# Background

# The prediction of the performance of the stocks of a company is a challenge for every organization. The performance of a stock however, remains important for an organization given that many organization raise the finances required to finance their investments through the sales of their stocks. The research attempts to investigate factors that influence the performance of a stock in the market.

**Problem statement**

The research wishes to come up with a model that can be used by an organization management in order to estimate the performance of the organization’s stocks in the market. This is important as the organization may estimate the finances that will be available to finance their investments.

**Objectives**

The objectives of the research include

1. Determine the factors that affect the performance of Delta Air Lines stocks in the market
2. Come up with a model that can be used in the estimation of the volume of stocks expected to trade in a certain date.
3. Estimate the influence of the S&P 500 index in the performance of stock market.

**Aims of the research**

The aim of the research is to come up with findings that can be sued by an organization to evaluate an estimate of the amount they will receive through the sale of shares. Such a model will be of importance and boost a coordinate and planned investment by an organization.

**Data variables**

# **Dependent variable**

# **Volume of shares of Delta shares**

The volume of shares sold in the market reflect the market shares performance. In the research, the volume of shares transacted in the market represent the attractiveness to investors and corporates. The amount of shares transacted in the stock market is determined by several factors. One of the factors is the financial position of the institution. A good financial position promises investors a rise in the prices of shares and also considerable earnings in terms of shares. (Goteti & Rutgers, 2008) The other factor is the expectation of the future prices of a company’s share in the future. The research therefore intends to use the volume of shares transacted as a representation of the performance of Delta Air Lines stocks.

# **Independent variables**

# **S&P 500 Index (sp500)**

The S&P 500 index is a stock market index used in the New York stock market exchange and consists of 500 stocks. The S&P index gives a picture of the US stock market covers a broader range of details about the stock market the since it is a value- weighted average as compared to the Dow Jones Industrial Average (DJIA) which is a time-weighted average. The value of the S&P index gives information about how the stock market is expected to perform. In the research, we aim at analyzing the relationship between the prices of Delta Air Lines and the S&P index. We wish to ascertain the claim that the S&P index influences the performance of Delta Air Line shares.

# **Price of shares**

The prices of shares is an important factor in the stock market. The current prices and future prices determine the amount of the shares that the investors are willing to purchase. Investors will always purchase a share that has an expectation of future prices increasing. Increase in the future prices means that the investors can make profits in the future by selling the stock at a higher price than the buying price. We seek to investigate the relationship between the price of shares and the volume purchase and also investigate the relationship between the S&P index and the prices of the shares. (Fraser, 2012)

**Data analysis**

The analysis of data will use regression analysis that include the three variables. The equation will be of the form;

Y = b0 + b1X1+ b2X2 + error

The assumption of the model is that the error values are identically and independently distributed with mean = 0 and variance= $σ^{2}$ (Goteti & Rutgers, 2008)

The regression output performed using excel is as below

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SUMMARY OUTPUT |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Regression Statistics |  |  |  |  |  |  |  |  |  |
| Multiple R | 0.054013 |  |  |  |  |  |  |  |  |
| R Square | 0.002917 |  |  |  |  |  |  |  |  |
| Adjusted R Square | -0.03207 |  |  |  |  |  |  |  |  |
| Standard Error | 2886688 |  |  |  |  |  |  |  |  |
| Observations | 60 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| ANOVA |  |  |  |  |  |  |  |  |  |
|  | Df | SS | MS | F | Significance F |  |  |  |
| Regression | 2 | 1.39E+12 | 6.95E+11 | 0.083389 | 0.920106 |  |  |  |  |
| Residual | 57 | 4.75E+14 | 8.33E+12 |  |  |  |  |  |  |
| Total | 59 | 4.76E+14 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  | Coefficients | Standard Error | t Stat | P-value | Lower 95% | Upper 95% | Lower 95.0% | Upper 95.0% |
| Intercept | 27830880 | 57687138.44 | 0.482445147 | 0.631337 | -8.8E+07 | 1.43E+08 | -8.8E+07 | 1.43E+08 |  |
| The price of Delta Airlines shares | 327.3287 | 304348.1083 | 0.001075508 | 0.999146 | -609119 | 609773.9 | -609119 | 609773.9 |  |
| S&P index | -8057.34 | 28316.58253 | -0.284545036 | 0.777024 | -64760.3 | 48645.64 | -64760.3 | 48645.64 |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |

**F test**

Using the F test, we test the null hypothesis that; H0: b1 = b2 = 0

The result of the analysis at 95% level of confidence shoes that the p value is greater than the level of significance. This shows that there exist lacks sufficient statistical evidence to reject the null hypothesis. (Good, 2005). We therefore conclude that the volume of the prices of delta stocks is not explained by the S&P index and prices.

The value of R squared means that only 0.2917 percent of the volume of stocks is determined by the prices of the stock and the S&P index.

**T test**

Using the t test we can explain the variables that are fit to be in the model. There exists sufficient statistical that a variable should be in the model if the p value is less than the level of significance. (Goteti & Rutgers, 2008)

The p value indicates that none of the variables should be in the model since they are not significance.

Conclusion

It is therefore difficult for the management to rely on the research in order to estimate the amount of finances available through the sale of their stocks. The results can be improved by using a wider range of data or inclusion of other variables in the model.

References

Historical S&P 500 index

<https://finance.yahoo.com/quote/%5EGSPC/history/>

Delta Airlines stocks

<http://www.nasdaq.com/symbol/dal/historical>

Fraser, C. (2012). Business statistics for competitive advantage with Excel 2010: Basics, model building and cases. New York: Springer.

Goteti, V. S., & Rutgers University. Graduate School--New Brunswick. (2008). Topics in statistical finance.

Good, P. I. (2005). Permutation, parametric and bootstrap tests of hypotheses. (Springer e-books.) New York: Springer.