Czech University of Life Sciences Prague

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Diploma Thesis

The Relationship Between Economic Indexes and Stock Market.

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1 Objectives of thesis

The main aim of the thesis is to discuss the main analysis methods of the stock market as the fundamental analysis and the technical analysis. Also, to discuss the effect of some of the macroeconomic variables (GDP, unemployment, inflation, interest rate, exchange rate) on the stock market as a trial for creating a new connection between the stock market and the real economic indexes.

2 Keywords

GDP, unemployment, inflation, interest rate, exchange rate, polynomial regression, multiple regression model, S&P500.

3 Methodology

Theoretical overview used to discuss the main methods of analyzing the stock markets as the fundamental and the technical analysis and some of the macroeconomic variables. Then a quantitative method was used to gather the data for GDP, unemployment, interest rate, inflation and exchange rate (EUR/USD) for the years (2006 – 2018) then using polynomial equations models to investigate the influence of the mentioned macroeconomic variables on the index S&P500. Then a multiple regression model used to conclude the relation between the mentioned macroeconomic variables and S&P500.

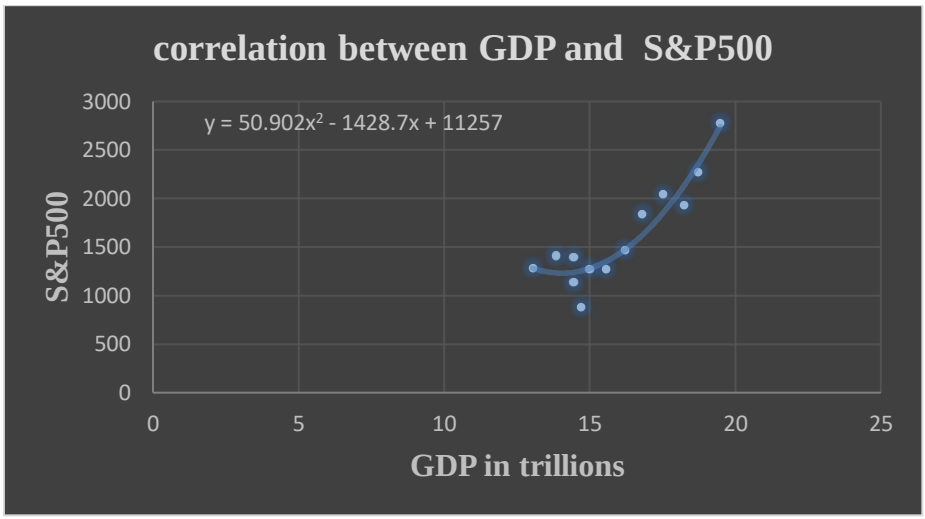
4 Introduction

There are many methods for analyzing the stock markets as the fundamental analysis which rely on the revenues per quarters and the annual revenues of the companies and it relies on analyzing a different kind of ratios as Earning per share (EPS), price to earnings ratio ,…etc. Also, there is the technical analysis which rely on the history of the share's prices, technical pattern, trading volume,…etc. here I focused in my diploma thesis to discuss the effect of some of the macroeconomic variables as the GDP, unemployment, interest rate, inflation and exchange rate (EUR/USD) on the stock market by investigating its effect on the American stock market index S&P500. So, connecting between the real economic indexes and the stock market indexes would create a new kind of indicators which reflect the real economic status of the stock markets.

5 Discussing the results

By creating the polynomial equation curve model between the GDP and S&P500 index it shows that there is a strong direct proportional correlation between the GDP and the American index S&P500 as it is mentioned in Figure (1).

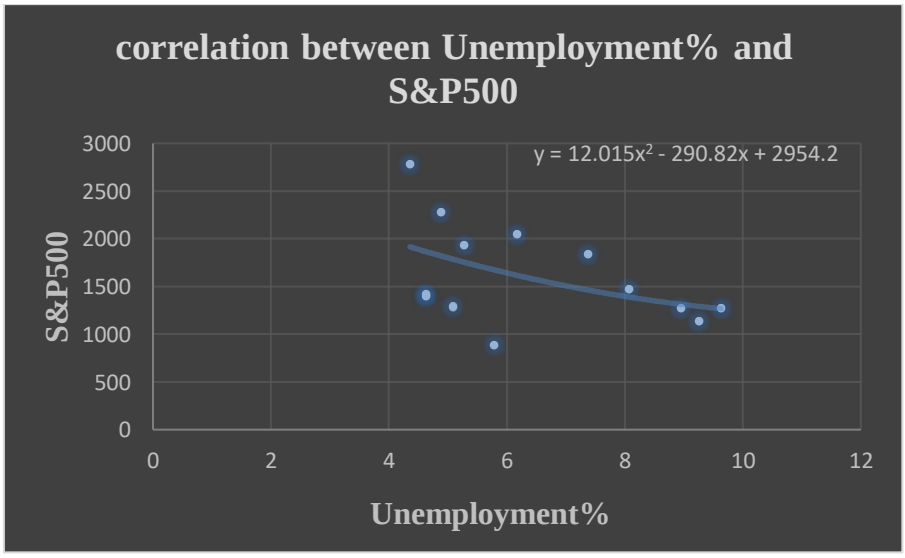
Figure No 1: Correlation between the GDP (in trillions) and S&P500 index



(Source: own calculation, 2019)

The polynomial equation curve between the unemployment % and S&P500 index show that there is an inverse proportional correlation between the unemployment rate and the stock market S&P500 index as it is mentioned in figure (2).

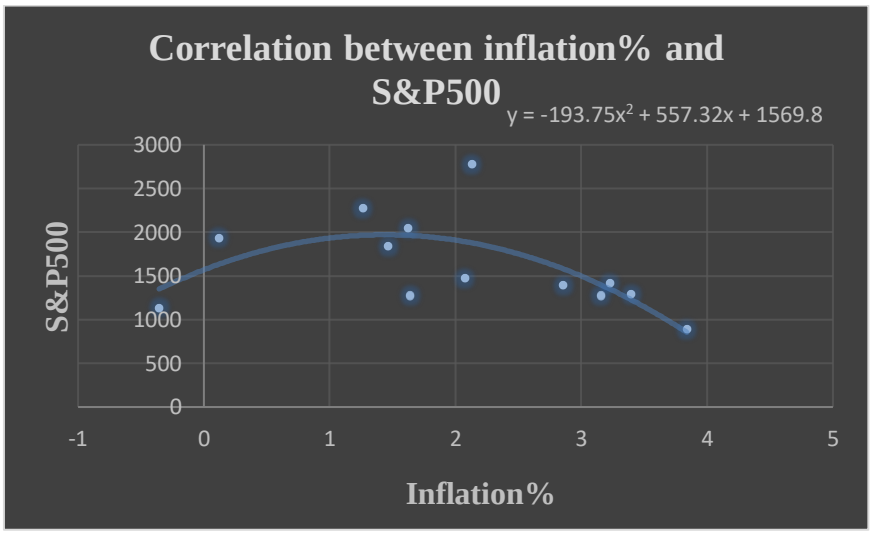
Figure No 2: Correlation between the unemployment % and S&P500 index



(Source: own calculation, 2019)

As it is mentioned in figure (3) there is a direct proportional correlation between the inflation and S&P500 index until a certain point which is (1.7%) in my chart and after this the relation converted to be an inverse correlation because it will start to affect the prices of the products and the services so it will affect the purchasing power of the people and their demand so it will have a negative impact on the revenues of the companies then the shares prices.

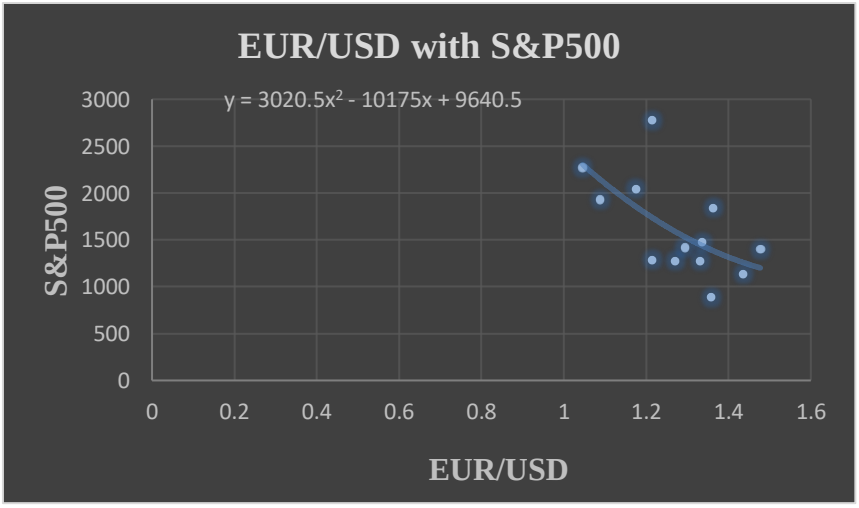
Figure No 3: Correlation between the inflation rate % and S&P500 index



(Source: own calculation, 2019)

There is an inverse proportional correlation between the exchange rate (EUR/USD) and the stock market index S&P500 and this relation is logic because the more depreciated currency we have the more negative effect it could cause to the stock market shares.

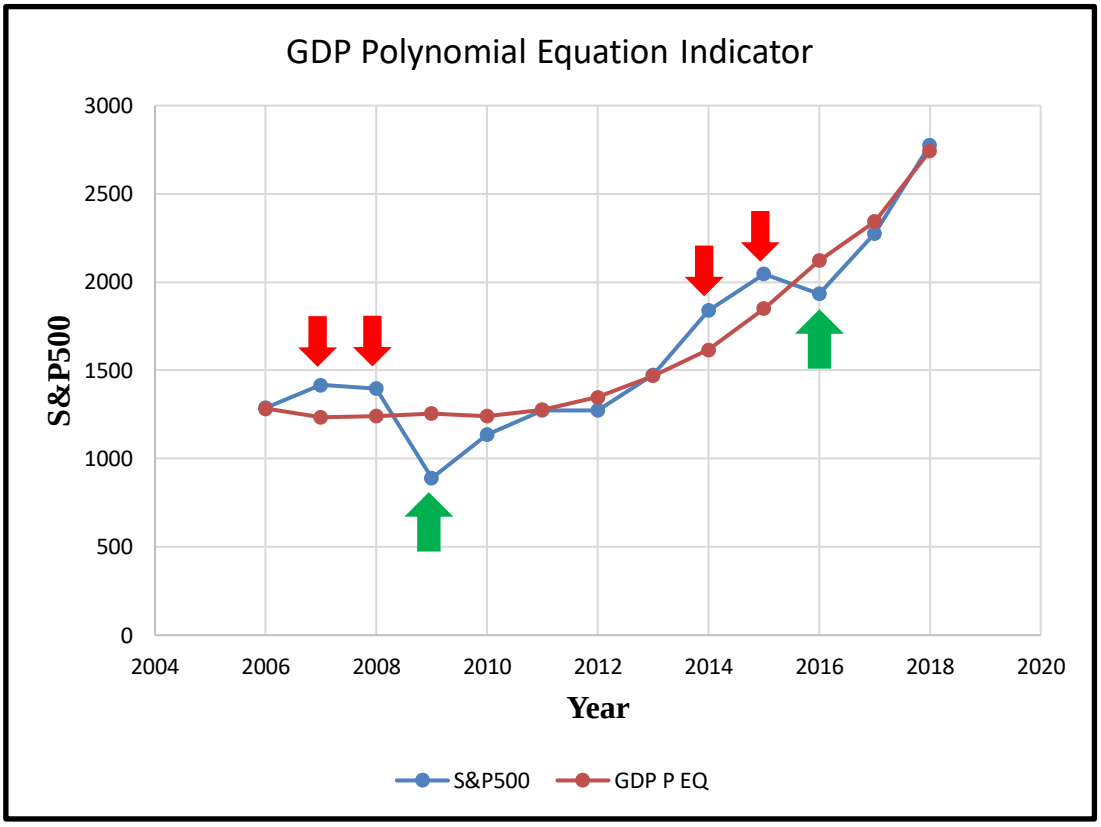
Figure No 4: Correlation between the exchange rate (EUR/USD) and S&P500 index



(Source: own calculation, 2019)

New indicators

Figure No 5: Anticipated S&P500 values of the GDP polynomial curve with the real S&P500 Index values



(Source: own calculation, 2019)

This chart (Figure 5) is comparing between the anticipated values of S&P500 index up on the polynomial equation model which represent the relation between the GDP and S&P500 and the real S&P500 index values and it works as a leading indicator which means that when the anticipated values for S&P500 breaks the index up then it is a positive signal as it is shown by the green arrows in the beginning of 2009 and 2016. also when the it breaks the real index down then it is a negative signal but I would like to mention that when there is a respective negative signal for two years as 2007, 2008 and 2014, 2015 then it means that there is an expected drop in the second year as what happen in 2008 and 2015.

6 Conclusion

By studying the effect of some of the macroeconomic variables as the GDP, inflation, interest rate, unemployment and exchange rate on the stock markets and investigating its effect on the American index S&P500, it helped to develop new indicators as the GDP polynomial curve indicator and the multiple regression model indicator which combine among the GDP, unemployment and exchange rate (EUR/USD) with S&P500. Those new indicators could be used technically to expect the future of the S&P500 index which lead us to have a general expectation for the future of the stock market index which show the strength of the stock markets and the activity of investing. the same analysis could be applied on other stock markets in other countries and it would help investors everywhere to have their investment decisions in the light of connecting between the economic indexes and the stock markets.

7 References

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