Empirical evaluation of value relevance of accounting information on share prices of listed service companies in Nigeria

Etim Osim Etim, George Tamunotonye Peters, Roseline Akpan Gabriel and Usen Paul Umo

Abstract
The study was conducted to evaluate the connection between value relevance of accounting information proxied by EPS, BVPS, and CFO, and stock prices of quoted service companies in the Nigeria. This was presupposed on the mixed results regarding which accounting variables affect share prices mostly in various stock exchanges and economies from prior studies. Ex-post facto research design was applied using published reports of the select firms and Nigerian stock Exchange for various years. Twenty (20) service companies were selected purposively out of twenty-five (25), which was the population. Data were analyzed using Beta coefficient, t-values, P-values, r² and F-ratio. The result revealed that EPS was significant and positive, while BVPS and CFO were positive but not statistically meaningful in determining share price movements of service companies in Nigeria. It is concluded that accounting numbers are germane in explaining share price movement and recommended that investors should make use of information from the income statement in their investment decisions.

Keywords: Value relevance, accounting information, service companies, EPS, BVPS, and CFO

1. Introduction
Accounting information is the refined financial data prepared by management of entities for users to evaluate the achievement and financial position such entities attained at any point in time. The accounting reports may be in the form of managerial reports for internal management decision making, planning and control of operations or corporate reports in the form of income statement for performance assessment, statement of financial position to ascertain financial position, statement of changes in equity reflecting movement in reserves, statement of cash flow revealing cash generation and usage, as well as notes to the reports which explains the basis of management policies adopted in the preparation and presentation of the report. These reports are usually prepared in-line with regulatory and statutory frameworks and used by variant of stakeholders for diverse reasons. These statements/reports must be dependable, relevant, cogent, timely and understandable to meet intended purposes for the users; the government, creditors, investors, regulatory agencies, employees among others. From investors view point, key purpose of accounting reports should be to assist in making informed investment decisions relating to buying, retaining or selling the shares of entities either as existing or potential stockholders. Thus, the informational content in the financial statement necessarily must have value relevance.

Information Value relevance as it relates to an organization, is marked by the capacity of the reported accounting data to be useful in informed decision-making. Accordingly, from an investor’s positioning, only informational content that adds to the decisions process is relevant (Omokhudu & Ibadin, 2015) [18]. Accounting information may be said to be relevant if it can influence the user decisions. Value relevance hinges on the mainstay of materiality and reliability. It is capability of accounting numbers to elucidate, hit or leverage changes in share prices. It lim the nexus between financial data and share prices (Liu & Liu, 2007) [19], fundamentally, quoted companies favor annual reports as the vehicle for communicating financial information to stakeholders (Nassar, et al., 2014) [10]. This has much to say about the public perception of the firm and accordingly, the market price per share at the capital market.
1.2 Statements of the Research Problem
Many studies and literature on value relevance of accounting reports and share prices are available. Most of the studies were conducted on aggregated data of companies quoted in the various countries capital markets using different proxies as independent variables such as DPS, EPS, BVPS, and CFO, as value relevance variables for accounting data and share prices movement. The results and conclusions drawn from such investigations may not be a true reflection of all the sub-sectors in an economy. Since some sectors might be more vibrant than others at any particular point. Thus, aggregating data from all listed companies in a single study may obscure the validity of the results. This study is conducted by evaluating value relevance of accounting numbers on share prices of quoted service companies using the Nigerian capital market indices.

1.3 Objective of the study
The objective of study was to empirically evaluate value relevance of accounting numbers on share prices in quoted service firms in Nigeria.

1.4 Research Question
The research question raise was:
Is there any connection between value relevance of accounting numbers and share prices movement of quoted service firms in Nigeria?

1.5 Hypothesis of the study
The hypothesis of the study was stated as:
Ho: There is no significant connection between value relevance of accounting numbers (EPS, BVPS and CFO) and share prices movement of quoted service firms in Nigeria from 2015 – 2021.

1.6 Significance of the study
The investigation provides empirical evidence about relationship subsisting between accounting data and share prices movement of listed service companies in Nigeria. Results provide understanding to individual and corporate investors on their investment decisions, management of service companies in planning strategies, regulatory authorities in discharging their functions, further researchers as empirical iterative and investment analysts in advisory capacity. The rest of the paper is reported under literature review, methodology, results and findings, conclusion, and recommendations.

2.0 Review of related literature
Literature is reviewed under three sub-headings: Conceptual review, theoretical review and empirical review.

2.1 Conceptual review
Key concepts are explained in this section of the paper.

2.1.1 Value relevance
This has been explained in diverse ways in accounting literature (Francis & Schipper, 1999; Beisland, 2009; Khanagahi, 2011 and Shehzad & Ismail, 2014) [9, 4, 13, 25], is the sodality between accounting data and security market values. Technically value relevance is seen as the capacity of financial statement to capture and report firm value (Beisland, 2009) [41]. Oshodin and Mgbame (2014) [20] viewed value relevance of accounting numbers as the utility of financial accounting information, given the investors decision to invest or to maintain their investment in companies arising from the relationship between the financial statements and market share prices. Scott (2003) [23], opines that accounting information is value relevant if it leads investors to alter their notions and conducts. In order to be relevant, accounting data must among others, be swift to retort users’, in particular, the investors desires. We defined value relevance in this study as the capacity of accounting numbers particularly performance indices driving market share prices; useful to investors thereby aiding informed and reliable decisions. Predictive capability of accounting reports to estimate or foresee the returns of the coming years.

2.2.1 Accounting information
Accounting data is any report derived from accounting system of any organization and presented in useable form for decision making encapsulated as published and management reports. To enhance the communicative role of the accounting reports, such information must possess the features of understandability, relevance; timelines; reliability, faithful representation, verifiability; comparability and consistency (IAS.2).

2.1.3 Measurement variables of value relevance and share prices
Investors focus on market price per share of firms and ratios showing it. These ratios, are based on current market situations. Generally, market ratios are the ones used for investment decisions and long-term planning, and include Earning Per Share (EPS), Book value Per Share (BVPS), Price–earnings Ratio (P/E), Dividend Per Share (DPS), Dividend payout (D/P) and Dividend yield (DY) (Saiedi, 2007). Ali, Maher and Abdelfetlah (2018) [2] used cash flow from operating activities as an accounting metric for value relevance. Hence, in this study, BVPS, EPS, and CFO adjusted by total assets were applied as proxies for value relevance.

2.1.4 Share prices.
According to Oyerinde (2009) [19], market share price is the price which the market assigns to the company’s stocks. Prior studies, (Karpagavalli & Nirmala, 2014; Shobhana & Karpagavalli, 2011, Sharma, 2011) [12, 26, 24], adopted market share price computed by considering within a financial period the average of lowest and highest market values of the entity’s share. In another view, Anita and Yadav (2014) [3] adopted closing market value during the year end as proxy for the market share prices.

2.2 Theoretical review
The efficient market hypotheses developed by Eugene Fama form the theoretical underpinning of this study. He disputed that the fair value proposition which uses current market values as the foundation to decipher certain assets and liabilities in what is applied when stocks are traded in order to avert investors from either buying underrated stocks or selling at humerous prices. A market is said to be efficient
where there are large number of rational profit maximizers actively competing with each trying to predict future market value of individual securities and where important current information is almost freely available to all participants. Fama (1970) identified three distinct levels at which a market might actually be efficient. These are the strong form, the semi-strong form and the weak form. Each of these market levels is fundamentally about informational content available to the market participant about the state/status of a company at any point in time. The accounting numbers are the commonly relied upon information.

2.3 Empirical Review
The previous empirical studies conducted in the domain of accounting, economics and finance literature are summarized in a tabular pattern as shown on Table 1.

<table>
<thead>
<tr>
<th>S/No</th>
<th>Author(s)</th>
<th>Year</th>
<th>Topic</th>
<th>Research technique</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chandrapala</td>
<td>2011</td>
<td>Value relevance of earnings and cash flow in ascertaining stock price</td>
<td>Pooled cross-sectional regression analysis</td>
<td>Higher value relevance of accounting number for bigger firms than smaller ones.</td>
</tr>
<tr>
<td>2</td>
<td>Suadiye</td>
<td>2012</td>
<td>Value relevance of book value and earnings under local GAAP and IFRS; Evidence from Turkey.</td>
<td>OLS Regression model</td>
<td>Earning and book value are jointly and individually positive and significantly related to stock prices.</td>
</tr>
<tr>
<td>3</td>
<td>Glezakos, Mylonakis, and Kafouros</td>
<td>2012</td>
<td>The relationship between stock prices and EPS; Evidence based on Taiwan panel data</td>
<td>Regression analysis.</td>
<td>The explanatory power of EPS in the formation of stock prices increase over time.</td>
</tr>
<tr>
<td>4</td>
<td>Mohammedu</td>
<td>2012</td>
<td>The investigation of accounting information and value of companies</td>
<td>Regression analysis</td>
<td>No relationship between accounting information and companies, stock prices.</td>
</tr>
<tr>
<td>5</td>
<td>Abiodun</td>
<td>2012</td>
<td>Significance of accounting information on corporate values of firms in Nigeria</td>
<td>Logarithmic Regression analysis.</td>
<td>Earning was more value relevant than book values.</td>
</tr>
<tr>
<td>6</td>
<td>Fodio and salauden</td>
<td>2012</td>
<td>Comparative analysis of value relevance of historical cost and inflation adjusted accounting data</td>
<td>Regression analysis.</td>
<td>Historical cost financial data has the strength of coloring, though not significantly, the accounting information provided decision makers.</td>
</tr>
<tr>
<td>7</td>
<td>Huffman</td>
<td>2013</td>
<td>Value relevant asset dimension and asset utilization: Evidence from IAS 41</td>
<td>Regression analysis.</td>
<td>Book value and earnings information is significantly more relevant in regression of stock price.</td>
</tr>
<tr>
<td>8</td>
<td>Pervana and Marijania</td>
<td>2014</td>
<td>Value relevance of accounting values: Evidence Eastern European Economies</td>
<td>Regression analysis.</td>
<td>Accounting information were value relevant on all the observed markets.</td>
</tr>
<tr>
<td>9</td>
<td>Olugbenga and Atanda</td>
<td>2014</td>
<td>Value relevance of financial accounting information.</td>
<td>Ordinary least squares (OLS) regression method.</td>
<td>Accounting information on listed firms in Nigeria was value relevant.</td>
</tr>
</tbody>
</table>

Source: Researchers’ Compilation (2022).

2.4 Gap in the literature
From the reviewed empirical literature, many investigators studied the nexus between stock prices and some selected factors. Most of these studies used only one proxy (such as book value of equity, EPS, among others) as the variables for relevance of accounting information over other proxy or proxies on aggregated and pooled data basis. This study is a departure from previous studies by using three (3) independent variable – EPS, BVPS and CFO and share prices in evaluating value relevance of accounting information on sectoral basis using the service sector only.

3. Methodology of the study
3.1 Research Design
Ex. Post facto research design was adopted using previously generated data from published accounting reports from the listed companies in Nigeria Stock Exchange from 2015 to 2021.

3.2 Population and Sample Size of the Study
The population consisted of quoted service companies in Nigeria from 2015 to 2021. From the Nigerian Stock Exchange database, there were twenty-five listed service companies during the period of study. Using purposive sampling technique, twenty (20) companies with complete set of data for the period of study were selected.

3.3 Data Collection Technique
The relevant data were computed from annual financial reports of the selected firms as published and the Nigerian Stock Exchange (NSE) for the relevant periods.

3.4 Model Specification
Multiple regression model was applied to analyze the data. The model was of the form:

\[ SP_t = f (BVPS, EPS, CFO) \text{ Model 3.1} \]

Where
\[ SP_t = \text{Share price} \]
BVPS = Book value per share
EFS = Earnings per share
CFO = Cash flow from operations adjusted by the total assets in a function form.
Empirically, the model was stated as:

\[ SP_t = \beta_0 + \beta_1 \text{BVPS}_{t-1} + \beta_2 \text{EFS}_{t-1} + \beta_3 \text{CFO}_{t-1} + \mu \]

Where:
\[ \text{SP}_t = \text{Share price for firm I at the end of the third month after year } t \]
\[ \beta_0 = \text{ Intercept of the regression model.} \]
\[ \text{BVPS}_{t-1} = \text{Book value of equity per share for firm I at the end of year } t \]

Table 2: Variable Measurement

<table>
<thead>
<tr>
<th>S/N</th>
<th>Variables</th>
<th>Type</th>
<th>Measurement</th>
<th>A priori Expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Share price</td>
<td>Dependent</td>
<td>Amount stated in the NSE fact book at the end of the third month after the financial year end of sampled firms.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>BVPS</td>
<td>Independent</td>
<td>Shareholder’s equity divided by the number of shares.</td>
<td>+</td>
</tr>
<tr>
<td>3</td>
<td>EPS</td>
<td>Independent</td>
<td>Net income minus preference dividend divided by average number of ordinary shares</td>
<td>+</td>
</tr>
<tr>
<td>4</td>
<td>CFO</td>
<td>Independent</td>
<td>Net cash flow from operating activities adjusted by asset of the firm.</td>
<td>+</td>
</tr>
</tbody>
</table>

Source: Researchers’ Computation (2022).

3.6 Method of data treatment
Descriptive and inferential statistics where applicable in data analyses. Descriptive statistics include mean, maximum, minimum, and standard deviation which are basically measures of dispersion. Multicollinearity test, unit root test, ANOVA, Ordinary Least squares (OLS) multiple regression, Pearson correlation coefficient as well as Hausman test applied to find out if fixed or random effects of both methods were suitable for panel analysis. The hypothesis was tested at 0.05 significance level.

4. Results and Findings
The results of data analyses were represented and discussed in this section.

4.1 Presentation of result
In this section, the result of research variables: share prices, Book Value Per Share (BVPS), Earning Per Share (EPS) and Cash Flow from Operations adjusted by total assets (CFO) of selected twenty (20) listed service firm in Nigeria are presented.

4.1.1 Descriptive statistics
The descriptive statistics are presented on the table that follows.

Table 3: Descriptive Statistical Results

<table>
<thead>
<tr>
<th></th>
<th>Means</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Std Dev</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share Price</td>
<td>3.386185</td>
<td>9.630000</td>
<td>0.200000</td>
<td>2.005118</td>
<td>140</td>
</tr>
<tr>
<td>BVPS</td>
<td>2.255071</td>
<td>7.580000</td>
<td>-7.19</td>
<td>2.292055</td>
<td>140</td>
</tr>
<tr>
<td>CFO</td>
<td>0.096500</td>
<td>0.890000</td>
<td>-0.26</td>
<td>0.150829</td>
<td>140</td>
</tr>
<tr>
<td>EPS</td>
<td>0.018500</td>
<td>0.890000</td>
<td>-3.61</td>
<td>0.62665</td>
<td>140</td>
</tr>
</tbody>
</table>

Source: Researchers’ Computation (2022).

The results show mean value of share N2.36, minimum price 20k while the maximum was N9.63 with a high standard deviation 2.095. The result further shows that BVPS had a mean value of 2.25, lowest – 7.19 and highest 7.58 with standard deviation 2.29. The CFO averaged 0.09, standard deviation 0.15; minimum value -0.26 and maximum value 0.89. The EPS averaged 1 kobo indicating that firm within the service sector had a share which earned at least 1 kobo profit. Its minimum value -3.61, maximum 0.89 with a standard deviation 0.63. The variability in earning per share can be as a result of variance between number of issued shares and reduced earnings or inversely reduction in issued shares compared to increased earnings

4.1.2 Multicollinearity Test
Multicollinearity is an issue associated with linear models. We make use of variance inflation factor (VIF) to validate the presence or otherwise absence of multicollinearity amidst the presage variables.

Table 4: Multicollinearity Test Result

<table>
<thead>
<tr>
<th></th>
<th>Collinearity Statistics Tolerance</th>
<th>Variance Inflation Factor (VIF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BVPS</td>
<td>0.007538</td>
<td>3.121423</td>
</tr>
<tr>
<td>CFO</td>
<td>10.119594</td>
<td>1.435643</td>
</tr>
<tr>
<td>EPS</td>
<td>0.070431</td>
<td>1.586342</td>
</tr>
</tbody>
</table>

Source: Researchers’ Computation (2022).

Clearly, variance inflation factor for all variables is less than 10, which indicates that there is no presence of the multicollinearity issues among the variables.

4.1.3 Unit root test
To obtain reliable estimate of the value relevance information parameters, it was necessary to determine the unit root properties of the variables of the study. Stationary tests were performed to ascertain the time series properties of each variable in the model. Table 5 reports the results of the Levin, Lin and Chu, ADF-Fisher Chi-square and PP – Fisher chi square unit root test, the individual lag is chosen
based on the Akaike information Criteria (AIC). The tests are conducted with intercept.

Table 5: Unit Root Test

<table>
<thead>
<tr>
<th>Variables</th>
<th>Levin, Lin and Chu Test</th>
<th>ADF–Fisher Chi Square</th>
<th>PP-Fisher Chi square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic</td>
<td>Prob**</td>
<td>Statistic</td>
</tr>
<tr>
<td>Share prices</td>
<td>-62.8067</td>
<td>0.0000</td>
<td>84.7669</td>
</tr>
<tr>
<td>BVPS</td>
<td>-31.3684</td>
<td>0.0000</td>
<td>69.3478</td>
</tr>
<tr>
<td>CFO</td>
<td>-24.1836</td>
<td>0.0000</td>
<td>102.782</td>
</tr>
<tr>
<td>EPS</td>
<td>-13.3901</td>
<td>0.0000</td>
<td>92.1240</td>
</tr>
</tbody>
</table>

Source: Researchers’ Computation (2022)

Table 5 depicts the unit root results showing that the Levin, Lin and Chu unit root implying the unit root hypothesis is rejected for share prices, BVPS, CFO and EPS respectively. Similar results are obtained for ADF-Fisher chi-square and PP-Fisher Chi-square tests except in the case of BVPS. In summary, there is no unit root among the variables as the panel data are stationary, as p-value < 0.05

4.1.4 Hausman test result

The panel data were subjected to Hausman test to determine which of the panel methods is most appropriate for the model—whether random or fixed effects or both. The result of the Hausman test were presented on Table 6.

Table 6: Hausman test result

<table>
<thead>
<tr>
<th>S/n</th>
<th>Sector</th>
<th>Chi-square statistic</th>
<th>Prob</th>
<th>Summary / remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Service</td>
<td>9.265578</td>
<td>0.0260</td>
<td>Fixed Effect model</td>
</tr>
</tbody>
</table>

Source: Researchers’ Computation (2022).

The above test was premised on the hypothesis that the disparity between the coefficient for the fixed and random models is not significant. This is because the probability of the Chi-square of the Hausman test is greater or less than 0.05. If the probability is not significant, we accept the alternative and reject the null and thus, accept the fixed effects model. Form the result, the fixed effect model was appropriate for data analysis in this study.

4.2 Test of hypothesis and Regression analysis

Following the Hausman test result which establishes the fixed effects model as appropriate for regression analysis, the null hypothesis is tested in this section. The regression output is on Table 7 that follows: H0: there is no significant connection between value relevance of accounting numbers (EPS, BVPS and CFO) and share prices of quoted service companies in Nigeria from 2015-2021.

Table 7: Regression result for test of Hypothesis

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Fixed effects</th>
<th>Dependent variable</th>
<th>Share prices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>t-stat</td>
<td>Prob.</td>
</tr>
<tr>
<td>C.</td>
<td>2.318757</td>
<td>10.5675</td>
<td>0.0000</td>
</tr>
<tr>
<td>BVPS</td>
<td>-0.027111</td>
<td>-0.326669</td>
<td>0.7445</td>
</tr>
<tr>
<td>CFO</td>
<td>1.032698</td>
<td>1.348176</td>
<td>0.1802</td>
</tr>
<tr>
<td>EPS</td>
<td>0.247674</td>
<td>1.006171</td>
<td>0.0014</td>
</tr>
<tr>
<td>R²</td>
<td>0.729561</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F²</td>
<td>18.04449</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P&gt;F</td>
<td>0.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hausman Test</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Researchers’ Computation (2022)

From the statistics, it is revealed that of the three (3) accounting variables, only EPS was both statistically significant and positive, while BVPS and CFO though positive were statistically not significant at 0.05 level of significance (CFO β=1.032, t-calc = 1.3482, P=0.1802 >0.05), BVPS shows a negative relationship (β = -0.27111, t-calc=1.006171, P=0.744, >0.05); EPS (β =0.2476, t-calc=1.006171, P=0.0014, < 0.05) and the adjusted coefficient of determinant R² =0.729561 as such, the model used explained 72.95 percent variation in share price movement. The P–value of the F–statistics (F² = 18. 04449, P= 0.0000) showed that the variables are significant determinant of share prices within the sector in Nigeria. The study findings do not conform with that of Bismark and Kingsley (2018) study that examined the value relevance of accounting data from an emerging country perspective and found all variables significant and positive. Findings collaborate the study of Rajapakse (2010) who found earnings per share as the most potent variable in share price determination under the returns model.

5.0 Conclusion and Recommendations

The debate on value relevance of accounting information to share price movement is a topical issue. In a developing economy like Nigeria, there are various empirical evaluation on the effects of different variables on share price. This study was on relevance of accounting information as regard share price movements and to determine if variations exists in the service sector of the Nigerians Stock Exchange and economy. The correlation and regression analyses showed that there is positive and significant connection between EPS and share prices, while BVPS and CFO though positive were statistically insignificant. It is therefore recommended that investors in the service sector should rely on the results of the income statement for
their investment decisions.

5.1 Limitations of the study
This study focuses on only quoted service companies in Nigeria. Data used were those published at public domain and prepared by the directors of the companies which might have been subjected to accounting policies and strategies peculiar to such companies as well as drawbacks associated with historical data. The choice of panel data against pooled data may also serve as a limitation. Nonetheless, observing the necessary procedures required for such data analysis, it is believed the results obtained, interpretations and conclusions drawn are worthwhile and suitable for policy analysis.

5.2 Contribution to knowledge
The study shed light to most potent variable which drive share prices in the services sector of the Nigerian economy and add to existing empirical literature on value relevance of accounting numbers in this regard.

5.3 Suggestion for further researchers
This study focused on the service sector of the Nigerian economy, further studies might research other sectors disaggregatively and comparatively for the most active sectors traded on the floor of stock exchange. Also, more variables can be isolated beside the three (BVPs, CFO and EPS) applied in this study to expand on the existing literature.

5.4. Declaration of conflict of interest
No conflicts of interest exist in the research authorship, publication and financial sponsorship.

References
24. Sharma A. Value relevance of financial reporting and its impact on Stock Prices: Evidence from India. South
