

### To Study the Ability of the NYSE and NASDAQ Market Performance to Beat the Inflation Rate in US

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#### ABSTRACT

*The investment had been crucial to overcome the inflation rate or time value of money which could affect the wealth of the investors. The goal of the investment had been always holding the priority to beat the inflation rate to ensure the value of the money is not loss over time. This study will focus to study and understanding the ability to investors to beat the inflation in US by investing in the diversified stock portfolio through the representation of the NYSE and NASDAQ market index performance against the inflation rate through the Customer Price Index (CPI) for the country. The quantitative analysis method was applied to study the past trend of 30 years for the growth for the CPI against the NYSE and NASDAQ market index growth over the targeted period. The result from the outcome of the study had suggested there is very weak negative correlation between the C/I growth against the NYSE and NASDAQ market index growth where the regression analysis also failed to show significant relationship between the variables. This had been showing strong disagreement with the previous study where the discussion on the potential reasons had been demonstrated before moving to conclude the outcome of the study with the suggestion on the potential future research for the researchers.*

#### INTRODUCTION

Inflation and the consumer price index (CPI) have been popular concerns among people, as rising prices of living expenses, including goods and services, will become the main focus of attention for the people (Salisu et al., 2020). People would seek out various investment opportunities to offset the growth in inflation and CPI over time. The primary goal of the investment is to outperform the country's inflation rate in order to avoid a loss in the time value of money. This ensures that the investor does not lose the investment money due to inflation because the investment was designed to grow over time to improve the investor's wealth (Arnold & Auer, 2015). It is understood that the risk-free rate of investment based on the central bank will give the minimum rate of return that will represent the investment return on the least amount of risk for the investors.

As a result, the ability to beat inflation has remained a question for investors, as investors actively seek alternatives to invest in opportunities to earn more than inflation in order to increase an individual's wealth over time. The role of investment will be to compensate for the loss of money value due to the time value of money over time. With this, the stock market will appear as the ideal investment technique, as the stock market will incorporate all of the big companies' stock, providing the desired return on investment (ROI) for investors (Kwofie & Ansah, 2018). The benefit of investing in the stock market is that the stock market's growth tends to be positive because the majority of businesses are likely to grow over the long term.

The issue statement for this study was clear, emphasizing the investors' worry in making sensible investment decisions to overcome the inflation impact on rising consumption costs of goods and services (Desfiandi, Desfiandi & Ali, 2017). The act of investing was intended to sustain the worth of money over time in order to avoid losing the value of money due to the time value of money. Despite the strong recommendation for investment, there is no clear indication for investors on the preferred investment option that will contribute to higher rates of return in order to beat the country's rising inflation. In terms of investment expertise, the importance of portfolio investment has proved the reduced risk of return for investors, contributing to the concept of investing in multiple different stocks inside the stock market exchange (Salisu et al., 2020). As a result, the portfolio of stock investment will be compared to the country's inflation rate to determine the potential of the portfolio investment of stocks to overcome the pressure from inflation for investors.

This study aims to comprehend the outcome of investing in the stock market exchange against the rise in the inflation rate over time. This will assist to understand whether the decision to invest in a well-diversified portfolio will help to provide portfolio returns that are higher than the country's inflation rate (Yusuf, Ichsan & Suparmin, 2021). The target setting will be based on the performance of the overall stock movement as measured by the NYSE and NASDAQ market indexes. The inflation rate on the consumer price index (CPI) will serve as the baseline for the study, which will compare the average growth of stock performance to the inflation rate in the United States over the past trend.

This established the study's research purpose, which is to investigate the impact of stock portfolio investment performance on the growth of inflation in the United States throughout time. The study's findings should help to check the veracity of the data and determine whether stock portfolio investments would be able to produce positive ROI that outperforms rising inflation over the long term. This will make a significant contribution to closing the gap in the literature review. Furthermore, the research findings serve as an important reference for investors in determining whether to invest in equities in the NYSE and NASDAQ stock markets.

## **LITERATURE REVIEW**

The previous understanding derived from finance and economics concepts provided a clear indication that the role of investment will assist investors attain higher wealth while alleviating the pressure on the country's inflation rate. According to Jareno, Ferrer, and Miroslavova (2016), the investment return will be able to outperform the inflation rate because the usual mistake for people has been choosing not to invest, which results in money losing value over time. This is due to the time value of money aspect, which will eventually result in a similar quantity of money being recognized for a lower value in the future. As a result, investors tend to develop a portfolio investment that will allow the money to increase over time through the investment, ensuring that the growth of the money and wealth is linked with the country's rising inflation (Nkoro & Uko, 2016). Furthermore, Yusuf, Ichsan, and Suparmin (2021) stated that the creation of a portfolio was designed to increase the return per risk measurement for investors, which is regarded as the best way to hedge against growing inflation.

In most circumstances, past research revealed that using a portfolio investing technique yielded good results because portfolio returns had a higher tendency to record a positive return for investors even during times of recession (Antonakakis, Gupta & Tiwari, 2017). As a result, portfolio investments have been shown to be capable of diversifying risk in investment portfolios and providing consistent returns to investors. The rise in inflation can be addressed by a steady return to compensate the value of money over time. Salisu et al. (2020) emphasized that while portfolio investments may not optimize the possible return on investment rate, they will provide a stable and constant return that is sufficient to fulfill the time value of money progression.

Based on past understanding, earlier publications had argued that stock investment was an ideal investment because stock performance tends to be good, especially during times of economic boom (Kwofie & Ansah, 2018). The economic situation frequently influenced corporate performance, which was reflected in stock performance for the stock market exchange. With the economic situation evolving over time, as seen by GDP growth, stock market performance can be expected to have a positive association with economic growth (Tiwari et al., 2015). As a result, the investment in a stock portfolio gave the image of tremendous increase over time. As a result, the growth of the investment through the stock portfolio will tend to surpass the inflation rate for the country, putting investors on the winning side when comparing investment wealth to the inflation rate for the country (Salisu, Raheem & Ndako, 2020). Furthermore, during a recession, the inflation rate is likely to fall, but portfolio investments in the stock market are predicted to generate good returns due to their diversification (Costamagna, 2015).

Drawing on the previous study, it will provide findings that will help the current study achieve the expected result, where the current study is likely to find a significant positive correlation between the market index performance representing stock portfolio investment and the country's inflation rate (Desfiandi, Desfiandi & Ali, 2017). According to the prior advice, the investment in the stock portfolio will outperform the growth in the inflation rate, which will be tested against the performance of the market index in this present study. The hypothesis as written can be seen below, where it will be tested against the study's empirical evidence.

***H1: There is positive correlation and relationship between the inflation rate against the market index performance.***

***H2: The growth rate for the market index performance will be higher than the growth rate of the inflation of the country***

## **METHODOLOGY**

The research approach for this study will be focused on the use of the quantitative method, in which the study will use numerical data to give accurate measurement in the study's conclusions and findings (Sharela, 2016). The advantages of using the quantitative analysis method were obvious, as the availability of data input for proper measurement allows the empirical evidence to be defined more precisely and objectively than the qualitative analysis method, where the statistical output will serve as strong evidence for the achievement in the study's outcome (Sharela, 2016). Furthermore, the quantitative study will increase the study's ability to broaden the target study, where the quantitative method will improve the huge data set of study, providing greater coverage on the study's target population (Sekaran & Bougie, 2016). The deductive reasoning approach will be used based on the hypothesis as drawn in the literature review section, where the logical form of thinking from the previous study will be tested against the current outcome of the study to understand the similarity or differences in drawing the study's results and conclusion (Cooper & Schindler, 2014). With regard to the scope of the study on historical data for the growth on both the NYSE and NASDAQ market index performance and United States' inflation rate, the study will be based on the timeline period as defined by the study to understand the emerging pattern and trend of the data movement within the specific period.

The research's target data study had been clear, focusing on United States' economy and stock market, with the data study based on the Bursa Malaysia stock exchange, where the NYSE and NASDAQ market index will be taken into account to compare against the movement of the data for the inflation rate based on the CPI growth in United States. The study will focus on the past trend of 20 years of historical data to include coverage on the boom and recession throughout the time, including the timeline of the 2008 financial crisis in United States' economy.

Moving on to the quantitative data analysis portion, the quantitative data analysis will be the

primary component driving the study's findings and results. The quantitative study will involve both correlation and regression analysis to determine the direction of the correlation as well as the influence of inflation on the performance of the NYSE and NASDAQ market index in the stock exchange (Sekaran & Bogie, 2016). The correlation analysis will be used to investigate whether there is a significant positive or negative connection between the two variables included in the study (Apuke, 2017). Whereas, within the research framework of the study, the regression analysis will become the essential regression model to analyze the existence of a significant link between the independent variable and the dependent variable (Sekaran & Bogie, 2016). Furthermore, the average increase for the inflation and market index will be considered to grasp the prospective effect of portfolio investment in comparison to the country's rising CPI and inflation rate. The study's findings will next be compared to previous suggestions acquired from earlier studies before concluding the major contribution to the study's findings.

## DATA ANALYSIS

**Table 1: Correlation Analysis**

	<i>CPI</i>	<i>NYSE</i>	<i>NASDAQ</i>
<i>CPI</i>		-0.2291	-0.0778
<i>NYSE</i>	-0.2291		0.7715
<i>NASDAQ</i>	-0.0778	0.7715	

The Table 1 had shown the result for the correlation analysis between the CPI against the two market indices in US stock market which include the NYSE and NASDAQ. The correlation analysis target to provide the understanding on the strength and significant of the correlation exist between the two variables. Based on the result in Table 1, the empirical evidence showed that the correlation analysis pointed out the negative correlation for the inflation rate on CPI against both of the market indices in NYSE and NASDAQ. The negative correlation between the CI and NYSE market index appears to be stronger than the comparison with NASDAQ but still appear as the weak negative correlation for both of the market indices. The negative correlation had provided the opposite impression from the initial understanding drawn from the literature review section.

**Table 2: Regression Analysis (CPI x NASDAQ Market Index)**

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.15654	0.04939	3.16932	0.00368
CPI	-0.00953	0.02308	-0.41276	0.68292

The Table 2 had been demonstrating the regression analysis between the CI representing the inflation rate in the independent variable against the NASDAQ market index which appear to be the dependent variable. The single regression model is constructed with the statistical output as reference to the Table 2 result summary. The Table 2 had indicate the achievement of the p-value of 0.68292 in the regression output which had exceed the tolerance level of 5% providing the indication where the relationship between the CPI growth and the NASDAQ market index growth remained not significant with lack of evidence from the historical data for 30 years failed to show any potential significant pattern and trend between the growth movement of the two variables.

**Table 3: Regression Analysis (CPI x NYSE Market Index)**

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.08581	0.02984	2.87579	0.00762
CPI	-0.01737	0.01394	-1.24538	0.22331

The Table 3 ad constructed another single regression model with the CPI growth for the inflation representing the independent variable against the NYSE market index growth performance acting as the dependent variable for the research study. The regression analysis produces the output in the Table 3 showing the achievement of the p-value at 0.22331 which observe the p-value below the tolerance level of 5%. This had provided the evidence where the relationship between the CPI growth against the NYSE market index growth had not been significant where the suggestion from the data input on the past 30 years' trend had failed to show any relation of the movement between the two variables.

**Table 4: Average Growth (CPI x NYSE x NASDAQ)**

<b>Year</b>	<b>CPI</b>	<b>NYSE</b>	<b>NASDAQ</b>
1992	-28.48%	20.58%	49.74%
1993	-2.55%	6.95%	12.27%
1994	-11.66%	10.41%	14.95%
1995	7.59%	-4.18%	-5.66%
1996	4.48%	32.86%	40.33%
1997	-20.25%	21.16%	30.20%
1998	-33.60%	23.95%	17.36%
1999	40.96%	17.59%	54.75%
2000	54.33%	3.55%	57.24%
2001	-16.31%	6.74%	-29.63%
2002	-43.88%	-12.83%	-30.25%
2003	43.13%	-20.41%	-31.70%
2004	17.94%	34.57%	56.42%
2005	26.73%	8.21%	-0.18%
2006	-4.92%	14.34%	11.80%
2007	-11.57%	14.16%	6.86%
2008	34.58%	-1.39%	-3.01%
2009	-109.26%	-43.07%	-38.22%
2010	-561.27%	32.49%	45.44%
2011	92.49%	18.24%	25.74%
2012	-34.45%	-3.69%	4.21%
2013	-29.21%	13.47%	11.67%
2014	10.74%	12.06%	30.61%
2015	-92.69%	5.71%	12.95%
2016	963.49%	-8.58%	-0.46%
2017	68.84%	16.51%	21.69%
2018	14.67%	19.11%	32.00%
2019	-25.81%	-8.00%	-1.75%
2020	-31.93%	10.69%	25.67%
2021	280.83%	5.75%	42.83%
<b>Average Growth</b>	<b>20.10%</b>	<b>8.23%</b>	<b>15.46%</b>

In addition to the quantitative analysis through the correlation analysis and the regression analysis, the result had been showing the weak negative correlation but failed to show any

significant relationship between the CPI growth against both the NYSE market index growth and the NASDAQ market index growth in the regression analysis. With this, the attention had shifted to Table 4 where the Table 4 provide the reference on the output for the result in indicating the growth average comparison between the CPI, NYSE market index and NASDAQ growth. Based on the outcome in the Table 4 result, the growth for the CPI had been showing higher growth rate in comparison for the NYSE market index growth and NASDAQ market index growth. This had been providing the suggestion on the opposite direction as suggested from the previous literature review. The differences between the CPI growth had exceed the NYSE market index growth by more than 10% and the NASDAQ market index growth by approximately 5% which appear to be significant comparison against the inflation rate against the stock market performance.

The outcome on the quantitative analysis had provide the significant result and findings for the research study to draw the conclusion of the current study. With the findings, the very weak negative correlation had been detected for the CPI growth against the NYSE market index growth and the NASDAQ market index growth. However, the regression analysis had shown the lack of evidence to suggest the presence of the significant relationship between the CPI growth against both the NYSE market index growth and NASDAQ market index growth. This would translate to the meaning where the inflation rate through the CPI will not affect the performance of the stock market in both NYSE and NASDAQ. With this, the lack of suggestion on the positive correlation and relationship between the inflation rate in the CPI and the market index in both NYSE and NASDAQ based on the past 30 years historical trend, the hypothesis in H1 will be rejected as the null hypothesis will be accepted instead.

***H1: There is positive correlation and relationship between the inflation rate against the market index performance.***

Moving on to understand the growth rate performance the previous Table 4 had provide the data to understand the yearly average for the growth rate comparison between the CPI, NYSE market index and NASDAQ market index based on the US market. The comparison had shown the significant differences in all three average growth where the CI growth appear to be the highest at 20.10% followed by the NASDAQ market index growth at 15.46% and then the last recorded is the NYSE market index growth at 8.23%. The past trend of 30 years of historical data for the average growth had provide the strong suggestion that the growth of the inflation based on the CPI had proven that the inflation will likely to rise faster than the performance of the market index which represne4t the stock portfolio investment return. With this, the suggestion from the previous study in H2 hypothesis suggesting the potential growth rate for the market index performance will be higher than the growth rate of the inflation of the country had not been agreeing with the outcome of this study. Therefore, the hypothesis at H2 will be rejected as the null hypothesis will be accepted instead.

***H2: The growth rate for the market index performance will be higher than the growth rate of the inflation of the country***

Based on the outcome of the research findings, the result had been suggesting opposite from the initial understanding drawn from the previous study. The previous research had provide the suggestion on the positive relationship between the inflation rate against the performance of the market index. However, the outcome of the research had showed the research had achieved the empirical evidence to suggest the presence of very weak negative correlation between the CPI growth against the growth of the market index for NASDAQ and NYSE. This had showed that the increase and decrease in the inflation rate through the CPI had been suggesting opposite movement in the market index in the stock market exchange. In addition, the lack of suggestion in the significant in the relationship between the CPI growth against the NYSE and NASDAQ market index growth had been showing the lack of relevance in the influence and impact from

the inflation rate of the country. This could be contributed by the fact of the external factors in the environment which could appear to be the driving factor for the change in the market index performance where the inflation rate become insignificant when comes to the factor influencing the market index performance. Therefore, the investment in the stock portfolio based on the NYSE and NASDAQ stock market may not produce the consistence growth to beat the inflation rate for the US country.

In addition, the study on the comparison of the average growth rate between the CPI, NYSE and NASDAQ market index had showed significant differences with both the market index growth for the NYSE and NASDAQ appear to be lower than the growth of the CI for the country. This had certainly disagreed with the previous research where the market index performance failed to show greater return over the inflation rate for the country. This would translate to the understanding where the designation on the stock portfolio investment will not appear to be positive for the investors as the inflation growth which is greater than the return of the stock portfolio investment will only observe the investors losing the wealth through the investment which will not be wise decision for the investors to invest in the diversified portfolio of the stocks from NYSE and NASDAQ. This will create the suggestion for the investors to find alternative investment opportunities as the decision to create the diversified investment portfolio using the various stocks from NYSE and NASDAQ will likely to see investors losing out the value over the time value of money which will decrease the overall wealth of the investors.

## **CONCLUSION**

According to the study's findings, the empirical data is linked with the direction of the research objective, which serves the aim and purpose of the current study. The current study was thought to provide a significant addition to academic study because the new knowledge produced from the research results will serve as a new reference for future academicians to utilize as a guide to pursue the extended research for the relevant scope of study. The current study also expands the potential interest that will stimulate additional relevant research to investigate the validity of the notion of investment and inflation for the advantages of the area of expertise.

Furthermore, investors have benefited from the findings of the current study, which will aid in establishing the significance of the relationship between the CPI and the NYSE and NASDAQ market indexes in the United States. Despite the lack of evidence for a significant relationship between the two variables, the findings suggested that the creation of a stock portfolio investment had been proven worthy for investors, as based on the track record of 30 years of data input for both CPI against the NYSE and NASDAQ market indexes, it provided evidence to suggest that stock portfolio investment had been generating lower returns on investment in comparison against the inflation rate of the country which suggest the investors to seek for alternative other investment opportunities to invest to beat the inflation rate in US.

Besides, the study had been focusing in the investment of the stock market in US which include the NYSE and NASDAQ stock market. This will provide the additional suggestion where the study can focus in the potential study to be extended to create the stock portfolio in using the different stocks from around the world where the portfolio can be including the foreign tocks to test the potential diversification of the stocks from different countries to understand the comparison of the return on the portfolio against the inflation rate in US. This had been crucial to understand the impact of diversification as the mixture of the stocks or market index performance from other countries may improve the return on the portfolio investment to achieve higher rate than the inflation rate.

Moreover, the study had been focusing on the study for the stock investment which may not always become the preference choice of investment. Therefore, the study can be extended to study the comparison of the investment from the stock market to other alternative investment including like real estates and bonds instead of the stock investment o understand the probability

of the lower risk investment to have the ability to cover the inflation rate for the investors in US. The outcome of the study definitely provides crucial reference for the investors to understand and identify the better choice of investment for the investors.

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