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Cash Flow Ratio and Investment Income of Deposit Money Banks in Nigeria

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Abstract

Research Objective: This study investigated the relationship between cash flow ratios and investment income of deposit money banks in Nigeria. Specifically, it assessed the relationships between operating cash flow ratio, cash reserve ratio, price-to-cash flow ratio, liquidity ratio, and the net interest margin of these banks.

Methodology: An ex-post-facto research design was employed, focusing on the period from 2011 to 2020. Secondary data were sourced from annual reports of sampled banks, and covariance analysis was utilized to examine panel data relationships.

Findings: The analysis revealed varying degrees of relationships between the cash flow ratios and net interest margins. The operating cash flow ratio showed a weak positive relationship with a correlation coefficient of 0.208507. In contrast, the cash reserve ratio exhibited a strong negative relationship with a correlation coefficient of -0.530655. Meanwhile, the price-to-cash flow ratio demonstrated a strong positive relationship, with a correlation coefficient of 0.628262.

Conclusion: The findings suggest that while operating cash flow and price-to-cash flow ratios positively influence net interest margins, cash reserve ratio negatively impacts it. These insights highlight the importance of cash flow management and policy adjustments to enhance the financial performance of deposit money banks.

Recommendations: The study recommends that deposit money banks enhance their operating cash flow ratios by promoting faster payment terms, incentivizing deposits, penalizing loan delays, reducing unnecessary expenditures, and maintaining cash flow forecasts. Furthermore, the Central Bank of Nigeria (CBN) is advised to lower the cash reserve ratio, enabling banks to increase investment and lending activities. Lastly, deposit money banks should strengthen customer loyalty, optimize workforce efficiency, and adopt strategic marketing to boost the market value of their stock.

Keywords: *Cash flow ratios, Net interest margin, Deposit money banks, Operating cash flow, Investment income.*

1.0 INTRODUCTION

1.1 Background of the Study

Cash is a vital component of any business and requires effective management because even profitable businesses can go bankrupt when they fail to manage their cash effectively, particularly if they operate in rapid-growth or seasonal industries and without which a business may not survive. Appah (2018) stated that cash is the lifeblood of any corporate entity because it is needed to acquire assets used in the generation of goods and services provided by the entity for determination of profit in order to maximize the wealth of shareholders. A firm being profitable does not mean the firm is also solvent due to the fact that profit is not cash. According to Turcas (2011) the solvency, flexibility and the financial performance of the firm are based on the firm's ability to generate positive cash flows from the operating, investing and financing activities. Hence, inadequate cash flow planning will have a negative impact on the financial performance of banks by lowering cash inflow and increasing cash outflow.

The decisions relating to cash flows are among strategic decisions that have a clear effect on the bank's earnings on the one hand and the decisions of investors and shareholders on the other hand. Banks, like every other form of business establishment, owe profit making as a duty to their shareholders, and the ability of the bank to finance its investments, or generally put, to maximize the returns on its investments could be hugely determined on whether the necessary cash needed to finance these investments are available. The income that deposit money banks earn from their investments generally translates into the profitability of the bank and the general financial performance of the bank (Matar,2016). Basically speaking, cash is needed to carry out basic organizational or banking activities.

Furthermore, the nexus between cash flow components and the performance of the investments of deposit money banks has been an issue of interest to researchers, regulators, accounting and finance professionals (Nangih, Ofor and Onuorah, 2020). This is because a careful accounting of the cash flow patterns of firms is relevant to their success. According to Nwakaego, Ikechukwu and Ifunanya (2015), cash is a direct index of corporate liquidity and a contributing factor in firm financial performance. Bingilar and Oyadonghan (2014) suggest that for cash flows to be properly structured and better applied, an entity should design effective and efficient procedures for applying the best of cash flow class that would be applied in the firm's activities to stimulate corporate financial performance. This is because corporate financial performance is one significant issue in corporations using various financial resources and methods to ascertain profitable investments so as to maximize the wealth of shareholders (Nangih & Ofor, 2020; Liman &Mohammed, 2018). The cash flows of an organization, specifically, a deposit money bank is delineated into three distinct categories, which are cash flows generated in operations, cash flows generated in investing and cash flows generated in financing.

In the context of financial accounting, operating cash flow is the cash generated from the day to day activities of a business, that is, the flow of cash made available from the core operations of a business entity. Net Cash flow from operating activities represent the net increase or decrease in cash and cash equivalent resulting from operations shown in the income statement in arriving at operating profit. In view of the fact that it adjusts for receivable, depreciation and liabilities, operating cash flow may be seen as a more accurate measure of how much a bank has generated, in comparison with the conventional profitability measures like net income and that a banking entity is characterized by a number of fixed assets within its books of account, such as machinery and equipment which are more likely to reduce net income as a result of depreciation (Liman & Mohammed, 2018).

In addition, Gordon, Henry, Jorgensen, and Linthicum (2017) opine that operating cash flow is the amount of money remitted for the procurement of merchandise, tax settlements, vendor expenses, wages and other operation spending. Operating cash flow information offers the administration with a clear picture of how much cash an institution needs to avail or has generated from its daily business operating activities. Cash inflows consist of cash obtained from the sale of merchandise and services alternatively referred to cash receipts from goods sold or services provided, cash interest and dividends earned from ventures as well as other cash receipts not explicitly related to the financing or investing cash flows (Kew, Mettler, Walker, & Watson, 2011). Operating cash flow information also consists of cash outflow which entails cash payments for procurement of goods and services for trading purposes or payment of production costs related to processing and transforming of industrial goods, cash payments to vendors and other service providers and payments of staff salaries & incentives, cash required for tax obligations and interests (Kew et al., 2011).

Investment is the key to success in business, and deposit money banks are not left behind in this. Banks invest in many things ranging from the treasury bills, forex market and many other forms of investments. Therefore, doing this entails that there is enough cash flow set apart for investments in deposit money banks. Cash flow from investing activities is one of the sections on the cash flow statement that reports how much cash has been generated or spent from various investment-related activities in a specific period. Investing activities include purchases of physical assets, investments in securities, or the sale of securities or assets. Negative cash flow is often indicative of a company's poor performance. However, negative cash flow from investing activities might be due to significant amounts of cash being invested in the long-term health of the company, such as research and development (Mansa, 2021).A negative figure on investing cash flow speaks more on the future investments of the bank, and not necessarily a lack of funds for it.

Also, like operating cash flow and investing cash flow having their respective importances, the financing cash flow is used in funding the bank. Cash flow from financing activities provides investors with insight into a company's financial strength and how well a company's

capital structure is managed. Financing activities may produce cash inflows or outflows which are affected by financial strategies of companies. For instance, in the period of expansion, cash inflows are usually observed since there could be insufficient cash flows from operating activities which require the sale of shares or debt securities for the maintenance of company operations. In contrast, operations need a relatively lower amount of financing in the period of maturity (Mc Laney and Atrill, 2014). These cash flow categories are vital in the day to day operations of deposit money banks, and have a relationship on how profitable the investments of these deposit money banks become in the foreseeable future. This could be seen in the share price or other financial or profitability metrics of the bank, and generally appeal to investors. In light of this background, the study examined the relationship between cash flow ratios and investment income of deposit money banks in Nigeria.

1.2 Statement of the Problem

Statistics over the years have shown that banks are huge investors. Commercial banks in Nigeria invest in many areas starting from real estate, forex market, crypto currencies, even in the agricultural sectors of the economy. These are viable investment areas that are available to deposit money banks in Nigeria. The aim of these investments is to support the original or normal profit lanes of the banks, and to put idle finances into good use. However, to consistently do this, these banks need to continue in their daily operations, they need to continue carrying out various investments, and the general finance needs of the banks cannot be neglected. This is what cash flows help in doing. Cash flows are very important because they are the running fuel on which the activities of the firms are hinged on. Cash flows explain the solvency conditions of deposit money banks. A bank might be profitable, but without having the necessary cash flow, might struggle to carry out its activities.

Furthermore, the various cash flow categories are meant to take care of specific aspects of activities of deposit money banks. Banks have day to day operations that they carry out, and when the needed cash is not available, the ability to carry out these day to day operations comes under threat. Also, the investments that banks engage in are done with the funds at their disposal. The banking business being one that needs sharp eyes to catch opportunities, having a good investing cash flow is important. In the presence of this, the ability of the bank to seize opportunities that will be for the overall benefit of the bank is largely reduced. Then again, financing the activities of the bank is also important. Without the proper cash flow management, the ability of the firm to function effectively will be in jeopardy.

In a normal circumstance, deposit money banks should have a sound level of liquidity, though not in excess of the daily requirements (working capital), to enable it to catch up with the daily business and investment opportunities. However, what obtains presently is that there is a cash squeeze which results in some banks not being able to meet up with their liquidity agreements with their customers. Over-investment is also a problem as it means that some banks try to invest every possible kobo at their disposal, leaving them short of the necessary

liquidity to carry out day to day activities. Consequent upon the above reality on ground within the banking sector, firms are not able to source and retain enough cash flow to meet daily financial transactional needs, which heavily determines the success of deposit money banks.

The study evaluates the various cash flow ratios of firms within the banking sector with a view to finding out how, in most economical manner, the income that these banks make from their investment endeavours shares a relationship with the cash flow ratios, for deposit money banks in Nigeria.

1.3 Research Objectives

The broad objective of the study is to examine the relationship between cash flow ratio and investment income of deposit money banks in Nigeria. To achieve the above objective, the study achieved the following specific objectives to:

i. To examine the extent of relationship between operating cash flow ratio and the net interest margin of deposit money banks in Nigeria.

ii. Determine the relationship between cash reserve ratio and the net interest margin of deposit money banks in Nigeria.

iii. To ascertain the extent of relationship between price-to-cash flow ratio and net interest margin of deposit money banks in Nigeria.

2.0 REVIEW OF RELATED LITERATURE

2.1 Conceptual Review

2.1.1 Operating Cash Flow Ratio

Hardgrave (2020) opines that the operating cash flow ratio measures how well current liabilities are covered by operating cash flows. The ratio helps assess a firm's short-term liquidity. The amount of operating cash flows is a vital indicator of the entity's ability to repay loans, maintain operating capability, pay dividends, and make new investments without relying on external sources of financing (IAS, 7). Since operating cash flow accounts for receivables, depreciation, and liabilities, it is a more accurate indicator of a company's profitability than traditional profitability measurements like net income (Fabozzi & Markowitz, 2006). Furthermore, operating cash flow is vital for firms since it reflects their operational and working capital management success (McLaney & Atrill, 2014).

$$\text{Operating Cash Flow Ratio} = \frac{\text{Operating Cash Flow}}{\text{Current Liabilities}}$$

2.1.2 Cash Reserve Ratio

Cash reserve ratio (CRR) is the amount of money that the scheduled banks will have to have in deposit with the central bank of the country at all times. If the central bank increases the

CRR, then the scheduled banks will have a lesser amount available in their disposal. CRR is the amount that the bank has, which cannot be invested anywhere or given as loans to the borrowers.

The cash reserve ratio is particularly useful in dealing with the rate of inflation/deflation and liquidity in the country. If the central bank is of the opinion that there is too much liquidity in the economy, it will increase the CRR. This reduces the banks' lending ability as they would be left with a lesser amount which can be used to issue loans and make investments. When this happens, the spending would be reduced and thereby liquidity and inflation in the economy drops. If the central bank sees that there is a liquidity crunch, then it would reduce the CRR. This move would leave banks with more money at her disposal. This will result in the appreciation of the banks' lending power, and thereby, more borrowers can be availed loans.

2.1.3 Price-To-Cash Flow Ratio

The price-to-cash flow (P/CF) ratio is a stock valuation indicator or multiple that measures the value of a stock's price relative to its operating cash flow per share. The ratio uses operating cash flow (OCF), which adds back non-cash expenses such as depreciation and amortization to net income. Price-to-cash flow is especially useful for valuing stocks that have positive cash flow but are not profitable because of large non-cash charges (Boyle, 2021).A high P/CF ratio indicated that the specific firm is trading at a high price but is not generating enough cash flows to support the multiple, sometimes this is okay, depending on the firm, industry, and its specific operations. Smaller price ratios are generally preferred, as they may reveal a firm generating ample cash flows that are not yet properly considered in the current share price. Holding all factors constant, from an investment perspective, a smaller P/CF is preferred over a larger multiple.

Essentially, the price-to-cash flow ratio measures the current price of the company's stock relative to the amount of cash generated by the company. The price-to-cash flow multiple is primarily used in the comparable analysis method of stock valuation.

$$\text{Price/CF Ratio} = \frac{\text{Market Capitalization}}{\text{Operating Cash Flow}} = \frac{\text{Share Price x No. of Outstanding Shares}}{\text{Operating Cash Flow}}$$

2.1.4 Investment Income

Investment is the dedication of an asset to attain an increase in value over a period of time. Investment requires a sacrifice of some present asset, such as time, money, or effort. In finance, the purpose of investing is to generate a return from the invested asset. The return may consist of a gain (profit) or a loss realized from the sale of a property or an investment, unrealized capital appreciation (or depreciation), or investment income such as dividends,

interest, or rental income, or a combination of capital gain and income. The return may also include currency gains or losses due to changes in the foreign currency exchange rates. Investors generally expect higher returns from riskier investments. When a low-risk investment is made, the return is also generally low. Similarly, high risk comes with a chance of high returns. Investors, particularly novices, are often advised to diversify their portfolio. Diversification has the statistical effect of reducing overall risk.

Investment income is money received in interest payments, dividends, capital gains realized with the sale of stock or other assets, and any additional profit made through an investment vehicle. Interest earned on bank accounts, dividends received from stock owned by mutual fund holdings, and the profits on the sale of gold coins are all considered investment income. Income from long-term investments undergoes different and often preferential tax treatment, which varies by country and locality. Investment income refers solely to the financial gains above the original cost of the investment. The form the income takes, such as interest or dividend payments, is irrelevant to it being considered investment income so long as the income is generated from a previous investment. Additionally, investment income may be received as a lump sum or in regular interest instalments paid out over time (Investopedia, 2022).

2.1.4a Net Interest Margin (NIM)

In some of the earliest studies of net interest margin, the link between management strategy and net interest margin was clearly laid out. The existence of the interest margin, according to Ho and Saunders (1981), is due to the bank's uncertainty about the transaction. It was also influenced by four additional factors: management risk aversion, the scale of the bank's transactions, the market structure in which the bank had to operate, and interest rate variation. A wide range of other elements, in addition to the quality of asset management strategy, play a role in determining net interest margin. Net interest margin is linked to market power, operational costs, risk aversion, interest rate volatility, credit risk, and loan volume by Hawtrey and Liang (2008). Differences in interest margins and bank profitability, according to Demirguc-Kunt and Huizinga (1998), are due to a variety of factors, including bank characteristics, macroeconomic conditions, explicit and implicit bank taxes, deposit insurance regulation, general financial structure, and several underlying legal and institutional indicators.

The relationship between interest margins and the bank's risks has received special attention. Angbazo (1997), for example, illustrates that commercial banks' net interest margins reflect both default and interest-rate risk premiums, whereas other types of banks are more susceptible to one of these risks but not the other. Low interest rates, according to Delis and Kouretas (2011), significantly promote bank risk-taking. Another approach has been to decompose changes in the net interest margin into the price and weight changes, where the price is the sum of annual changes in market-wide bank rates on different assets and liabilities

weighted with the respective asset and liability positions in the previous year, while weight changes are the sum of the current market-wide bank rates on the different assets and liabilities weighted with the annual changes in the banks' balance sheet positions. Memmel and Schertler (2011) interpret price changes as strategic management decisions by the bank, while weight changes as tactical management decisions.

2.2 Conceptual Framework

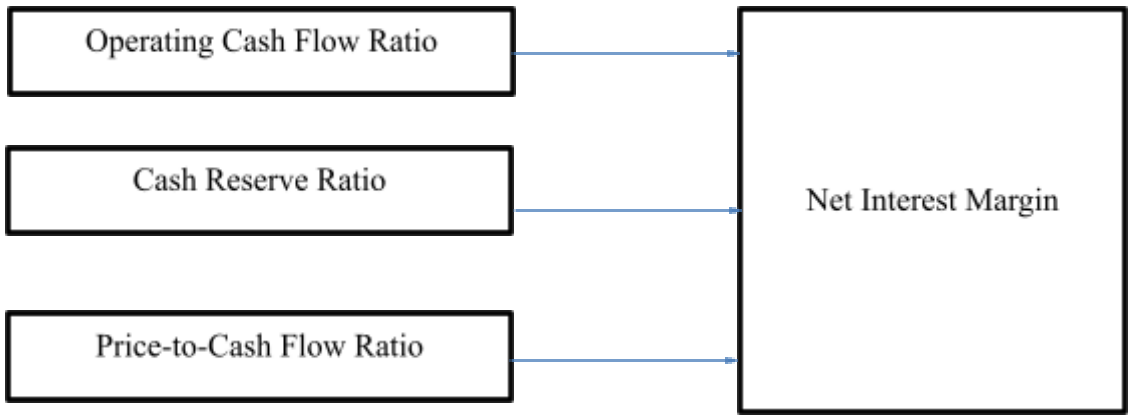

Figure 2.2: Conceptual Framework of the Study

2.3 Theoretical Review

The theoretical review was carried out in line with the objectives of the study.The study was anchored on free cash flow theory and was supported by agency theory.

2.3.1 Free Cash Flow Theory

Jensen (1986) posits that in the free cash flow theory, managers do not behave in a manner consistent with profit maximization. Managers instead, use increased cash inflow to pursue objectives that have little to do with increasing profits and a great deal to do with making the managers live better (such as increasing the size of their company), or easier. The free cash flow theory of Jensen further suggested that more internal cash enables managers to avoid market controlling. In this situation, they do not need shareholders' agreement and they are free to decide about investment on their will. Jensen, Clifford & Smith (1995), opine that monitoring difficulty creates the potential for management to spend internally generated cash flow on projects that are beneficial from a management perspective but costly from a shareholder perspective.

It holds that investments reduce free cash flow available to pursue their opportunist consumption and suboptimal investments. Donaldson (1997) argues that managers of firms with free cash flows (cash flows above profitable investment opportunities) tend to waste cash

by taking excessive perquisites or by making unprofitable investments. Managers are more likely to use the free cash flows to make investments that will be incremental to the size of the firm (or to pay themselves excessive perks) than to pay dividends to the shareholders or repurchase outstanding shares. A testable implication of the agency hypothesis is that firms that have free cash flows are likely to grow beyond the optimal point of shareholder wealth maximization. Shareholders of such firms will benefit from any managerial decision that prevents these wasteful expenditures. Share repurchases prevent such waste by using up excess cash flows (Jensen & Smith, 1995).

2.2.3 Agency Theory

The agency theory as propounded by Jensen and Meckling (1976) has to do with the relationship between the principal (shareholders) and the agent (company management). They defined the agency as a cost that arises between the principals (stakeholders) and the agents (management). Where the principals hire and delegate the agents with a certain power to maximize the wealth of the principals. They further assert that only stocks and bonds can be used as a claim towards the company. Consequently, only shareholders and other creditors can be seen as principals. In their contribution, Lawal, Edwin, Kiyanjui, Kayode (2014), posit that an agency relationship exists when one or more individuals called principals hire one or more individuals known as agents to perform some services and then delegate decision making authority to the agents. They argue that ownership and controls are more separated to a continuous interference of equity ownership of a large corporation. This condition allows professional managers to pursue their interest instead of that of shareholders. The duty of directors is more specially to run the company in a way that maximizes the long-term return to the shareholders and thus maximizes company's profit and cash flow (Akparhuere, Eze and Unah, 2015).

Further to the above, Lawal*et al* (2014) presents that agency problems associated with free cash flow problems could be somehow controlled by increasing the stake of managers in the business or by increasing debts in the capital structure, thereby reducing the amount of cash flow available to managers. Thus, debt can be used as a control mechanism in which lenders and shareholders become the principal parties in the corporate governance structure.

Investopedia (2016) defines agency theory as a supposition that explains the relationship between principal and agent in the business. Agency theory is concerned with resolving problems that can exist in an agency relationship. The problems are:

1. The problem that arises when the principal and the agent have a different approach to risk. Due to the difference in risk appetite, the principal-agent may choose a different course of action; and

2. The problem arises when the goals of the principal and that of the agent are not in alignment and the principal is unable to verify what the agent does given the cost or for lack of the expertise required.

According to the agency theory, agency conflicts arise from the possible divergence of interest between shareholders (principals) and managers (agent) of firms. The primary duty of managers is to manage the firm in such a way that it generates returns to shareholders, thereby increasing the profit figures and cash flow (Elliot and Eliot 2002). According to Boodhoo (2009), the contribution of agency cost theory is that leverage is expected to lower agency costs, reduce inefficiency and thereby lead to an improvement in performance, (Akintoye, 2008).

This study is anchored on the theoretical framework that cash flow activities affect a firm's profitability and that the extent of such effect depends on financing, investing and accounting policies adopted by the organization. Two outstanding theories emerged with a very clear position on cash flow and the importance of scrutinised cash usage policies concerning Net-cash flows generated from operating, investing and financing activities. The two theories are free cash flow theory and Agency theory; both were propounded by Jensen (1986) and (1976), respectively. While free cash flow theory posits that firm managers tend to engage in unprofitable investment, agency theory posits that firm managers act in a manner that conflicts with the primary purpose of their engagement (profit maximization). The researcher, therefore, chose the above two theories for the research work.

2.4 Empirical Review

2.4.1 Operating Cash Flow Ratio and Investment Income

Sigeng (2016) carried out a study on testing the relationship between Free Cash Flow and Capital Expenditure in Canadian listed companies. The study investigated the relationship between free cash flow and capital expenditure in Canadian listed companies for the period 2010 to 2015. The sample consisted of 90 listed companies in Canada drawn from 10 different industries. The study revealed a negative relationship between free cash flow and capital expenditure.

Ikechukwu, Duru and Celestine (2016) ascertained the effect of cash flow statements on companies' profitability in Nigeria. The study involved a survey of three Banks; Fidelity Bank of Nigeria Plc, First Bank of Nigeria Plc and First City Monument Bank Plc. Information was obtained from the cash flow statements contained in the Annual reports of these banks in the year 2009-2013. Multiple regression was the Analytical tool used in testing the Hypotheses. The results of the study revealed that Operating and Financing cash-flows have a significant positive effect on a company's profitability in the Banking sector of Nigeria. It was also empirically verified that investing cash flow has a significant negative effect on the profitability of these companies under study.

Ubesie, Chitor and Ejembi (2016) examined the relationship between cash flow and performance in the Food and Beverages sector of Nigeria. The study involved a survey of Six (6) Food and Beverages companies quoted in the Nigerian Stock Exchange. Data were obtained from the annual report and accounts of the selected companies under study. The relevant data were subjected to statistical analysis using the multiple regression technique. The results of the study revealed that operating and financing cash flows have a significant positive relationship with corporate performance in the Food and Beverage Sector ofNigeria. It was also empirically verified that investing cash flow and corporate performance have significant negative relationships.

Widarsono and Rahmawati (2016) investigated the effect of operating cash flow to the profit growth. This study employs an associative approach. The objective of the study is to obtain the picture concerning operating cash flow, and to depict the mechanism regarding profit growth in State-Owned Enterprise (SOE) banks, and also to reveal the effect of operating cash flow to the profit growth. The sampling is carried out by non-probability sampling through a purposive sampling approach with several criteria (1) Bank; (2) State-owned banks which are listed in BEI; (3) Banks which publish cash reports within eight years in a row from 2007-2014. Four State-Owned Enterprises (SOE) banks in Indonesia were involved within the 2007-2014 period as the sample of the study. The data are analyzed through a sample linear regression test. Analyses show that operating cash flow positively affects the profit growth. The effect of operating cash flow variable (X) to the profit growth (Y) is gained R value 0.165 or 16.5% which is elaborated by operating cash flow variable (X) and the rest 83.5% is explained by another variable.

Guizani (2017) carried out a study on free cash flow, agency cost and dividend policy of Sharia-compliant and non-Sharia-compliant firms. The study applied a panel regression to a data set composed of 1242 observations from 207 companies during the period 2009-2014. The results showed that Sharia-compliant firms not only have higher payout ratios but also have a higher likelihood to pay dividends. The results revealed that the dividend payments of Sharia-compliant companies respond more strongly to free cash flow than do the dividend payments of non-Shariah-compliant companies. Likewise, Sharia-compliant companies are likely to pay out more of their free cash flow than non-Shariah-compliant companies, which can prevent managers from misusing the resources in ways that may not maximize shareholder wealth.

Odeh, Alshannag, Eneizan, Haddad and Makhamreh (2018) assessed the effect of cash flows of activities (operational, investment and financial) on market values in industrial companies' stocks. The study adopted secondary sources for data collection from the annual reports of Jordanian industrial companies (52 companies) for the period 2007-2016. Furthermore, the study followed the descriptive analytical approach for data analysis in addition to utilizing the Gretle Stata model to test hypotheses. Results indicated a positive statistically significant

effect for each of operational and investment activities on market value of industrial companies, while there was a negative relationship between financial activities and market value of industrial companies.

Liman and Mohammed (2018) examined the impact of Operating Cash flow and Corporate financial performance of listed Conglomerate companies in Nigeria over a period of 10 years (2005 to 2014). Five listed Conglomerate companies from the population of six companies were studied. The study uses secondary data collected from the Annual Reports and Accounts of the sampled firms for the period of the study. The data were analyzed using descriptive statistics, correlation analysis as well as regressions techniques to determine the variation in financial performance due to the variation in operating cash flow. A Panel Data Regression Technique was employed since the data has both time series and cross sectional characteristics. Therefore, OLS and random effects regressions were applied to estimate the study models. The result shows a positive and insignificant impact between Cash Flow from Operating activities (CFO) and financial performance proxied by ROA while the impact is positive and significant when financial performance is proxied by ROE of the listed conglomerate companies in Nigeria. The control variable Size and Financial Leverage have a positive and negative significant impact on ROA respectively, while their impact on ROE is positive and insignificant.

Aliakbari, Banimahd and Talebnia (2018) examined the relationship between unconditional accounting conservatism and abnormal operating cash flows in Iranian firms. In this paper, unconditional conservatism is measured byGivoly and Hayen (2002), and abnormal operating cash flows is measured by Dechew and Tang model (2008). The statistical population studied at this research includes firms accepted in Tehran Stock Exchange, and the period of research is the years from 2006 to 2011. The systematic omission method has been used in this research in order to achieve the sample and 858 observations were chosen as the sample for research. Results show a negative relationship between unconditional accounting conservatism and abnormal operating cash flows. The results suggest that firms with upper levels of unconditional accounting conservatism appear to have lower abnormal operating cash flows.

Soet, Muturi and Oluoch (2018) examined the effect of operating cash flow management on financial performance of mutual funds in Kenya. The study employed causal research. Secondary panel data from the audited financial statements of 22 mutual funds was retrieved from financial reports for the period 2011-2016. Descriptive statistics namely; mean, median, minimum, maximum and standard deviation were generated using Eviews software. The inferential statistics such as R square, t-tests and F-tests were used to test the significance of the relationship between the variables under the study and establish the degree to which the predictor variables explain the variation in dependent variable. The data was evaluated using the regression technique, random effect model and fixed effect model based on Haus man

specification tests. Jarque-Bera test, coefficients of skewness and kurtosis were used to assess normality of the data for modeling and parametric inference. The Durbin-Watson test was used to test for autocorrelation. The p-value at 5% level of confidence for each t-test was used to make conclusions on whether to accept or reject the null hypotheses. The study found out that operating cash flow management had significant and positive effect on return on assets and insignificant and positive effect on return on equity. The study concludes that operating cash flow management had a significant and positive effect on return on assets and an insignificant and positive effect on return on equity.

Arjanto, Rahmat and Rina (2019) examined the effect of operating cash flow as measured by AKO and liquidity as measured by the current ratio to profitability as measured by return on equity in the Manufacturing companies on the PT BRISyariah, Tbk. Data used in this research is secondary data, i.e. annual financial statements in 2014 until 2017 while the samples used in
this study was determined by clustered sampling method, so that the company obtained 6 samples. The analytical method used is descriptive analysis by describing the tables of Cash Flow Ratio (Operating Cash Flow), Liquidity (Current Ratio) and Profitability (Return on Equity) and inferential analysis using multiple regression analysis. The results of this study concluded: (1) Operating cash flow has a positive and significant impact on profitability with a significance level of 0.013 <0.05, (2) liquidity has a negative influence but not significant to profitability with a significance level of 0.254> 0.05.

Rinjani and Hasanah (2019) examined the influence of net income and operating cash flows on cash dividends. The population of this research was a pharmaceutical sub-sector manufacturing company on the Indonesia Stock Exchange (IDX) 2013-2018 Period. The sampling technique used in this research is purposive sampling method, and five companies have conformed to that criteria sampling. This research used multiple linear regression analysis with IBM SPSS 23 software. The result of this research showed that (1) net income has influence on cash dividends (2) operating cash flow has influence on cash dividends.

Abualrob and Maswadeh (2019) investigated the effect of operating cash flows ratios, which are (operating cash flows attributed to net income, operating cash flows attributed to credit facilities, and operating cash flows attributed to deposits) on earnings per share. The study was applied on Jordanian commercial banks listed on the Amman Stock Exchange during the period (2013-2017), and multiple regression analysis was used to test the study hypotheses. The most important results revealed by the study were: the ratio of operating cash flows attributed to credit facilities is considered as the most important ratio derived from the cash flow statement helping in determining the earnings per share in Jordanian commercial banks. And there is a statistically significant effect of operating cash flows attributed to net income, operating cash flows attributed to credit facilities, and operating cash flows attributed to deposit on earnings per share in Jordanian commercial banks.

Ilkhechi and Khatibi (2020) investigated the effect of earnings stability on operating cash flows with emphasis on financial constraints. Evidence suggests that earnings stability has a positive and significant effect on operating cash flows, and financial constraints have a negative and significant effect on operating cash flows and also financial constraints do not have a significant interactive effect on the relationship between profit stability and operating cash flows. To measure operating cash flow, the cash flow from operating activity obtained through the cash flow statement is obtained by dividing the total assets of the company. The research is from 2012 to 2016 that a total of 121 companies active in various industries have formed the research sample. The method of the present research is descriptive-correlational in terms of applied purpose and post-event in terms of data collection method. Multivariate regression method has been used to test the research hypotheses. The independent variable in this study is profit stability and the dependent variable is operating cash flow and financial constraint as a moderating variable. The result is also supported by stakeholder theory. In general, the research findings show the important and prominent role of earnings stability in shaping the operating cash flow and its financial constraints.

Oktari and Sunarsih (2020) examined how much influence earnings, operating cash flows, firm size and leverage have on stock prices on manufacturing companies listed on the Indonesian stock exchange. This research uses quantitative research type, with descriptive approach, as
measured by the method of linear regression of the data panel with Eviews version10. The population of this research is in manufacturing companies listed in the Indonesia Stock Exchange of 2016-2019. The samples are determined based on the method of purposive sampling, with 77 manufacturing companies, so the total observations in this study are as much as 308 observations. The data used in this research is secondary data. The results of this study partially show that earnings have a positive effect on stock prices, because profits that continue to experience a positive response from investors. Operating cash flows have no effect on stock prices, because the company uses OCF to expand its business rather than distribute dividends. Firm size has a positive effect on stock prices, because investors are of the opinion that large companies have more business certainty than small companies. And leverage has a negative effect on stock prices, because the higher the debt the riskier the company is, so that all operating activities are financed by debt.

Rajapakshar and Weerawickrama (2020) examined the effect of free cash flow on the profitability of the Diversified Holding companies listed in the Colombo Stock Exchange. This study facilitated individual and institutional investors with information to make appropriate decisions, as this paper delivered whether the free cash flow actually influences profitability or not. The population consisted of nineteen (19) companies listed as Diversified Holdings on the CSE in June 2019. A Purposive sampling method was used to pick a sample of 17 companies listed at CSE (panel data). Secondary data was extracted from audited financial statements and annual reports of the firms, sourced from CSE for a period of five

years (2014 –2019). Data analysis was done using a regression model since the nature of the data was quantitative. Free cash flows have a significant impact on the profitability of the listed diversified holdings companies in Sri Lanka. As per the given results through the analysis, it can be concluded that free cash flows, firm size and the Lag value of ROCE have a significant impact on the firm profitability.

Elahi, Ahmad, Shamas and Saleem (2021) examined whether operating cash flows influence banks' financial stability in Pakistan. The study employed annual panel data collected from annual reports of 20 commercial banks listed on the Pakistan Stock Exchange for the year 2011 to 2019. Free cash flow yield was taken as the dependent variable while cash flow ratio was selected as the independent variable, and net interest margin, income diversification, asset quality, financial leverage, the cost to income ratio, advance net of provisions to total assets ratio, capital ratio, financial performance, breakup value per share and bank size were taken as control variables. The study performed ordinary least square technique, random and fixed effects models, Haus man test, Lagrange multiplier test, descriptive and correlation analysis. Results showed that operating cash flows and net interest margin significantly and positively influenced banks' financial stability while the cost to income ratio and advances net of provisions to total assets ratio significantly and negatively associated with banks' financial stability.

Kipngetich, Tenai and Kimwolo (2021) examined the effect of operating cash flow on stock return of firms listed in NSE. The study was informed by Free Cash Flow (FCF) theory. Census survey was adapted to review financial statements for 29 listed non-financial firms at NSE that had consistent data for all the study variables. Secondary data was extracted for 12 years from 2007-2019 with the aid of a data collection sheet. Explanatory research design which is panel in nature was followed by this study. Both descriptive and inferential statistics were used in data analysis. Panel data regression was used to make inferences and test research hypotheses. Fixed and Random effects methods were used to analyze the balanced panel data using STATA statistical package and the Hausman test established that the Random effect model was the most ideal method to analyze data in this study. The findings indicated that operating cash flow positively and significantly influenced the stock returns for firms listed at NSE. The study concludes that operating cash flow information affects stock returns.

Raditya and Utami (2021) examined the effect of current earnings, operating cash flow and accrual quality on future earnings. The population of this research is manufacturing companies listed on the Indonesia Stock Exchange for the period 2016 to 2018. The sample used purposive sampling and obtained a sample of 100 companies with a time period of 3 years to obtain 300. Earnings are proxied by net earnings after tax which is scaled to total assets or return on asset, accrual quality is proxied by discretionary accruals of working capital, future earnings are earnings in the period t+1. The research method concludes that

there is a positive and significant effect of current earnings and operating cash flows on future earnings, while accrual quality has no effect on future earnings.

Pardosi and Budyastuti (2021) examined the probable effects of leverage, operating cash flow, and profitability on bond ratings at manufacturing companies listed on the Indonesia Stock Exchange (IDX) and Pefindo. Samples investigated in this study were 10 manufacturing companies during the year 2014 - 2019. The data analysis technique used was logistic regression analysis using SPSS 20 combined with hypothesis testing using the Wald test (partial test). The summary model shows a value of 0.149 or 14.9%, which means that the contribution of variable leverage, operating cash flow and profitability to the bond rating is 14.9%. The remaining 85.1% is explained by other factors not under investigation by this study. The analysis shows that Leverage has an effect on bond ratings, that Operating cash flow has no effect on the bond rating, and that Profitability has no effect on bond ratings.

Putri (2021) examined the effect of operating cash flow, sales growth, and operating capacity in predicting financial distress in all manufacturing companies listed on the Indonesia Stock Exchange in 2017-2019. The study is based on an associative quantitative approach and is assisted by the Statistical Package for the Social Sciences (SPSS) program. The results show that operating cash flow had a negative effect on financial distress, and sales growth also had a negative effect on financial distress, while operating capacity had a positive effect on financial distress. The results of this study can provide useful contributions and information for company management to determine the effect of operating cash flow, sales growth, and operating capacity in predicting financial distress so that companies can take policies to take corrective or preventive action.

2.4.2 Cash Reserve Ratio and Investment Income

César,Antonio, and Newton (2016) examined the consequences for future return with earnings management through real operating activities of non-financial firms listed on the Brazilian Securities, Commodities, and Futures Exchange (BM&FBOVESPA) with annual data made available by the Econometric for the years from 1989 to 2012. Empirical tests involving regression on panel data and estimation of future firm returns. Outcomes indicate a negative impact on return on assets (ROA) related to manipulation through real operating activities.

In another study, Ogbonnaya, Ekwe, and Uzoma (2016) assessed the relationship between cash flow and the financial performance of listed banks in emerging economies using Nigeria as a case study. Data were obtained from the annual reports and accounts of the selected banks and subjected to statistical analysis using the correlation technique. The study outcome revealed that operating cash flow has a significant and strong positive relationship with performance in the Nigerian banking sector. Further results also showed that investing cash flow and financing cash flow had a negative and weak relationship.

Ernayani and Robiyanto (2016) empirically examined the effect of the cash flows (the operating cash flow; the investment cash flow; and the financing cash flow), gross profit, and company size towards the Indonesian chemical and basic industry companies' stock returns. The study used panel data regression analysis, with random effects, to examine the data for the study. The results showed that in partial the operating cash flow, financing cash flow, gross profit and the size of the company have an effect on stock returns, while the investment cash flow has no effect on stock returns. The results also showed that the cash flows, gross profit and the size of the company have an effect on stock returns simultaneously.

Ogbeide and Akanji (2017) conducted a study on the Relationship between Cash-flow and Financial Performance of Insurance Companies: Evidence from a Developing Economy. Using time-series data for the period 2009-2014, twenty-seven listed insurance firms in Nigeria were selected as sample size. The study uses both descriptive and inferential statistics to determine the relationship between the variables. It also employs ordinary least squares. The findings revealed that cash flow was observed to determine insurance firms' financial performance and is statistically significant. Cash flow from operating activities was observed to significantly increase the financial performance of insurance companies in the period examined. Cash flow from financing activities was found to increase the financial performance of the sampled insurance firms but was not statistically significant.

Ochieng, Njihia, Mwangi and Mutende (2017) examined the influence of firm characteristics on the relationship between free cash flows and firm financial performance. Specifically, the objectives of the study were two-fold: first, to establish the relationship between free cash flows and financial performance of firms listed at the NSE; and secondly, to determine the influence of firm characteristics on the relationship between free cash flows and financial performance of firms listed at the NSE. The firm characteristics considered in this study are firm size and age. The study used secondary panel data which was obtained from all firms listed at the NSE for the period 2006 to 2015. Regression analysis was employed in data analysis. Results indicate that free cash flows have a significant positive effect on financial performance; while firm characteristics have a negative significant moderating effect on the relationship between free cash flows and financial performance.

Nwarogu and Iormbagah (2017) conducted a study on Cash Management and Performance of Listed Firms in Nigeria. The study used ex-post facto research design, the secondary data gathered were analyzed using descriptive statistics, correlation matrix, and pool ordinary least square regression. In the return on assets model, the result showed a significant positive relationship between cash conversion cycle, cash holding and return on assets of firms while cash flow and firm size has a negative relationship with the return on assets. In the model of Return on Equity, the variables of firm size, firm growth and cash flow indicated a negative relationship with the variable of firm performance. However, only the variable of firm size showed a significant negative relationship at a 5% level with the dependent variable. While

there exists a positive relationship between the variable of Cash Conversion Cycle and Return on Equity.

Sri and Setyawati (2018) examined the effect of cash flows from operating activities, cash flows from investment activities and cash flows from simultaneous financing activities to financial performance at the Course Institute and Training of Officers of Sukoharjo Officers. The object of this research is the institute's financial report and the training of a sukoharjo officer's son. The sample in this study used financial report data while the period of data used in this study is monthly data from 2014 until 2016. The study employed multiple regression analysis, and the hypotheses were tested using t-statistics. Based on the results note that the operating variables have a partial significant influence on financial performance. This is evidenced by the value of t-count (0.176) greater than t-table (0.00075) or can be seen from the significance value of 0.045 < =α 0.05. The investment variable has a significant influence on financial performance. This is evidenced by the investment variable t-count (0.103) greater than t-table (0.00075) or can be seen from the significance value of 0.026 < = 0.05.α The funding variable has no significant partial effect on financial performance. This is evidenced by the financing variables t-count(0.003) is smaller than t-table (0.00075) or can be seen from the significance value 0.172> =α 0.05.

Gaied (2018) examined the investment-cash flow sensitivity on a sample of 150 US firms during the period 1995-2012. The study used Tobin's Q to split the sample as appropriate. Tobin's low Q firms are thought to have a problem of managerial discretion, and Tobin's strong Q schemes are supposed to display a problem of informational asymmetry. The study employed descriptive statistics, correlation analysis and bivariate regression analysis for analysing the data for the study. The empirical results, which are in the same vein as that reported by Degryse and De Jong (2006), reveal that the sensitivity of investment to cash flows is greater for Tobin's low-Q firms than for strong ones Tobin's Q. Overall, the results are in line with the predictions of the hypothesis of managerial discretion.

Tamasila, Miclea, Vartolomei, Pascu and Albulescu (2018) tested the relationship between cash flow and the investment decision of firms from the Romanian agriculture sector.Although the role of cash flow in influencing the investment decision is explained by the financial frictions theory, the investment – cash flow nexus is controversial in empirical investigations. However, only few studies address the bidirectional relationship between the investment decision and the cashflow level. Using a large data set of 739 firms and a panel VAR approach for the period 2006 to 2014, we report a bidirectional causality between investment and cash flow. The study finds that a firm's cash flow positively influences the level of investment in the next period, and shows therefore that the access to liquidity is important for the investment decision. At the same time, investment in fixed assets enhances the cash flow level only for the subsequent period, but it does not generate a series of cash

flows as expected. The results are less conclusive if investment dynamics are used instead of investment level in our empirical analysis.

Khalid (2018) analyzed the impact of cash flows on investment decisions in the textile sector of Pakistan. The study utilizes sample data of fifty companies in textile companies and annual data for variables is collected from 1999 to 2014. Multiple linear regression methods are used to test the hypothesis. Two models are tested with dependent variables of Inventory and Fixed Assets. In both models the independent variables are Free Cash Flow and Market to Book Ratio. The results of both models are significant except the impact of Market to Book Ratio on Fixed Assets. The results of study show that Free Cash flows have significant positive impact on Inventory whereas MBR shows negative impact on inventory. The results show that investment and cash flow are strongly linked after controlling for a firm's investment opportunities.

Konak (2018) examined the effect of cash flows on firm performance through estimating the impact of three types of cash flows that are namely operational, investing and financing cash flows of companies listed on the Borsa Istanbul Industrial Index in 10 years' periods from 2008 to 2017. To reveal the relationship between firm performance and cash flows, cash flows from operating, investing and financing activities are included in the analysis as independent variables, while ROA, ROE and Tobin's q are determined as dependent variables. Moreover, Pooled Ordinary Least Squares test and Panel Data technique are employed. According to the outcomes obtained, although a statistically significant relationship between cash flows and firm performance is detected, it has been found that this relationship differs from the effect of the model and the direction of the relationship on the basis of dependent variables.

Alawneh (2019) estimated the impact of net cash flows on investors' decisions on industrial and service companies listed in the Amman Stock Exchange during the period of 2001–2017. The study is based on data from the accumulated annual reports of the previously mentioned industrial and service companies. The study tests autocorrelation by using the Breusch–Godfrey serial correlation Lagrange multiplier test, and the analysis shows no autocorrelation between the variables of the study. Moreover, the study tests the stability of the variance by using the autoregressive conditional heteroskedasticity test, and the results show the absence of a variation problem among the study variables and models. Thus, they do not suffer from measurement problems. Hypotheses testing through the measurement analysis of the industrial sector show a negative impact of net investment cash flow on investors' decisions. However, net financing cash flow has a positive effect on investors' decisions, while net operating cash flow has no statistically significant effect on investors' decisions. The analysis of the service sector reveals a statistically significant negative effect of net operating cash flow on investors' decisions, whereas net financing cash flow has no effect on investors' decisions.

Rahman and Sharma (2020) investigated the effect of cash flow from operations (CFOs) on the financial performance of insurance and manufacturing companies in Saudi Arabia. The data were extracted from companies' annual reports by considering Return on Assets (ROA) and Return on Equity (ROE) as dependent variables, CFOs as an explanatory variable, firm size (SIZE) and Leverage (LEV) as control variables, and an industry dummy. Regression analysis was used to analyse the data for the study. The results report a positive and significant association between financial performance (ROA and ROE) and operating cash flows (CFOs), and a negative association for SIZE and LEV. Therefore, the study concludes that the firms' operating cash flows in the insurance and manufacturing sectors in Saudi Arabia affect financial performance.

Muhammad, Arifa, Tooba and Meer (2021) examined the impact of cash flow management practices on Pakistani cement firm's financial performance with comparison of Indian cement sector's selected firms. The Pooled OLS Regression is applied with the Help of EViews software. The data collection is from official websites of the concerned companies from 2009 to 2018 with the help of a secondary source. The multiple regressions, Random Effect Model and Fixed effect models are used for the analysis of data and confirmed with the Husman test. The finding of this study for both selected countries indicated the influence of cash flow management practices wherein both countries' cement producing companies showed significant impact on firm's performance but in terms of Pakistan Return on Assets have no impact on firm's Profitability.

Cheng (2021) examined whether accounting comparability between two firms, as measured by De Franco et al. (2011), reflects closeness in the amounts of cash flows and accruals between the firms. Using 278,452 pair-year observations over the years 2003–2019, the author evaluates the research question using regression models. The study found that closeness in cash flows and closeness in accruals both increase accounting comparability and the effect of closeness in cash flows is greater. The effect of closeness in earnings is greater than the combined effects of closeness in cash flows and accruals. Earnings quality strengthens, while product closeness weakens, the effects of closeness in earnings and closeness in cash flows.

Mo'taz and Othman (2021) analyzed the explanatory value of the cash flow statement in explaining stock volatility (SV) in the Qatar financial market. Study data were collected using published financial statements from a sample of 44 Qatari-listed companies throughout 2013–2019. A panel cross-sectional data technique using the Eviews program was used to analyse the data. The study results show there is a positive and significant impact of cash flows from operating CFO activities on SV, indicating that the higher change in CFO increases stock volatility. This means that operating cash flows give significant information to investors, and it is reflected in the stock price movements directly. Also, the cash flow from CFF financing activities has a positive and significant effect on SV. This means that CFF

affects stock prices, causing greater changes and fluctuation in stock returns.This is because one of the major components of CFF is dividends, which directly affect stock prices and stock returns. In contrast, there is an insignificant effect of CFI onSV, which may indicate that investors do not build their investment decisions based on CFI. Accordingly, the cash flow from investing activities failed to explain the stock volatility of the listed Qatari companies.

2.4.3 Price-to-Cash Flow Ratio and Investment Income

Amahalu, Okoye, Obi and Nweze (2016) examined the relationship between cash flow statement and liquidity with a focus on quoted banks in Nigeria. This study made use of secondary data obtained from fact books, annual reports and accounts of the selected banks under study. The relevant data were subjected to statistical analysis using Pearson coefficient of correlation, normality test, ordinary least square regression, heteroskedasticity and Hausman tests. The result of this study revealed that there is a positive and significant relationship between cash flow statement and liquidity. It was also empirically verified that cash flow statement has a statistically significant effect on liquidity of banks quoted on the floor of Nigeria stock exchange at 5% level of significance.

Ndungu and Oluoch (2016) assessed the effect of cash flow management on the market returns of public construction companies in Kenya. Secondary semi-annual data was collected for the 5 listed construction companies at the Nairobi Securities Exchange (NSE) over a seven-year period from January 2008 to December 2015. The analysis used the modified capital asset pricing model (CAPM) regress construction company equal weighted semi-annual portfolio returns on the market excess returns over risk free rate of return as the first variable and Cash Flow ratio, an indicator of cash flow management as the second variable. The statistical significance of the cash flow management coefficient from the model was tested using the t-statistic and at 95% confidence interval. Testing the statistical significance of the coefficients of the cash flow ratios from each of the types of cash flows, the findings reject the null hypothesis for all the types of cash flows (operating, Investing, Financing and Free cash flows). The results show that cash flows from operations have a positive effect on market performance of construction companies and while the cash flows from investing, financing and free cash flows all have a negative effect on the market performance of construction companies. The coefficients of the market return premium are significant for all the four models, an indication that besides cash flow management, market risk plays an important role in the market performance of the securities listed in the construction segment of the NSE. It is concluded that cash flow management affects the security performance of public construction companies in Kenya.

Amah, Ekwe, and Ihendinihu (2016) carried out a study on the relationship of cash flow ratios and financial performance of listed banks in emerging economies – Nigeria example. The study examined the relationship between cash flow and performance in the Banking sector of Nigeria. The study involved a survey of four (4) Banks quoted in the Nigeria Stock Exchange.

Data were obtained from the annual report and accounts of selected Banks. The data were subjected to statistical analysis using the correlation technique. The result of the study revealed that operating cash flow has a significant and strong positive relationship with performance in the Banking sector in Nigeria, it was also reified that investing cash flow and financing cash flow has a negative and weak relationship.

Ambreen and Aftab (2016) examined the Impact of Free Cash Flow on the Profitability of Firms Listed in the Karachi Stock Exchange. The population consisted of 580 companies listed in KSE as on March 7th, 2015. A stratified sampling method was used to pick a sample of 30 companies listed at KSE. Data were collected from financial statements and published accounts. Secondary data were extracted from audited annual reports and financial statements of firms sourced from KSE for a period of five years (2010 – 2014). Data was quantitative. So, data analysis was done by using correlation and regression models. The results revealed that free cash flow and size of firms influence firms' profitability while capital liquidity does not influence much on dependent variable profitability.

Dickinson (2017) examined the cash flow patterns as a proxy for a firm life cycle that is derived from accounting information. The study used NYSE, AMEX and NASDAQ firms in determining the sample for the 1989-2005 period. The researcher conducted a probity analysis to explain how these variables are related to the life cycle and used a life cycle proxy to assess profitability in the financial statement analysis. Findings show that current and past profitability, growth in net operating assets and the changes in asset turnover have a significant effect in explaining future profitability. Consequently, the results showed that cash flow patterns are robust indicators of firm life cycle stages.

Khalil and Mohammad (2017) examined the sensitivity of investment to cash flow impact of the investment opportunities in companies listed in Tehran Stock Exchange. For analyzing data mining results, Excel and Eviews software are used. The results of the research showed that investment opportunities and cash flows of the sensitivity of investment firms listed in the Tehran Stock Exchange have a significant and positive impact on cash flows and, secondly, the sensitivity of investment in companies with higher investment, less than firms with lower investment opportunities.

Ferdinand and Anthony (2017) looked at Agency costs of free cash flows and investment in business sustainability. Their work extended the literature on the determinants of environment, social and governance (ESG) dimensions of sustainability investment by examining whether low growth firms with the agency problems of high free cash flows (FCF) (Jensen, 1986) have more incentives to invest in ESG sustainability. Pearson correlation and simple linear regression method were used. They used sustainability performance as a proxy for sustainability investment since sustainability performance does not emerge naturally and firms must have invested in sustainability to attain performance. The results indicate that firms with high FCF are associated with higher levels of ESG sustainability investment, after

controlling for dividend distributions, stock repurchases, debt interest payments and investment expenditure for maintaining asset-in-place and acquiring new investment. The study also finds that high FCF firms with high investments in ESG sustainability are associated with higher market returns than similar firms with low investments in ESG.

Haitham and Jaya (2017) conducted a study on the impact of free cash flow, equity concentration and agency costs on the firm's profitability. To investigate the relationships between the variables, a two-step robust generalized method of moments (GMM) system estimation as applied to dynamic panel data was employed. The results indicated that equity concentration has no significant impact on agency costs, free cash flow has no significant impact on agency costs and agency costs have no significant impact on the firm's profitability. The findings of this study do not show any evidence to support the agency theory among insurance firms listed on the Saudi Stock Market.

Rokhmawati (2019) examined the effect of cash flows on investment decisions that are moderated by financial constraint and mispricing. The population of the study was all listed-manufacturing firms in Indonesia from 2014 to 2016. Samples were chosen based on the availability of firms' financial reports covering the period of the study. By using moderated regression analysis where financial constraint and mispricing as moderating variables, the study concluded that financial constraint weakens the effect of cash flow on investment. Although lower financially constrained-firms have an opportunity to choose their source of funding, they prefer to finance their investment from an internal source of funding (from cash flows) due to lower risk. Furthermore, mispricing does not have a role as a moderating variable. In this condition, overvalued firms are indifferent from choosing the source of funding. Finally, when financial constraint and mispricing are signed as a moderating variable, they weaken the effect of cash flow on investment. It means that firms with lower financial constraint and overvaluation prefer to use external funding by issuing new common stocks because it provides a lower cost of capital.

Ersanti and Aggraini (2019) examined the effect of mechanisms of good corporate governance (consisting of institutional ownership and managerial ownership), cash flow volatility and investment opportunity set (IOS) on earnings quality. The population in this study was companies with manufacturing types listed on the Indonesia Stock Exchange in the period 2013 to 2017. The sample obtained using the purposive random sampling method was 130 data. Data analysis uses multiple linear regressions. The results showed that the mechanism of good corporate governance does not affect earnings quality, but the volatility of cash flows and investment opportunity set (IOS) affect earnings quality.

Ihmanzenobe and Adeyemi (2020) examined the effect of some financial decisions that revolve around the assets of the firm on sustainable cash flows. For the financial performance of companies to be sustainable, they ought to generate sustainable cash flows over time because dividends and other appropriations are often paid from net cash flows. Sustainable

cash flow was measured using the free cash flow yield. Data on leverage, revenue from asset utilization, and dividend policy of companies were extracted and their relationships with the free cash flow yield were examined. The fully modified OLS (FMOLS) was used to analyse a panel data set of 17 firms listed on the Nigerian Stock Exchange from 2008 to 2016. Asset turnover was found to be positive and significant while debt-to-equity ratio and dividend pay-out were both found to be negative and significant indicators of sustainable cash flows.

Ofoegbu and Okoro (2020) examined the effect of cash flow on the performance of listed Deposit Money Banks (DMBs) in Nigeria. With the aid of a multi-stage sampling technique which uses both pure random and eliminating methods, twelve (12) banks were sampled for investigation over ten years beginning from 2006 to 2015 from a total population of fifteen (15) Deposit Money Banks(DMBs) listed on the Nigerian Stock Exchange. This corresponds to 120 observations from a total of 150. Published financial statements of the selected banking firms under study were the source of data. From the objectives of the study, a total of three hypotheses were formulated and tested at 5% level of significance. Data gathered were subjected to statistical analysis through the simple regression technique, and the EViews statistical software package was used to do the analysis. The findings showed that cash flows from operating, investing and financing activities have no statistically significant effect on the returns on investment, returns on equity and earnings per share of Deposit Money Banks (DMBs) studied.

Appah, Awuji and Anuogwo (2021) investigated the effects of cash flow accounting on corporate financial performance of listed consumer goods firms in Nigeria for the period 2015 to 2019. The study employed ex-post facto and correlational research designs. The population of the study consisted of twenty-six firms and the Taro Yamene formula was utilized for the determination of sample size of twenty-three firms. The data for the study was collected from the annual reports of sampled companies listed on the Nigerian Stock Exchange and descriptive, bivariate and multivariate analysis was employed for the purpose of data analysis. The result from the data analysis revealed a positive and significant relationship between operating cash flow, financing cash flow and firm size to profit after tax of listed consumer goods manufacturing companies while investing activities and financial leverage revealed a negative and significant relationship. On the basis of the findings, the paper concludes that cash flow accounting influences the corporate financial performance of firms in Nigeria.

Ali, Njoku, Ugoani, Nwaorgu and Ukeje (2021) empirically examined the effects and implications of cash management of DMBs in Nigeria. The variables studied were Cash to total asset, operating cash to total asset, investing cash to total asset, Financing cash to total asset, Bank size, Bank age, proxied for cash management and Return on Asset used to represent financial performance. Data used for this study were from secondary sources and were generated from the annual reports and accounts of the selected DMBs for the period 2014–2018. The results show that while operating cash to total assets of a bank, investing

cash to total asset and bank size have no significant effect on financial performance of DMBs, financing cash to total asset and bank age have a significant and positive effect on financial performance of deposit money banks (DMBs). However, cash to total assets has a significant negative effect on financial performance of banks. The study concludes that cash positions, which can lead to liquidity risk, have to be managed because they have a tendency to compound other risks. It further highlighted that adequate attention should be paid on the use and reserves of cash among banks in Nigeria.

Meryana and Setyani (2021) examined the investments, free cash flow, earnings management, and interest coverage ratio affecting the risk of financial distress in healthy enterprises. Healthy companies can be seen from how large the value of working capital, retained earnings, income before tax, market value and sales implemented in the measurement of the financial difficulties model with the Altman Z-score method. Collection of data by purposive sampling and number of samples as many as 33 companies in the category of healthy companies. Regression analysis and descriptive statistics were employed on the data for the study. The results show that free cash flows and interest coverage ratio have a significant effect on the financial difficulties of healthy companies whereas investment and earnings management had no significant effect on the financial difficulties of healthy companies.

2.6. Research Gap

The study examined the relationship between cash flow ratio and investment income of deposit money banks in Nigeria. The empirical studies reviewed noted that there have been researches carried out on the cash flow activities of deposit money banks in Nigeria, with regard to how it impacts on various aspects of banking performance. However, these studies did not highlight the relationship that exists between the income from investments of deposit money banks in the Nigerian banking sector, and the cash flow activities of these banks. Hence, the current study sees this as a point of possible addition of value to existing knowledge by evaluating how various cash flow activities such as financing, operating and investing activities, relate with the investment income of deposit money banks in Nigeria.

3.0 METHODOLOGY

3.1 Research Design

The study adopted the *ex-post facto* (after the facts) research design in order to establish the relationship between these cash flow indices and bank investment income. The adoption of*ex-post facto* research design was informed by the fact that the work relied on historical data.

3.2 Model Specification

Koutsoyiannis (2003) as cited in Inyiama (2016), states that model specification involves the determination of the dependent and explanatory variables, which was included in the model, the theoretical expectations about the sign and the size of the parameters of the function.

The Model was specified as follows:

$r=[1/(n-1)] \times \Sigma [((\overline{OCFR} - OCFR)/S_{OCFR})X ((\overline{NIM} - NIM) /S_{NIM})]$ - - - (1)

$r=[1/(n-1)] \times \Sigma [((\overline{CRR} - CRR)/S_{CRR})X((\overline{NIM} - NIM) /S_{NIM})]$ - - - (2)

$r=[1/(n-1)] \times \Sigma [((\overline{PCFR} - PCFR)/S_{PCFR})X((\overline{NIM} - NIM) /S_{NIM})]$ - - - (3)

Where

n = number of observation in the sample

Σ = summation symbol

NIM = the value of net interest margin

$\overline{NIM}$ =the sample mean of net interest margin

S_{NIM} = the sample standard deviation of the net interest margin

OCFR = the value of operating cash flow ratio

$\overline{OCFR}$ = the sample mean of the operating cash flow ratio

S_{OCFR} = the sample standard deviation of operating cash flow ratio

CRR = the value of cash reserve ratio

$\overline{CRR}$ =the sample mean of cash reserve ratio

S_{CRR} = the sample standard deviation of cash reserve ratio

PCFR = the value of price to cash flow ratio

$\overline{PCFR}$ = the sample mean of price to cash flow ratio

S_{PCFR} = the sample standard of price to cash flow ratio

4.0 DATA ANALYSIS

Table 4.2.1 Descriptive Statistics for the focal variables

	NIM	OCFR	CRR	PCFR	LNTA
Mean	0.052863	0.018283	18.95000	-221.6014	14.64783
Median	0.053450	0.017845	21.25000	2.096744	14.66247
Maximum	0.078200	0.326609	27.50000	387.6182	15.97650
Minimum	0.015000	-0.342393	8.000000	-15670.21	13.13043
Std. Dev.	0.012624	0.125921	5.886909	1771.036	0.717762

Skewness	-0.430449	-0.282604	-0.588427	-8.475729	-0.066211
Kurtosis	3.137392	3.373549	2.136698	74.24370	2.050097
Jarque-Bera	2.533402	1.529997	7.100915	17876.72	3.066170
Probability	0.281760	0.465335	0.028712	0.000000	0.215869
Sum	4.229000	1.462606	1516.000	-17728.11	1171.827
Sum Sq. Dev.	0.012590	1.252632	2737.800	2.48E+08	40.69937
Observations	80	80	80	80	80

Source: Eviews 10 software

Table 4.2.1 above reveals the variable description of the 80 observations of the panel data for sampled deposit money banks in Nigeria. From the table, the industry minimum values are Net Interest Margins (0.015000); Operating Cash Flow Ratio (-0.342393); Cash Reserve Ratio (8.0); Price-to-Cash Flow Ratio (-15670.21), and the control variable natural logarithm of Total Asset (13.13043). However, the banks' maximum is Net Interest Margins (0.078200); Operating Cash Flow Ratio (0.326609); Cash Reserve Ratio (27.50000); Price-to-Cash Flow Ratio (387.6182), and the control variable natural logarithm of Total Asset (15.97650). The industry means values for the variables studied are Net Interest Margins (0.052863); Operating Cash Flow Ratio (0.018283); Cash Reserve Ratio (18.95000); Price-to-Cash Flow Ratio (-221.6014), and the control variable natural logarithm of Total Asset (14.64783).

The normality of the distribution of the data series is shown by the coefficients of Skewness, Kurtosis, and Jarque-Bera Probability. From Table 4.2.1, the probability of the Jarque-Bera Statistics for Net Interest Margins: (0.281760); Operating Cash Flow Ratio (0.465335); and the control variable; natural logarithm of Total Asset (0.215869) have an insignificant p-values which depicts a normal distribution of the data series. Cash Reserve Ratio (0.028712) and Price-to-Cash Flow Ratio (0.000000) have a significant p-value which shows an abnormal distribution of the panel data.

This is further confirmed by the skewness coefficients which are less than one for Net Interest Margins (-0.430449), Operating Cash Flow Ratio (-0.282604), Cash Reserve Ratio (-0.588427), and natural logarithm of Total Asset (-0.066211) which suggest a normal distribution for the panel data. While Price-to-Cash Flow Ratio (-8.475729) is abnormally distributed with a skewness coefficient that is greater than one. The kurtosis coefficients also provide another level of confirmation that Net Interest Margins (3.137392), Operating Cash Flow Ratio (3.373549), Cash Reserve Ratio (2.136698), and natural logarithm of Total Asset (2.050097) are normally distributed with coefficients that are less than three. However, Price-to-Cash Flow Ratio (74.24370) have kurtosis coefficients that are greater than three which depict an abnormal distribution.

Table 4.2.2 Result of Panel Unit Root Tests

Variable	ADF P-value at levels	Decision	ADF P-value at 1st difference	Decision	Order of Integration
NIM	0.5831	Do not Reject Ho	0.0001	Reject Ho	I (1)
OCFR	0.0193	Reject Ho	__	__	I (0)
CRR	0.7186	Do not reject Ho	0.0000	Reject Ho	I (I)
PCFR	0.0001	Reject Ho	__	__	I (0)

Source: Computed by Researcher Using Eviews 10.0 Statistical Software

Table 4.2.2 above is a representation of the stationarity test of the variables used in this study. This test is necessary to determine if a variable has a unit root, i.e. if the variable is non-stationary. For the sake of the current study, and to obtain a result that is robust enough for prediction and forecast, these variables must not have a unit root, which is to say that they are stationary. The test has a null hypothesis, which is that a variable has unit root or that the variable is non-stationary. The null hypotheses are rejected or not rejected depending on the probability value of the Phillip-Perron Test for Unit Roots. A probability value less than 0.05 means that the null hypothesis will be rejected, meaning that the variable does not have a unit root, i.e. the variable is stationary over time.

Subsequently, from the table 4.2.2, the probability value of PP for net interest margin, represented by NIM, at first difference, is 0.0001 which is lesser than 0.05. This means that the null hypothesis is rejected, thereby concluding that the variable has no unit root. However, this probability value was achieved at the first difference form of the variable, which is to say that the variable net interest margin is stationary after the first difference. Operational Cash Flow Ratio, represented by OCFR has an PP probability value of 0.0193 at the level form. This further indicates that the variable was stationary at levels, or was integrated at levels. Cash Reserve Ratio, represented with CRR, achieved a probability value of 0.0000 after the first difference, showing that the variable is integrated of order one (I). Furthermore, Price-to-Cash Flow Ratio, denoted by PCFR, showed a PP probability value of 0.0001 at levels, which means that the variable is stationary at the level form. Summarily, the variables tested for the presence of unit root, OCFR and PCFR all returned an integration at the level form, while NIM and CRR returned integration at the first difference.

Table 4.2.3: Results of Kao (Engle-Granger based) Co-Integration Test

Residual Variance	**HAC Variance**	**ADF**	
4.83	6.47	**t-statistic**	**Probability**
		-2.420832	0.0074

Source: Computed by Researcher Using Eviews 10.0 Statistical Software

H_0: There is no cointegration

Decision Rule: Reject the null hypothesis if the p-value of ADF is less than 0.05.

Decision: The result of the Kao (Engle-Granger based) Cointegration test in Table 4.2.3 shows that there is a stable long-run relationship between the variables under study. This is because the probability value of the ADF is less than 0.05. In other words, the variables are cointegrated. This means that the dependent variable, operational cash flow ratio, cash reserve ratio and price-to-cash flow ratio and net interest margin, share a long-run relationship, and as such, a regression analysis can be conducted on them.

Table 4.2.4 Pairwise Granger Causality Tests

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
OCFR does not Granger Cause NIM	64	1.75760	0.1814
NIM does not Granger Cause OCFR		0.55414	0.5775
PCFR does not Granger Cause NIM	64	0.55596	0.5765
NIM does not Granger Cause PCFR		0.03523	0.9654
CRR does not Granger Cause NIM	64	2.72402	0.0739
NIM does not Granger Cause CRR		0.45326	0.6377
PCFR does not Granger Cause OCFR	64	0.14691	0.8637
OCFR does not Granger Cause PCFR		1.01895	0.3672
CRR does not Granger Cause OCFR	64	8.74105	0.0005
OCFR does not Granger Cause CRR		2.33304	0.1059
CRR does not Granger Cause PCFR	64	0.24094	0.7867
PCFR does not Granger Cause CRR		0.78665	0.4601

Source: Computed by Researcher Using Eviews 10.0 Statistical Software

H_0: There is no causality.

Decision Rule: Reject the null hypothesis if the p-value of f-statistics is less than 0.05.

The granger causality test above shows the existence of causal relationships between a number of the variables under study. Table 4.2.4 shows that among the variables under study, a causal relationship only exists between cash reserve ratio and operational cash flow ratio. There is no causal relationship between cash reserve ratio and price-to-cash flow ratio, or from price-cash flow ratio to cash reserve ratio. There is no causal relationship between price-cash flow ratio and operational cash flow ratio, and vice versa. Also, cash reserve ratio does not granger cause net interest margin, and net interest margin does not granger cause cash reserve ratio. Furthermore, price-cash flow ratio does not granger cause net interest margin, and net interest margin does not granger cause price-cash flow ratio. Also, operational cash flow ratio does not granger cause net interest margin, and net interest margin does not granger cause operational cash flow ratio.

Regression Results (OLS)

After the application of the ordinary least squares (OLS) estimation method on the model earlier suggested in the previous chapter, the following results shown in the table below were obtained.

Table 4.2.5 OLS Estimation Result [Dependent Variable: NIM]

Variable	Coefficient	Standard Error	t-Stat	p-Value
OCFR	0.021105	0.008516	2.478112	0.0157
CRR	0.001132	0.000312	3.631485	0.0005
PCFR	1.912207	5.500107	0.346643	0.7299
LNTA	-0.027526	0.005046	-5.454777	0.0000
C	0.434270	0.068848	6.307641	0.0000
R^2 = 0.65, Adjusted R^2 = 0.58, F-Stat = 11.26997, Prob(F-stat) = 0.00000, D.W. Stat. = 1.16				

Source: E-views 10 software

Operating Cash Flow Ratio: Operating Cash Flow Ratio has a coefficient of 0.021105 which shows that a unit increase in Operating Cash Flow Ratio increases the Net Interest Margin of deposit money banks in Nigeria by 0.02. The value of the t-statistics (2.478112> 2) and the probability of t-Statistics (0.0157< 0.05) shows that Operating Cash Flow Ratio has a significant effect on Net Interest Margin of deposit money banks in Nigeria.

Cash Reserve Ratio: Cash Reserve Ratio has a coefficient of 0.001132 which shows that a unit increase in Cash Reserve Ratio increases the Net Interest Margins of deposit money

banks in Nigeria by 0.0011. The value of the t-statistics (3.631485> 2) and the probability of t-Statistics (0.0005< 0.05) shows that Cash Reserve Ratio has a significant effect on Net Interest Margins of deposit money banks in Nigeria.

Price-to-Cash Flow Ratio: Price-to-Cash Flow Ratio has a coefficient of 1.912207 which shows that a unit increase in Price-to-Cash Flow Ratio increases the Net Interest Margin of deposit money banks in Nigeria by 1.91. The value of the t-statistics (0.346643< 2) and the probability of t-Statistics (0.7299> 0.05) shows that Price-to-Cash Flow Ratio has an insignificant effect on Net Interest Margin of deposit money banks in Nigeria.

Statistical Criteria (First Order Tests)

The value of the Adjusted R^2 is 0.58, which tells us that 58% of the changes in the Net Interest Margin are explained by the independent variables, while the other 42% are explained by other factors capable of influencing Net Interest Margin other than Operating Cash Flow Ratio, Cash Reserve Ratio, Price-to-Cash Flow Ratio, and the control variable (Total Asset). These other factors are contained in the error term. The f-test is used to check for the overall significance of the model and if the value of the probability of the f-stat (p-value: 0.000000) is less than 0.05 at a 5% critical value, the model is said to be significant and statistically fit. The Durbin Watson Statistic (1.16) shows the presence of positive autocorrelation in the time series data.

Table 4.2.6: Covariance Analysis Result (Dependent Variable: NIM)

	Covariance	Correlation	t-Statistic	Probability
OCFR	111.1813	0.208507	1.882870	0.0634
CRR	-117.8500	-0.530655	-2.093546	0.0395
PCFR	175.0375	0.628262	3.069206	0.0030
LNTA	-46.40000	-0.087018	-0.771446	0.4428

Source: Eviews 10.0 Software

Table 4.2.6 above shows the covariance results of the variables of the study. The table shows how the various independent variables of the study relate with each other and with the dependent variable. From the table, Operating Cash Flow Ratio (NIM/OCFR) has a positive and weak (20.8%) relationship with Net Interest Margin. Cash Reserve Ratio (NIM /CRR) has a negative and strong (approx. 53%) relationship with Net Interest Margin. Price-to-Cash Flow Ratio (NIM/PCFR) has a strong and positive (63%) relationship with Net Interest Margin. Furthermore, Natural Logarithm of Total Asset (NIM/LNTA) has a weak and positive (8.7%) relationship with Net Interest Margin.

4.3 TEST OF HYPOTHESES

The four hypotheses formulated in chapter one of this study were tested using three steps. These steps are:

Step 1: Restatement of the Hypothesis in Null and Alternate Form

Step 2: Presentation of Test Results

Step 3: Decision

Decision Criteria

The decision rule involves accepting the null hypothesis (H_0) if the sign of the coefficient for the predictor variable is either positive or negative, and if the coefficient of the correlation analysis is < 0.50 (Gujarati & Porter, 2009). Otherwise, reject the null hypothesis (H_0) and accept the alternate hypothesis(H_1).

Hypothesis One

Step 1: Restatement of the Hypothesis in Null and Alternate Form

H_0: Operating Cash Flow Ratio does not significantly relate with Net Interest Margins of deposit money banks in Nigeria.

H_1:Operating Cash Flow Ratio has a significant relationship with Net Interest Margins of deposit money banks in Nigeria.

Step 2: Presentation of Test Results

Table 4.2.6 Covariance analysis result is used to test the above stated hypothesis.

Step 3: Decision

The correlation coefficient in Table 4.2.6 shows that Operating Cash Flow Ratio has a statistically positive relationship with Net Interest Margins of deposit money banks. However, the values for the correlation coefficient (0.208507) depicts that Operating Cash Flow Ratio has a statistically weak relationship with Net Interest Margins in the industry. This makes Operating Cash Flow Ratio unable to predict Net Interest Margins in the Nigeria banking industry.

Hypothesis Two

Step 1: Restatement of the Hypothesis in Null and Alternate Form

H_0: Cash Reserve Ratio has no significant relationship with Net Interest Margins of deposit money banks in Nigeria.

H_1: Cash Reserve Ratio has a significant relationship with Net Interest Margins of deposit money banks in Nigeria.

Step 2: Presentation of Test Results

Table 4.2.6 Covariance analysis result is used to test the above stated hypothesis.

Step 3: Decision

The correlation coefficient in Table 4.2.6 shows that Cash Reserve Ratio has a statistically negative relationship with Net Interest Margins of deposit money banks. However, the values of the correlation coefficient (-0.530655) depicts that Cash Reserve Ratio has a statistically strong relationship with Net Interest Margins in the industry. This implies that Cash Reserve Ratio can predict Net Interest Margins in the industry.

Hypothesis Three

Step 1: Restatement of the Hypothesis in Null and Alternate Form

H_0: Price-to-Cash Flow Ratio does not have a significant relationship with Net Interest Margins of deposit money banks in Nigeria.

H_1:Price-to-Cash Flow Ratio has a significant relationship with Net Interest Margins of deposit money banks in Nigeria.

Step 2: Presentation of Test Results

Table 4.2.6 Covariance analysis result is used to test the above stated hypothesis.

Step 3: Decision

The correlation coefficient in Table 4.2.5 shows that Price-to-Cash Flow Ratio has a statistically positive relationship with Net Interest Margins of deposit money banks. However, the values for the correlation coefficient (0.628262) depicts that Price-to-Cash Flow Ratio has a statistically strong relationship with Net Interest Margins in the industry. This implies that Cash Reserve Ratio can predict Net Interest Margins in the industry.

4.4 DISCUSSION OF RESULTS

4.4.1 Relationship Between Operating Cash Flow Ratio and Net Interest Margins

The covariance analysis result revealed that Operating Cash Flow Ratio has a positive and weak relationship with Net Interest Margins of deposit money banks in Nigeria. This implies that the more deposit money banks in Nigeria were able to settle their current liabilities with cash flow generated from their operations the more their investment income. A high number, greater than one, indicates that a company has generated more cash in a period than what is needed to pay off its current liabilities. Which is a sign of improved revenue that will trigger more investment and investment income. The result also aligns with the findings of Ikechukwu, Duru and Celestine (2016), Ubesie, Chitor and Ejembi (2016),Widarsono and Rahmawati (2016), Soet, Muturi and Oluoch (2018), Arjanto, Rahmat and Rina (2019),Oktari and Sunarsih (2020), Kipngetich, Tenai and Kimwolo (2021), Pardosi and Budyastuti (2021), and Elahi, Ahmad, Shamas and Saleem (2021) who found operating cash flow ratio to have positive relationship with Net Interest Margin. The result contradicts the findings of Raditya and Utami (2021) and Putri (2021) who found a negative and significant relationship between operating cash flow and profitability.

4.4.2 Relationship Between Cash Reserve Ratio and Net Interest Margins

The covariance analysis result revealed that Cash Reserve Ratio have a negative and strong relationship with Net Interest Margins of deposit money banks in Nigeria. This implies that an increase in the minimum amount of deposit as reserves with the central bank results in a significant decrease in investment income. The result is in tandem with the *a priori* expectation of the researcher because banks make money from the deposits they keep for customers. They give out these deposits to customers as loans and advances for returns, hence, when the cash reserve ratio increases, it reduces the cash available to banks to lend to customers. The result is in alignment with the findings of Putri (2021), Khalid (2018), Konak (2018),Alawneh (2019), Muhammad, Arifa, Tooba and Meer (2021), Arjanto, Rahmat and Rina (2019),Oktari and Sunarsih (2020), Kipngetich, Tenai and Kimwolo (2021), Pardosi and Budyastuti (2021), and Elahi, Ahmad, Shamas and Saleem (2021) who also found either a significant or negative relationship between Cash Reserve Ratio and Net Interest Margins. However, Ogbonnaya, Ekwe, and Uzoma (2016), Ochieng, Njihia, Mwangi and Mutende (2017), Nwarogu and Iormbagah (2017), Rahman and Sharma (2020), and Tamunosiki, Giami and Obari (2017) found a positive relationship between Net Interest Margins and financial performance.

4.4.3 Relationship Between Price-to-Cash Flow Ratio and Net Interest Margins

The covariance analysis result revealed that Price-to-Cash Flow Ratio has a positive and strong relationship with Net Interest Margins of deposit money banks in Nigeria. This implies that as the Price-to-Cash Flow Ratio of deposit money banks in Nigeria increases their Net Interest Margin increases. This is because Price-to-Cash Flow Ratio increase means an increase in the cash generated by the banks relative to its stock price. This can be translated to investment income through proper management. The result is in line with the findings Amahalu, Okoye, Obi and Nweze (2016), Ambreen and Aftab (2016), Dickinson (2017), Appah, Awuji and Anuogwo (2021), Meryana and Setyani (2021), Ogbonnaya, Ekwe, and Uzoma (2016), Ochieng, Njihia, Mwangi and Mutende (2017), Nwarogu and Iormbagah (2017), Rahman and Sharma (2020), and Tamunosiki, Giami and Obari (2017) who found a positive and significant relationship between cash flow and financial performance. However, Ofoegbu and Okoro (2020) and Waleed, Pasha and Akhtar (2017) found a negative relationship between cash flow and financial performance.

5.0 SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATIONS

5.1 Summary of Findings

The findings are summarized as follows:

i. Operating Cash Flow Ratio has a weak and positive relationship with Net Interest Margins of deposit money banks in Nigeria with correlation coefficient of 0.208507.

ii. Cash Reserve Ratio has a strong and negative relationship with Net Interest Margins of deposit money banks in Nigeria with correlation coefficient of -0.530655.

iii. Price-to-Cash Flow Ratio has a strong and positive relationship with Net Interest Margins of deposit money banks in Nigeria with correlation coefficient of 0.628262.

5.2 Conclusion

In a normal circumstance, deposit money banks should have a sound level of liquidity, though not in excess of the daily requirements (working capital), to enable it to catch up with the daily business and investment opportunities. However, what obtains presently is that there is a cash squeeze which results in some banks not being able to meet up with their liquidity agreements with their customers. Over-investment is also a problem as it means that some banks try to invest every possible kobo at their disposal, leaving them short of the necessary liquidity to carry out day to day activities. Consequent upon the above reality on ground within the banking sector, firms are not able to source and retain enough cash flow to meet daily financial transactional needs, which heavily determines the success of deposit money banks. Hence, the study examines cash flow ratios and investment income of deposit money banks in Nigeria.

From the data analysis, the correlation result revealed that Operating Cash Flow Ratio has a strong positive relationship with Net Interest Margin of deposit money banks in Nigeria. Cash Reserve Ratio has a strong negative relationship with Net Interest Margins of deposit money banks in Nigeria. However, Price-to-Cash Flow Ratio has a strong positive relationship with Net Interest Margins of deposit money banks in Nigeria. The study therefore concluded that the studied cash flow ratios significantly affect investment income of deposit money banks in Nigeria.

5.3 Recommendations

From the findings of the study the researcher made the following recommendations:

i. Deposit money banks should strive to increase their operating cash flow ratios by negotiating quick payment terms, giving customers incentives for deposits and penalties for late payments of loans. They should also cut unnecessary spending and maintain a cash flow forecast.

ii. The Central Bank of Nigeria (CBN) should consider reducing the amount of cash reserve ratio so as to give the deposit money banks more capital for investment and borrowings.

iii. They should strive to increase market value of the bank's stock by building and solidifying customer loyalty, employing a talented, dedicated workforce, acquiring other companies, deploying effective advertising, and pricing products and services efficiently.

5.4 Contribution to Knowledge

The purpose of every research is to make a distinct contribution to the existing body of knowledge. The empirical studies reviewed in section two revealed that there have been researches carried out on the cash flow activities of deposit money banks in Nigeria, with regard to how it impacts on various aspects of banking performance. However, these studies did not highlight the relationship that exists between the income from investments of deposit money banks in the Nigerian banking sector, and the cash flow ratios of these banks thereby creating a knowledge gap. Hence, the current study contributed to existing knowledge by establishing that Operating Cash Flow Ratio does not have a strong relationship with investment income of deposit money banks in Nigeria. The study also contributed to knowledge by establishing that Cash Reserve Ratio and Price-to-Cash Flow Ratio have a strong relationship with Net Interest Margin of deposit money banks in Nigeria.

References

Abualrob, A. L. and Maswadeh, S. N. (2019). The effect of financial ratios derived from operating cash flows on Jordanian Commercial Banks Earnings per share. *International Journal of Financial Research*, 11(1); 1-15

Abualrob, A. L. and Maswadeh, S. N. (2020). The effect of financial ratios derived from operating cash flows on Jordanian Commercial Banks earnings per share. *International Journal of Financial Research,* 11(1); 394-404

Alawneh, A. (2019). Effect of net cash flows on investors' decisions on companies listed in Amman Stock Exchange during the period of 2001-2017: a case study on industry and service sectors. *Universal Journal of Accounting and Finance*, 1(1); 1-15

Ali, M. A., Kalim, U., Raza, H., Ali, H. A., Rehman, M., & Ullah, M. I. (2017). The relationship between ROA, ROE, ROCE, and EPS ratios with break-up values of shares of Karachi- Pakistan fuel and energy listed companies. *Journal of Finance and Accounting*, 5(3), 115–122.

Ali, P., Njoku, P. O., Ugoani, J. N., Nwaorgu, O. C. and Ukeje, O. (2021). Cash management and banks' financial performance: evidence from selected deposit money banks in Nigeria. *Accounting and Financial Review,* 3(2); 180-189

Aliakbari, M., Banimahd, B. and Talebnia, G. (2018). The relationship between unconditional accounting conservatism and abnormal operating cash flows in Iranian firms *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 5(1); 39-45

Amah, K. O., Michael, C. E. & Ihendinihu, J. U. (2016). Relationship of cash flow and financial performance of listed Banks in Nigeria. *European Journal of Accounting, Auditing and Finance Research,*4(4), 89 – 97

Amah, K.O., Ekwe M.C. & Ihendinihu J.U. (2016).Relationship of cash flow ratios and financial performance of listed banks in emerging economies – Nigeria example,*European Journal of Accounting, Auditing and Finance Research* 4(4).89-97.

Amahalu, N., Okoye, P. C., Obi, J. C. and Nweze, C. L. (2016). Cash flow statement and liquidity: empirical evidence from quoted banks in Nigeria. *Managing Diversification for Sustainable Development in Sub-Saharan Africa.*

Ambreen, S. &Aftab, J. (2016).Impact of free cash flow on the profitability of firms listed in Karachi Stock Exchange, *International Journal of Finance*,2(4); 1-14.

Appah, E. (2018). *Financial Management: Theory, Strategy and Practice*, Ezevin Printing and publishing Enterprise

Appah, E. (2019). *Corporate Financial Decision,*Vinson Printing and Publishing Company.

Appah, E., Awuji, C. E. and Anuogwo, K. N. (2021). Cash flow accounting and corporate financial performance of listed consumer goods companies in Nigeria. *IOSR Journal of Business and Management,* 23(3); 18-29

Arjanto, B., Rahmat, S. T. and Rina, A. (2019). *The effect of cash flows of operation and liquidity on profitability: a study in processing and manufacturing industry's sector companies in PT Bank,* Brisyariah, TBK.

Bhattacharyya, A.K. (2011).*Financial Accounting and Reporting; A practical guide*. Second Edition. PHI Learning Private Limited.

Bingilar, P.F. & Oyadonghan, K.J. (2014). Cash flow and corporate performance: A study of selected food and beverages companies in Nigeria. *European Journal of Accounting, Auditing and Finance Research,* 2(7), 77-87

Burke, Q. L., & Wieland, M. M. (2017). Value relevance of banks' cash flows from operations. *Advances in Accounting*, 39, 60–78

César M. C.,Antonio L. M., & Newton C. A., (2016). Consequences for future return with earnings management through real operating activities paper presented at the xxxix meeting of the Brazilian national association of graduate studies and research in administration (enhanced), Belo Horizonte, *MG, Brazil,*27,(71), 232-242.

Cheng, M. (2021). Accounting comparability and cash flows versus accruals. *Review of Accounting and Finance*, 20(5); 1-15

Dickinson, V. (2017).Cash flow patterns as a proxy for the firm life cycle.*Fisher School of Accounting* – Warrington College of the Business University of Florida.

Elahi, M., Ahmad, H., Shamas, M. and Saleem, A. (2021). The impact of operating cash flows on financial stability of commercial banks: evidence from Pakistan. *Journal of Asian Finance, Economics and Business,* 8(11); 223-234

Ernayani, R. and Robiyanto, R. (2016). *The effect of the cash flows, gross profit and company size on Indonesian Stock Returns (a study on the chemical and basic industry companies during the periods of 2009 to 2014).* Retrieved from https://www.semanticscholar.org/paper/

Ersanti and Anggraini, D. (2019). The effect of good corporate governance, cash flow volatility and investment opportunity set towards profit quality (empirical study of manufacturing companies on the Indonesia Stock Exchange). *Saudi Journal of Economics and Finance,* 2(1); 23-30

Gaied, M. (2018). Investment-cash flow sensitivity and growth opportunities. *International Journal of Economics and Financial Issues*, 8(2); 154-160

Ghanbari, M., Haidari, F., Nazarzadeh, S. & Abasi, B. (2015). The relationship between cash flow and financial performance of accepted companies in the Tehran Stock Exchange, *Management Research Report,*3(2), 1829-1841

Guda, D. O. (2013). The relationship between cash flow and profitability of small and medium enterprises in Nairobi. *A Research Project Submitted for the Award of Degree of Masters of Business Administration, University of Nairobi.*

Guizani, M. (2017) Free Cash Flow, Agency Cost and Dividend Policy of Sharia- Compliant and Non-Sharia-Compliant firms.*Int. Journal of Economics and Management* 11(2): 355 – 370

Haitham, N. & Jaya, A. (2017). The impact of free cash flow, equity concentration and agency costs on the firm's profitability. *Investment Management and Financial Innovations,* 14(2), 19-26.

Ikechukwu, O., Duru, A. N. and Celestine, A. (2016). The effect of cash flow statements on a company's profitability (a study of some selected banks in Nigeria). *African Journal of Basic and Applied Sciences*, 7(6); 350-356

Ilkhechi, H. O. and Khatibi, S. A. (2020). The impact of earnings persistence on the operating cash flows with emphasis on financial constraints, *International Journal of Business and Administrative Studies,* 6(5); 265-274

Imhanzenobe, J. O. and Adeyemi, S. (2020). Financial decisions and sustainable cash flows in Nigerian manufacturing companies, *International Journal of Social Sciences and Information Technology*, 9(2); 90-112

Investopedia (2022). *Investment Income.* Retrieved from https://www.investopedia.com/terms/i/investmentincome.asp

Khalid, A. G. (2018). The effect of cash flows on investment evidence from textile sector of Pakistan, *Journal of Poverty, Investment and Development*, 44; 39-52

Khalil A.M. & Mohammad H.P. (2017).The sensitivity of investment to cash flow impact of the investment opportunities in companies listed in Tehran Stock Exchange, *Bulletin de la Société Royale des Sciences de Liège, special edition,86,*615 - 628.

Kipngetich, S. B., Tenai, J. K. and Kimwolo, A. (2021). Effect of operating cash flow on stock returns of firms listed in Nairobi Security Exchange, *European Journal of Economics and Finance*, 6(1); 26-35

Konak, F. (2018). *The effect of cash flow on firm performance: empirical evidence from Borsa Istanbul Industrial Index,* Retrieved from https://www.researchgate.net/publication/

Liman, M. and Mohammed, S. A. (2018). Operating cash flow and corporate financial performance of listed conglomerate companies in Nigeria. *IOSR Journal of Humanities and Social Science*, 23(2); 1-11

Meryana and Setiany, E. (2021). The effect of investment, free cash flow, earnings management, and interest coverage ratio on financial distress. *Journal of Social Science,* 3(1)

Mo'taz, K. and Othman, H. A. (2021). The impact of cash flow statement components on stock volatility: Evidence from Qatar. *Investment Management and Financial Innovations*, 18(2), 365-373.

Muhammad, A. K., Arifa, B. T., Tooba, A. and Meer, H. M. (2021). The impact of cash flow management practices on financial performance of cement manufacturing firms: a comparative study of Pakistan and India. *Journal of Accounting and Finance in Emerging Economies,* 2(1); 23-40

Nangih, E.; Ofor, T.N. & Onuorah, J.K.J. (2020). Cash flow management and financial performance of quoted oil and gas companies in Nigeria. *Journal of Accounting and Financial Management*, 6(4), 1-11.

Ndungu, B. W. and Oluoch, O. (2016). Effect of cash flow management on market performance of public construction companies in Kenya. *International Journal of Social Sciences and Information Technology*, 2(8); 778-790

Nwaiwu, N.J. & Oluka, N.O. (2017). IFRS: Cash flow accounting and financial performance of quoted companies in Nigeria. *International Journal of Innovative Finance and Economic Research,* 5(4), 116-127.

Nwakaego, D.A., Ikechkwu, O. & Ifunanya, L.C. (2015). Effect of cash flow statement on company's performance of food and beverages companies in Nigeria. *World Applied Sciences Journal,* 33(12), 1852 – 1857.

Nwakaego, D.A., Ikechukwu, O. & Ifunanya, L.C. (2015).Effect of cash flow statement on the company's performance of food and beverages companies in Nigeria.*World Applied Sciences Journal*, 33(12), 1852-1857.

Nwarogu, I. A. & Iormbagah, A.J. (2017). Cash management and performance of listed firms in Nigeria,*Journal of Economics, Management and Trade,18(1),* 1-13.

Ochieng, D., Njihia, J., Mwangi, M. and Mutende, A. E. (2017). The moderating role of firm characteristics on the relationship between free cash flows and financial performance of firms listed at the Nairobi securities exchange, *Journal of Finance and Investment Analysis,* 6(4); 55-74

Odeh, M. H., Alshannag, F., Eneizan, B., Haddad, M. F. AND Makhamreh, H. (2018). Effect of cash flows on the market value of Jordanian Industrial companies stocks. *The Journal of Social Sciences Research,* 1(5); 821-826`2Q`dagcx

Ofoegbu, G. N. and Okoro, C. E. (2020). Effect of cash flow on performance of listed deposit money banks in Nigeria*. Unizik Journal of Business*, 3(2);27-42

Ogbeide, S. &Akanji, B. (2017). A Study on the relationship between cash-flow and financial performance of insurance companies: evidence from a developing economy. *View of International Comparative Management.18(2),* 149-150.

Ogbonnaya, A.K., Ekwe, M.C. & Uzoma, I.J. (2016).Relationship of cash flow ratios and financial performance of listed banks in emerging economies – Nigeria example.*European Journal of Accounting, Auditing and Finance Research*, *4(4),* 89-97.

Oktari, M. M. and Sunarsih, U. (2020). *The influence of earnings, operating cash flows, firm size and leverage to stock price.* Retrieved from http://repository.stei.ac.id/851/2/11160000177_Artikel%20Inggris_2020.pdf

Pardosi, R. R. and Budyastuti, T. (2021). Effects of leverage operating cash flow and profitability on bonding rating. *International Journal of Management Studies and Social Science Research,* 1(1); 80-86

Putri, P. A. (2021). The effect of operating cash flows, sales growth, and operating capacity in predicting financial distress. *International Journal of Innovative Science and Research Technology,* 6(1); 638-643

Raditya, T. and Utami, W. (2021). The effect of current earnings, operating cash flows and accrual quality on future earnings (empirical study on manufacturing companies listed on the Indonesian Stock Exchange Year, 2016-2018). *Saudi Journal of Business and Management Studies,* 6(4); 125-134

Rahman, A. and Sharma, R. B. (2020). Cash flows and financial performance in the industrial sector of Saudi Arabia: with special reference to insurance and manufacturing sectors. *Investment Management and Financial Innovations*, 17(14); 76-84

Rajapaksha, R. A. and Weerawickrama, V. L. (2020). The impact of free cash flow on profitability of listed diversified holding companies in the Colombo Stock Exchange, *Proceedings of the International Conference on Business and Information,* 1-15

Rinjani, S. and Hasanah, U. (2019). Effect of net income and operating cash flow on cash dividends. *Journal of Applied Managerial Accounting,* 3(2); 1-15

Rokhmawati, A. (2019). The effect of firm cash flow on investment decision moderated by financial constraint and mispricing, *Indonesian Journal of Economics, Social and Humanities*, 2(1); 77-90

Ryan, S. G., Tucker, J. W., & Zarowin, P. A. (2006). Classification and market pricing of the cash flows and accruals on trading positions. *The Accounting Review*, 81(2), 443–472.

Sigeng, D. (2016).Testing the relationship between free cash flow and capital expenditure in Canadian listed companies. *Saint Mary's University unpublished thesis*.

Soet, M. A., Muturi, W. and Oluoch, O. (2018). Effect of operating cash flow management on financial performance of mutual funds in Kenya. *European Journal of Business, Economics and Accountancy,* 6(5); 37-46

Sri, S. and Setyawati, S. (2018). An analysis of cash flow report effect on financial performance (case study in course and training institutions putra perwira sukoharjo 2014-2016). *International Journal of Economics, Business and Research*, 1(1); 23-34

Tamasila, M., Miclea, S., Vartolomei, M., Pascu, D. and Albulescu, C. T. (2018).The relationship between cash flow and the investment decision of firms from the Romanian agriculture sector.*Procedia- Social and Behavioural Sciences,* 238(2018); 704-713

Ubesie, M. C., Chitor, I. L. and Ejembi, E. A. (2016). Effect of cash flow statement on performance of selected food beverage companies in Nigeria. *IDOSR Journal of Current Issues in Social Sciences,* 2(1); 47-54

Widarsono, A. and Rahmawati, M. (2016). *The effect of operating cash flow on the profit growth.* Retrieved from https://www.atlantis-press.com/proceedings/gcbme-16/25865903.