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# EFFECT OF CASH FLOW MANAGEMENT ON SHARE PRICE VOLATILITY OF OIL AND GAS FIRMS LISTED ON THE NIGERIAN EXCHANGE GROUP

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**ABSTRACT:**

*The study determines the effect of cash flow management on the share price volatility of listed oil and gas firms in the Nigeria Exchange Group. The specific objective was to ascertain the effect of operating cashflow, financing cashflow, investing cashflow, and cash and cash equivalents on the share price volatility of the firms in focus. Ex-post facto research was adopted and panel data sourced from the annual reports of the sampled six (firms) from 2012 to 2021 were analysed using panel methodology approach. Hausman Specification Test and B-P Lagrange Multiplier Tests were preliminarily used to identify the best panel estimation tool for the study. Pooled Regression Analysis was adopted at 5% significance level which revealed that: operating cash flow, financing cash flow have a positive but non-significant effect on the share price volatility of listed oil and gas firms in Nigeria Exchange Group; investing cash flow has a significant positive effect on the share price volatility of the firms ; and cash and cash equivalent has a negative and non-significant effect on the share price volatility of listed oil and gas firms in Nigeria Exchange Group. It was concluded that when either of operating cashflow, investing cashflow or financing cashflow increases, share prices of listed oil and gas firms become more volatile. The study recommends that: investors in the oil sector should validate the quality of earnings which oil and gas firms report by looking at their operating cash flows.it also recommended that Oil and gas companies in Nigeria should secure more funding by capital raising or external borrowing in order to finance their expansion.it further recommended that management of oil and gas firms seeking to appear good in their stock performance should invest more cash in profitable venture rather than overvaluing their accounting earning, finally, management should ensure that excessive cash assets are not left idle since idle assets yield no return that will help make the firms' stock performance appear good.*

***Key words:*** *Cash and Cash Equivalents, Cash Flow Management, Financing Cashflow, Investing Cashflow, Operating Cashflow, Share Price Volatility*
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## 1. INTRODUCTION

Cash flows are important and play a vital role in achieving high market value for a firm's shares (Al Zobi & Al-Dhaimesh, 2021). According to Kenton (2019), cash flow is the net amount of cash and cash equivalents that a firm receives or gives out by way of payment(s). Thus, cash flow management is the art and science of managing a firm's cash resources to sustain its ongoing activities, mobilize funds and optimize liquidity (Sharma & Kumar, 2011). The most important elements of cash management are efficient utilization of current assets and current liabilities of a firm throughout each phase of the business operating cycle; the systematic planning, monitoring and management of the company's collections, disbursements and account balances; and the gathering and management of information to use available funds effectively and identify risk (Sharma & Kumar, 2011). At the most fundamental level, a company's ability to create value for shareholders is hinged on its ability to generate positive cash flows, or more specifically, maximize long-term free cash flows (Kenton, 2019). The firm's value of cash and demand for cash depends on changes in the firm's external and internal environments. Since the use and value of cash are time-varying, the optimal level of cash holdings is also constantly changing. The dynamic nature of optimal cash holdings should motivate firms to actively adjust cash towards the optimal level. The benefits of adjusting cash towards its optimal level can be substantial, including smoothing the effects of the economic cycle by ensuring the amount of cash is sufficient to withstand hard times and further secure the short-term normal business activities, manage resources and enhance liquidity (Allman-Ward & Sagner, 2003). However, scholars argue that financial statements are prepared on an accrual basis thereby availing managers the opportunity to manipulate and inflate profits by exploiting available accounting methods. These manipulations have a concomitant effect in influencing share prices in a bid to attract more investors.

The issue of share price volatility has drawn increasing attention among researchers with differing views on factors responsible for such. Prior studies have examined factors, the relationship between dividend policy, macro-economic factors, capital structure and share price volatility of quoted manufacturing firms in Nigeria. There is no doubt that the efficiency of financial markets depends mainly on the informational content of financial reports, which, in turn, reflect the real share prices (Dang, Tran, & Nguyen, 2017). The income statement and the statement of financial position are prepared using the accrual basis, which is in contrast to the statement of cash flows prepared using the cash basis (Al Zobi & Al-Dhaimesh, 2021). The major difference between cash and accrual basis is the point of revenue or expense recognition. The management of cash flow has proven to be a challenge for the vast majority of firms in sub-Saharan Africa. Thus, studies have been conducted on different cash flow statement components in Nigeria such as Rosemary et al. (2021) who examined three sectors including healthcare, industrial goods and consumer goods; Liman and Mohammed (2018) whose study was on cash flow statement components and financial performance of conglomerates; Ogbeide and Akanji (2017) conducted their study in the insurance sector; while the study by Nwaiwu and Oluka (2017) was on non-financial firms. Few studies have addressed the issue of cash flow statement management and share price volatility of quoted firms in the oil and gas sector.

Moreso, majority of studies in the Nigerian context focused on profitability proxied using the return on asset (ROA) and return on equity (ROE ). However, investors have found that relying on accounting profits used in computing the profitability ratios and derived from the income statement prepared on an accrual basis may lead to wrong investment decisions especially in predicting stock performance (Al Zobi & Al-Dhaimesh, 2021). The study differs in its scope by using empirical data from Nigeria's oil and gas sector to study the nexus of cash flow statements components which is operating, investing, and financing cash flows and share price information. The current study thus focuses on share price performance information obtained from the Nigerian Exchange Group which is an indicator of a firm's value at year-end.

Based on the above, the problem which the current study tackles are that relying only on net income or the statement of financial position prepared on accrual bases in explaining share price movements is highly insufficient and has been extensively examined in prior studies conducted both within and outside Nigeria. The study examines the explanatory value of cash flows from operating, investing, and financing activities concerning share price volatility. In other words, to determine the extent of the importance of cash flow information in deciding the market share price of oil and gas firms listed on the Nigerian Exchange Group. Studies have argued for a disaggregated analysis of cash flow components on performance (Al Zobi & Al-Dhaimesh, 2021; Stom & Wepukhulu, 2019). And from the Nigerian context, Liman and Mohammed (2018), Ogbeide and Akanji (2017), Nwarogu and Iormbagah (2017), Amah, Micheal, and Ihendinihu (2016), and Nwanyanwu (2015) have utilized varying components of the statement of cash flow. An often neglected crucial component is the cash and cash equivalent, an indicator of short-term liquidity of the business and a primer on the level of solvency of the firm. In addition, the singular focus on a particular industry eliminates bias from differing financing needs which determines cash balances across different industries justifying a focus on the oil and gas sector.

### 1.1 Objectives of the Study

The broad objective of this study is to determine the effect of cash flow management on the share price volatility of listed oil and gas firms in the Nigerian Exchange Group. In line with the broad objective, the following specific objectives were achieved:

a. to determine the effect of operating cash flow on share price volatility of listed oil and gas firms in Nigerian Exchange Group.
b. to ascertain the effect of financing cash flow on share price volatility of listed oil and gas firms in Nigerian Exchange Group.
c. to assess the effect of investing cash flow on share price volatility of listed oil and gas firms in Nigerian Exchange Group.
d. to evaluate the effect of cash and cash equivalent on share price volatility of listed oil and gas firms in Nigerian Exchange Group.

### 1.2 Hypotheses

This study was guided by the following null hypotheses

i. $Ho_1$: There is no significant effect of operating cash flow on share price volatility of listed oil and gas firms in Nigerian Exchange Group.
ii. $Ho_2$: There is no significant effect of financing cash flow on share price volatility of listed oil and gas firms in Nigerian Exchange Group.
iii. $Ho_3$: There is no significant effect of investing cash flow on share price volatility of listed oil and gas firms in Nigerian Exchange Group.
iv. $Ho_4$: There is no significant effect of cash and cash equivalent on share price volatility of listed oil and gas firms in Nigerian Exchange Group.

## 2. LITERATURE REVIEW

### 2.1 Conceptual review

#### 2.1.1 Cash Flow Management

Cash is the lifeblood of any business and vital to the well-functioning of its daily activities. Cash refers to money which a business organization or firm can disburse immediately without restriction (Pandey, 2010). The definition of cash includes coins, currencies and cheques held by the firm and balances in its bank account (Nwarogu & Iormbagah, 2017). According to Narkabtee (2000) the "importance of cash flows cannot be overemphasized mainly because the users of accounting information are particularly interested in the cash of the company that is published in its financial statements". Cash flow is the net amount of cash and cash-equivalents moving in and out of a business. The cash flows of an organisation refer to those pool of funds that the company commits to

its fixed assets, inventories, account receivables and marketable securities. Three factors directly influence a firm's access to cash: (i) cash from accounts receivables is not available to firms while they are awaiting customer payments for delivered goods; (ii) cash invested in goods is tied up and not available while those goods are held in inventory; and (iii) cash may be made available to a firm if it chooses to delay payment to suppliers for goods or services rendered. Lack of cash may cause a company to file for bankruptcy. Therefore, efficient cash management not only prevents bankruptcy but helps improve the profitability of a firm (Sharma & Kumar, 2011) and increases chances of growing without the need for external financing (Churchill & Mullins, 2001).

### 2.1.2 Operating Cash Flow

The first section of the statement of cash flows is the cash flows from operating activities. The continuity of companies depends primarily on the existence of positive operating cash flows sufficient to cover their obligations such as loans, capital expenditures, taxes, and the distribution of dividends. Nazemi and Abdoli (2015) believe that the presence of high cash flows from operating activities is an indicator of judging the quality of a company's liquidity and profitability. In the same way, Utomo and Pamungkas (2018) found that cash flows from operating activities positively affected the stock returns of listed firms. In the same context, Alslehat and Al-Nimer (2017) found that the cash flow from operating activities has a strong and positive relationship with financial performance. Ikechukwu. (2015) found the cash flow from operating and financing activities positively affects return on total assets (ROTA) of Nigerian banks. In contrast, Nazemi and Abdoli (2015) pointed out that cash flows from operating activities have a direct and negative association with EPS.

### 2.1.3 Investing Cash Flow

The second section of the statement of cash flows is cash flows from investing activities. These cash flows are related to the acquisition or disposal of long-term assets and investments in equity and debt instruments such as stocks or bonds. This type of cash flow indicates the possible future contraction of a company. The evidence points that capital-intensive firms also avail themselves of strategies to grow and expand. High cash flows from investing activities indicate that the company disposed of its long-term assets or other investments. Quite the opposite, lower cashflows of this type indicate an increase in growth and profits. Studies document mixed findings on the effect of investing cash flow on share price volatility. Using empirical data from Qatar, Al Zobi and Al-Dhaimesh (2021) found an insignificant effect of investing cash flow on stock volatility. In contrast, Utomo and Pamungkas (2018) found out that cash flows from investment negatively affect the stock returns of listed Indonesian firms. However, Oroud (2017) found that an increase in the cash flow from investing activities leads to a decrease in the share prices of Jordanian listed firms.

### 2.1.4 Financing Cash Flow

The third section of the statement of cash flows is cash flows from financing activities. This type of cash flow is an indicator of a company's financing policy for its equity or loan needs, as well as, the composition of the capital structure. Typically, these types of flows are financed by the owners of an enterprise through paid-up capital, loans, creditors, and other short-term lending instruments. Studies document mixed findings on the effect of financing cash flow on share price volatility. Empirically, Al Zobi and Al-Dhaimesh (2021) found a significant positive effect of financing cash flow on stock volatility in Qatar. Nangih, Ofor and Ven (2020) concluded that only cash from financing activities has a positive relationship with the financial performance of oil and gas companies in Nigeria. In the same way, Utomo and Pamungkas, (2018) found that the cash flows from financing activities positively affected stock returns of listed Indonesian firms. Oroud (2017) concluded that increasing the cash flow from financing leads to a decrease in the share prices of Jordanian listed firms. In contrast, Alslehat and Al-Nimer (2017) pointed out there is a weak and negative relationship between cash flows from financing activities and the financial performance of Jordanian insurance.

### 2.1.5 Cash and Cash Equivalent

Cash and cash equivalents refer to a line item on the Statement of Financial Position which depicts the value of firm assets that are cash or can be converted into cash immediately. Cash equivalents include bank accounts and marketable securities, which are debt securities with maturities of less than 90 days (KPMG, 2021). Cash refers to any form of money in national currency, which includes all bills, coins, and currency notes. A demand deposit is a type of account from which funds may be withdrawn at any time without having to notify the institution (KPMG, 2021). A firm's value of cash and demand for cash depends on changes in the firm's external and internal environments (Shipe, 2015). Cash and cash equivalent volatility provides information on the riskiness of a firm via the variability in a firm's cash flows. Firms are increasingly adjusting their cash positions to improve firm value.

### 2.1.6 Share Price Volatility

The volatility of ordinary shares is a measure used to define risk and represents the rate of change in the price of a security over a given time. The greater the volatility, the greater the chance of a gain or loss in the short run. Volatility has to do with the variance of a security's price. Thus, if shares are labelled as volatile, their price would greatly vary over time, and it is more difficult to say with certainty what their future price will be. Investors prefer less risk. The lesser the amount of risk, the better the investment is (Kinder, 2002). In other words, the lesser the volatility of a given stock, the greater its desirability is. Volatility is the rate at which the price of a stock increases or decreases over a particular period. Price volatility causes the underlying stock price to be either higher or lower than estimated due to market movement and noise (Kissell, 2014). Higher stock price volatility often means higher risk and helps an investor estimate the fluctuations that may happen in the future. The price volatility is always expressed in terms of the annualized standard deviation of percentage price changes (Knox, 2002). This provides a common measure of the likely scale of price movement over a known period that can be used in any financial calculation of option prices.

## 2.2 Theoretical Review

### 2.2.1 Agency Theory

The origin of '*Agency theory*' can be traced to the early work of Berle and Means (1932); who observed that separation of ownership and control in modern corporations result in potential conflicts between shareholders and management. The agency theory paradigm emerged in the early '70s (Spence & Zeckhauser, 1971) credited to the economics literature (Ross, 1973), to determine the optimal amount of risk-sharing under different contractual outcomes (Jensen & Meckling, 1976; Harris & Raviv, 1976, 1978). It was originally associated with agency costs by Jensen and Meckling (1976); and, rooted in information economics. Agency relationship refers to a "contract under which one or more persons (the principal(s) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent" (Jensen & Meckling, 1976).

Agency theory rests on some assumptions, including human assumptions, of self-interest, bounded rationality and risk aversion; organisational assumptions, of partial goal conflict among participants, efficiency as the effectiveness criterion and information asymmetry between principal and agent; and, information assumptions, on information as a valuable commodity. The information asymmetry problem embedded in the principal-agency relationship may result in moral hazard and adverse selection and precludes cooperative parties from the benefits of sharing risks (Chang, Kang, & Li, 2014).

## 2.3 Empirical Review

Meliana, Kesuma, Enjelina, Rijanto, and Saraswati (2022) examined whether cash flow growth helps stock performance during the COVID-19 outbreak in Indonesia. The sample comprised of 426

companies listed on the Indonesian Stock Exchange (IDX). The study utilised secondary data from the Bloomberg terminal. The data were analysed using the Ordinary Least Square (OLS). The results showed that operating cashflow growth had a negative non-significant effect on stock returns one year after the COVID-19 outbreak.

Pratama, Rahmania, Shafira, Nurlian, Rahmawati, and Novatiani (2022) conducted a study titled 'The effect of net income and operating cash flow on stock prices (in healthcare sector companies listed on the IDX for the period 2016-2020)'. The study adopted the explanatory and descriptive research approaches. The sample comprised of 10 healthcare companies listed on the IDX from 2016 to 2020. The study relied on secondary data obtained from published financial statements. The data were analysed using the multiple linear regression technique. The results showed a significant positive effect of operating cashflow on stock price.

Ramadhani (2022) conducted a study titled 'The effect of earning per share and cash flow on stock prices'. The sample comprised of 16 companies listed on the Indonesian Stock Exchange (IDX). The study relied on secondary data from annual published financial statements for the period 2018 and 2019. The data were analysed using the multiple regression technique. The results showed that operating cashflow had a positive significant effect on stock prices.

Sijabat (2022) conducted a study titled 'Empirical study of the influence of cash flow components and gross profit on stock prices of manufacturing companies In Indonesia Stock Exchange'. The sample comprised of 45 manufacturing companies listed on the Indonesia Stock Exchange from 2018 - 2020. The secondary data were analysed using the multiple regression technique. The results showed that operating activities cashflow and investing activities cashflow had a non-significant negative effect on stock prices while financing activities cashflow had a significant positive effect on stock prices.

Wang, Ho, Liu, and Gu (2022) conducted a study titled 'Industry cash flow volatility and stock price crash risk'. The sample comprised of Chinese A-shares listed companies from 2005 to 2015. The data were analysed using the multiple regression technique. The study finds that an increase in the degree of volatility of industry cash flow would significantly increase the risk of a stock price crash.

Al Zobi and Al-Dhaimesh (2021) conducted a study titled 'The impact of cash flow statement components on stocks volatility: Evidence from Qatar'. The sample comprised 44 Qatari-listed firms and secondary data obtained from published financial statements from 2013 to 2019. The data were analysed using the panel data regression technique. The results showed a positive significant impact of operating cash flow and financing cash flow on stock volatility.

Stom and Wepukhulu (2019) conducted a study titled 'Effect of cash flow management on financial performance of listed companies at Nairobi Securities Exchange; Kenya'. The study adopts casual and correlational research designs. The sample comprised 54 firms listed at the Nairobi Securities Exchange. The study relied on secondary data obtained from the financial statements of the companies from 2013 to 2017. The data were analyzed using the multiple linear regression technique. The results showed a negative significant relationship between cash flow from investing activities and financial performance. The results showed a positive significant relationship between cash flow from financing activities and financial performance.

Liman and Mohammed (2018) examined 'Operating cash flow and corporate financial performance of listed conglomerate companies in Nigeria'. The study adopts the ex post facto research design. The sample comprised 5 conglomerates listed in the Nigerian Stock Exchange. The study relied on secondary data obtained from annual reports and accounts for a period of 10 years (2005 to 2014). The data were analyzed using the multiple regression technique. The results showed a positive

insignificant impact of operating cash flow on financial performance proxied by ROA; while, the impact is positive and significant for financial performance proxied by ROE.

Alslehat and Al-Nimer (2017) conducted a study titled 'Empirical study of the relationship between cash flow management and financial performance of the Jordanian insurance companies'. The study adopts the descriptive-analytic approach. The sample comprised 23 insurance companies. The study relied on secondary data obtained from annual reports and accounts from 2009 to 2013. The data were analysed using the multiple regression technique. The results showed that net cash flows from operating activities have a significant positive effect on ROA. The results showed that net cash flows from investing activities have a significant negative effect on ROA. The results showed that net cash flows from financing activities had a non-significant negative effect on ROA.

Ogbeide and Akanji (2017) conducted a study on 'Relationship between cash-flow and financial performance of insurance companies: Evidence from a developing economy'. The sample comprised 27 listed insurance firms. The study used secondary data; specifically time series data for the period 2009-2014 obtained from annual reports and accounts. The researchers employed the panel estimates generalized least squares (EGLS) technique to analyse the data. The results showed a positive significant effect of operating cash flow on financial performance proxied as ROTE. The results showed a positive significant effect of investing cash flow on financial performance proxied as ROTE. The results showed a non-significant positive effect of financing cash flow on financial performance proxied as ROTE.

Nwarogu and Iormbagah (2017) evaluated 'Cash management and performance of listed firms in Nigeria'. The study adopts the ex post facto research design. The sample comprised 35 service firms listed on the Nigerian Stock Exchange (NSE). The study relied on secondary data obtained from audited financial statements from 2008 to 2015. The data were analysed using pooled Ordinary Least Squares. The results showed a non-significant negative relationship between cash flow and return on total assets and return on equity.

Nwaiwu and Oluka (2017) conducted a study titled 'IFRS: Cashflow accounting and financial performance of quoted companies in Nigeria'. The sample comprised 24 non-financial firms listed on the Nigerian Stock Exchange (NSE). The study relied on secondary data; obtained from annual reports and accounts from 2004 to 2008. The data were analysed using multiple linear regression. The results showed a positive significant effect of operating cash flow on operating profit and profit before tax. The results showed a negative significant effect of investing cash flow on operating profit and profit before tax. The results showed a negative significant effect of financing cash flow on operating profit and profit before tax.

Amah, Micheal, and Ihendinihu (2016) undertook a study titled 'Relationship of cash flow and financial performance of listed Banks in Nigeria'. The study adopts the ex post facto research design. The sample comprised of four banks listed in the Nigerian Stock Exchange (NSE) for the period of 9 years (2005 - 2013). The study utilised secondary data obtained from annual reports and accounts. The data were analysed using correlation. The results showed that cash flow from operating activities had a positive significant relationship with the performance of the sampled banks. The results showed a negative relationship between investing cash flow and financial performance. The results showed that financing cash flow had a weak negative relationship with performance.

Nwanyanwu (2015) conducted a study titled 'Cash flow and organizational performance in Nigeria: Hospitality and print media industries perspectives'. The sample comprised 45 small and medium enterprises from the hospitality and print media sectors. The study relied on secondary data. The

data were analysed using the Pearson product-moment coefficient of correlations. The results showed that there is a significant positive relationship between cash flow position and net profit.

## 3. MATERIAL AND METHOD

The ex post facto design was adopted in the study. The population of the study comprised all the following ten (10) listed oil and gas firms on the Nigerian Exchange Group:

1 Ardova Plc
2 Capital Oil
3 Conoil Plc
4 Eterna Plc.
5 Japaul Gold & Ventures Plc
6 Mrs Oil Nigeria Plc.
7 Oando Plc
8 Rak Unity Pet. Comp. Plc.
9 Seplat Energy Plc
10 Total Energies Marketing Nigeria Plc

Source: The Nigerian Exchange Group (2021)

The study shall employed a purposive (convenience) sampling technique in selecting the following six (6) sampled firms: Ardova Plc., Conoil Plc., Eterna Plc., Japaul Gold & Ventures Plc., Mrs Oil Nigeria Plc., and Total Energies Marketing Nigeria Plc. The data for this study were extracted from the annual reports and accounts of the selected companies over a ten year period covering 2012 to 2021. Hausman Specification Test and B-P Lagrange Multiplier Tests were preliminarily used to identify the best panel regression technique for the study. The statistical analyses are to be performed with the aid of the E-Views version 9 statistical software.

### 3.1 Model Specifications

$$SPVit = \beta 0 + \beta 1OCFit + \beta 1FCFit + \beta 1ICFit + \beta 1CCEit + \beta 2SIZEit + \beta 3LEVit + \beta 4Ageit + \beta 5GROWTHit + \varepsilon t \quad \ldots\ldots\ldots\ldots 1$$

On the left-hand side is the dependent variable (SPV) in the above specifications; and, on the right-hand side are the independent and control variables of the study. The control variables are (SIZE, LEV, FAGE and GROWTH) which are included in all four model specifications. The operationalization of variables in the study are shown in the table below.

Table 1: Operationalization of variables used to test the hypotheses

| Variable | Proxy | Measurement | Source |
|---|---|---|---|
| Share price volatility | SPV | $PV_{it} = \sqrt{\frac{HP_{it} - LP_{it}}{\left(\frac{HP_{it} + LP_{it}}{2}\right)^2}}$ | Ahmad, Alrjoub & Alrabba (2018); Allen & Rachim (1996); Baskin (1989) |
| Operating cash flow | OCF | Net cash flow from operating activities scaled to total assets | Machameratios® Database |
| Investing cash flow | ICF | Net cash flow from investing activities scaled to total assets | Machameratios® Database |
| Financing cash flow | FCF | Net cash flow from financing activities scaled to total assets | Machameratios® Database |
| Cash & Cash equivalent | CCE | Cash and cash equivalent as the end of the financial year scaled to total | Machameratios® Database |

| | | | |
|---|---|---|---|
| | | assets | |
| | | CONTROL VARIABLES | |
| Firm size | SIZE | Natural logarithm of closing assets | (Nworie & Mba, 2022) |
| Leverage | LEV | Total debt over total assets | (Nworie & Mba, 2022) |
| Firm age | AGE | Firm listing age in numbers is the difference between current years minus year of incorporation | (Nworie & Mba, 2022) |
| Sales Growth | GROWTH | (Current term sales-Previous term sales)/Previous term sales | Machameratios® Database |

Source: Author's compilation (2022)

The measure of share price volatility used in this study was adopted from the studies of Ahmad, Alrjoub and Alrabba (2018); Allen and Rachim (1996); Baskin (1989), of which formula is shown below.

$$PV_{it} = \sqrt{\frac{HP_{it} - LP_{it}}{\left(\frac{HP_{it} + LP_{it}}{2}\right)^2}}$$

Where, $HP_{it}$ = Highest share price for firm *i* in year *t*
$LP_{it}$ = Lowest share price for firm *i* in year *t*

## 4. RESULT AND DISCUSSIONS

### 4.1 Data Analysis

#### 4.1.1 Descriptive Statistical Analysis of the Data

Table 1. Descriptive Statistical Analysis

| Variable \| | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| OCF \| | 60 | .0641739 | .1416151 | -.2842685 | .4827776 |
| ICF \| | 60 | .0150652 | .2771065 | -.2755033 | 2.068233 |
| FCF \| | 60 | -.0714792 | .2529553 | -1.827631 | .2031397 |
| CCE \| | 60 | .1247602 | .1221891 | .0000382 | .6056603 |
| Size \| | 60 | 7.732809 | .2383276 | 7.233574 | 8.319583 |
| Lev \| | 60 | .7656339 | .2748567 | .4660876 | 2.222321 |
| Age \| | 60 | 40.66667 | 11.7915 | 18 | 57 |
| Growth \| | 60 | .0720507 | .4125401 | -.880542 | 1.308459 |
| SPV \| | 60 | .2934122 | .3732689 | 0 | 1.580668 |

Source: Analysis Output (2022) Using Stata Version 14

The descriptive analysis in Table 1 shows that on average, the net cashflow from operating activities of the six sampled firms is only 6.41% of the total assets, on average. The standard deviation of .1416151 suggests that this statistic is not about the same among the sample. OCF ranged from -.2842685 to .4827776, supporting the previous assertion of non-homogeneity among the firms' net cashflow from operating activities.

Net cashflow from investing activities averaged .0150652 with a standard deviation of .2771065. The huge standard deviation observed for ICF shows that the distribution of ICF among the firms is not homogeneous, since the standard deviation exceeded the mean. The least net cashflow used in

investing activities is -.2755033 while the highest net cashflow from investing activities was 2.068233.

On average, the net cashflow used in financing activities by the sampled firms is 7.15% of their total assets, with a standard deviation of .2529553. This standard deviation together with the minimum and maximum values of -1.827631 and .2031397, respectively, indicates that the sampled firms used highly different proportions of net cashflow in their financing activities.

The average proportion of cash and cash equivalent among the firms is 12.48% of their total assets, with a standard deviation of .1221891. There were firms whose cash and cash equivalents were not up to 1% of their total assets; while at the same time, a firm had over 60% of its total assets as cash and cash equivalent. This indicates that the sampled firms have heterogeneous cash balances.

The average values of firm size, firm leverage, firm age and sales growth are: 7.732809, .7656339, 40.66667, and .0720507, respectively, with respective standard deviations of .2383276, .2748567, 11.7915, and .4125401. The company with the smallest size had total assets expressed in natural log as 7.233574 while the firm with the biggest size had total assets expressed in natural log as 8.319583. Firm leverage ranged from .4660876 to 2.222321 while sales growth fluctuated between -.880542 and 1.308459. The youngest firm in the sample was incorporated 18 years ago while the oldest firm in the sample was incorporated 57 years ago.

The share price volatility of the firms, measured with Baskin (1989) model, averaged .2934122 from 2012 to 2021, with a standard deviation of .3732689. This implies that the average variability of the stock prices of sampled six oil and gas was 29.34%. However, this variability was not equally felt by the sample constituents since the standard deviation of SPV is high. Japaul Gold & Ventures Plc. whose share prices remained stable for some years had zero stock price volatility.The highest volatility in stock price was 1.580668 in 2020, for Japaul Gold & Ventures Plc.

### 4.1.2 Correlational Analysis

Pearson Product Moment Correlation Coefficient was applied to examine the nature of association between cashflow management and share price volatility, together with the control variables. The result of the correlational test is shown below in Table 2.

Table 2 Correlation Analysis Using Pearson Technique

| **Correlation Probability** | SPV | OCF | FCF | ICF | CCE | SIZE | LEV | AGE | GROWTH |
|---|---|---|---|---|---|---|---|---|---|
| SPV | 1.000000 | | | | | | | | |
| | ----- | | | | | | | | |
| OCF | -0.177503 | 1.000000 | | | | | | | |
| | 0.1748 | ----- | | | | | | | |
| FCF | -0.322715 | 0.127877 | 1.000000 | | | | | | |
| | 0.0119 | 0.3302 | ----- | | | | | | |
| ICF | 0.388806 | -0.283270 | -0.913292 | 1.000000 | | | | | |
| | 0.0021 | 0.0283 | 0.0000 | ----- | | | | | |
| CCE | -0.341564 | 0.336949 | 0.130645 | -0.096488 | 1.000000 | | | | |
| | 0.0076 | 0.0085 | 0.3198 | 0.4633 | ----- | | | | |
| SIZE | -0.649706 | 0.104223 | 0.175352 | -0.171722 | 0.411821 | 1.000000 | | | |
| | 0.0000 | 0.4281 | 0.1802 | 0.1895 | 0.0011 | ----- | | | |
| LEV | 0.049852 | -0.090232 | 0.081528 | -0.030804 | -0.127628 | -0.003248 | 1.000000 | | |
| | 0.7052 | 0.4929 | 0.5357 | 0.8153 | 0.3312 | 0.9803 | ----- | | |
| AGE | -0.638196 | 0.083135 | 0.106013 | -0.130150 | 0.322953 | 0.703295 | -0.180707 | 1.000000 | |
| | 0.0000 | 0.5277 | 0.4201 | 0.3216 | 0.0118 | 0.0000 | 0.1671 | ----- | |
| GROWTH | 0.266535 | -0.043227 | 0.280233 | -0.239268 | -0.026688 | 0.003781 | -0.006194 | -0.000206 | 1.000000 |
| | 0.0395 | 0.7430 | 0.0301 | 0.0656 | 0.8396 | 0.9771 | 0.9625 | 0.9988 | ----- |

Source: Analysis Output (2022) Using EVIEW Version 10

The result of the Pearson Correlation carried out shows that SPV is positively associated with all the predictor variables. However, while SPV is significantly related to FCF, ICF, CCE, Size, Age and Sales Growth, share price volatility is not significantly associated with SPV and Lev.

### 4.1.3 Model Diagnostics

Regression model is deemed more reliable and consistent when it meets a number of assumptions. Although some of the assumptions such as normality do not affect the validity of regression results, conformity to regression assumptions practically enhances the reliability of the coefficient estimates.

#### 4.1.3.1 Normality of the Residuals

It is required that the residuals in a regression model should be normally distributed about their mean. To check for this assumption, Jarque-Bera stat was used of which result is presented below.

Table 3 Normality of the Residuals

| **Jarque-Bera stat** | **Probability** |
|---|---|
| 2.480406 | 0.289325 |

Source: Analysis Output (2022) Using EVIEW Version 10

The null hypothesis of the normality test is that the residuals deviated from a normal distribution. It would have been accepted if the *p*-value were below 0.05. However, the test results show that the regression residuals significantly follow the properties of a normal distribution. Therefore, the alternate hypothesis is accepted at 5% level of significance.

#### 4.1.3.2 Cross-sectional Dependence

In panel data such as these used in the present study, it is assumed that no significant correlation exists among the residuals. In other words, the residuals are expected not to show or have cross-sectional dependence. This assumption is tested using Residual CD tests as shown in **Table 4.**

Table 4.Residual Cross-Section Dependence Test

| Test | Statistic | d.f. | Prob. |
|---|---|---|---|
| Breusch-Pagan LM | 15.25691 | 15 | 0.4331 |
| Pesaran scaled LM | 0.046905 | | 0.9626 |
| Pesaran CD | -0.099457 | | 0.9208 |

Source: Analysis Output (2022) Using EVIEW Version 10

The null hypothesis of the above test is that there is no cross-sectional dependence in the residuals at 5% significance level. The null hypothesis was accepted since all the *p*-values (0.4331, 0.9626 and 0.9208) are greater than 0.05. The conclusion therefore is that there is no problem of cross-sectional dependence in the model. This further shows that the cross-sectional dependence of the residuals in the model is weak as a result of weak common factors. Panel estimation of regression coefficients will therefore not be affected by the weak common factors.

#### 4.1.3.3 Multicollinearity

Multicollinearity issue arises in a regression model whose predictors are highly correlated among themselves. A reliable correlation coefficient is achieved only when the amount of the coefficient is not associated with the amount of other regressors in the same model. Therefore, there is need to evaluate the extent to which the predictors are inter-related with the use of Variance Inflation Factors.

Table 5 Variance Inflation Factors
Date: 12/18/22 Time: 08:48
Sample: 1 60
Included observations: 60

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|---|---|---|---|
| C | 1.707359 | 2045.069 | NA |
| OCF | 0.061590 | 1.758641 | 1.454826 |
| FCF | 0.099785 | 8.130982 | 7.520313 |
| ICF | 0.086654 | 7.860809 | 7.837252 |
| CCE | 0.083121 | 3.011391 | 1.461701 |
| SIZE | 0.033781 | 2421.763 | 2.259962 |
| LEV | 0.012452 | 9.850854 | 1.107965 |
| AGE | 1.30E-05 | 27.84958 | 2.126589 |
| GROWTH | 0.005478 | 1.132103 | 1.098041 |

Source: Analysis Output (2022) Using EVIEW Version 10
The Centered VIF of all the predictors are less than 10. This suggests the absence of multicollinearity problem among the explanatory variables used in the model.

**4.1.3.4 Hausman Specification Test**
The data used in the study have both cross-sectional and time series features, necessitating the use of panel regression approach. Thus, fixed effect model or random effect model would be more appropriate in a case such as this. To know which model would be more reliable, Hausman Specification Test was conducted below.

Table 6 Hausman Specification Test

| **chi2** | **Prob>chi2** | **Remark** |
|---|---|---|
| 10.798826 | 0.2134 | Accept Random Effect Model |

Source: Analysis Output (2022) Using EVIEW Version 10

The result of the Hausman Specification Test shows that Random Effect would be more appropriate for the estimation of the regression coefficients. The null hypothesis of no correlation between the unique errors and the regressors was accepted since the Prob>chi2 exceeded 0.05.

**4.1.3.5 B-P Test for Random Effect**
Having chosen random effect model instead of fixed effect model, there is need also to test for the significance of random effect. B-P test for random effect was used to choose between REM and Common Effect Model.

Table 7 B-P Test for Random Effect

| Null (no rand. effect)<br>Alternative | Both |
|---|---|
| Breusch-Pagan | 0.00<br>(1.0) |

Source: Analysis Output (2022) Using EVIEW Version 10

This test assumes in the null form that the variance of the random effect is zero, therefore, common effect model should be used. Rejection of this hypothesis implies that random effect model is more appropriate. The null hypothesis of no random effect was accepted since the *p*-value exceeded 0.05. Thus, the common effect model was used in estimating the test results. However, the results of the FEM and REM are all presented in the appendices.

**4.2 Test of Hypotheses**

The panel approach used in estimating the test results was Pooled Least Square technique.

The regression model capturing the relationship between predictors of cashflow management, control variables and share price volatility is re-specified below.

$SPV_{it} = \beta_0 + \beta_1 OCF_{it} + \beta_1 FCF_{it} + \beta_1 ICF_{it} + \beta_1 CCE_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 Age_{it} + \beta_5 GROWTH_{it} + \varepsilon_{it}$

The regression analysis yielded estimated with the model will be assessed, after which the hypotheses will be individually tested at 5% level of significance.

Table 8 Regression Results Using OLS Model
Dependent Variable: SPV
Method: Pooled Least Squares
Date: 12/18/22 Time: 10:33
Sample: 1 60
Included observations: 60
Cross-sections included: 1
Total pool (balanced) observations: 60

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 4.636789 | 1.306660 | 3.548582 | 0.0008 |
| OCF | 0.131032 | 0.248173 | 0.527988 | 0.5998 |
| FCF | 0.202185 | 0.315887 | 0.640054 | 0.5250 |
| ICF | 0.679229 | 0.294370 | 2.307401 | 0.0251 |
| CCE | -0.234817 | 0.288307 | -0.814469 | 0.4192 |
| SIZE | -0.502724 | 0.183795 | -2.735241 | 0.0086 |
| LEV | -0.016189 | 0.111587 | -0.145079 | 0.8852 |
| AGE | -0.010850 | 0.003604 | -3.010821 | 0.0040 |
| GROWTH | 0.316641 | 0.074012 | 4.278252 | 0.0001 |

| | | | |
|---|---|---|---|
| R-squared | 0.689227 | Mean dependent var | 0.293412 |
| Adjusted R-squared | 0.640479 | S.D. dependent var | 0.373269 |
| S.E. of regression | 0.223812 | Akaike info criterion | -0.018536 |
| Sum squared resid | 2.554691 | Schwarz criterion | 0.295615 |
| Log likelihood | 9.556089 | Hannan-Quinn criter. | 0.104346 |
| F-statistic | 14.13839 | Durbin-Watson stat | 1.523169 |
| Prob(F-statistic) | 0.000000 | | |

Source: Analysis Output (2022) Using EVIEW Version 10

**Interpretation of Regression Output**

The result of the pooled regression test examining the effect of cashflow management on share price volatility is given in Table 8 above. Coefficient of determination, adjusted coefficient of determination, overall goodness-of-fit, and autocorrelation are evaluated to show the predictive strength of the model.

The $R^2$ of 0.689227 implies that about 68.92% changes in share price volatility were accounted for by the systematic variations in net operating cashflow, net financing cashflow, net investing cashflow, cash and cash equivalent, firm size, leverage, age and sales growth. However, some of the predictors were not significant on their own. This reduced the $R^2$ to the adjusted $R^2$ of 0.640479, meaning that the true amount of changes in share price volatility significantly explained by the predictors is 64.05%.

The model is well specified since the F-statistic = 14.13839 with a corresponding Prob(F-statistic) = 0.000000 < 0.05. There is no problem of autocorrelation in the model given that the Durbin-Watson stat (1.523169) is within the range values of 1.50 - 2.50. Finally, all the control variables contributed significantly to the model except firm leverage whose absolute t-Statistic was less than 2. Generally, the proxies of cashflow management and the control variables significantly affect share price volatility of listed oil and gas firms in Nigeria.

**4.2.1 Hypothesis One**

$Ho_1$: There is no significant effect of operating cash flow on share price volatility of listed oil and gas firms in Nigeria Exchange Group.

The coefficient of operating cash flow in the regression result is 0.131032. This suggest that OCF has a positive effect on share price volatility such that an increase in OCF by a margin will increase the share price volatility of listed oil and gas firms in Nigeria by 0.131032.

**4.2.1.1 Decision:** However, since the absolute t-Statistic (0.527988) is less than 2 and the *p*-value (0.5998) is greater than 0.05, the researcher fails to reject the null hypothesis at 5% level of significance. Empirical evidence in this test therefore leads to the conclusion that operating cash flow has a non-significant positive effect on the share price volatility of listed oil and gas firms in Nigeria Exchange Group ($p>|t|= 0.5998$).

That is, as more cash is derived from operations, the share prices of the firms become more volatile. Meliana, Kesuma, Enjelina, Rijanto and Saraswati (2022) realised the same result but the finding of the first hypothesis testing contradict the study by Al Zobi and Al-Dhaimesh (2021) that found a significant positive effect of operating cashflow on share price volatility. The reason for the disparity in finding is definitely because both studies were conducted in different climes and business (economic) environment.

**4.2.2 Hypothesis Two**

$Ho_2$: There is no significant effect of financing cash flow on share price volatility of listed oil and gas firms in Nigeria Exchange Group.

The coefficient of financing cash flow in the regression result is 0.202185. This suggest that FCF has a positive effect on share price volatility such that an increase in FCF by a margin will increase the share price volatility of listed oil and gas firms in Nigeria by 0.202185.

**4.2.2.1 Decision:** However, since the absolute t-Statistic (0.640054) is less than 2 and the *p*-value (0.5250) is greater than 0.05, the researcher fails to reject the null hypothesis at 5% level of significance. Empirical evidence in this test therefore leads to the conclusion that financing cash flow has a non-significant positive effect on the share price volatility of listed oil and gas firms in Nigeria Exchange Group ($p>|t|= 0.5250$).

Even though an increase in financing cashflow would result in an increase in share price volatility, this change will not be significantly felt by the firms. Similarly, Al Zobi and Al-Dhaimesh (2021) found comparable results as those of the present study. Utomo and Pamungkas (2018) and Oroud (2017) also found that the cash flows from financing activities positively affect stock returns of firms.

### 4.2.3 Hypotheses Three

$Ho_3$: There is no significant effect of investing cash flow on share price volatility of listed oil and gas firms in Nigeria Exchange Group.

The coefficient of investing cash flow in the regression result is 0.679229. This suggest that ICF has a positive effect on share price volatility such that an increase in ICF by a margin will increase the share price volatility of listed oil and gas firms in Nigeria by 0.679229.

**4.2.3.1 Decision:** Since the absolute t-Statistic (2.307401) is greater than 2 and the *p*-value (0.0251) is less than 0.05, the researcher fails to accept the null hypothesis at 5% level of significance. Empirical evidence in this test therefore leads to the conclusion that investing cash flow has a significant positive effect on the share price volatility of listed oil and gas firms in Nigeria Exchange Group ($p>|t|= 0.0251$).

That is, as more cash is derived from investing, the share prices of the firms become more volatile. Studies that found similar results are Di Tomaso, Montagna and Amendola (2022); Meliana et al. (2022); Oroud (2017).

### 4.2.4 Hypotheses Four

$Ho_4$: There is no significant effect of cash and cash equivalent on share price volatility of listed oil and gas firms in Nigeria Exchange Group.

The coefficient of cash and cash equivalent in the regression result is -0.234817. This suggest that CCE has a negative effect on the share price volatility such that an increase in CCE by a margin will reduce the share price volatility of listed oil and gas firms in Nigeria by 0.234817.

**4.2.4.1 Decision:** Since the absolute t-Statistic (0.814469) is less than 2 and the *p*-value (0.4192) is greater than 0.05, the researcher fails to reject the null hypothesis at 5% level of significance. Empirical evidence in this test therefore leads to the conclusion that cash and cash equivalent has a non-significant negative effect on the share price volatility of listed oil and gas firms in Nigeria Exchange Group ($p>|t|= 0.4192$).

Even though an increase in cash and cash equivalent by a margin would result in a decrease in share price volatility, this change will not be significantly felt by the firms. This result agrees with those of Zacky (2021).

## CONCLUSION AND RECOMMENDATIONS

Management of a firm's cash flows is crucial in assessing the ability of an entity to generate adequate cash and cash equivalents for the purpose of meeting cash needs such as operating activities, investing activities and financing activities. The use of cash flow analysis is critical in cash management in order to differentiate between operating profit and the apparent increase or decrease in bank/cash balance over the accounting period. As such, cashflow management using the statement of cashflow primarily enhances the comparability of the reporting of operating performance by different entities because it eliminates the effects of using different accounting treatments for the same transactions and events. Of course, a positive cash flow indicates that a company's liquid assets are enabling it to settle debt, pay dividends to shareholders, pay for expenses and provide a buffer against future financial distress while a negative cash flow indicates that a company's liquid assets are decreasing over time. These increases and decreases go a long way to influence the volatility of the firm's stock prices since financial statement information reflect in investors' behaviour towards stock.

This study found that increases in cashflow proxies except cash and cash equivalents makes stock prices more volatile. However, only the effect of cashflow from investing activities was found to be significant. Rises in share price volatility do not augur well with shareholders since it is theoretically

believed that investors are generally risk-averse. Thus, each time the cash and cash equivalent of the firm reduces, the risk-averseness of investors will be reflected in the increasing volatility of the company's shares. Alternatively, when either of operating cashflow, investing cashflow or financing cashflow increases, share prices of listed oil and gas firms become more volatile. This could be because of the high chances that managers often over-spend internally available cash realised from operating, investing and financing activities.

Based on the findings of the study, the researcher makes the following recommendations:

i. Investors in the oil sector should validate the quality of earnings which oil and gas firms report by looking at their operating cash flows.
ii. Giving that a decrease in net cashflow from financing activities reduces share price volatility, Oil and gas companies in Nigeria should secure more funding by capital raising or external borrowing in order to finance their expansion.
iii. Management of oil and gas firms seeking to appear good in their stock performance should rather than overvaluing their accounting earnings should invest more cash in profitable venture given than decrease in investing cashflow reduces share price volatility.
iv. Management should ensure that excessive cash assets are not left idle since idle assets yield no return that will help make the firms' stock performance appear good.

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