	18.31523
1/27/2014	17.85	25	17.736	0.114	18.2843				16.55892	1.291082	1.1855	17.74442
1/28/2014	18.32	26	17.5746	0.7454	18.1632		Percent error		16.45575	1.864248	1.4633	17.91905
1/29/2014	18.16	27	17.4024	0.7576	18.051		Model A	Model B	16.97687	1.183126	1.4152	18.39207
1/30/2014	18.28	28	17.22	1.06	17.9499		4.22%	3.02%	16.80356	1.476442	1.0864	17.88996
1/31/2014	17.9	29	17.028	0.872	17.8614				16.86789	1.032108	0.9353	17.80319
2/3/2014	17.24	30	16.827	0.413	17.7858				16.54299	0.697012	1.099	17.64199
2/4/2014	17.43	31	16.6176	0.8124	17.7224				15.88735	1.542654	1.2579	17.14525
2/5/2014	17.41	32	16.4004	1.0096	17.6699				16.10118	1.308819	1.2456	17.34678
2/6/2014	17.87	33	16.176	1.694	17.6261				16.1287	1.741301	1.2649	17.3936
2/7/2014	18.05	34	15.945	2.105	17.5886				16.51983	1.530174	1.3892	17.90903
2/10/2014	18.21	35	15.708	2.502	17.5549				16.70929	1.500706	1.3667	18.07599
2/11/2014	17.6	36	15.4656	2.1344	17.5226				16.82088	0.779121	1.1322	17.95308
2/12/2014	17.41	37	15.2184	2.1916	17.4896				16.24411	1.165888	1.0375	17.28161
2/13/2014	17.28	38	14.967	2.313	17.4543				16.04723	1.232771	1.2768	17.32403
2/14/2014	17.06	39	14.712	2.348	17.4155				15.98484	1.075161	1.4943	17.47914
2/18/2014	17.59	40	14.454	3.136	17.3727				15.76166	1.828335	1.3295	17.09116
2/19/2014	17.03	41	14.1936	2.8364	17.3259				16.26903	0.760972	1.0062	17.27523
2/20/2014	17.13	42	13.9314	3.1986	17.2755				15.75506	1.374939	0.9602	16.71526
2/21/2014	17.16	43	13.668	3.492	17.2222				15.78294	1.377057	1.1618	16.94474
2/24/2014	17.3	44	13.404	3.896	17.1669				15.8904	1.409602	1.2672	17.1576
2/25/2014	17.22	45	13.14	4.08	17.11				15.98913	1.230869	1.2371	17.22623
2/26/2014	16.97	46	12.8766	4.0934	17.052				15.91642	1.053585	1.2981	17.21452
2/27/2014	17.06	47	12.6144	4.4456	16.9925				15.66435	1.395646	1.4097	17.07405
2/28/2014	17	48	12.354	4.646	16.9304				15.76105	1.238947	1.3098	17.07085

3/3/2014	16.68	49	12.096	4.584	16.8639				15.72456	0.955437	1.0716	16.79616
3/4/2014	17.01	50	11.841	5.169	16.7903				15.5085	1.501501	1.0796	16.5881
3/5/2014	16.98	51	11.5896	5.3904	16.7058				15.31639	1.663608	1.3664	16.68279
3/6/2014	17.07	52	11.3424	5.7276	16.6061				15.42038	1.649616	1.4877	16.90808
3/7/2014	16.79	53	11.1	5.69	16.4862				15.64722	1.142777	1.2287	16.87592
3/10/2014	16.29	54	10.863	5.427	16.341				15.60095	0.689045	0.9537	16.55465
3/11/2014	15.73	55	10.632	5.098	16.1651				15.27641	0.453591	1.0088	16.28521
3/12/2014	15.61	56	10.4076	5.2024	15.9538				15.02767	0.582334	1.2136	16.24127
3/13/2014	15.67	57	10.1904	5.4796	15.7027				15.01044	0.659556	1.2626	16.27304
3/14/2014	15.46	58	9.981	5.479	15.4087				15.0504	0.409595	1.2389	16.2893
3/17/2014	15.54	59	9.78	5.76	15.0702				15.05788	0.482122	1.3377	16.39558
3/18/2014	15.85	60	9.588	6.262	14.6871				15.15476	0.695238	1.4094	16.56416
3/19/2014	16.02	61	9.4056	6.6144	14.261				15.31754	0.702462	1.2382	16.55574
3/20/2014	15.83	62	9.2334	6.5966	13.7956				15.30264	0.527361	1.0349	16.33754
3/21/2014	15.61	63	9.072	6.538	13.2964				15.08291	0.527088	1.1496	16.23251

Deutsche	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
1/21/2014	51.08	5	51.7405	-0.6605	51.8682		#x_1(n-3)	0.011483	40.32808	10.75192	10.9902	51.31828
1/22/2014	50.69	6	51.3258	-0.6358	51.6248		#x_1(n-2)	-0.01322	39.4432	11.2468	11.1401	50.5833
1/23/2014	51.15	7	50.9353	0.2147	51.3753		#x_1(n-1)	-0.03802	39.18761	11.96239	11.2113	50.39891
1/24/2014	49.75	8	50.569	-0.819	50.8895		#x_1(n-0)	0.812815	39.57323	10.17677	11.2046	50.77783
1/27/2014	49.94	9	50.2269	-0.2869	50.3525				38.40929	11.53071	11.1332	49.54249
1/28/2014	50.58	10	49.909	0.671	50.0681				38.6064	11.9736	11.0194	49.6258
1/29/2014	49.53	11	49.6153	-0.0853	49.968				39.14316	10.38684	10.8911	50.03426
1/30/2014	50.17	12	49.3458	0.8242	49.6122		Percent error		38.24678	11.92322	10.7761	49.02288
1/31/2014	48.18	13	49.1005	-0.9205	48.7437		Model A	Model B	38.80063	9.379371	10.698	49.49863
2/3/2014	46.93	14	48.8794	-1.9494	47.7239		0.140385	0.011868	37.18002	9.74998	10.6716	47.85162
2/4/2014	47.15	15	48.6825	-1.5325	47.2542				36.21915	10.93085	10.7014	46.92055
2/5/2014	47.53	16	48.5098	-0.9798	47.642				36.47915	11.05085	10.7806	47.25975
2/6/2014	48.6	17	48.3613	0.2387	48.4444				36.77332	11.82668	10.8936	47.66692
2/7/2014	48.58	18	48.237	0.343	48.9145				37.61132	10.96868	11.0187	48.63002
2/10/2014	48.01	19	48.1369	-0.1269	48.7526				37.55189	10.45811	11.1328	48.68469
2/11/2014	48.58	20	48.061	0.519	48.3216				37.07957	11.50043	11.2157	48.29527
2/12/2014	48.92	21	48.0093	0.9107	48.1369				37.57709	11.34291	11.2538	48.83089
2/13/2014	49	22	47.9818	1.0182	48.2805				37.83908	11.16092	11.2422	49.08128
2/14/2014	48.92	23	47.9785	0.9415	48.4185				37.8771	11.0429	11.186	49.0631
2/18/2014	49.39	24	47.9994	1.3906	48.3202				37.81109	11.57891	11.0979	48.90899
2/19/2014	48.35	25	48.0445	0.3055	48.1702				38.199	10.151	10.9963	49.1953
2/20/2014	48.33	26	48.1138	0.2162	48.2726				37.33778	10.99222	10.9004	48.23818
2/21/2014	48.11	27	48.2073	-0.0973	48.5598				37.35393	10.75607	10.8271	48.18103
2/24/2014	48.88	28	48.325	0.555	48.5919				37.19501	11.68499	10.7867	47.98171
2/25/2014	48.44	29	48.4669	-0.0269	48.1115				37.81757	10.62243	10.7808	48.59837
2/26/2014	47.84	30	48.633	-0.793	47.4785				37.43333	10.40667	10.802	48.23533
2/27/2014	47.95	31	48.8233	-0.8733	47.3947				36.94967	11.00033	10.8353	47.78497
2/28/2014	48.34	32	49.0378	-0.6978	48.1686				37.07655	11.26345	10.8608	47.93735
3/3/2014	46.86	33	49.2765	-2.4165	49.3581				37.39224	9.467757	10.8581	48.25034
3/4/2014	47.65	34	49.5394	-1.8894	50.2165				37.2962	10.3538	10.8103	48.1065

3/5/2014	47.48	35	49.8265	-2.3465	50.4427				37.17879	10.30121	10.7083	47.88709
3/6/2014	48.33	36	50.1378	-1.8078	50.3989				37.01159	11.31841	10.5531	47.56469
3/7/2014	47.19	37	50.4733	-3.2833	50.6008				36.75875	10.43125	10.3563	47.11505
3/10/2014	46.51	38	50.833	-4.323	51.1313				36.40679	10.10321	10.1395	46.54629
3/11/2014	45.86	39	51.2169	-5.3569	51.6568				35.96332	9.896679	9.9304	45.89372
3/12/2014	45.32	40	51.625	-6.305	51.9462				35.45677	9.863226	9.7587	45.21547
3/13/2014	43.48	41	52.0573	-8.5773	52.1832				34.93265	8.547349	9.6514	44.58405
3/14/2014	43.3	42	52.5138	-9.2138	52.6723				34.4473	8.852698	9.6274	44.0747
3/17/2014	43.73	43	52.9945	-9.2645	53.3468				34.05878	9.671224	9.6947	43.75348
3/18/2014	44.59	44	53.4994	-8.9094	53.7669				33.8176	10.7724	9.8483	43.6659
3/19/2014	44.71	45	54.0285	-9.3185	53.6744				33.75812	10.95188	10.0708	43.82892
3/20/2014	44.81	46	54.5818	-9.7718	53.4284				33.89234	10.91766	10.335	44.22734
3/21/2014	44.26	47	55.1593	-10.8993	53.7304				34.20746	10.05254	10.608	44.81546

UBS	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
1/16/2014	20.95	55	19.9045	1.0455	20.5155		#x_1(n-3)	-0.20857	20.32636	0.623638	0.6247	20.95106
1/17/2014	20.77	56	19.9398	0.8302	20.4988		#x_1(n-2)	0.138512	20.40333	0.366666	0.328	20.73133
1/21/2014	20.7	57	19.9751	0.7249	20.4617		#x_1(n-1)	0.154405	20.24134	0.458655	0.5871	20.82844
1/22/2014	20.63	58	20.0104	0.6196	20.4092		#x_1(n-0)	0.888594	20.1624	0.467601	0.5703	20.7327
1/23/2014	20.46	59	20.0457	0.4143	20.3471				20.03526	0.424742	0.7106	20.74586
1/24/2014	19.93	60	20.081	-0.151	20.2814				19.90123	0.028765	0.5739	20.47513
1/27/2014	19.83	61	20.1163	-0.2863	20.2183				19.40894	0.421065	0.1849	19.59384
1/28/2014	20.37	62	20.1516	0.2184	20.1637		Percent error		19.22929	1.140706	0.8415	20.07079
1/29/2014	19.96	63	20.1869	-0.2269	20.1227		Model A	Model B	19.65574	0.30426	0.4221	20.07784
1/30/2014	20.01	64	20.2222	-0.2122	20.0995		0.018891	0.018918	19.47148	0.538515	0.7537	20.22518
1/31/2014	19.87	65	20.2575	-0.3875	20.0973				19.54826	0.321738	0.5395	20.08776
2/3/2014	19.22	66	20.2928	-1.0728	20.1178				19.26216	-0.04216	0.1589	19.42106
2/4/2014	20.36	67	20.3281	0.0319	20.1613				18.7554	1.604602	0.9139	19.6693
2/5/2014	20.22	68	20.3634	-0.1434	20.2269				19.63821	0.581788	0.4406	20.07881
2/6/2014	20.39	69	20.3987	-0.0087	20.312				19.629	0.761003	0.6997	20.3287
2/7/2014	20.66	70	20.434	0.226	20.4132				20.05191	0.608086	0.4614	20.51331
2/10/2014	20.61	71	20.4693	0.1407	20.5261				20.06092	0.549076	0.3197	20.38062
2/11/2014	20.77	72	20.5046	0.2654	20.6456				20.11093	0.65907	0.7788	20.88973
2/12/2014	20.82	73	20.5399	0.2801	20.7662				20.24733	0.572674	0.5812	20.82853
2/13/2014	20.96	74	20.5752	0.3848	20.8825				20.25322	0.706778	0.6203	20.87352
2/14/2014	20.84	75	20.6105	0.2295	20.9894				20.41794	0.422064	0.3178	20.73574
2/18/2014	21.05	76	20.6458	0.4042	21.0825				20.30648	0.743524	0.606	20.91248
2/19/2014	20.8	77	20.6811	0.1189	21.1583				20.48352	0.316485	0.5571	21.04062
2/20/2014	20.85	78	20.7164	0.1336	21.2141				20.24797	0.602029	0.7168	20.96477
2/21/2014	20.75	79	20.7517	-0.0017	21.2488				20.30791	0.442085	0.5718	20.87971
2/24/2014	20.85	80	20.787	0.063	21.2624				20.14835	0.701652	0.1785	20.32685
2/25/2014	20.65	81	20.8223	-0.1723	21.2561				20.28083	0.369165	0.8526	21.13343
2/26/2014	20.58	82	20.8576	-0.2776	21.2323				20.09428	0.485723	0.4181	20.51238
2/27/2014	21.1	83	20.8929	0.2071	21.1945				20.0359	1.064098	0.7527	20.7886
2/28/2014	21.36	84	20.9282	0.4318	21.1467				20.4386	0.921396	0.5365	20.9751

3/3/2014	20.46	85	20.9635	-0.5035	21.0936				20.78195	-0.32195	0.1634	20.94535
3/4/2014	20.91	86	20.9988	-0.0888	21.0399				20.54026	0.369741	0.9109	21.45116
3/5/2014	21	87	21.0341	-0.0341	20.9902				20.85325	0.146746	0.447	21.30025
3/6/2014	21.4	88	21.0694	0.3306	20.9488				20.6856	0.714401	0.6945	21.3801
3/7/2014	21.28	89	21.1047	0.1753	20.9191				20.88979	0.390208	0.454	21.34379
3/10/2014	21.12	90	21.14	-0.02	20.9037				20.74346	0.37654	0.3355	21.07896
3/11/2014	20.95	91	21.1753	-0.2253	20.9042				20.54506	0.40494	0.7654	21.31046
3/12/2014	21.01	92	21.2106	-0.2006	20.9208				20.6882	0.321804	0.5913	21.2795
3/13/2014	20.93	93	21.2459	-0.3159	20.9529				20.66732	0.262684	0.6161	21.28342
3/14/2014	20.26	94	21.2812	-1.0212	20.9984				20.75332	-0.49332	0.3077	21.06102
3/17/2014	20.41	95	21.3165	-0.9065	21.0547				20.50373	-0.09373	0.6248	21.12853
3/18/2014	20.74	96	21.3518	-0.6118	21.118				20.53638	0.203615	0.5443	21.08068
3/19/2014	20.52	97	21.3871	-0.8671	21.1842				20.47267	0.047329	0.7225	21.19517
3/20/2014	20.8	98	21.4224	-0.6224	21.2492				20.62275	0.17725	0.5698	21.19255
3/21/2014	20.3	99	21.4577	-1.1577	21.3086				20.61739	-0.31739	0.1726	20.78999

Credit suis	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
1/16/2014	33.07	80	30.864	2.206	32.935		#x_1(n-3)	-0.1322	30.68977	2.380234	2.3882	33.07797
1/17/2014	32.52	81	30.9031	1.6169	32.7863		#x_1(n-2)	0.099404	30.60795	1.91205	2.2109	32.81885
1/21/2014	32.16	82	30.9434	1.2166	32.5521		#x_1(n-1)	-0.08056	30.00359	2.15641	2.2465	32.25009
1/22/2014	32.04	83	30.9849	1.0551	32.2459		#x_1(n-0)	1.037724	29.65313	2.386868	2.4147	32.06783
1/23/2014	31.93	84	31.0276	0.9024	31.8871				29.5188	2.411203	2.5153	32.0341
1/24/2014	31.03	85	31.0715	-0.0415	31.4985				29.45124	1.578761	2.2531	31.70434
1/27/2014	30.87	86	31.1166	-0.2466	31.1054				28.56181	2.308188	2.0667	30.62851
1/28/2014	31.21	87	31.1629	0.0471	30.7328		Percent error		28.4732	2.736795	2.5856	31.0588
1/29/2014	30.8	88	31.2104	-0.4104	30.4037		Model A	Model B	28.764	2.036002	2.1738	30.9378
1/30/2014	30.67	89	31.2591	-0.5891	30.1371		0.039715	0.01372	28.41422	2.255782	2.5971	31.01132
1/31/2014	30.15	90	31.309	-1.159	29.9465				28.36729	1.782709	2.2422	30.60949
2/3/2014	29.34	91	31.3601	-2.0201	29.8391				27.75244	1.587558	1.9749	29.72734
2/4/2014	29.81	92	31.4124	-1.6024	29.8154				26.99505	2.814946	2.7199	29.71495
2/5/2014	29.98	93	31.4659	-1.4859	29.8691				27.51353	2.46647	2.1968	29.71033
2/6/2014	30.55	94	31.5206	-0.9706	29.9886				27.64031	2.909691	2.4657	30.10601
2/7/2014	30.43	95	31.5765	-1.1465	30.1579				28.37192	2.058081	2.2415	30.61342
2/10/2014	30.27	96	31.6336	-1.3636	30.3585				28.15624	2.113759	2.1205	30.27674
2/11/2014	30.78	97	31.6919	-0.9119	30.571				28.03406	2.745942	2.5381	30.57216
2/12/2014	31.12	98	31.7514	-0.6314	30.7775				28.4889	2.631097	2.4253	30.9142
2/13/2014	31.45	99	31.8121	-0.3621	30.9627				28.80061	2.649394	2.2925	31.09311
2/14/2014	31.45	100	31.874	-0.424	31.1153				29.18751	2.262486	2.1314	31.31891
2/18/2014	31.93	101	31.9371	-0.0071	31.2293				29.12731	2.802694	2.4569	31.58421
2/19/2014	31.61	102	32.0014	-0.3914	31.3033				29.61327	1.996731	2.2477	31.86097
2/20/2014	31.56	103	32.0669	-0.5069	31.3413				29.19891	2.361095	2.593	31.79191
2/21/2014	31.47	104	32.1336	-0.6636	31.351				29.22051	2.24949	2.2358	31.45631
2/24/2014	31.74	105	32.2015	-0.4615	31.3431				29.03588	2.704122	1.9909	31.02678
2/25/2014	31.61	106	32.2706	-0.6606	31.3298				29.36065	2.249353	2.7048	32.06545
2/26/2014	30.86	107	32.3409	-1.4809	31.3233				29.20166	1.658343	2.152	31.35366
2/27/2014	31.05	108	32.4124	-1.3624	31.3342				28.47257	2.577427	2.5366	31.00917
2/28/2014	31.37	109	32.4851	-1.1151	31.3706				28.68154	2.68846	2.2513	30.93284

3/3/2014	30.81	110	32.559	-1.749	31.4374				28.94094	1.869061	2.029	30.96994
3/4/2014	31.27	111	32.6341	-1.3641	31.5354				28.61805	2.651954	2.6425	31.26055
3/5/2014	31.58	112	32.7104	-1.1304	31.6622				28.95853	2.621467	2.3239	31.28243
3/6/2014	32.16	113	32.7879	-0.6279	31.8122				28.87576	3.284235	2.3539	31.22966
3/7/2014	32.13	114	32.8666	-0.7366	31.978				28.90102	3.228982	2.1893	31.09032
3/10/2014	32.03	115	32.9465	-0.9165	32.1512				28.72442	3.305577	2.313	31.03742
3/11/2014	31.63	116	33.0276	-1.3976	32.3239				28.67262	2.957381	2.3567	31.02932
3/12/2014	31.64	117	33.1099	-1.4699	32.4899				28.66159	2.978405	2.5486	31.21019
3/13/2014	31.02	118	33.1934	-2.1734	32.6454				28.86311	2.15689	2.2427	31.10581
3/14/2014	30.25	119	33.2781	-3.0281	32.7901				28.7464	1.503596	2.038	30.7844
3/17/2014	30.59	120	33.364	-2.774	32.927				28.44033	2.149667	2.6347	31.07503
3/18/2014	31.03	121	33.4511	-2.4211	33.0621				28.73353	2.296471	2.1549	30.88843
3/19/2014	30.98	122	33.5394	-2.5594	33.204				28.49832	2.481676	2.5855	31.08382
3/20/2014	31.42	123	33.6289	-2.2089	33.3625				28.7875	2.632498	2.2466	31.0341
3/21/2014	30.94	124	33.7196	-2.7796	33.5473				28.66319	2.276806	1.9815	30.64469

BOA	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
1/16/2014	17.08	61	16.531	0.549	16.9642		#x_1(n-3)	0.010568	16.57696	0.503039	0.6733	17.25026
1/17/2014	17.01	62	16.5532	0.4568	16.9214		#x_1(n-2)	0.044924	16.47008	0.539919	0.6376	17.10768
1/21/2014	17.01	63	16.5746	0.4354	16.8574		#x_1(n-1)	-0.12183	16.42701	0.582991	0.4304	16.85741
1/22/2014	17.15	64	16.5952	0.5548	16.7784		#x_1(n-0)	1.03235	16.43641	0.713591	0.5861	17.02251
1/23/2014	16.86	65	16.615	0.245	16.6916				16.57705	0.282947	0.4519	17.02895
1/24/2014	16.45	66	16.634	-0.184	16.6045				16.25987	0.190125	0.3581	16.61797
1/27/2014	16.31	67	16.6522	-0.3422	16.5242				15.87823	0.431767	0.7641	16.64233
1/28/2014	16.73	68	16.6696	0.0604	16.4571				15.77211	0.957892	0.7353	16.50741
1/29/2014	16.68	69	16.6862	-0.0062	16.4081		Percent error		16.20127	0.478732	0.6125	16.81377
1/30/2014	16.93	70	16.702	0.228	16.3806		Model A	Model B	16.08786	0.842142	0.7098	16.79766
1/31/2014	16.75	71	16.717	0.033	16.3759		0.04996	0.032258	16.36943	0.380574	0.4836	16.85303
2/3/2014	16.35	72	16.7312	-0.3812	16.3935				16.15534	0.194664	0.5031	16.65844
2/4/2014	16.35	73	16.7446	-0.3946	16.4312				15.77503	0.574971	0.5705	16.34553
2/5/2014	16.4	74	16.7572	-0.3572	16.4849				15.81832	0.581682	0.3196	16.13792
2/6/2014	16.69	75	16.769	-0.079	16.5499				15.85006	0.839936	0.5856	16.43566
2/7/2014	16.82	76	16.78	0.04	16.6205				16.13913	0.680873	0.8221	16.96123
2/10/2014	16.72	77	16.7902	-0.0702	16.6911				16.24025	0.479754	0.6148	16.85505
2/11/2014	16.88	78	16.7996	0.0804	16.7564				16.13473	0.745271	0.6916	16.82633
2/12/2014	16.75	79	16.8082	-0.0582	16.8121				16.32099	0.429006	0.6023	16.92329
2/13/2014	16.75	80	16.816	-0.066	16.8548				16.16418	0.585824	0.4347	16.59888
2/14/2014	16.7	81	16.823	-0.123	16.8826				16.18615	0.513854	0.5988	16.78495
2/18/2014	16.47	82	16.8292	-0.3592	16.8949				16.13038	0.339621	0.4112	16.54158
2/19/2014	16.2	83	16.8346	-0.6346	16.8924				15.89766	0.302344	0.3978	16.29546
2/20/2014	16.3	84	16.8392	-0.5392	16.8767				15.6447	0.655303	0.7985	16.4432
2/21/2014	16.29	85	16.843	-0.553	16.8504				15.76997	0.520033	0.7012	16.47117
2/24/2014	16.53	86	16.846	-0.316	16.8163				15.7329	0.7971	0.6275	16.3604
2/25/2014	16.34	87	16.8482	-0.5082	16.7774				15.98352	0.356479	0.6973	16.68082
2/26/2014	16.33	88	16.8496	-0.5196	16.7362				15.75874	0.571258	0.4574	16.21614
2/27/2014	16.49	89	16.8502	-0.3602	16.6948				15.78224	0.707757	0.5313	16.31354
2/28/2014	16.53	90	16.85	-0.32	16.6545				15.94264	0.587362	0.5412	16.48384

3/3/2014	16.3	91	16.849	-0.549	16.616				15.96198	0.338018	0.3154	16.27738
3/4/2014	16.73	92	16.8472	-0.1172	16.5792				15.7034	1.0266	0.6463	16.3497
3/5/2014	17.25	93	16.8446	0.4054	16.5435				15.81232	1.437677	0.804	16.61632
3/6/2014	17.35	94	16.8412	0.5088	16.508				16.06783	1.282166	0.6044	16.67223
3/7/2014	17.33	95	16.837	0.493	16.4721				16.09365	1.23635	0.7055	16.79915
3/10/2014	17.47	96	16.832	0.638	16.4351				16.2306	1.239399	0.5647	16.7953
3/11/2014	17.27	97	16.8262	0.4438	16.3971				16.21649	1.053505	0.448	16.66449
3/12/2014	17.28	98	16.8196	0.4604	16.3588				16.08822	1.191782	0.6021	16.69032
3/13/2014	17.16	99	16.8122	0.3478	16.3218				16.13198	1.028018	0.3741	16.50608
3/14/2014	16.8	100	16.804	-0.004	16.2884				15.93272	0.867278	0.4478	16.38052
3/17/2014	17.11	101	16.795	0.315	16.2614				15.82533	1.284675	0.8204	16.64573
3/18/2014	17.19	102	16.7852	0.4048	16.244				16.1064	1.083599	0.6688	16.7752
3/19/2014	17.44	103	16.7746	0.6654	16.2394				16.20017	1.239833	0.6464	16.84657
3/20/2014	17.92	104	16.7632	1.1568	16.2503				16.26865	1.651346	0.6763	16.94495
3/21/2014	17.56	105	16.751	0.809	16.2787				16.37015	1.189852	0.4395	16.80965

Citi	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
1/16/2014	52.6	16	52.1864	0.4136	53.4686		#x_1(n-3)	-0.16355	51.4642	1.135797	2.61	54.0742
1/17/2014	52.27	17	51.8932	0.3768	52.7827		#x_1(n-2)	0.089519	49.10609	3.16391	2.7209	51.82699
1/21/2014	51.85	18	51.5804	0.2696	52.0099		#x_1(n-1)	-0.03709	48.90452	2.945483	2.8628	51.76732
1/22/2014	51.9	19	51.251	0.649	51.1928		#x_1(n-0)	1.047565	48.09274	3.807263	2.8485	50.94124
1/23/2014	50.72	20	50.908	-0.188	50.3767				48.52204	2.197965	2.7822	51.30424
1/24/2014	49.33	21	50.5544	-1.2244	49.606				47.30043	2.029572	2.8976	50.19803
1/27/2014	48.81	22	50.1932	-1.3832	48.9207				45.96124	2.848757	3.2319	49.19314
1/28/2014	49.6	23	49.8274	-0.2274	48.3539				45.35425	4.245748	3.517	48.87125
1/29/2014	48.08	24	49.46	-1.38	47.9291				46.26967	1.810328	3.4349	49.70457
1/30/2014	48.3	25	49.094	-0.794	47.6591		Percent error		44.82886	3.471142	2.9812	47.81006
1/31/2014	47.43	26	48.7324	-1.3024	47.5448		Model A	Model B	45.27146	2.158538	2.5373	47.80876
2/3/2014	46.34	27	48.3782	-2.0382	47.5756		0.284022	0.02228	44.08665	2.253352	2.5397	46.62635
2/4/2014	46.78	28	48.0344	-1.2544	47.7305				43.24536	3.534642	3.0565	46.30186
2/5/2014	47.06	29	47.704	-0.644	47.98				43.63285	3.427149	3.6956	47.32845
2/6/2014	48.25	30	47.39	0.86	48.2887				43.95456	4.295437	3.9484	47.90296
2/7/2014	49.34	31	47.0954	2.2446	48.6181				45.40844	3.931562	3.6424	49.05084
2/10/2014	49.32	32	46.8232	2.4968	48.9301				46.45925	2.860747	3.0666	49.52585
2/11/2014	49.66	33	46.5764	3.0836	49.1906				46.45861	3.201391	2.6676	49.12621
2/12/2014	49.96	34	46.358	3.602	49.3718				46.71847	3.241526	2.6375	49.35597
2/13/2014	49.86	35	46.171	3.689	49.4554				46.84007	3.019926	2.8002	49.64027
2/14/2014	49.52	36	46.0184	3.5016	49.4346				46.7579	2.762102	2.8759	49.6338
2/18/2014	49.38	37	45.9032	3.4768	49.3146				46.37668	3.003316	2.8092	49.18588
2/19/2014	48.19	38	45.8284	2.3616	49.1136				46.18462	2.005382	2.8031	48.98772
2/20/2014	48.13	39	45.797	2.333	48.8611				44.92913	3.200874	3.0358	47.96493
2/21/2014	48.26	40	45.812	2.448	48.5973				44.95348	3.306519	3.3929	48.34638
2/24/2014	48.98	41	45.8764	3.1036	48.3698				45.00826	3.97174	3.5351	48.54336
2/25/2014	48.4	42	45.9932	2.4068	48.2306				45.94694	2.453062	3.2546	49.20154
2/26/2014	48.32	43	46.1654	2.1546	48.2332				45.3341	2.985902	2.7436	48.0777
2/27/2014	48.69	44	46.396	2.294	48.4281				45.315	3.375004	2.4668	47.7818
2/28/2014	48.63	45	46.688	1.942	48.8594				45.53589	3.094115	2.7305	48.26639

3/3/2014	47.61	46	47.0444	0.5656	49.5617				45.54701	2.062994	3.3714	48.91841
3/4/2014	48.83	47	47.4682	1.3618	50.5569				45.89756	2.932439	3.8828	49.78036
3/5/2014	49.42	48	47.9624	1.4576	51.8528				46.72393	2.696066	3.8675	50.59143
3/6/2014	49.71	49	48.53	1.18	53.4415				47.57725	2.132751	3.3804	50.95765
3/7/2014	49.62	50	49.174	0.446	55.2994				47.96079	1.659206	2.8388	50.79959
3/10/2014	49.57	51	49.8974	-0.3274	57.3886				47.71327	1.856728	2.6116	50.32487
3/11/2014	48.43	52	50.7032	-2.2732	59.6586				47.12196	1.308036	2.708	49.82996
3/12/2014	47.98	53	51.5944	-3.6144	62.0492				46.54708	1.432921	2.857	49.40408
3/13/2014	47.33	54	52.574	-5.244	64.494				46.10265	1.227354	2.8541	48.95675
3/14/2014	46.88	55	53.645	-6.765	66.9246				45.68317	1.196833	2.7833	48.46647
3/17/2014	47.73	56	54.8104	-7.0804	69.2748				45.22898	2.501023	2.8801	48.10908
3/18/2014	48.14	57	56.0732	-7.9332	71.4848				44.90238	3.237621	3.2045	48.10688
3/19/2014	48.94	58	57.4364	-8.4964	73.5051				44.9426	3.997396	3.5058	48.4484
3/20/2014	50.22	59	58.903	-8.683	75.2999				45.34865	4.871354	3.4561	48.80475
3/21/2014	50.08	60	60.476	-10.396	76.8491				45.76753	4.312473	3.0204	48.78793

Wells	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
1/16/2014	46.39	38	45.3332	1.0568	46.3044		#x_1(n-3)	-0.01131	42.22915	4.160853	4.4482	46.67735
1/17/2014	46.39	39	45.3666	1.0234	46.3498		#x_1(n-2)	0.041077	42.2266	4.163396	4.4175	46.6441
1/21/2014	46.5	40	45.4	1.1	46.3492		#x_1(n-1)	0.000899	42.25953	4.240472	3.866	46.12553
1/22/2014	46.67	41	45.4334	1.2366	46.2989		#x_1(n-0)	0.880088	42.34677	4.323231	4.2819	46.62867
1/23/2014	46.35	42	45.4668	0.8832	46.1999				42.4966	3.853404	4.0072	46.5038
1/24/2014	45.48	43	45.5002	-0.0202	46.058				42.21964	3.260361	3.7094	45.92904
1/27/2014	45.53	44	45.5336	-0.0036	45.8833				41.45941	4.070585	4.5312	45.99061
1/28/2014	45.96	45	45.567	0.393	45.6894				41.48757	4.47243	4.3771	45.86467
1/29/2014	45.59	46	45.6004	-0.0104	45.4922				41.83393	3.756067	4.1866	46.02053
1/30/2014	46.05	47	45.6338	0.4162	45.3085		Percent error		41.52058	4.529422	4.6003	46.12088
1/31/2014	45.34	48	45.6672	-0.3272	45.154		Model A	Model B	41.94218	3.397817	4.0438	45.98598
2/3/2014	44.43	49	45.7006	-1.2706	45.0421		0.030169	0.024572	41.29767	3.132326	4.0241	45.32177
2/4/2014	44.77	50	45.734	-0.964	44.9824				40.51924	4.250765	4.3015	44.82074
2/5/2014	44.23	51	45.7674	-1.5374	44.9796				40.78328	3.44672	3.6813	44.46458
2/6/2014	44.78	52	45.8008	-1.0208	45.0332				40.27899	4.501014	4.1202	44.39919
2/7/2014	45.37	53	45.8342	-0.4642	45.1376				40.7868	4.583196	4.6182	45.405
2/10/2014	45.52	54	45.8676	-0.3476	45.2825				41.28052	4.239476	4.1322	45.41272
2/11/2014	45.97	55	45.901	0.069	45.4538				41.44177	4.528234	4.4629	45.90467
2/12/2014	45.99	56	45.9344	0.0556	45.6354				41.85596	4.134042	4.3991	46.25506
2/13/2014	45.98	57	45.9678	0.0122	45.8106				41.87345	4.106545	3.8659	45.73935
2/14/2014	46.13	58	46.0012	0.1288	45.9637				41.88146	4.248539	4.2921	46.17356
2/18/2014	46.13	59	46.0346	0.0954	46.0818				42.0092	4.120801	3.9862	45.9954
2/19/2014	45.53	60	46.068	-0.538	46.156				42.0087	3.521303	3.7235	45.7322
2/20/2014	45.63	61	46.1014	-0.4714	46.1821				41.48692	4.143081	4.5469	46.03382
2/21/2014	45.6	62	46.1348	-0.5348	46.161				41.57269	4.027308	4.36	45.93269
2/24/2014	46.08	63	46.1682	-0.0882	46.099				41.52173	4.558267	4.1983	45.72003
2/25/2014	46.08	64	46.2016	-0.1216	46.0064				41.95504	4.124961	4.5988	46.55384
2/26/2014	46.05	65	46.235	-0.185	45.8967				41.95311	4.096892	4.0261	45.97921
2/27/2014	46.05	66	46.2684	-0.2184	45.7853				41.94676	4.103238	4.0393	45.98606
2/28/2014	46.42	67	46.3018	0.1182	45.6877				41.94131	4.478692	4.2916	46.23291

3/3/2014	46.15	68	46.3352	-0.1852	45.6179				42.26571	3.884292	3.6719	45.93761
3/4/2014	46.74	69	46.3686	0.3714	45.5871				41.84183	4.898167	4.1471	45.98893
3/5/2014	47.09	70	46.402	0.688	45.6026				41.90177	5.188232	4.6108	46.51257
3/6/2014	47.34	71	46.4354	0.9046	45.667				42.33866	5.00134	4.1267	46.46536
3/7/2014	47.95	72	46.4688	1.4812	45.7781				42.30515	5.644854	4.4772	46.78235
3/10/2014	48.15	73	46.5022	1.6478	45.9296				42.60501	5.544991	4.3801	46.98511
3/11/2014	47.81	74	46.5356	1.2744	46.1112				42.77588	5.034117	3.867	46.64288
3/12/2014	48.12	75	46.569	1.551	46.3106				42.48843	5.631568	4.3014	46.78983
3/13/2014	47.84	76	46.6024	1.2376	46.5141				42.6222	5.217803	3.9652	46.5874
3/14/2014	47.4	77	46.6358	0.7642	46.7086				42.42782	4.972182	3.7387	46.16652
3/17/2014	48.13	78	46.6692	1.4608	46.8832				42.06713	6.062869	4.5614	46.62853
3/18/2014	48.4	79	46.7026	1.6974	47.0295				42.46339	5.936612	4.343	46.80639
3/19/2014	47.81	80	46.736	1.074	47.1431				42.60533	5.204667	4.2107	46.81603
3/20/2014	49.03	81	46.7694	2.2606	47.2238				42.63772	6.392282	4.5961	47.23382
3/21/2014	49.12	82	46.8028	2.3172	47.2752				43.0075	6.112503	4.0092	47.0167

Morgan	Price		Trendline	Difference	Model A			Coefficient	ARIMA	Difference	Fourier	Model B
1/16/2014	32	59	30.9279	1.0721	31.846		#x_1(n-3)	-0.07634	27.83286	4.167141	4.5065	32.33936
1/17/2014	33.4	60	30.895	2.505	31.7793		#x_1(n-2)	-0.07581	27.89452	5.505484	4.337	32.23152
1/21/2014	32.63	61	30.8597	1.7703	31.6707		#x_1(n-1)	0.201603	28.89015	3.739847	4.1605	33.05065
1/22/2014	32.29	62	30.822	1.468	31.5213		#x_1(n-0)	0.81604	28.47522	3.814779	3.9945	32.46972
1/23/2014	31.48	63	30.7819	0.6981	31.3349				27.95319	3.526808	3.855	31.80819
1/24/2014	30.45	64	30.7394	-0.2894	31.1179				27.17515	3.27485	3.7544	30.92955
1/27/2014	29.97	65	30.6945	-0.7245	30.8792				26.25589	3.71411	3.6996	29.95549
1/28/2014	30.13	66	30.6472	-0.5172	30.6292		Percent error		25.7439	4.386097	3.692	29.4359
1/29/2014	29.94	67	30.5975	-0.6575	30.3793		Model A	Model B	25.91762	4.022377	3.7266	29.64422
1/30/2014	29.98	68	30.5454	-0.5654	30.1413		0.116421	0.007642	25.90985	4.070146	3.7938	29.70365
1/31/2014	29.51	69	30.4909	-0.9809	29.9264				25.92871	3.581295	3.8802	29.80891
2/3/2014	28.95	70	30.434	-1.484	29.7441				25.55542	3.39458	3.9709	29.52632
2/4/2014	29.02	71	30.3747	-1.3547	29.6021				25.01516	4.004844	4.0516	29.06676
2/5/2014	29.18	72	30.313	-1.133	29.5051				24.99196	4.188041	4.1106	29.10256
2/6/2014	29.69	73	30.2489	-0.5589	29.4549				25.21497	4.475027	4.1404	29.35537
2/7/2014	29.69	74	30.1824	-0.4924	29.4499				25.70085	3.989145	4.1384	29.83925
2/10/2014	29.7	75	30.1135	-0.4135	29.4854				25.7862	3.913801	4.1076	29.8938
2/11/2014	30.27	76	30.0422	0.2278	29.5541				25.74348	4.526519	4.0555	29.79898
2/12/2014	30.16	77	29.9685	0.1915	29.6462				26.1717	3.988295	3.993	30.1647
2/13/2014	29.91	78	29.8924	0.0176	29.7508				26.1961	3.713904	3.9328	30.1289
2/14/2014	29.69	79	29.8139	-0.1239	29.856				25.92593	3.764066	3.8871	29.81303
2/18/2014	29.56	80	29.733	-0.173	29.9502				25.66083	3.899172	3.8659	29.52673
2/19/2014	28.96	81	29.6497	-0.6897	30.0228				25.53774	3.422259	3.8755	29.41324
2/20/2014	29.33	82	29.564	-0.234	30.065				25.05767	4.272327	3.9173	28.97497
2/21/2014	29.62	83	29.4759	0.1441	30.0703				25.2653	4.354704	3.9879	29.2532
2/24/2014	30.31	84	29.3854	0.9246	30.0348				25.63195	4.678048	4.0793	29.71125
2/25/2014	29.71	85	29.2925	0.4175	29.9576				26.27124	3.43876	4.1803	30.45154
2/26/2014	29.94	86	29.1972	0.7428	29.8404				25.87049	4.06951	4.2781	30.14859
2/27/2014	30.36	87	29.0995	1.2605	29.6873				25.86277	4.497231	4.3603	30.22307
2/28/2014	30.8	88	28.9994	1.8006	29.5046				26.24468	4.555315	4.4168	30.66148

3/3/2014	30.26	89	28.8969	1.3631	29.2997				26.71678	3.543215	4.4413	31.15808
3/4/2014	31.1	90	28.792	2.308	29.0809				27.0483	4.051698	4.4326	31.4809
3/5/2014	31.97	91	28.6847	3.2853	28.8564				27.3185	4.651496	4.3943	31.7128
3/6/2014	31.84	92	28.575	3.265	28.6338				27.51209	4.327911	4.3349	31.84699
3/7/2014	32.21	93	28.4629	3.7471	28.4193				27.61653	4.593469	4.2662	31.88273
3/10/2014	32.13	94	28.3484	3.7816	28.2178				27.63052	4.499475	4.2021	31.83262
3/11/2014	31.7	95	28.2315	3.4685	28.0323				27.56897	4.131035	4.1557	31.72467
3/12/2014	31.44	96	28.1122	3.3278	27.8639				27.45781	3.98219	4.138	31.59581
3/13/2014	31.44	97	27.9905	3.4495	27.712				27.33196	4.108035	4.1561	31.48806
3/14/2014	31.1	98	27.8664	3.2336	27.5747				27.23007	3.869928	4.2116	31.44167
3/17/2014	31.37	99	27.7399	3.6301	27.4492				27.1885	4.181497	4.3006	31.4891
3/18/2014	31.65	100	27.611	4.039	27.332				27.23586	4.414139	4.4136	31.64946
3/19/2014	31.81	101	27.4797	4.3303	27.2198				27.38802	4.421976	4.5373	31.92532
3/20/2014	32.79	102	27.346	5.444	27.1096				27.64541	5.144586	4.6556	32.30101
3/21/2014	32.6	103	27.2099	5.3901	26.9995				27.99183	4.608171	4.7524	32.74423