Mediating Effect of Inflation on the Relationship between Dividend and Share Prices of Listed Firms in Nigeria

Maryam Isyaku Muhammad, Benedict SOJE, Bilyaminu Yusuf Hanga

1Department of Accountancy, Modibbo Adama University, Yola Adamawa State, Nigeria.
2Department of Accounting, Federal University Wukari, Taraba State, Nigeria.
3Department of Accountancy, Modibbo Adama University, Yola Adamawa State, Nigeria.

Received Date: 20 April 2023  Revised Date: 02 May 2023  Accepted Date: 07 May 2023  Published Date: 10 May 2023

Abstract: This study investigates the relationship between dividend and share price for listed firms in Nigeria as well as the mediating role played by inflation. Choosing a sample of the 75 NGX-listed firms for whom data were gathered and subjected to regression analysis and structural equation model (SEM). The results of the study demonstrate that dividends have a large beneficial impact on the share prices of firms listed on the Nigerian Exchange Group, and inflation does have a noticeable impact on this relationship. The study therefore recommends that companies wishing to improve the market value of their share should adopt a favorable dividend policy that encourage continuous improvement in the amount of dividend paid to shareholders.

Keywords: Dividend per share, Share price, Inflation.

I. INTRODUCTION

Dividend remains one of the major ways where listed business distributes their earnings especially to shareholders and its relationship to share price which has been a subject of continuous academic research because of its complexity. Sattar et al., (2017) stated that an increase in payment of dividend is a positive indicator on the future earnings of a company and subsequently positively affecting their share prices whereas failure to do so remains a negative indicator which also affects the share price negatively. Because of the important role of dividend to investors as well as companies, the continuous debates on it relationship to share price becomes more imperative in emerging economies of the world. In order to determine the nature of the impact dividends have on share prices, studies of the relationship between dividends as accounting information and share prices have frequently been conducted. However, little has been learned about the nature of the impact inflation has on this relationship, particularly in Nigeria. As a result, the nature of the impact inflation has on the contradictory results of the correlations between dividend and share price in Nigeria is examined in this paper.

The study is occasioned by the continuous high rate of inflation around the world occasioned by the after effect of COVID-19 and the energy crises resulting from the Russian –Ukraine war. This has further necessitated the need to examine the effect of inflation on every form accounting information and it relationship with share prices specifically dividend which is what equity investors receive as return for their investment.

The main goal of this study is to investigate the relationship between dividend per share and share prices of listed firms in Nigeria, as well as the mediating role that inflation plays in that relationship. The following hypotheses serve as a guide for the study in order to accomplish the desired goals:

a. Ho1: Nigerian listed firms' share prices are not significantly impacted by dividend per share (DPS).

b. Ho2: The relationship between Dividend per Share (DPS) and share prices of listed businesses in Nigeria is not significantly mediated by inflation.

II. LITERATURE REVIEW

The concept of dividend and shares are closely related. Shares are evidence of part ownership of company while dividend are the returns or compensation or payments made by the company to the owners (shareholders) as such there is often time a link between dividend and share. Dividend are allocated to each share of the company termed dividend per share. This review share focus on the dividend per share, share prices, inflation and the relationship among these concepts.
A) Dividend per Share

Sujata (2019) defines dividend as the division of profits (past or current) in real assets among the firm's shareholders in proportion to their ownership. As a result, dividend payments are paid from the company's earnings and profits, and the decision to do so is determined by the dividend policy of the company. Companies pay dividends for a variety of reasons, claim Hashim et al. (2013). It might be a technique to either lessen the increase in the cost of agency between management and shareholders or lessen the uncertainty among the company's investors. The investor may want to earn returns consistently, in which case they will like investing in companies that provide dividends.

Dividend per share is calculated by dividing the gross dividend by the total number of common shares. As investors would always desire better ratios to keep investing in the company, it reveals the retention strategy of the business (Siyambola & Adeedeji, 2014). Similar to that, dividend per share (DPS) is calculated by dividing the total dividends declared by a firm by the total number of outstanding common shares.

According to Khan (2012), DPS is crucial for investors because they use dividends as a means of evaluating a company's ability to make investments, whether it generates cash flow or not, and whether it pays out more dividends than it has available money for future projects. Lenders are also concerned with the dividend amount that a company declares because a higher payout amount suggests that the corporation will have less money available to service and redeem its claims.

B) Share Price

The activities of capital market in general is driven by the forces of demand and supplies. It is a place for trading in securities and for every trading activity there must be an exchange of value in form of price. The price or worth of a single share of many marketable shares of a company, derivative, or other financial asset is referred to as the share price or share value. A layperson might define the share price as either the most money someone is prepared to spend on a stock or the cheapest price at which it may be purchased. According to Afolabi and Dada (2014), the supply and demand for a share at any one time determine whether the price of a share rises or falls. The amount of shares that investors and potential investors are willing to buy or sell at any one time, as well as their ability to do so, are indicated by the demand and supply. The economic law of demand is also applicable to share trading, meaning that when the supply is more than the demand there is a tendency that the price of such share will drop because of the excess of supply over demand. In a similar way, when the demand exceeds supply, the prices of such share will soar high. The rise and fall in share prices is a continuum, therefore, investors can gain or lose depending on when they decide to sell or buy shares.

Varul (2016) noted that this means that determining a value in exchange or pricing can be found in the earliest trades in antiquity. Even though they were impromptu, tablets from Sumerian culture that recorded the cuneiform count of sheep show that livestock marketplaces existed almost 3,000 years BCE. In the early stages of the evolution of valuing a corporation as a going concern, private form prices were expressed similarly to how other commodities prices were expressed, but in different units.

The development of three major units and the resulting price ratios—price per unit of earnings based on the statement of comprehensive income, price per unit of net worth or book value based on the statement of financial position, and price per unit of cash flows based on the statement of cash flows—followed Luca Pacioli's invention of double entry principles in 1494 and its subsequent improvement. Even though these pricings were not scientific in nature, they provided an improvement in the pricing of shares. Subsequent advancement emphasized the pricing of shares of business venture or companies as against the pricing of the whole company experienced in the preceding advancement in share pricing. This second era in the evolution of share pricing also witnessed the establishment of stock exchanges for share of joint stock companies. In the 16th century, the Amsterdam Stock Exchange played a significant role in the development of share prices.

The transition from heuristic to scientific pricing measures marks the third phase of share price progression. The Dividend Discounted Model (DDF) was created using the Discounted Cash Flow (DCF) methodologies, which are based on the time value of money and the theory of interest. In more precise words, discounted cash flow techniques are used to ascertain the inherent worth of an investment asset of a given company at a particular period rather than price. It should be noted that company valuation process differs from share pricing process but discounted cash flow value can be used as a good estimate of fair prices for shares because discounted cash flow techniques of valuation are scientific and scientific valuations are more rational and accord more relevance to information from them as compared to the non-scientific method.

The change from using price ratios to scientific pricing models and from pricing stock shares in a single firm to portfolio pricing of stocks in several companies was emphasized in the fourth stage of share pricing evolution. In the year 1952, Harry Markowitz developed Modern Portfolio Theory (MPT), and in 1964, Sharpe William developed the Capital Asset Pricing Model (CAPM). Although MPT and CAPM are scientific in nature, they are only useful for stock portfolios rather than specific companies.
The scientific approach of portfolio pricing gave way to pseudo-scientific return models of stock portfolio pricing in the fifth stage of the evolution of share price. This way of pricing portfolio stock, which is related to the second phase, was similar to what is possible in the private markets for closely held corporations, but with a switch from unit prices to price yields. This step also demonstrates that whereas price yields or yields on price have the share price as the denominator, unit prices have the firm price as the numerator. This suggests that price yields are inversely correlated with unit prices.

The stages in share price do not follow in a sequential and progressive order, unlike the phases in a biological evolution. The existence of one can co-exist with the previous stage without extinction and can be regressive.

C) Inflation

Inflation is a persistent rise in the average price of goods and services that ultimately leads to a loss of buying power and disruption of the economy. Every nation in the globe must pay attention to inflation because of its damaging repercussions, which include the redistribution of money to the benefit of property owners and the loss of wages and salaries, as well as the rise in uncertainty and instability in macroeconomics.

Amadeo (2019) defines inflation as a long-term trend of rising prices for goods and services. In the field of economics, inflation is defined as a long-term, steady increase in the average price of goods and services across an economy. Each unit of currency can only purchase a smaller number of goods and services as the general price level rises. Therefore, inflation is a loss of real value in the money used as a medium of exchange and a unit of account within the economy. It also indicates a decrease in the purchasing power per unit of money.

Deflation, a continuous drop in the general level of prices for goods and services, is the reverse of inflation. The annualised percentage change in a broad price index, typically the consumer price index, over time, known as the inflation rate, is the most widely used indicator of inflation. In a similar spirit, Chen (2019) asserted that inflation is a measurement of the rate of increase in an economy's overall price level of goods and services over time. A unit of money now buys less than it did in earlier periods because of the ongoing increase in the general level of prices. Inflation, which is frequently stated as a percentage, shows a decline in the value of a country's currency. Not all price increases are due to inflation, according to Kwofie and Ansa (2018). Inflation, according to him, is an increase in the overall price level that is persistent and noticeable and must be sustained over time in order to qualify as inflation. The increase must be permanent and should impact practically all market commodities.

The following methods of measuring inflation were provided by Fatukasi (2017): the implicit deflator of the gross national product (GNP), which is a measurement of the cost of all the goods and services included in the gross domestic product (GDP); the consumer price index (CPI); and the wholesome or producer price index (WPI or PPI). The WPI and CPI period-to-period change are regarded as the direct measurements of inflation.

The pervasiveness of inflation, especially in a developing country, and the devastating effects it has on many economies is one of the reasons for the relevance of inflation accounting (Cenap, 2019). According to Kaplan (2018), in a related development, South American countries experienced hyperinflation that increased by thousands of percentage points annually and disrupted economic activity and popular incomes in a way that hasn't been matched by recent changes in business cycles. Again, as a result of its restoration to a balanced government that included presidential, senate, and parliamentary elections in March 2008, Zimbabwe registered an inflation rate of 417.823% (Coomer & Gstraunthaler, 2011). These sets of hyperinflationary rates put a big question on the relevance of financial statements prepared on the assumption of stable monetary unit thereby justifying the rising need for inflation accounting reporting system. Further to these, Aziz (2012) found out that countries experiencing high rates of inflation tend to devalue their local currency in an attempt to make their products competitive in the international markets. Though, this policy may have worked for countries, it is not always the case especially with countries that are bond to the export of primary product like petroleum (Oluwoje & Ayodeji, 2019).

There are various dimensions to the classification of inflation. One of such classification is according to its magnitude. According to its size, inflation can often be divided into four categories. These include hyper-inflation, creeping inflation, walking inflation, and other types of inflation. Alade (2017) added that there are essentially only two drivers of inflation: demand-pull and cost-push. But historically, a significant amount of economic writing focused on the issues of what drives inflation and its consequences. There are various schools of thought regarding what causes inflation. The majority of them fall into one of two categories: quality theories of inflation or quantity theories of inflation. While the quantity theory of inflation relies on the quantity equation of money, which connects the money supply, its velocity, and the nominal value of exchanges, the quality theory of inflation is based on the expectation that a seller accepting money will be able to exchange that money for goods they desire as a buyer later.
Currently, the quantity theory of money is widely acknowledged as a reliable long-term inflation model. There is now widespread agreement among economists that, over the long run, the inflation rate largely depends on how quickly the money supply is expanding relative to how quickly the economy is growing. Inflation may, however, be impacted in the short and medium term by economic pressures on supply and demand as well as the relative elasticity of wages, prices, and interest rates.

The main point of contention between monetarist and Keynesian economists is whether the short-term impacts persist long enough to be significant; however, this study does not address this issue.

**D) Dividend per Share and Share Price**

The dividend per share and its implications on share prices and value have been much discussed. The impact of dividend payments on share prices has been the subject of numerous research in recent years. While some studies have shown that regular dividend payments to investors enhance the market price of shares significantly, others have argued that dividend payments have no bearing on share prices.

Using primary and secondary data from the NGX for the years 2002 to 2008, Oyerinde (2011) attempted to ascertain whether the accounting information of Nigerian listed companies has the potential to drive share prices. She found that accounting information has the capacity to significantly affect share prices, with dividend being the most widely used information, followed by net book value and earnings.

In a study conducted in India from 2000 to 2008, Sharma et al. (2012) looked at the correlation between stock prices and explanatory accounting factors such as book value per share, dividends per share, earning per share, dividend yield, and dividends. The study's findings indicated that the market price of stocks is significantly influenced by the profit per share, dividend per share, and book value per share.

For the six years between 2005 and 2010, Nyabundi (2013) looked studied the relationship between share prices, dividends, and other pertinent accounting data for companies listed on Kenya's Nairobi Securities Exchange (NSE). The study uncovered evidence that there is a substantial and positive correlation between stock prices and dividends as well as between earnings and book values for the companies listed on the NSE using panel data analysis. According to the study, dividends have greater explanatory power than earnings and book values.

Nigeria also contributes fairly to the empirical research on the connection between accounting data and NGX share prices. Ngbame and Ikhatua (2013) used GARCH models on a sample of 10 listed companies for a period of 2000 to 2010 in the NGX to explicitly study if dividend per share and earnings per share had a sign effect on share price movement. The outcome demonstrates that earnings per share and dividends per share have characteristics that indicated they could influence share price movement in the NGX. Oyerinde (2011) in an attempt to determine if the accounting information of listed companies in Nigeria has the capability to drive share prices using primary and secondary data from the NGX covering the period 2002 to 2008 discovered that accounting information have the ability to significantly affect share prices with dividend being the widely used information, trailed by net book value and earnings. In a similar vein, Omokhudu and Ibadin (2015) in their own study on the value relevance of accounting information in the NGX utilised data from 47 non-financial companies using the modified basic Ohlson (1995) model for the period 1995 to 2013 and also show that accounting information were statistically related to share price in the NGX.

Siyanbola et al. (2015) used dividend as one of the accounting information sources to evaluate the value relevance of the accounting information of listed DMBs in Nigeria over the course of eight years (2005–2012). The result indicate that dividend is statistically significant in its relationship with share prices.

Studies on dividends per share and share prices frequently appear in value relevance studies, which aim to determine the relationship between accounting information and share price. However, these studies frequently focus only on accounting information and share prices without taking into account macroeconomic factors that affect how the capital market and accounting reports are prepared. Therefore, this study considers the impact of inflation on the relationship between the share price and dividend per share as accounting information on the Nigerian capital market.

**III. METHODOLOGY**

To describe the relationship between DPS and share price as well as the mediating impact of inflation on that relationship, the approach used for this study is descriptive in nature. The study uses regression analysis to analyze data collected through secondary sources as well as the structural equation model (SEM) to analyse the mediating effect of the mediating variable on the independent and dependent variables based on the following model:
This model is therefore adopted with the following modifications:

Where Y is the dependent variable of share price.
X is the independent variables of accounting information (DPS).
Me is the mediator variable of inflation.
β₁ is the effect of the independent variable on Y.
β₂ is the effect of the independent variable on the mediator.
β₃₁ is the effect of the independent variables on Y controlling for Me;
α₁, α₂, α₃ are the intercepts for each of the equation and ε₁, ε₂, ε₃ are the corresponding residuals or error terms in the equation.

Data for this study were collected from secondary sources mainly through the annual reports and accounts of the 75 sampled companies across the 11 sectors on NGX, and the factbook of NGX for the period 2011 – 2020 for dividend per share as well as statistical bulletins of the CBN (for annual inflation rate) and daily official price list of the NGX (for share price of listed companies).

IV. RESULTS AND DISCUSSIONS

The specific goal shows how dividends and share prices are related, as shown in hypothesis one of the study, which establishes a connection between DPS and share price and the mediating role of inflation in that connection.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share price</td>
<td>687</td>
<td>13.4791</td>
<td>31.3248</td>
<td>0.17</td>
<td>275</td>
</tr>
<tr>
<td>Dividend Per Share</td>
<td>687</td>
<td>0.4960</td>
<td>1.2441</td>
<td>0.0000</td>
<td>10</td>
</tr>
<tr>
<td>Inflation Rate</td>
<td>687</td>
<td>11.6670</td>
<td>2.7179</td>
<td>8</td>
<td>16.5</td>
</tr>
</tbody>
</table>

Note. STATA 14 output (2023)

Table 1 displays the calculated values for the mean, the standard deviation, the minimum and the maximum for each of the research variables for the twenty-nine sampled firms among NGX 75 firms during the period 2011 to 2020. However, some years were eliminated because of unavailability of data for those years. Table 4.1 also shows that the study uses 687 firm year observations. According to the descriptive data, the sampled enterprises’ share prices were, on average, 13.4791 while the standard deviation was 31.3248. Since the standard deviation is much higher than the mean, this implies a significant range around the mean. The greatest value is 275, and the minimum value is 0.17, which support this.

Table 1 also shows that the average dividend per share for the listed NGX 75 firms is 50k. Also visible is the minimum value of 0 and the maximum value of ₦10 and standard deviation of ₦1.2441. This show that the firms have great dispersion in terms of dividend per share. Table 4.1 further shows that Nigeria had an average inflation rate of 11.6670 percent and a standard deviation of 2.7179 percent during the study period. This indicates that the data are widely distributed around the mean. It also, indicates that Nigeria inflation has not been stable throughout the study period. The study shows a minimum value of inflation rate of 8 and maximum of 16.5.

A) Correlation Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>SP</th>
<th>DPS</th>
<th>IFTR</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPS</td>
<td>0.6070</td>
<td>1.0000</td>
<td></td>
<td>3.10</td>
</tr>
<tr>
<td>IFTR</td>
<td>-0.0509</td>
<td>-0.0063</td>
<td>1.0000</td>
<td>1.05</td>
</tr>
</tbody>
</table>

Note. STATA 14 output (2023)
The correlation coefficients between the study's independent factors and the dependent variable (share price) are displayed in Table 2. The correlation matrix is also displayed, along with numbers that represent the Spearman correlation coefficient between each pair of research variables. The choice of the Spearman correlation, over the Pearson correlation, ensue because the outcome of skewness and Kurtosis and Shapiro Wilk test indicate that the data are not normally distributed.

According to Table 2's findings, DPS has a positive direct link with share price for the time period under consideration, with a positive correlation coefficient of 61 percent. This suggests that an increase in DPS would result in an equal increase in the share price. The outcomes also show a significant correlation between DPS and share price. On the other hand, inflation rate associates negatively with share price. However, the relation is weak at correlation coefficient of 5%. This suggest that inflation rate and share price moved in separate way. An increase in inflation rate led to equal decrease in share price.

**B) Model Specification**

| Variables | Coefficient value | T | p>|t |
|-----------|-------------------|---|-----|
| _hat      | 0.8059            | 5.27 | 0.000 |
| _hatsq    | 0.0658            | 1.37 | 0.173 |
| _cons     | 0.0588            | 0.52 | 0.605 |

**Table 3: Linktest Result for Model Specification**

The study uses linktest to detect model specification errors likely attributable to the research variables. This is because the linktest can detect misspecification errors relating to omitted variables and check the exactness of link function specification in the model. The results from the linktests on table 3 show that the variable _hat for model is significant at 1 percent, which implies appropriateness in model specification. This is also supported by the p value of the _hatsq that are not significant at 5 percent threshold. Similarly, the ovtest results for model as presented in Appendix also reveals a probability value of 0.5345 which indicates absence of significant omission of important variable. Thus, it is apt to say that the research models have been properly specified in line with the CLRM assumptions.

**C) Normality of Residual**

The Shapiro Wilk test and graphical tests are combined in the study to validate the normality assumption of CLRM on the model's residuals. The study used the Swilk test, which suggests that the distribution's error term should be regularly distributed. The outcome, as shown in Table 3, indicates that the residual is normally distributed because the p-value for the model is trivial at 7%.

| Variable | Observation | W   | V   | Z   | Prob>|z |
|----------|-------------|-----|-----|-----|------|
| Residual | 687         | 0.96749 | 4.020 | 3.166 | 0.06577 |

**Table 4: Shapiro-Wilk W test for Normal Data**

In addition to the Shapiro wilk test, the study uses the standardised normal probability plot (p plot). The plot shows a slight sign of non-normality at the centre of the distribution this shows that the residual’s deviation from normality is negligible. Consequently, the study concludes that the residuals are close to a normal distribution.

**D) Multicollinearity**

The correlation coefficients in Table 2 shows that there is absence of perfect linear relationship among the predictors. This also indicate the absence of harmful multicollinearity since none of the independent variables has relationship between themself of 0.8 (Gujirati, 2009). Similarly, the minimum VIF obtained is 1.05 and the maximum is 3.10. None of the VIF exceed 10.

**E) Homoscedasticity of the residuals**

The homogeneity of variance (homoscedasticity) of the residuals is one of the CLRM's presumptions. All explanatory variable values should result in the same error variance. The Breusch-Pagan Godfrey test is used in the study to determine whether the research model and the assumption agree. According to the results of the Breusch-Pagan-Godfrey test for heteroscedasticity, the p-value at probability value 0.7428 is not significant, indicating that the variance of the residuals in the model is constant.
These findings suggest that when deciding whether to buy or sell firm shares, investors should be pleased when they learn that DPS has increased. The study's findings demonstrate that, while DPS is a big impact on whether or not shareholders choose to purchase or sell firm stock.

The failure of inflation rates to lessen the effect of DPS on stock prices, as shown by the P-value of 0.569 (0.05) and the path coefficient of -0.009. This indicates that there is no interaction between the DPS and the impact of inflation on stock prices, and that there is an inverse link between the two. The company's stock price decreases when there is high DPS value and inflation. The failure of inflation rates to lessen the effect of DPS on stock prices was due to unchecked inflation in Nigeria. Inflation thus has a negative impact rather than having an impact on stock values. The outcome, however, also reveals whether or not inflation is still under control, which could discourage investors from purchasing the company's stock and result in a drop in the uniform's price. It is acknowledged that DPS does not influence investment choices.

Additionally, as can also be seen from Table 6, the RIT of 2% means that about 2% of the impact of DPS on the stock price is mediated through inflation. The indirect impact significance test, however, reveals an unimportant p-value of 0.569. This suggests that the correlation between DPS and stock price is not considerably impacted by inflation.

According to the study, inflation only slightly mediates the association between DPS and share price, therefore based on the foregoing talks, it can be inferred that inflation does not considerably mediate the relationship between DPS and the share price of Nigerian listed businesses. This leads to the conclusion that there is insufficient evidence in the study to disprove the
null hypothesis, according to which inflation does not mediate the relationship between DPS and stock price. The null hypothesis, according to which inflation does not mediate the relationship between DPS and stock price, is not refuted by the study.

V. CONCLUSION

The conclusion drawn from the study's findings about the impact of dividend on share price suggests that dividend has a significant impact on share price in the NGX. This is demonstrated by the analysis's findings, which indicate that the relationship between share price and dividend per share is both positive and substantial. As a result, there is sufficient data from this analysis to disprove the null hypothesis, according to which there is no connection between the share price of the NGX and its dividend per share. As for the mediating effect of inflation on the relationship between dividend and share prices, the study concludes that inflation does not significantly alter the relationship between DPS and share price of companies listed in the NGX.

VI. REFERENCES