Analysis of the Interactions between Inflation and Stock Prices in Ghana

Peter Arhenful*, Jones Adjei Ntiamoah, Collins Owusu Kwaning

Accra Technical University, Accra, Ghana

*Corresponding author: parhenful@atu.edu.gh

Received June 10, 2022; Revised July 14, 2022; Accepted July 24, 2022

Abstract This paper examines the relationship between inflation and stock prices in Ghana in order to assist businesses and individuals to make informed decisions when the inflation rate changes. A quantitative approach was adopted using monthly time series data from July 2007 to December 2019. The results of the unit root test revealed that the series were non-stationary at the levels but became stationary after the first difference. The results from the Multiple Regression Analysis carried out with Eviews 7.0 econometric software revealed a direct relationship between inflation and stock prices in the Ghanaian context (β = 0.762, p < 0.05). The study recommends that the central bank implement measures to keep inflation at low levels so that it does not erode the value of returns on investment in order to increase public confidence in the stock market.

Keywords: inflation, stock prices, time series, Ghana


1. Introduction

The stock market is widely regarded as one of the most important components of an economy's financial sector, and it is also one of the most volatile. The stock market does not only serve as a platform for companies or businesses to raise funds in order to finance their operations, but it also serves as an important place for individuals to invest their retirement funds and other assets. The forces of demand and supply are the most important factors that influence stock prices in the stock market [1]. Demand and supply factors could be influenced by social, economic, or political factors [2]. Several theories of finance predict that stock prices will have a close relationship with macroeconomic variables such as interest rates, money supply, exchange rate, and inflation as global financial markets become more liberalized. This group of macroeconomic variables is therefore regarded as the most important factors that influence the prices of stocks or the behavior of the stock market because they are typically employed in explaining the state of the macro-economy, which an investor must monitor and predict in order to make decisions regarding their investments [3].

An increase in the rate of inflation raises the overall cost of living while simultaneously shifting resources away from investments and toward consumption. Thus, the demand for money market instruments, such as Treasury bills, bills of exchange, and certificates of deposit, diminishes, resulting in a decrease in the volume of stocks traded on the stock exchange. Therefore, in response to rising inflation, monetary policy authorities at the central bank must adopt restrictive economic policies, which in turn raises the nominal risk-free rate, which consequently raises the discount rate in the valuation model, as explained above [4]. In this model, it is established that nominal contracts that do not allow for the immediate adjustment of revenues and costs of firms prevent cash flow from increasing at the same rate as inflation from increasing at all [5].

If investors do not consider risk to be a significant factor, stock prices will only fluctuate in response to information affecting current and future dividend predictions, or information affecting current and future real interest rates and dividends. In light of the fact that investors are so concerned with risk and the general perception that stocks are risky investments, investors in general demand higher average returns or dividends on their investments when compared to other interest-bearing assets like treasury bills and bonds [6]. If there is information or knowledge that current or future short-term interest rates (which are also calculated in inflation-adjusted or real terms) are more likely to be higher than previously anticipated, stock prices will almost surely rise as a result of this information or knowledge. The information that current or future short-term interest rates (which are also calculated in inflation adjusted or real terms) are likely to be higher than previously anticipated will, on the other hand, go a long way toward bringing stock prices down [7].

A number of studies have demonstrated that inflation has an impact on the performance of stock markets. A long-term study of the variables of the stock market has
revealed that inflation is a critical issue that cannot be overlooked when it comes to the rapid growth of the stock market in recent years [8]. A rise in the consumer price index during inflationary periods can result in an increase in interest rates, which can be detrimental. Stock prices may fall even further as a result of this action. High inflation results in extreme levels of stock market fluctuations, which can put the economy in danger of becoming inefficient which can lead to its eventual collapse. This necessitates further research into the subject matter in order to gain greater clarity on the behavior of the two variables, particularly in the context of Ghana's economy. Therefore, this research aims to reduce uncertainty by providing answers to the question: what is the connection between inflation and stock prices in Ghana?

2. Related Literature

Inflation is defined as a persistent rise in the general price level that results in a decline in the value of a country's currency over a period of time. Inflation can have both positive and negative consequences on the economy [9]. As reported by Mensah et al. [10], the monetary authorities in Ghana implemented an important aspect of their monetary policy in May 2007, with the goal of controlling inflation and, as a result, stabilizing the prices of goods and services in the economy. The Ghanaian monetary authorities had previously used a wide range of variables to make monetary policy decisions in order to maintain price stability prior to this point in time.

The relationship between the inflation rate and stock prices is uncertain, and it can be either positive or negative depending on the circumstances. A negative relationship between inflation and money supply can be explained by the fact that an increase in the amount of money circulating in the system will reduce demand for stocks and other interest-bearing assets, resulting in higher discount rates and, consequently, a decrease in the value of stocks. Furthermore, an increase in the interest rate and the inflation rate have a negative impact on the earnings of public limited liability companies, resulting in a decrease in stock returns and, as a result, making stock holding and new purchases less appealing, which can lead to a decrease in stock prices [11].

Other arguments, such as the generalized Fisher hypothesis, on the other hand, suggest that the correlation between the inflation rate and the stock market is positive. It is possible that "equity stocks," which are claims against the company's real assets, will act as a hedge against inflation, according to the Fisher hypothesis, if the inflation rate is extremely high. Murkherjee and Naka [12] projected that an increase in the money supply would have more direct (positive) effects than indirect (negative), resulting in an eventual increase in the price of equities. There has been a negative relationship between inflation and stock prices according to Kuwornu and Owusu-Nantwi [13], Adam and Frimpong [4], and Kimani and Mutuku [14] among others. According to Raja and Kalyanasundaram [15], bivariate correlations were used to investigate the relationship between macroeconomic variables and the stock market index in emerging economies, and they discovered a significant positive correlation between inflation and the stock market index.

Several previous researchers, such as Patra and Poshakwale [16], have divided the relationship between stock prices and inflation into three categories. These classifications are as follows: (i) there is no correlation between stock prices and inflation; (ii) there is an inverse correlation between stock prices and inflation; and (iii) there is a positive relationship between stock prices and inflation. The current study will determine the classification that is consistent with the relationship between the Ghanaian stock price and inflation rate. Ghana has experienced extremely high rates of inflation, both in absolute and relative terms in the past [17]. As a general rule, a continuous rise in the general price level results in a decline in the value of a country's currency, which results in consumers purchasing fewer goods and services.

Reduced value of the currency invariably results in a decrease in the real value of the currency, which is used primarily as a medium of exchange and a unit of account in the first place. The direct and indirect consequences of inflation on the various sectors of an economy, according to Alshogreathri [18], include increased or decreased investment, unemployment, an increase or decrease in stock prices, and a change in the value of currency. Because of this close relationship, inflation and stock prices cannot be assumed to be unrelated. Likewise, the impact of this relationship on the economy cannot be assumed to be unrelated. Using the inflation rate as an example, Sharpe [19] found that a one percent increase in the rate of inflation will likely result in a twenty percent reduction of stock prices.

According to the findings of Fama and Schwert [20], stock returns in the United States of America are inversely related to the rate of inflation. As a result, they concluded that the inverse relationship between stock market returns and inflation observed during the post-1953 period was caused by proxy repercussions. Stock returns are influenced by forecasts of several relevant factors, and the indirect stock return-inflation relationship is determined by the negative relationship between inflation and real activity, according to the authors. Saunders and Tress [21] also found that nominal stock returns in Australia are negatively related to inflation in a statistically significant way, and that stocks are therefore poor hedges for investors in inflationary times. The research also revealed that there is a primarily unidirectional relationship between stock returns and inflation, as demonstrated by the findings. Aside from that, according to the findings of Humpe and Macmillan [22], stock prices in both Japan and the United States of America are inversely related to both inflation and the consumer price index.

Naka et al. [23] found that inflation is the most significant negative determinant of stock prices in India, and Nishat et al. [24] found that inflation is the most significant negative determinant of stock prices in Pakistan. Furthermore, Nishat and Shaheen [24] discovered that inflation is a Granger-caused cause of stock price changes in Pakistan, contrary to popular belief. Both Maghayereh [25] and Al-Sharkas [26] found a negative correlation between stock prices and inflation in Jordan, which is consistent with the findings of other researchers.
Furthermore, according to the findings of Muradoglu and Metin [27], there is an inverse relationship between stock prices and inflation. They also found that when other monetary policy variables are included in the model, the rate of inflation continues to rise as well. However, it should be noted that there is a strong argument in the literature for an inverse relationship between stock prices and inflation because an increase in the inflation rate is associated with both higher expected earnings growth and lower required real returns.

Contrary to this, the findings of Maysami et al. [28] for Singapore, and the findings of Adam and Tweneboah [4] for Ghana all revealed that there is a positive correlation between inflation (measured by the consumer price index) and stock market prices. Following the findings of Ozturk [29], it can be concluded that there is no causal relationship between stock returns and inflation. According to the findings of Kandir [30], the inflation rate is significant for only three out of the twelve portfolios studied. In addition, the findings of Tursoy et al. [31] revealed that there is no statistically significant relationship between the return on stocks and inflation. In their study of the relationship under the ‘Proxy hypothesis,’ Erbaykal et al. [32] found a long-term inverse correlation between stock prices and the rate of consumer inflation.

3. Data and Methodology

In order to achieve the goal of the research, the study primarily employs a quantitative approach in which time series data are collected and analyzed. As a result, rather than the Interpretivist Philosophy, the paper is supported by the Positivist Philosophy, which encourages quantitative empirical analysis. A positivist believes that only empirically derived knowledge, including measurement, can be relied on to provide accurate answers. As a result, positivists believe that science is the only means by which truth can be established, and that researchers must therefore strictly adhere to the facts while maintaining a neutral and detached attitude towards the problem under investigation.

Data from average monthly time series data from the period July 2007 to December 2019 were used in this study. These were obtained from both public and official sources. Thus, majority of the information used in this study came from secondary sources. The Ghana Stock Exchange, the Bank of Ghana, and the Ghana Statistical Service are among the institutions involved. To be more specific, data on inflation were obtained from the Ghana Statistical Service, whereas information on money supply, interest rate, and exchange rate were obtained from the Bank of Ghana, respectively. According to the Ghana Stock Exchange, the data on the All-share index (Proxy for the dependent variable, which is stock prices) of the Ghana Stock Exchange was obtained from the Ghana Stock Exchange. The researchers used the Ordinary Least Squares (OLS) method of estimation to estimate the stock price equation for the Ghana Stock Exchange in order to achieve all of the stated objectives of the research. In this regard, the researchers ensured that all of the assumptions underlying the Ordinary Least Squares (OLS) method of estimation are met in order to avoid obtaining erroneous results. Consequently, all necessary statistical diagnostics tests, such as autocorrelation, multicollinearity, heteroscedasticity, unit roots, and cointegration, were carried out in order to determine the model’s predictability.

It is proposed in this study that the relationship between selected macroeconomic variables and stock prices in Ghana can be determined by constructing a model in which stock price is a function of the interest rate (monetary policy rate), the money supply, the nominal exchange rate, and the inflation rate.

Thus,

\[
GSE = f(MPR, MS, NER, INF)
\]

Where GSE = Stock Price of Ghana Exchange

MPR = Monetary Policy Rate (Official Interest Rate or Bank Rate)

MS = Money Supply

NER = Nominal Exchange Rate

INF = Inflation Rate

When using pure mathematical models, such as the one above \([GSE = f(MPR, MS, NER, INF)]\), the assumption is that there is an exact or deterministic relationship between two variables. However, in practice, such exact or deterministic relationships between economic variables are rare. However, because there may be other factors or forces that can affect the dependent variable as well as the independent variable, the relationship between economic variables is inherently inexact or statistical in nature. Therefore, the observed relationship between the variables is likely to be erroneous in its interpretation. Consequently, we account for the influence of all other factors affecting stock prices by introducing the variable ‘\(u\)’ as the error term, which is defined as follows:

\[
GSE = f(MPR, MS, NER, INF, u)
\]

Where \(u\) is the random error term or simply the error term that represents all other factors other than interest rate, money supply, nominal exchange rate, and inflation that affect stock prices but are not explicitly introduced in the model as well as purely random forces. The above functional relationship is therefore transformed into a random or stochastic model for research purposes in order to be used for estimation purposes as follows:

\[
GSE = \beta_0 + \beta_1 MPR + \beta_2 MS + \beta_3 NER + \beta_4 INF + u,
\]

where \(\beta_0\) denotes the value of the stock price when all of the explanatory variables are equal to zero and \(\beta_1, \beta_2, \beta_3\) and \(\beta_4\) denote the partial regression coefficients or parameters of the various independent variables that indicate a percentage change in stock price as a result of one unit change in one of these parameters while keeping the other variables constant. \(u\) is the error term, which is also referred to as the stochastic, random, or disturbance term. The Ordinary Least Squares (OLS) method of estimation was employed to estimate all the parameters using Eviews 7.0 econometric software.

4. Results and Discussion

4.1. Descriptive Statistics

The descriptive statistics for the variables used in the study are presented in Table 1. The stock price variable had a mean of 3.48258 and a standard deviation of 0.37263 based on the results. The inflation rate was
calculated to have a mean of 1.09123 and a standard deviation of 0.12909. The mean of the variable money supply was 4.13342, with a standard deviation of 0.25106. The variable interest rate was calculated to have a mean of 4.13342, with a standard deviation of 0.25106. The variable nominal exchange rate was 0.20262, with a standard deviation of 0.14044. The standard deviations for all variables indicated that the data was widely distributed around their individual means.

As a general rule, a normal or symmetrical distribution is defined as one in which the mean, mode, and median values of a distribution are all identical (i.e., Mean = Mode = Median). Skewness, on the other hand, is a measure of the extent to which a distribution is non-symmetrical or lacks symmetry, and it explains whether the skewness result is zero (0), it means that the data is distributed normally. Positive values indicate a skew to the left and therefore a negatively skewed distribution, whereas negative values suggest an inversion to the right and thus a positively skewed distribution. In accordance with the findings of the descriptive statistics done, all of the variables were asymmetrical and thus lop-sided, as illustrated in Table 1. Thus, all the variables were positively skewed, with the exception of the money supply, which was negatively skewed.

Table 1. Group Descriptive Statistics of the Variables

<table>
<thead>
<tr>
<th>Statistics</th>
<th>GSE</th>
<th>INF</th>
<th>MPR</th>
<th>MS</th>
<th>NER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.48258</td>
<td>1.09123</td>
<td>1.18865</td>
<td>4.13342</td>
<td>0.20262</td>
</tr>
<tr>
<td>Median</td>
<td>3.36325</td>
<td>1.07003</td>
<td>1.17609</td>
<td>4.16226</td>
<td>0.17654</td>
</tr>
<tr>
<td>Maximum</td>
<td>4.03706</td>
<td>1.31597</td>
<td>1.32221</td>
<td>4.56635</td>
<td>0.50478</td>
</tr>
<tr>
<td>Minimum</td>
<td>2.98516</td>
<td>0.92376</td>
<td>1.09691</td>
<td>3.67009</td>
<td>-0.0315</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>0.37263</td>
<td>0.12909</td>
<td>0.06168</td>
<td>0.25106</td>
<td>0.14044</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.04213</td>
<td>0.27251</td>
<td>0.11235</td>
<td>-0.13256</td>
<td>0.42213</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.43775</td>
<td>1.62085</td>
<td>1.92467</td>
<td>1.81456</td>
<td>2.82076</td>
</tr>
<tr>
<td>Jacque-Bera</td>
<td>9.17892</td>
<td>8.24662</td>
<td>4.52554</td>
<td>5.53329</td>
<td>2.79334</td>
</tr>
<tr>
<td>Probability</td>
<td>0.01016</td>
<td>0.01619</td>
<td>0.10406</td>
<td>0.06287</td>
<td>0.24742</td>
</tr>
<tr>
<td>Sum</td>
<td>313.433</td>
<td>98.2109</td>
<td>106.979</td>
<td>372.008</td>
<td>18.2357</td>
</tr>
<tr>
<td>Sum Sq. Dev.</td>
<td>12.3576</td>
<td>1.48322</td>
<td>0.33865</td>
<td>5.60985</td>
<td>1.75526</td>
</tr>
</tbody>
</table>

Source: Eviews Output Based on Computed Data, 2022.

In summary, the descriptive statistical test revealed that the data were not normally distributed in terms of their means and standard deviations. This means that in Ghana, stock prices and other macroeconomic variables are particularly sensitive to periodic changes and speculations.

4.2. Inferential Statistics

Prior to investigating a potential relationship between the variables under consideration it is required to assess the intertemporal features of the time series data in order to avoid false regressions and unbiased results (stock prices, money supply, monetary policy rate, exchange rate and inflation). This is done to ensure that the data’s time series properties are known so that the appropriate steps can be taken to ensure the validity and reliability of the results. Stationary time series data are preferred; however, because most financial time series are non-stationary at the unit root, stationarity tests are performed on them to ensure unbiased results.

When non-stationary time series data is used in regression, the t and F values become invalid, resulting in erroneous findings. The term ”stationary time series data” refers to data whose mean and covariance remain constant over the course of time. But perhaps more critically, the data is said to be non-stationary if even one of the conditions is not met. The addition of a non-stationary variable may result in statistical significance tests being invalidated [33]. As a result, it is necessary to perform a stationarity test on the data sets before proceeding with further analysis of the data. The stationarity of the series was checked using the Augmented Dickey-Fuller Test (ADF), the Phillips-Perron Test (PP), and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test.

The most popular and straightforward method of assessing whether or not a data set is unit root stationary is to evaluate the mean and covariance of the various variables in the data set. The data is non-stationary if the mean and covariance change with time, which indicates that the data is not stationary. A stable data set, on the other hand, is defined as one in which the mean and covariance remain constant over the course of time. As an additional benefit of using the t and F values, it is possible to determine whether the autocorrelation function (ACFs) for a given variable decreases in value as the duration of the delay grows. If the ACFs rapidly approach 0, this indicates that the data is stationary; on the other hand, the opposite is true.

The Augmented Dickey-Fuller (ADF) test, created by Dickey and Fuller [34], is another widely used technique for determining the non-stationarity of a given data set that has gained widespread acceptance. An alternate hypothesis of stationarity of the series is tested against the null hypothesis of a unit root and non-stationarity of the series in order to determine whether a unit root exists. For better or worse, this test looks into the possibility that the variable under evaluation has a unit root and, as a result, must be represented in first difference form.

Additionally, stationarity and unit root tests such as the Phillips-Perron and unit root tests can be used to improve the ADF. In comparison to the ADF test, the Phillips-Perron (PP) test has a number of significant advantages. For example, it is more robust in the presence of unexplained autocorrelation and heteroscedasticity in the disturbance process of the test equation. The fact that the researchers do not have to define a lag period for the test regression is an additional advantage [33]. As a result, the PP test is effective with financial time series.

ADF and PP both specify the null hypothesis (H0) as being that the time series has a unit root and, as a result, the time series is non-stationary, but ADF and PP specify the null hypothesis (H1) as being that the time series does not have a unit root. This is compared to the alternative Hypothesis (H1), which states that the time series does not have a unit root and, as a result, the time series is a stationary time series.

The following is the decision rule for determining whether to accept or reject the null hypothesis: i. Reject the Null Hypothesis if the absolute ADF / PP test statistic is less than the critical value. If the absolute ADF / PP test statistic is greater than the crucial value, the Null
Hypothesis should not be rejected. In order to establish the time series properties of the variables under examination, the researchers carried out unit root tests using the log of various variables and first difference levels of the data.

4.3. Unit Root Test

As previously stated in chapter three, the unit root test is carried out in order to determine whether or not the data has stationarity properties or is otherwise. A stationarity assumption is that the distribution of time series data remains the same over a reasonable period of time. Consequently, the future must be more or less identical to the current time, and vice versa, in order for stationarity to be satisfied. However, most time series data in economics and finance are non-stationary, making the results of traditional OLS-based models spurious and misleading.

The rationale of this stationarity test, on the other hand, is to determine the order of integration of the various variables under consideration, namely stock prices, inflation rate, interest rate, money supply, and exchange rate, as well as the number of times a specific variable should be differenced in order to achieve stationarity. None of the variables tested for stationarity, including GSE, INF, MPR, MS, and NER, were stationary at the levels, despite the fact that they were all integrated to the first order or stationary at the first difference. The ADF results following the first difference are shown in Table 2.

Table 2. ADF, PP and KPSS Unit Root Test for All Variables after First Difference

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Deterministic</th>
<th>Trend</th>
<th>Test Statistic</th>
<th>Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADF</td>
<td>None</td>
<td></td>
<td>-9.01984</td>
<td>-2.59151** -1.94453** -1.61434**</td>
</tr>
<tr>
<td></td>
<td>Intercept</td>
<td></td>
<td>-8.98660</td>
<td>-3.50648** -2.89472** -2.58453**</td>
</tr>
<tr>
<td></td>
<td>Intercept and trend</td>
<td></td>
<td>-8.94251</td>
<td>-4.06570** -3.46169** -3.15712**</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td></td>
<td>-9.01984</td>
<td>-2.59151** -1.94453** -1.61434**</td>
</tr>
<tr>
<td></td>
<td>Intercept and trend</td>
<td></td>
<td>-8.94251</td>
<td>-4.06570** -3.46169** -3.15712**</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td></td>
<td>-9.01984</td>
<td>-2.59151** -1.94453** -1.61434**</td>
</tr>
<tr>
<td>KPSS</td>
<td>Intercept</td>
<td></td>
<td>0.12561</td>
<td>0.73900 0.46300 0.34700**</td>
</tr>
<tr>
<td></td>
<td>Intercept and trend</td>
<td></td>
<td>0.11310</td>
<td>0.21600 0.14600 0.11900**</td>
</tr>
</tbody>
</table>

Note: The asterisks (*), (**), (***)) indicate how significant the coefficients are, at 1%, 5% and 10% levels of significance respectively.

*stationarity of series at 1% level
**stationarity of series at 5% level
***stationarity of series at 10% level
Source: Eviews Output Based on Computed Data, 2022.

The ADF, PP, and KPSS unit root tests for the first difference of the log of stock prices are shown in Table 2. According to the results, the series DLGSE (DLGSE) was significant at the 1%, 5%, and 10% significance levels for all tests, since the test statistic value was always greater than the critical threshold. The results establish the series' stationarity.

4.4. Ordinary Least Squares Regression Estimation

Table 3 shows the results of the stock price equation computed by OLS. All of the diagnostic tests performed yielded excellent results. The F-test findings show that the F-statistic (89.25) is statistically significant at the 1% level of error. The R$^2$ of 0.83 indicates that the inflation rate, interest rate, money supply, and stock prices account for around 83 percent of the fluctuation in stock prices. The high R$^2$ value indicates that the explanatory factors accurately explain the dependent variable, implying that the model is accurately specified.

Table 3. OLS Regression Estimates at First Difference

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1.80</td>
<td>1.71</td>
<td>4.31</td>
<td>0.00</td>
</tr>
<tr>
<td>INF</td>
<td>0.76</td>
<td>0.49</td>
<td>1.69</td>
<td>0.03</td>
</tr>
<tr>
<td>MPR</td>
<td>-0.89</td>
<td>0.97</td>
<td>0.92</td>
<td>0.04</td>
</tr>
<tr>
<td>MS</td>
<td>-1.35</td>
<td>0.36</td>
<td>-4.25</td>
<td>0.00</td>
</tr>
<tr>
<td>NER</td>
<td>-1.10</td>
<td>0.67</td>
<td>1.94</td>
<td>0.05</td>
</tr>
</tbody>
</table>

R-squared: 0.83
Adjusted R-squared: 0.78
S.E. of regression: 0.16
Prob (F-statistic): 0.00 Mean dependent var 3.82
Durbin-Watson stat: 0.36

From Table 3, the R-square value was 0.83, indicating that the independent variables LINF, LMPR, LMS, and LNER explained 83 percent of the variation in the dependent variable LGSE. The correlation coefficient between the dependent and independent variables was 0.91, indicating that the dependent and independent variables have a high positive association. That is, approximately 91% of the volatility in stock prices can be accounted for by changes in the inflation rate, interest rate, money supply, and exchange rate. This high R$^2$ value indicates that the model as a whole is statistically significant.

The adjusted R-squared is used to examine the explanatory power of the regression model that include different number of predictors. It accurately gives you the actual and unadulterated percentage of variability in the dependent variable that is accounted for by the four (4) independent variables. In this case it is 0.78 which implies that exactly 78% of the variability in the dependent variable is accounted for by the independent variables. The multiple regression model is given by: GSE = 1.80 + 0.76INF – 0.89MPR – 1.35MS + 1.10NER

5. Conclusion and Recommendation

Pearson’s coefficient of correlation shows a significant positive correlation between the inflation rate and stock prices. The regression analysis results also show that the inflation rate was significant in the model. The positive coefficient indicates a positive relationship between stock prices and the inflation rate. This, however, contradicts a priori knowledge. According to the regression equation, a unit increase (decrease) in Ghana’s inflation rate causes stock prices to rise (fall) by approximately 0.76. This study’s result of a positive (direct) association is consistent with the findings of several authorities, including Kuwor in and Owusu-Nantwi [13] and Mukherjee and Naka [12].
According to these researchers, the direct effects of inflation usually outweigh the indirect effects of inflation, and so stock prices will eventually rise as the money supply expands. The favorable link found in this study also supports the generalized Fisher hypothesis. According to the Fisher hypothesis, 'equity stocks,' which represent claims against a company's real assets, can act as an inflation hedge. In a circumstance where excessively high inflation is projected, investors would sell their financial assets in exchange for real assets. In such a case, nominal stock prices will reflect predicted inflation, and the correlation between the two variables (stock prices and inflation rate) will be positive. Thus, study recommends that the central bank strives to maintain inflation at low levels; as prices rise, the GSE's return on investment decreases. Inflation must therefore be controlled at a modest level in order to preserve the value of investors' gains in the market.

References


© The Author(s) 2022. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/).