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Consumer's Perception towards Online Banking Services

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Abstract

In order to determine whether consumers would continue to use the Unified Payment Interface (UPI) for electronic payments, this study looks at the impact of consumer resistance-related issues. The findings suggest that privacy concerns and usage barriers are the two crucial factors to be addressed to break down consumer resistance towards continuing usage of UPI. It also covers consumer behavior, and the entire study is primarily oriented toward existing UPI customers. The basics, such as the workings of UPI and customer concerns, are explained in detail. Multiple Regression Analysis revealed that various factors significantly influence the adoption of cashless payment modes by online consumers and limit consumers' ability to pay for their purchases online.

Keywords: Unified Payment Interface, Consumer Resistance, Usage Barrier, Consumer Concern, Regression Analysis

JEL Codes: GO, G1, G2, G3, F3

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1. Introduction

You certainly spotted several QR codes with the instructions to scan them to pay and receive discounts on the walls of shopping centres or gas stations where you filled up your automobile. Your mobile devices can scan these barcodes to send direct payments using UPI apps. If you've ever questioned how it functions. The application of cutting-edge technologies has simplified this difficult process. The amount debited from your account and the amount credited to the merchant's account both happen in one minute or less, which is quicker than the standard card

swipe process. It is possible because of the Unified Payment System. (Dr. Dinesh Chand & Mr. Sunny Gupta, 2021)

India's national payments company created UPI. The Reserve Bank of India controls the interface, which operates by immediately moving money between two bank accounts on a mobile platform. It is based on a financial transfer service called Immediate Payment. With the aforementioned circumstances in mind, NPCI carried out a pilot launch with 21 member banks. Dr. Raghuram G. Rajan, the Governor of the RBI, conducted the pilot launch on April 11, 2016, in Mumbai. Beginning on August 25, 2016, banks have begun to publish their UPI-compatible apps to the Google Play store. (Muralidhara & Murali, n.d.)(UPI Challenges and Direction in Fund Management with Special Reference Banking Sector)

With a GDP of USD \$2.3 trillion, India has the seventh-largest economy in the world. For an economy of its scale, India relies heavily on cash. As of March 2016, India has a total of Rs. 16,415 billion in circulation, or around 12.04% of the country's GDP, compared to Brazil (3.93%), Mexico (5.32%), and

China (8.8%). High reliance on cash has its own set of issues, including the cost of producing, storing, and managing cash, the use of counterfeit money, and most crucially, the absence of transactional records, which encourages tax fraud. As the economy expands, these issues will inevitably become worse.

UPI takes advantage of India's high teledensity to make mobile phones the primary method of payment for both consumers and businesses and to make digital payments available to everyone in the nation. UPI has grown quickly, which can be ascribed to the growing ecosystem supported by banks and growing user adoption; nonetheless, for these early adopters, the major application has been to send money from one person to another. It is essential to develop merchant-centric UPI payments systems for UPI to realise its full potential. The technological architecture, transactional procedures, and security mechanisms of UPI are explained in this article, which can be used to create creative business solutions. India's digital payment acceptance infrastructure is currently insufficient for merchants, but merchant-centric UPI solutions have the ability to close this gap (Rahul Gochhwal, 2017).

After November 8, 2016, the Demonetization era had a significant influence in the expansion of digital payments in India. Additionally, as part of government reforms, Prime Minister Mr. Narendra Modi has heavily promoted cashless transactions. Calculations based on information from the Reserve Bank of India and the National Payments Corporation of India show that for the first half of current fiscal year, there were around 11.8 billion digital transactions. The market for digital payments has been significantly impacted by the smart phone, which has become an important part of people's online personal, professional, and financial lives. The ecosystem of smartphones made it relatively simple to integrate different applications and technologies into modern life (Indoria, 2021).

Privacy difficulties and computer hackers are the biggest drawbacks of a cashless society. The invasion of privacy is one of the key concerns with the deployment of a smart card/chip that would record and manage all financial activities electronically. Many people may think that the government has significant control over society because it has access to this kind of sensitive

information if all private financial information is made available to government authorities. As a measure to protect their privacy, people value the opportunity to make part of their purchases with cash, with absolutely no record, electronic log, or audit trail of those transactions (Olalekan S. Akinola, 2012).

The majority of payments are made using electronic devices in this country, yet internet usage and penetration are not at that level in most regions, creating the condition of digital illiteracy. There is also an increase in individuals that want to conduct business online; it is evident that the cyber security infrastructure is not up to par. This means that there are insufficient mechanisms in place to combat fraud, which increases the likelihood of online fraud, which is already happening at some level. Many claim that using cash will allow them to preserve their privacy; however, cashless payment systems do not offer the same freedom, and the risks of losing their secrecy are higher than with regular transactions (with cash) (Dr. Seema Rathee & Gunjan Bhayana, n.d.).

Research objectives are (1) analysing the perception of consumers towards online banking, (2). determining the frequency and reason for usage of online banking, (3). determining the problems faced by consumers while using online banking.

2. Review of literature

(Muralidhara & Murali, n.d.) After demonetization and the digital India initiatives, the Indian banking sector has been working hard to promote digital payments. In order to enable digital payments the unified payment interface was launched which facilitated an amazing, revamped, and cost-effective breakthrough for enabling digital payment services. The increasing popularity of smartphones, technological advancements, and efficient internet communications have foreshadowed a surge in the use of mobile payment services by consumers, financial institutions, and particularly banks. Unified Payment Interface (UPI) is a possibly novel method of transmitting funds utilizing a virtual payment system to establish a paperless and cashless economy. Through services like instant payments using QR codes, the payment of different fees, financial transfers between wallets and bank accounts, donations, the purchase and renewal of insurance, and the payment of utility bills through Bharath BillPay, among others, UPI gives significant advantages. Users can now integrate their overdraft accounts and one-time payment mandates with greater security thanks to UPI 2.0 from NPCI.

(Olalekan S. Akinola, 2012) The digital payment landscape is sprouting in the country at a dizzying step. After the demonetization, complete turnaround in the payment landscape has been observed. The technology revolution and government initiative of cashless economy, followed by demonetization saga has enabled the evolution of multiple non-banking players in the payment space. While these e-wallets have made substantial grounds in the Indian economy system, it becomes eminent to analyze the customers' perception towards these e-wallets. Its disadvantages include "Computer hackers" who are a risk in a cashless society. Computer gurus, often known as "Yahoo-Yahoo Boys," who con unwary people, groups, and organizations into parting with money online, may modify records, fabricate billionaires, build up phony businesses, and other things. In other words, they might add to the problem of identity theft and establish an electronic underground society.

(Dr. Neeraj K. Gupta, n.d.) Use of currency notes: In India, cash is typically used in large quantities for transactions. Particularly, people who live in rural areas of India make close to 80% of their transactions in cash. People are starting to use cash notes for transactions as tradition and habit. Computer illiteracy: Only 8%–10% of Indians are computer literate, and 88%–90% of Indians don't comprehend computers or the internet, making it impossible for them to use the digital payment system. Use of ATM Card: Although India has many digital payment options, ATM cards are still widely used for cash withdrawals and payment of transactions. They did not transfer money via digital payment methods or digital wallets

(Masihuddin M.et.al. in 2017) A survey on e-payment systems: elements, adoption, architecture, challenges, and security concepts was undertaken. This study tracked people's knowledge of electronic payment system ideas, including benefits, drawbacks, and other security issues. Despite a number of problems, it is concluded that EPayment systems aid in improving consumer comprehension and satisfaction. The impression of conducting business online is certain to grow as technology advances, and consumers have broadly embraced electronic payment systems.

(Deepika in 2016) A study on Cashless Transaction: Methods, Applications, and Challenges was carried out. According to this study, users are aware of utilising digital money by viewing numerous commercials as a result of the government's decision to demonetize. This also discussed the ideas, developments, approaches, potential risks, and difficulties associated with adopting digital currency.

To determine whether it is feasible to build a cash-less society through increased actual use, researchers have performed a study titled "Cash-less Society: Drives and Challenges in Nigeria." This study examined the viability of a cashless economy in Nigeria by looking at time savings, knowledge of the issue, and the suitability of the educational and technological environment[3]. Less than 34 of respondents, according to research, used cashless transaction systems to buy stationery, fruits, and vegetables. Less than 34 of consumers reported having trouble utilising e-payment applications because of security concerns and software programs .

(Rudresha C.E, 2019) Many rural and even some metropolitan residents still lack a working bank account necessary for making internet payments. India's population is largely concentrated in rural areas, where appropriate internet infrastructure is lacking and it is impossible to conduct online transactions. There are still some locations that only accept paper money and refuse to accept debit or credit cards. Customers find it exceedingly challenging to use their cards to make purchases at these establishments. India's small retailers still only accept paper money since they cannot afford to invest in digital infrastructure. People will spend exorbitant amounts of money on goods and services, which is out of our control. It takes some time to get a new debit or credit card if you lose your current one.

(Ramya et al., 2017) Losing your phone can be a double whammy because you will be reliant on it for all of your mobile transactions. In addition to putting you at risk for identity theft, it could leave you defenceless if you don't have access to physical money or any other form of payment. This can be particularly difficult if you're travelling abroad or to a remote location where there aren't any banks or other payment options. The requirement to keep your phone continually

charged is another disadvantage. You will be left stranded if the phone dies on you, especially if you are in the middle of making an essential purchase or responding to an emergency. Overspending, Although using a card or mobile wallet is convenient, it could also lead an unwary population into a spending trap. The pain of leaving with money is allegedly felt more keenly if you use actual cash as opposed to a credit card. Consequently, utilising cash rather than cards or a mobile wallet functions as a natural defence for people who struggle to manage their spending. This is the reason why people could wind up overspending and causing havoc with their budgets.

3. Research Methodology

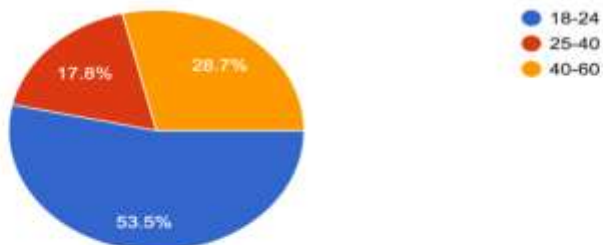
Primary Data is the foundation of the investigation. A questionnaire with eleven questions was created for the purpose of gathering data, and it was distributed to 100 people of different ages to get different perspectives. Based on the findings, we were able to determine how many people prefer cashless transactions, what challenges they have encountered, and how they defend themselves against financial fraud. Both qualitative and quantitative research are being done in this project. By sending them a thorough and organised questionnaire, the respondents provided the primary data that was gathered. To ensure that the data is unbiased, 100 respondents were used to collect it, representing a wide range of age, gender, occupation, and income categories. The questionnaire had two main aspects. The first was all the demographic information, and the second was related to the research problem, and it asked the respondents an open-ended question with opinion-based options. The information gathered from the questionnaire was analysed, administered, and then recorded in this research study.

4. Result and Discussion

As we must determine whether the impact of cashless forms of transaction is favourable or detrimental on consumer perception. Therefore, the findings of consumer perception towards online banking's questionnaire question are shown in pie charts as follows. It is clear with the research that the younger population(18-24) are the ones involved in usage of UPI, however that being said it is also highlighted that with upi based services there is a clear stigma attached regarding the security for big amounts despite users using them for day-to-day payments. Surprisingly another common problem amongst all age groups turns out to be Server Problems, so although UPI based services are providing aplenty through personal experiences Server Problems do seem to be a recurring problem which seem to be a barrier for further growth for UPI.

AGE

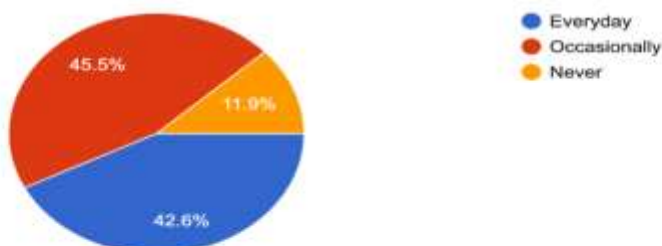
101 responses



This analytical figure shows the percentage of different age groups that have taken this survey and therefore making this survey free from all the bias.

How often do use online banking services?

101 responses



This analytical figure demonstrates the relevance and frequency of usage by demonstrating that the majority of customers utilise online banking services daily or very often. In this study, it shows that a very less percent of the respondents (approx. 10 percent) choose to not utilise these online services.

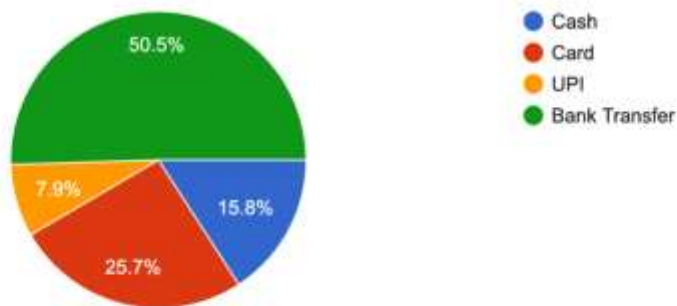
What kind of digital transaction would you prefer?

101 responses



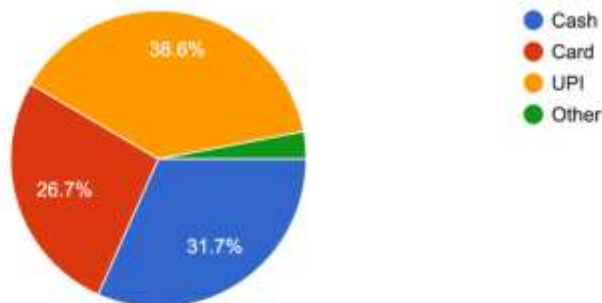
This analytical figure shows that majority of the people that opt for online banking services prefer to use upi as a mode of transaction.

WHICH PAYMENT METHOD WOULD YOU PREFER FOR A TRANSACTION OVER Rs 50000/-
101 responses



This analytical figure shows that majority of the people prefer online banking even for large sums of money.

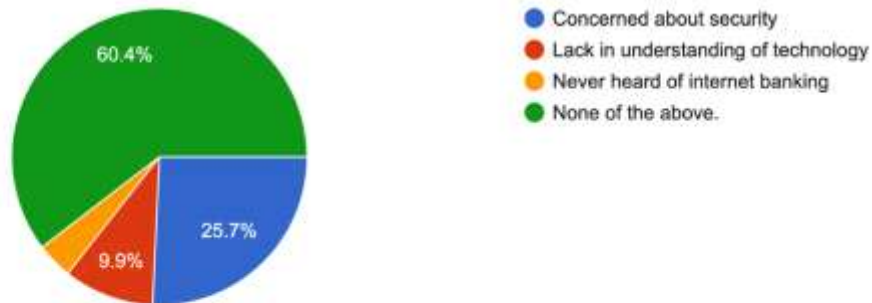
Which method of payment would you like to use while making a purchase at a convenience store?
101 responses



This analytical figure shows that majority of the people prefer online banking even for small sums of money.

What are the primary reasons if you haven't used online banking?

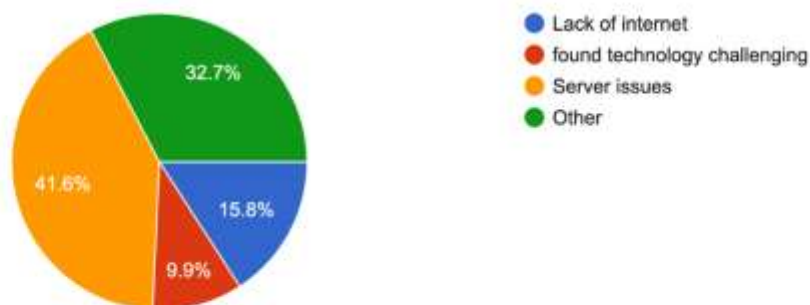
101 responses



This analytical figure demonstrates that those who have not chosen online banking services are hesitant due to security and other cyber-related concerns.

What are the most common barriers in cashless based services?

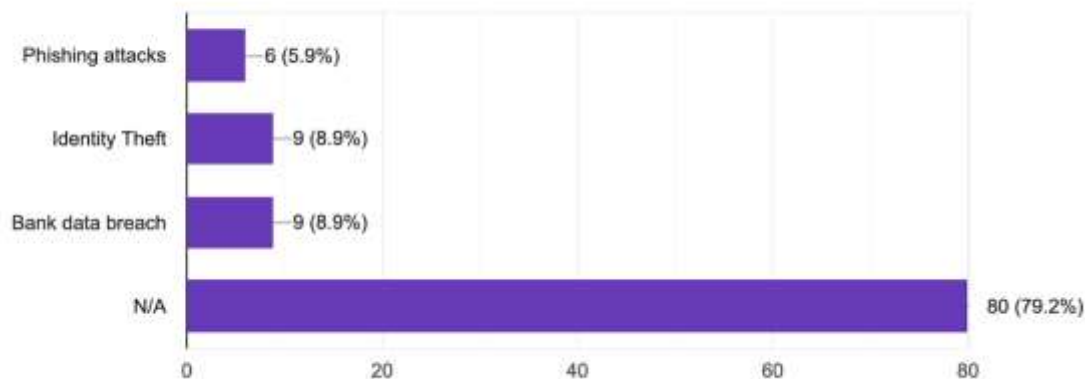
101 responses



This analytical figure shows that even though people are opting for online banking services they are majorily constantly facing server issues.

Which of these security issues have you been a victim of ?

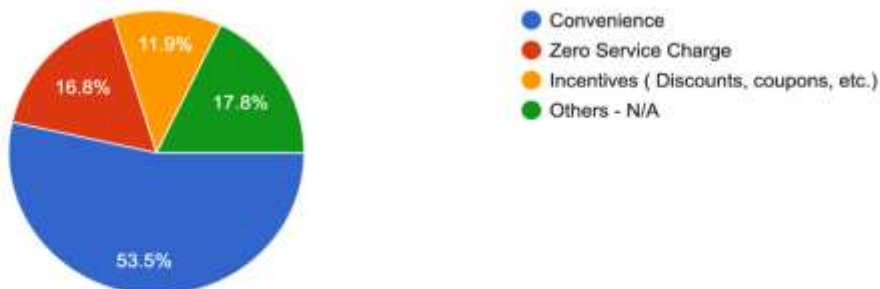
101 responses



This analytical figure demonstrates that, despite the stigma associated with internet banking and the security issues it raises, very few people have really fallen victim to such threats or issues.

What propelled your decision to choose upi- based services?

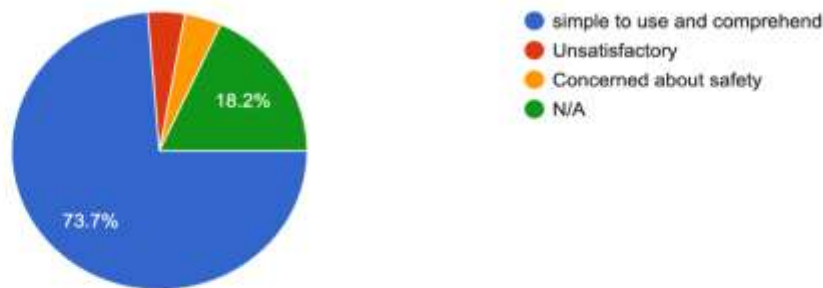
101 responses



The majority of consumers have selected online banking services since they are more convenient, according to this analytical study.

How has your experience with UPI been so far?

99 responses



Last but not least, this analytical data demonstrates that the majority of those who have chosen online banking services are quite satisfied with how easy it is to use and understand.

5. Conclusion

According to the coefficient table which shows that all independent variables has impact on consumer perception. Finally, we can argue that the government's demonetization strategy has caused awareness of the Cashless Payment System to grow among Indians. A few Customers had numerous issues when utilising digital wallets, including WIFI issues, smart phone issues, cybercrime, and others. Therefore, in order to address these issues, the government should conduct various security measures. Programmes for digital literacy to educate individuals about the many forms of electronic payment systems. In addition to addressing these problems, cashless payment systems provide users convenience. With an increasing GDP of India, it is also understood that digitalisation of payments is spreading in the entire country, this being said various measures to ensure the safety of the customers and their education is pivotal. Most individuals are racing to cashless transactions because they have little cash on hand and can see a long-term constraint coming. Better accountability, scalability, and transparency are benefits of digital transactions. The new initiative will force more businesses to accept digital currency. The king may no longer be cash. To get by during the cash shortage, everyone—from the local vegetable vendor to the chai and bhelpuri-wala—are using digital payment methods. To learn more about user behaviours and the adoption rate of digital payment systems, ET Wealth launched an online poll. The research shows that while more individuals are becoming accustomed to cashless transactions, some mental barriers prevent many from embracing the more recent systems. The results also imply that those who have switched to cashless payment methods may be vulnerable to security risks due to their usage patterns.

Digital payments come with numerous risks, many of which are much more serious than keeping cash on hand. Data from tens of thousands of debit card users were recently stolen, exposing the inadequacy of banking institutions to protect electronic money. Gemalto, a digital security firm, reports that in 2014, over a billion records were compromised. Additionally, our nation has a very weak system for filing complaints when identity theft occurs; for instance, if an Aadhar ID is stolen, there is no instant way to get it back. If they lose their money online,]people don't have

any simple options. Going cashless can also affect people's saving habits; studies have even proven that plastic money encourages overspending. Contrarily, it is challenging to persuade people to part with their money. Although the government has been encouraging individuals to save money, a cashless society will exacerbate the Demonstration impact. These issues clearly highlight the problems that would exist if our country would turn to a cashless economy in its entirety hence for better or for worse turning into a cashless economy seems like a idea that is far-fetched.

The nature of the study is exploratory, in this paper data is gathered by a student. It may be possible that people from different fields have different response. The research conduct in different geographical area where online banking is considered as more popular technology may also have chance of positive results. Whereas if the same research is conducted in an area where there is a lot of dilemma and tension regarding online banking, there are chances of a negative result.

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Empirical Evaluation of Financial Performance Differentials between Quoted and Unquoted Firms in Nigeria: Asset Base and Revenue as critical Determinants

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Abstract

There has been a long debate on what constitutes the financial performance of a firm. The thrust of this paper therefore was to determine the financial performance of quoted and unquoted firms in Nigeria using asset base and revenue as critical determinants. The study is hinged on the philosophy and perception that quoted firms performs better than unquoted firms. A sample of Eighteen (18) firms was selected, nine apiece for quoted and unquoted companies. The analysis of the firms covered a period of nine years from 2008 to 2017. Vital information from the selected firms' audited financial reports for various years were collected and analyzed. A Panel data fixed effect was used to determine the financial performance of quoted and unquoted firms while a paired sample statistics test was used in comparing the mean difference of both firms. Empirical results indicate that asset base and revenue have positive impact on the financial performance of quoted firms while only revenue has a positive relationship with financial performance of unquoted firms. The study concludes that there is a difference in the financial performance of quoted and unquoted firms in Nigeria. This difference may have emanated from the fact that unquoted companies lack the financial muscle that could be garnered by quoted firms; thus necessitating the recommendations that the Nigerian Stock Exchange should review its listing requirements to accommodate unquoted companies intending to be quoted.

Keywords: Asset Base, Revenue, Profit Margin, Quoted, Unquoted, Financial Performance

JEL CODE: M0, M11, M12

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1. Introduction

There has been an unending debate among researchers on the constituents of financial performance of a firm. The growth used as a measure of financial performance is based on the belief that growth is a precursor to the attainment of sustainability, competitive advantage and profitability (Markman, 2002). The rate of growth of an enterprise arguably is a function of the profit margin of the enterprise. The most widely emphasized goal of a firm is to maximize the value of the firm to its owners which is the driving force that makes a firm to succeed (Kannadhasan, 2008).

Most investors commit their resources to entities with large revenue base, great profitability potentials and future growth and stability. The process of growth and financial performance have been analyzed by researchers at the macro-economic level to the detriment of smaller (unquoted) companies. Therefore, the comparison of the financial performance of quoted firms with open access to the financial market and unquoted firms with no access is imperative.

A quoted firm is a firm that has sought and received listing for its shares on the Stock Exchange (SEC, 2005). Such quoted firms have numerous owners and can easily trade and transfer its equity shares. The motivation to be listed in the stock exchange results from the need to boost capital to meet present and future business growth, diversify its shareholders base, improve the debt-equity ratio and in some cases raise money to retire existing short-term facilities.

A quoted firm promotes economic growth and development in the aspects of improvement in aggregate consumption and investment. In this regard, Barlett (2000) states that the main mechanism through which the quoted firms affect the economy is through the so called wealth effect. The rise in stock prices raises wealth and an increase in wealth encourages consumers to increase their spending on consumption goods and investment thereby increasing the wealth of a nation that could trigger economic growth and development. In all, quoted firms allow for efficient transfer of funds between two parties: the borrowers and the lenders. Consequently, all borrowers and lenders are better off than they would have been if the transaction was not consummated provided such resource is prudently utilized.

Unquoted firms are those firms that are not listed in the Stock Exchange. Firms might be unquoted because of their small size and inability to meet listing requirements for stocks which include annual revenue bracket, listing fees and minimum number of outstanding shares. According to Hallberg (2000), unquoted firms have a big potential to bring about social and economic development. However, they are limited by capital outlay, and other resources. High rate of business mortality, inability to access the capital market for fund raising, poor management practices, among other factors are some of the identified challenges that unquoted business are facing in developing economy.

The relationship between unquoted firms and the Nigerian economy is controversial. Some strands of literature posit that unquoted firms have positive effect on the Nigeria economy. Ojukwu (2006) argues that unquoted firms stimulate indigenous entrepreneurship, provides employment to greater number of people, mobilize and utilize domestic savings and raw materials, provide intermediate raw materials or semi-processed products to large scale enterprises. Besides, unquoted firms have positively impacted the Nigerian economy in terms of output of goods and services, job creation at relatively low capital cost especially in the fast growing service and hospitality sector. They have also provided a vehicle for reducing income disparities as well as developing a pool of talented and semi-skilled labour on the basis of future industrialization.

Ngwuonugu (2005b) asserts that in developed economies of Germany, United States of America and even South Korea, unquoted firms account for 64 percent of industrial employment, a comparative figure in Nigeria is around 31 percent less than half of those in the developed countries. The 31 percent of unquoted firms' contribution to industrial growth is rather disturbing given the high degree of unemployment rate in Nigeria as well as the poverty level in the country as measured by the following indices and figures on the Nigerian's Human Development Indicator: high illiteracy rate, infant mortality rate, life expectancy at birth and GDP growth rate. In spite of the fact that there is hardly any documented, reliable and current data, it is rather obvious that the contribution of unquoted firms to the Nigerian output in particular and Gross Domestic Product in general are less satisfactory. Evidence of this poor performance is buttressed by the fact that most manufacturing enterprises in Nigeria had operated well below capacity in the last two decades. At times the capacity utilization has been as low as thirty percent.

The outbreak of the covid-19 pandemics has worsened the abysmal production performance of both quoted and unquoted companies in Nigeria. Only the multinational business thrived with unquoted firms folding up and thus worsening the unemployment situation in the country with its attendant high rate of crime.

Several related empirical studies on financial performance focused on corporate governance, ownership structure, profit sharing, managerial ownership and financial performance of firms to the neglect and exclusion of the financial performance of unquoted companies. Among such studies are Ahmadu, Amina and Tukur (2005); Henrik (2002); Engelbert, *et al*; (2005); Sanghoon (2006). Again, official statistics ignored the financial performance of unquoted firms. They fail to consider that the financial performance of unquoted firms is imperative because of their role in a national economic development and sustainability.

Moreso, empirical studies comparing financial performance of quoted and unquoted firms have shown contradictory results. Some studies like Walker and Petty (1978); Anderson and Reeb (2002) found evidence that unquoted firms out performed quoted firms while Tomas (2008) and Obiora (1987) negated this assumption. Daily and Dollinger (1992), argue that unquoted firms are more likely to outperform management controlled firms (quoted). This is because owners of unquoted firms are more likely to maximize firm value, enabling them to personally realize any financial and economic gain. In contrast,

professional managers of quoted firms may not pursue profit- maximizing and growth oriented strategies because they prefer to maximize their own benefits by pursuing other activities such as maximizing short-run sales revenues.

2. Literature Review

2.1 Theoretical Framework

The study is anchored on two distinct theoretical perspectives which are the Traditional Theory of the Firm and the Marri's theory of growth.

2.1.1 Traditional Theory of the Firm

The traditional theory of the firm is popularly referred to as the objective of the firm theory, which posits that businesses are set up with the sole objective of profit maximization. Profits are surpluses above the average cost of operation. Raiph (2002) states that the first objective of any business despite all that have been written and said about social and other aims must be to make profit. The going concern of a business enterprise will be threatened if sufficient profits are not maximized. The firm by pursuing its objective of profit maximization also maximizes social economic welfare. However, recent empirical evidences have argued that profits are uncertain and it is difficult for firms to maximize their profits under conditions of uncertainty as there might be dearth of practical information to be profit maximizers. This has led to the emergence of the growth maximization theory.

2.1.2 Marris's Theory of Growth

The proponent of this theory posits that modern firms are interested in growth maximization rather than profit maximization. According to Marris (1964), managers of large firms aim at promoting the growth and security of their firms. Incentives are given to employees for the purpose of expanding the size of the firm beyond profit-maximizing size and to steady growth rate. If the firm's choice is that of a higher growth rate, it will spend more on advertisement, research and development in order to create more demand and new products. Hence, he retains higher proportion of current profits for such growth promoting activities. Consequently, dividend to shareholders will be reduced and the share prices will fall. Besides, Marris emphasized the ever present threat of takeover if the resources of the enterprise are inefficiently managed.

2.2 Empirical Literature

Tomas (2008) investigated the performance of quoted and non-quoted companies in Europe using a dimensional panel data employing some financial ratios. The results showed that quoted firms in Europe performed significantly better not only in terms of profit, but also in terms of cash flow generation.

Atje and Jovanovic (1993) investigated a cross country of quoted firms and economic growth over the period 1980 – 1988. They found a significant correlation between average economic growth and market capitalization for forty countries. In a similar study by Levine and Zervos (1998), they employed data on 47 countries from 1976 through 1993 and found that stock liquidity are strongly related to growth, capital accumulation and productivity.

Obiora (1987) investigated the financial performance of quoted and unquoted registered

firms in Nigeria. He used Multivariate Analysis and financial ratios for the firms investigated. The findings showed that quoted firms performed better than unquoted firms in Nigeria.

Schoubben and Hulle (2004) examined the difference between quoted and unquoted firms in Belgium. Panel data from quoted and unquoted firms were used and result showed that quoted firms are less leveraged than unquoted firms.

Walker and Petty (1978), compared the financial profile of large and small firms using ratios of liquidity, profitability, leverage, business risk and dividend indicators. They concluded that there exist differences in the financial performance of large and small firms. With respect to profitability, small firms were more profitable than large firms. They argued that the result could be the nature of the small firms used.

Sanghoon (2006) investigated the ownership structure and financial performance of South Korea. He used panel data for South Korea firms from 2000 through 2006. The study shows that ownership structure is related to financial performance.

Nurhan, Mustafa and Abullahi (2007) investigated whether foreign owned firms perform significantly better than domestically owned Turkish corporations. They employed t-test statistics to ascertain if there are differences on operating margin, (OPM), Return on assets (ROA) and Return on equity (ROE). The result reveals that foreign ownership performs better than domestic owned ones in areas of ROA. The study was for the period of 2003 through 2004. From the literature review, the following hypotheses are derived:

- H₁: There is significant difference between the total revenues of quoted and unquoted companies in Nigeria.
- H₂: There is significant difference between the total asset base of quoted and unquoted companies in Nigeria.
- H₃: There is significant difference between the total profits of quoted and unquoted companies in Nigeria.

3. Research Method

The data for this study was from secondary sources collected from the Nigeria Stock Exchange, Audited Financial Report of Firms, CBN Annual Report and Statement of Account for various years. The panel data fixed effect model was used in estimating the financial performance of quoted and unquoted firms in Nigeria. In this study, financial performance (operating profit) will be regressed on asset base and revenue. We shall carry out a Hausman Test to ascertain whether fixed effects or random effects model shall be employed to estimate the relationship. Paired Sample Test was utilized in estimating the relationship between the financial performance of quoted and unquoted firms.

Vital information from the Firms Audited Financial Report and Statement of Accounts for various years were collected and analyzed. A sample of Eighteen (18) firms was selected, nine for quoted firms and nine for unquoted firms. The analysis of the firms covered a period of nine years from 2009 to 2017. A panel data fixed effect was used to determine the

financial performance of quoted and unquoted firms while a paired sample statistics test was used in comparing the mean difference of both firms.

3.1 Model Specification

The study is guided by a mathematical function specified as follows:

$$FP = F(AB, REV) \dots \dots \dots (1)$$

Where:

FP = Financial Performance (Proxy by firms' profit)

AB = Asset base of the firm (the total worth of the firm)

REV = Firm's Revenue (Proxy by firm's annual earned income)

For econometric computation, equation 1 transforms to:

$$FP = \beta_0 + \beta_1 AB_1 + \beta_2 REV_2 + ut \dots \dots \dots (2)$$

Where $\beta_1 - \beta_2$ = parameters to be estimated;

Ut = Stochastic error term

We formally write model 1 in a fixed effects (regression) model as:

$$FP_{it} = a_1 AB_{1it} + a_2 REV_{2it} + U_{it} \dots \dots \dots (3)$$

Where:

$i = 1, 2, \dots, n$, number of firms; U_{it} = error term

$t = 1, 2, \dots, t$, number of years

where i stands for the i th cross sectional unit and t for the time period. As a matter of convention, we will let i denotes the cross-section identifier and t the time identifier. It is assumed that there are a maximum of N cross sectional units or observations and a maximum of T time periods.

We put the subscript i on the intercept term to suggest that the intercepts of the selected eighteen firms may be different; the differences may be due to special features of each company, such as managerial style or managerial philosophy, corporate values and cultures among other factors.

4. Result and Discussion

4.1 Result of Hausman Specification Test

Since the panel model is being adopted, the individual effect terms can be modeled using either fixed or random effects. A formal test that will help us to choose between fixed effects model (FEM) and random effects model (REM) was performed with the Hausman Specification Test (HST) also known as Durbin-Wu-Hausman Test. The outcomes for the regressions show that they are statistically significant at the 10 percent significant level $Prob > \chi^2 = 0.0007$ and $Prob > \chi^2 = 0.0663$. We therefore use the fixed effects model

for the interpretation of our empirical analysis since it is consistent and the individual effects are correlated with other regressors in the model as well as having a larger test statistics.

4.2 Empirical Results

Table 1: The influence of asset base and revenue on the financial performance of quoted firms

Variable	Fixed effects	Random effects
Constant		-3.001
T-Statistic (Constant)		-3.248
Revenue (Log Rev)	0.9274	-1.1119
Asset Base (Log AB)	0.1155	0.0273
T-statistic (Revenue)	10.748	11.281
T-statistic (Asset Base)	2.214	0.326
Fixed Effect		
-Qi-	-1.03	0.57
-Qii-	-1.35	0.70
-Qiii-	-2.99	-0.55
-Qiv-	-1.88	-0.38
-Qv-	-3.01	-0.69
-Qvi-	-2.97	-0.80
-Qvii-	-1.20	0.54
-Qviii-	-1.58	0.18
-Qix-	-1.42	-0.06
Observations	100	100
R ²	0.94991	0.934032
Adjusted R ²	0.94780	0.93251
Prob (F-stat)	0.000	
Hausman test (p-value)	0.0663	
SE of regression	0.2276	0.2652
Durbin Watson statistics	1.95	0.78

Table 2: Influence of asset base and revenue on the financial performance of unquoted firms

Variable	Fixed Effects	Random Effects
Constant		-1.488
T-statistic (Constant)		-1.2291
Revenue (Log R)	1.0671	
Asset Base (Log A _s B)	-0.0280	
T-statistic (Revenue)	11.4521	

T-statistic (Asset Base)	-0.7452	
Fixed Effects		
-UQi	-0.89	-0.51
-UQii	-1.11	0.33
-UQiii	-1.40	0.06
-UQiv	-1.30	0.18
-UQv	-1.43	-0.07
-UQvi	-0.92	0.35
-UQvii	-2.55	-1.05
-UQviii	-1.05	0.36
-UQix	-1.07	0.22
Observations	100	100
R ²	0.957925	0.903737
Adjusted R ²	0.949226	0.897453
Prob (f-stat)	0.000	
Hausman Test (p-value)	0.0007	
SE of regression	0.637844	0.673817
Durbin Watson Statistics	1.72	1.68

Table 3: Paired samples Test to compare profit, Asset base, Revenue of quoted and unquoted firms

Pair of Variables	QR – UR	QAsB- UAsB	QP-UP
Mean	6.4466	4.3226	5.8165
St. Dev.	6.1340	1.0707	4.0861
St. Error of Mean	5.2340	1.0707	4.0461
t- value	1.034	4.224	1.277
p-value	0.304	0.000	0.205

Keys: i. QR and UR = total revenue of quoted and unquoted firms respectively.

ii. QAB and UAB = total asset base of quoted and unquoted firms respectively.

iii. QP and UP = total profit of quoted and unquoted firms respectively.

4.3. Discussions

The outcomes in **Table 1** above show that the changes in financial performance across firms can be explained by changes in asset base and revenue. The two variables have positive relationship with financial performance and the relationship is statistically significant ($A_sB =$

0.9274, $REV = 0.1155$ and $prob. = 0.000$). Specifically, about 95 percent of the variations are explained by the explanatory variables. The Durbin Watson statistic in the fixed effects model also shows that the model is free of serial (auto) correlation. The outcome implies that an increase in asset base and revenue all other factors held constant will increase the financial performance of the firms.

The outcomes in **Table 2** above shows that the aggregate performance of the fixed effects equation is quite satisfactory with a high R^2 of about 96 percent and the computed p-value is quite significant at 0.000. The DW statistics clearly shows the absence of auto correlation between the criterion variable (profit) and the predictor (asset base and revenue). The positive result of revenue (1.0671) implies that an increase in revenue increases the financial performance (profits) of firms all other factors held constant.

The results further indicate that an increase in asset base of firms is negatively correlated (-0.0280) with financial performance of the firms for the period under review. This implies that asset base reduces the profit of firms. This may be due to the inability of the unquoted firms to mobilize sufficient capital from the capital market for their expansion and growth objectives. Raising of capital mainly by personal savings and retained earnings and from friends and cooperatives by Nigerian unquoted firms may negatively affect financial performance of the firms both in the short and long-run.

The result in **Table 3** shows that there is no significant difference ($p\text{-value } 0.304 > 0.05$) between the total revenues of quoted and unquoted at 5% significant level. The difference only lies in the managerial and unique characteristic features of each firm. Thus leading to the rejection of the first formulated hypothesis which states that there is significant difference between the total revenues of quoted and unquoted companies in Nigeria.

Regarding asset base, the results indicate that there is significant difference ($p\text{-value } 0.000 < 0.05$) between the total asset base of quoted and unquoted firms at 95% confidence level. This is indicated in the gap between the mean difference and the standard error of mean. In other words, there is great marginal increase in the asset base of quoted firms compared to that of unquoted companies. This result led to the acceptance of the second hypothesis which states that there is significant difference between the total asset base of quoted and unquoted companies in Nigeria.

As regards profit, the result shows that there is no significant difference ($p\text{-value } 0.205 > 0.05$) between the total profits of quoted and unquoted companies at 95% confidence level. This reflects the peculiar attributes of each of the companies. Therefore the third hypothesis which states that there is significant difference between the total profits of quoted and unquoted companies in Nigeria is rejected.

This empirical evidence agrees with Tomas (2008) who found that quoted firms in Europe performed significantly better not only in terms of profit, but also in terms of cash flow generation. It also corroborates Obiora (1987) evidence that quoted firms performed better than unquoted firms in Nigeria. However, it disagrees with the findings of Walter and Petty (1978) who concluded that with respect to profitability, small (unquoted) firms were more profitable than large firms.

5. Conclusion

The general objectives of the study is to evaluate the performance of quoted and unquoted companies in Nigeria using assets base, revenue and operating profits as key measurement indices. Nine (9) quoted and nine (9) unquoted firms were used for the study. The analysis for the quoted firms shows that asset base and revenue of the selected firms had a positive influence on their financial performance. This implies that expansion activities of the firms in the area of increasing asset base and revenue will increase the operating profit margin of the entity reflecting their ability to expand with access to cheaper funds.

The results for unquoted firms show that only revenue of the firms had a positive influence on their financial performance. This may be due to certain shortcomings associated with unquoted firms such as restricted access to acquisition of funds at a relatively lower rates among other factors. Further evidence from the paired samples test indicates that quoted firms have a higher capacity to mobilize funds for increased asset base. The study therefore conclude that an increase in revenue all other factors held constant will increase the financial performance of both quoted and unquoted firms in Nigeria while an increase in asset base will increase the profit margin of quoted firms positively; on the contrary, it has a negative effect on the profit margin of unquoted companies.

The empirical results have some cogent policy implications for corporate entities as well as policy makers and regulators regarding effective policies and regulations as it affect firms and the economy.

First, the Nigerian Stock Exchange annual revenues thresholds, minimum number of outstanding shares, number of shareholders, listing fees and other requirements for a company to be quoted should be reviewed to accommodate the peculiarities of unquoted companies.

Second, a massive enlightenment campaign should be embarked upon by the Nigerian Stock Exchange, the Securities and Exchange Commission and other regulators to sensitize small and unquoted firms on the benefits accruable for being designated as a quoted company.

Lastly, to encourage firms to be quoted, the Nigerian Stock Exchange must as a matter of urgency should develop and improve their capacity in the area of effective management, market deepening, eradication of insider dealings and infrastructural inadequacies among other inefficiencies. This will no doubt boost the confidence of small and unquoted companies to seek the benefits of being quoted in the Stock Exchange.

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Effect of Investments on Cash flow of Manufacturing Firms Listed at the Nairobi Securities Exchange

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Abstract

The researcher in this study sought to establish the factors that affect cash flow in manufacturing firms in Kenya. The study was guided by the following specific objectives, to establish how investments affect cash flow in manufacturing firms listed in the Nairobi stock exchange, to find out how inventory controls affect cash flow in manufacturing firms listed in the Nairobi stock exchange, to determine how profitability affect cash flow in manufacturing firms listed in the Nairobi stock exchange. The researcher used descriptive research design to describe the factors affecting cash flow in manufacturing firms listed in the Nairobi stock exchange. A firm should be able to generate enough cash flows from its operations. If a firm is not able to cover its current liabilities with cash generated from operations, it will have cash challenges in financing its operations. A cash flow ratio of one shows that the firm has healthy cash flows and a ratio of less than one shows that the firm does not have enough cash flows to finance its operations. The study covered a period of five years from 2012 to 2017. The methodology for the study was descriptive research design. The study employed population census as the listed firms were very few for the researcher to employ sampling. The listed firms were nine. Analyzed data was presented using figures and tables. The study findings revealed that there is a positive relationship between cash flows and investments as measured by net capital expenditure, profitability as measured by return on assets. There is a negative relationship between cash flows and inventory control as measured by inventory turnover. The study also established that there is a positive relationship between cash flows and profitability of a firm as measured by return on Assets (ROA). cash flows in all the firms have the same trend except for Eveready East African Ltd. The study concluded that manufacturing firms should exercise inventory control, invest wisely and also manage profitability of assets to ensure that the firm has enough cash flows to fund its operations.

Keywords: Cash flows, cash flow ratio, Manufacturing firms, Investments, Profitability, inventory control, inventory turnover, Return on Assets.

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1. Introduction

Most of the manufacturing firms in Kenya being small in size have been experiencing cash flow fluctuations and sometimes they record negative cash flows. The fluctuations have been associated with several factors which include but not limited to investments, inventory control and profitability of assets. Most of these manufacturing firms are not in a position to cover their current liabilities as a result of cash flow challenges (Quinn , 2011)

Cash flow is defined as the net difference between cash inflows and cash outflows in a firm. If a firm has Positive net cashflow, its an indication that the liquid assets of a firm are increasing. This means that the firm is able to pay its liabilities, pay dividends to shareholders, invest more in the business, fund its operations on time and also set aside reserves for future use if the firm has financial challenges. If the firms liquid assets are decreasing, the firm will have negative cash flows an indication that the firm will experience cash flow challenges. The importance of cash flow in any kind of business cannot be overlooked as without enough cash flows a business will collapse as it will not be able to fund its operations.

Most businesses state “cash is king”, but they do not have clear methods of projecting the amount of cash they will need for a specified period of time. Investment can be described as the current commitment of financial resources so that greater returns are achieved in the future. Various studies from different researchers have established that a relationship exists between Investments and cash flows. Jonathan and Katharina (2016) established that investments affect cash flow as investing includes usage of funds. Whited and Erickson (2012) studied on the relationship between investments and cash flow. He concluded that cash flow and investments are have a negative relationship. Almeida, (2010) conducted a study to establish how investments and cash flows are related for unbalanced panel of surviving firms between 1980 to 1999. They established that a negative relationship exists between investments and cash flow.

Cash flow management activities in manufacturing firms listed in Nairobi securities exchange has an increasing Challenge to financial performance. This has been evidenced by the decrease in performance of manufacturing firms listed at the Nairobi securities exchange as attributed by cash flows issues, (Athanase, 2015). A recent report by the World Bank (2014) recognizes the importance of financial management practices towards economic development in both developing and developed countries. The study shows that through proper financial management practices, managers are in a position to make sound decisions on the financial position of an enterprise and their capability of achieving long term financial goals. Cash management practices are a key tool of ensuring that organizations profitability is stable while ensuring they do not become insolvent, World Bank (2014) In Kenya, the cases

of cashflow management are highlighted by various studies and reports. A report by the Kenya Economic Survey (2016) revealed that manufacturing firms have lower performance levels compared to organizations in other sectors with a slow growth rate of 4.3% per year. The main issues underlining their performance is uncertainty and lack of knowledge of cash flow management that under mines financial literacy. However, Harash et al (2014) asserted mismatch in any cash flow management practices hinders capability of manufacturing firms to achieve positive results. A study by Zulu(2014) indicated that the failure rate of manufacturing firms in south Africa lies between 70% and 80% as a result of cash flow problems.

Studies by Ngugi and Waweru (2014) on the effects of financial innovation in relation to how manufacturing firms perform revealed that financial innovation has an effect on how they perform. This happens if a firm is fast enough to embrace new financial innovations in the market. Another study by Kinyanjui, Kiragu, and Kamau (2017) on cash management on financial performance revealed that inappropriate skills to manage, plan and control cash flows leads to slow financial growth as the business may lack cash for expansion. Though the studies tackled importance of financial management, the studies failed to indicate the factors that affect cash flow. Most of the studies conducted locally and internationally most address the relationship between cash flows and firm's performance. The Main reason to conduct this study is to examine factors that affect cash flow in manufacturing firms leading to the high failure rate giving attention to manufacturing firms listed in the Nairobi stock exchange to address the identified gaps. This paper seeks to establish the factors that affect cash flow in manufacturing firms by establishing how investments, inventory control and profitability relate to cash flows. Firms listed in the Nairobi stock exchange were considered in this study. To establish how investments affect cashflow of manufacturing firms listed at the Nairobi securities exchange.

2. Literature Review

2.1 Introduction

In this chapter, the study focuses on empirical review, the theoretical aspect, and the conceptual framework explaining the relationship between the variables i.e. the dependent and independent variables. It discusses various theories that relate to cash flow. Empirical review of literature in relation to this topic and conceptual frame work are also analyzed.

2.2 Theoretical frame work

2.2.1 Trade-off Theory

This theory was put forward by Dittmar et al, (2003). According to this theory, in order to maximize the wealth of shareholders, Enterprises put into consideration the benefits and costs of holding cash. Cash flow management practices are aimed at ensuring that the firm has enough cash to fund its operations as well as for investment purposes. According to the tradeoff theory, firms only hold an optimum level of liquidity so that a balance exists between the costs and benefits of holding cash. Islam, (2012) Some of the costs associated to holding cash include low returns as a result of liquidity premium and to some extent tax disadvantage. Benefits associated with holding cash include reduced transaction costs in raising funds or in selling of assets to raise funds to settle obligations.

If sources of finances are expensive or unavailable, an enterprise can use its liquid assets available to make investments or to fund its operational activities. Cash inflows and cash outflows should be maintained at optimal levels. The theory is of great concern in this study because any cash flow management practice is to ensure that the business is liquid enough to fund its operations. In managing cash flows, the managers need to know the factors which are affecting cash flows so as to control them. As highlighted above, the owner gets to know which are the best practices to exercise so that he can maintain optimum levels of cash. In a study by Joseph (2016) on the impact of cash management practices on the performance of SMEs, he used this theory and emphasized on the importance of maintaining optimal cash flows to ensure smooth running of the business. Frank (2014) in his study on cash flow and corporate performance used this theory to emphasize on the importance of cash flow on the performance of corporates. He established that mismanagement of cash flows hindered the growth of manufacturing Firms in Nigeria. The benefits and costs of holding cash should be considered and necessary actions taken early in advance. Lack of cash to fund operations on time has its cost and having too much idle cash also has its disadvantages.

In his study Enyew (2016) on factors affecting cash holding of manufacturing share companies in Ethiopia used this theory to emphasize on the importance of holding optimal cash balances in manufacturing firms. He noted that firms that do not hold optimum cash flows have problems in financing their operations and thus may incur additional costs in trying to raise additional funds externally or in liquidating the current assets they have. Ogundipe et al. (2012) in their study on cash holding and firm characteristics for firms in the Nigerian emerging market recognized the importance of this theory. They highlighted that in holding optimum cash flows costs and benefits exist and a tradeoff should exist between the two. Firms with enough cash flows can take advantage of profitable business opportunities while firms which lack cash flows or have negative cash flows can miss profitable opportunities.

2.3 Empirical review

2.3.1. Investments and cash flow

A number of empirical studies have been conducted to address financial constraints of a firm with the aim of establishing the relationship between availability of funds and investment decisions of a firm. Availability of internally generated funds should not have an effect on investment decisions as perfect capital markets ensures that external and internal funds sources are substitutable. (Hardy et al. 2012). Jonathan and Katharina (2016) conducted a study to establish investment cash flow sensitivities. The main objective of the study was to establish if a link exists between cash flows and investments. They studied on United States firms from 1971 to 2009. They used both cross sectional and time series data in their study. From the sample of firm, investment regression using ordinary least squares showed that additional dollar of cash flow had an effect on working capital, investments and cash holdings. The research findings revealed that cash flows and investments are strongly linked when the investment opportunities for the firm are controlled.

Letenah, (2014) conducted a research on investment cash flow sensitivity as a measure of financial constraints. The study was conducted to explain the conflicting evidence on investment cash flow sensitivities by using proxies for both internal financial constraint and external financial constraint measures. Secondary data extracted from the financial statements

was used .The study concluded that firms of all category have a positive and significant investment cash flow Sensitivity.

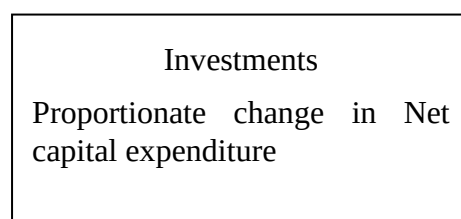
Imtiaz (2017) carried out a research on the relationship between investments and cash flow. The main objective of the study was to establish the relationship between investments and cash flows under high and low investment opportunities. The researcher used 167 non-financial manufacturing firms in Pakistan. Secondary data was used in this study ,which ranged between 2004- 2013 to investigate the relationship of cash flow ,sales and investment a panel regression model was used.The research revealed that in high investment opportunities firms, there exists a significant positive relationship between cash flow and investments.In low investment opportunities firms; the relationship between cash flow and investments is positive but insignificant. The research concluded that high investment opportunities firms rely on internally generated cash flows unlike low investment opportunities firms which distribute their earnings as dividends.

Richard (2014) studied on investment cash flow sensitivity under management optimism.The objective of the study was to test the investment cash flow sensitivity among panel data of industrial firms in America between 1999 to 2010.Q model of investment was used in the analysis. The research revealed that there is a positive and significant co efficient of investment to cash flow for the full sample.For fully constrained groups, sensitivity exists and is stronger. Whited and Erickson (2012) carried out a study to determine the link between investments and cash flow. The general objective of the study was to identify if a relationship exist between investments and cash flows in manufacturing firms. He compared 1,317 manufacturing firms .Secondary panel data was used in this study .It was established from the research findings that cash flows and investments have a significant relationship.

2.4 Conceptual frame work

A concept is a general idea or an abstract derived from specific instances.(Kombo & Tromp, 2009) and unlike a theory a concept can be understood by the reader without being discussed. (Durham & Stokes, 2015).According to ((shapira, 2011), a conceptual framework is a structure that represents empirical observations in a meaningful format.

Independent Variables



Dependent Variable

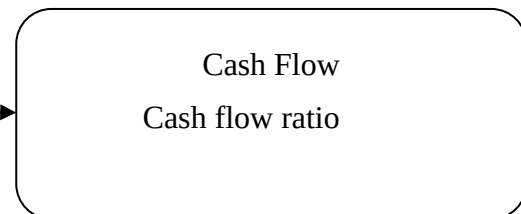


Figure 1

Operationalization of variables refers to the process of defining and describing the study variables into measurable factors. The process helps in defining fuzzy concepts and allows them to be measured, empirically and quantitatively (Ardelt, 2004). Various independent variables affecting cash flow were identified during the Literature review and investments identified to be one of them. Cash flow refers to the funds inflows and outflows in a firm.

Cash flow is measured as income before extraordinary items plus depreciation. It is measured using the cash flow ratio. A ratio of 1 indicates that a company is able to pay its current liabilities from cash flow generated from operations and vice versa. Cash flow from operations was extracted from the statement of cash flows while current liabilities figures are extracted from the statement of financial position.

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

Investment as an independent variable in this study referred to the commitment of fund with the aim of getting more returns in the future. Investments were measured as the net capital expenditure in the current year.

$$\text{Net Capital Expenditure} = \frac{\text{Capital Expenditure}_t - \text{Capital Expenditure}_{t-1}}{\text{Capital Expenditure}_{t-1}}$$

Table 1. Operationalization of variables.

Variable	Measurement	Formula
Investment	Proportionate change	Current year capital expenditure - previous year capital expenditure./Previous year capital expenditure

3. Research Methodology

3.1 Introduction

This chapter provides the details of the targeted population, research plan to use, data sampling plan, how to collect data and how to analysis collected data. Research method to be used by a researcher is of great importance. This is because scholars and other researchers consider the method that was used to define the quality of qualitative reports (Kirkman, Hammerer and De Lacey 2016). Poor research methods lead to poor research reports.

3.2 Research Design

A research design is described as the outlined plan showing how the whole research process will be carried out. It shows how the activities to be carried out in the study will be organized. (Mugenda & Mugenda 2003). Polit, Beck, and Owen (2003) defines a research design to be an overall plan for obtaining answers to the research questions in a given study and for solving some of the challenges a researcher faces during the research process. The research design used in this study was descriptive research design.

3.3 Sampling frame and sampling design.

In this study the researchers sampling frame for the target population was all the 9 listed firms in the Nairobi securities exchange which is regulated by the capital markets Authority as at June 2019. Lavrakas (2014) defined a sampling frame to be a list of target population

where a sample is derived from and that a sampling frame comprises of a finite population. Kothari (2010) defined a sampling frame to be a list that includes all the names of elements in a universe. A sample is a list of selected participants from a population (Polit & Beck, 2010). Kothari (2004) defined a sampling frame as a structured plan used to obtain a study sample from a given target population. The plan shows the technique and the procedure the researcher will use in his study in selecting items for the sample which should be a representative of the entire target population. A Census of the listed manufacturing firms in the Nairobi stock exchange was considered in this study. This is because the target population was small and thus easy to use census than sampling. All the manufacturing firms listed as manufacturing and Allied under the capital market authority as at June 2019 were analyzed.

3.4 Data Collection

Miles, Huberman and Johnny (2014) described data collection in a study to be the process of collecting and measuring information relating to study variables to enable the researcher to formulate relevant questions and project the outcome. Secondary data analysis is more preferred in a Quantitative research to primary data analysis. The analysis of secondary data from existing research is increasingly being used unlike primary data analysis. Secondary data has much clearer categorization because it avoids confusion. (Johnston (2014).

In this study, the researcher used Secondary panel data as it was easier to collect it for past years and also it's more reliable than primary data. The data was easily available from the company's websites as well as the capital market Authority website. Panel data has more variability and there is less collinearity between the study variables as compared to time series and cross sectional data. Panel data limits heterogeneity and identifies effects that cannot be highlighted in pure time series and cross sectional data and thus can be used to study complicated issues of changing nature. (Baltagi, 2005; Greene, 2002; Gujarati, 2012).

The data was extracted from financial statements which included statement of financial position, statement of cash flows and statement of comprehensive income for the five years under the study. The collected data covered a period of 5 years from 2013 to 2017. The data was collected through the use of data collection sheet.

3.5. Data processing and Analysis

The researcher adopted both quantitative and qualitative methods of analyzing data. According to Cooper & Schindler (2003), analysis of data is a long and continuous process initiated immediately after data has been collected and stops when the data is processed and interpreted. Data processing includes editing, coding, classification, tabulation and graphical presentation, Blumberg, Donald Cooper and Schindler (2014). The researcher extracted secondary data and the data was analyzed quantitatively through a mathematical and regression equations and this was solved by using a statistical tool (STATA). According to Olweny (2012) multiple regression techniques give both quantitative and qualitative result that is conclusive and clear. STATA analyzed descriptive statistics and multiple linear regression analysis between dependent variables (cash flow) and independent variables which included investments, inventory control and profitability.

The research used panel data model of the form.

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \varepsilon_{it}$$

Where: Y = Cash flow

X_1 =investments (Net proportionate change in capital Expenditure)

β_0 = Constant co- efficient of change.

β_1 , = regression co efficient of change of the independent variables.

ε =Error term.

3.6 Test of significance.

To test significance of regression model, the study used the F-statistics while the p – statistics will be used to test significance of regression coefficients. Both statistical tests were tested at 95% confidence interval.

4. Result and Discussion

4.1 Descriptive analysis of study variables.

The researcher examined the descriptive pattern of the independent and the dependent variable and the study findings were summarized as shown in table 4.1 and table 4.2 below.

The descriptive statistics for the independent variables were analyzed as follows.

Table 2. Descriptive statistics for the study variables.

. xtsum cashflow investments inventorycontrol profitability					
Variable	Mean	Std. Dev.	Min	Max	Observations
cashflow overall	.2048889	.2701315	-.44	.84	N = 45
between		.2331911	-.132	.668	n = 9
within		.1534157	-.1211111	.7668889	T = 5
invest~s overall	.0002222	.2967206	-.97	.51	N = 45
between		.1849823	-.406	.26	n = 9
within		.2386115	-.7697778	.6462222	T = 5

Cash flow which was the dependent variable and was measured as a ratio (operating cash flows to current liabilities) had a mean of 0.205. This implied that the manufacturing firms could only cover 20.5% of their current liabilities during the period under the study. The firms did not generate enough cash flows during this period and it is evident that they had cash flow challenges especially Eveready East Africa Ltd. The mean of cash flow was -0.44 which implied that some of the firms generated negative cash flows thus having a challenge to fund their current liabilities. The maximum was 0.8 which was close to one which is the standard ratio meaning that firms with this ratio tried to fund their operations but were not able to generate enough cash flows. This report is in agreement with the KAM,(2011) report which revealed that most of the manufacturing firms are stagnant or failing due to lack of enough cash flows.

Investments had an overall mean of 0.002 and a variation of 0.296, a minimum of -0.97 and a maximum of 0.51. The variation between the firms was 0.184, a minimum of -0.406 and a

maximum of 0.26. Investment variation within the firms was 0.239 with a minimum of - 0.770 and a maximum of 0.65. This showed that on average, some of the firms increased their capital expenditure in terms of getting new machines and equipment up to 51% while other firms decreased their capital expenditure by disposing some of their equipment up to 97%. The increase in capital expenditure had a significant positive relationship on cash flows. This conclusion is in agreement with Jonathan and Katharina, (2016), Zahid, (2017) and Wale, (2014) who concluded in their studies that a positive relationship exists between investments and cash flow.

Inventory control overall mean was 5.068 and a variation of 2.336, a minimum of 1.66 and a maximum of 12. The between firm variation of inventory control was 1.592 with a minimum of 3.302 and a maximum of 7.436. The within firm variation was 1.776 with a minimum of 2.750 and a maximum of 13.096. From this analysis it was established that most of the firms replenished their firms on Average five times in a year. This implied that the firms held a lot of stocks which tied up their cash flows thus causing cash flow challenges in the firms. The overall minimum of the firms was 1.66 which implied that some of the firms replenished their firms twice a year. This could have been a reason why most of the firms experienced cash flow challenges. The overall maximum was 12 implying that some of the firms were efficient in replenishing their stocks. This findings are in agreement with Mwangi, (2014) who concluded in his study that a relationship exists between inventory control and cash flows.

Profitability overall mean was 0.042 and a variation of 0.329, a minimum of -0.89 and a maximum of 0.46. The between firm variation was 0.272 with a minimum of -0.638 and a maximum of 0.348. The within firm variation was 0.201 with a minimum of -0.514 and a maximum of 0.367. The implication of the overall mean is that the firms had a mean cash flow ratio of 0.2. The overall mean of 0.042 implied that the profitability of the assets was on average 4.2%. In some of the firms the return on assets was as high as 46% which was the maximum during the period under study. Some of the firms did not utilize their assets well and thus ended up making losses up to 89% which was the minimum for the firms on average.

Table 3 Descriptive statistics for the dependent variable.

```
. xtsum cashflow
```

Variable	Mean	Std. Dev.	Min	Max	Observations
cashflow overall	.2048889	.2701315	-.44	.84	N = 45
between		.2331911	-.132	.668	n = 9
within		.1534157	-.1211111	.7668889	T = 5

From the study findings it was established that on average all the firms had a cash flow ratio of 0.20 with an overall variation of 0.27, over a minimum of -0.44 and a maximum of 0.84. The standard deviation between firms was 0.23 with a minimum of -0.13 and a maximum of 0.68. The within firm variation of cash flow (standard deviation) was 0.15 with a minimum of -0.12 and a

maximum of 0.77. Cash flow which was the dependent variable and was measured as a ratio (operating cash flows to current liabilities) had a mean of 0.205. This implied that the manufacturing firms could only cover 20.5% of their current liabilities during the period under the study. The firms did not generate enough cash flows during this period and it is evident that they had cash flow challenges especially Eveready East Africa Ltd. The mean of cash flow was -0.44 which implied that some of the firms generated negative cash flows thus having a challenge to fund their current liabilities. The maximum was 0.8 which was close to one which is the standard ratio meaning that firms with this ratio tried to fund their operations but were not able to generate enough cash flows. This report is in agreement with the KAM, (2011) report which revealed that most of the manufacturing firms are stagnant or failing due to lack of enough cash flows.

4.3 Exploratory data analysis.

Heterogeneity was examined across the listed firms for five years using exploratory data analysis. This analysis was essential in the determination of whether to use the panel data models or simply to use pooled data regression models. The analysis was done using graphs to examine the general trend of cash flows within and across manufacturing firms listed in the Nairobi stock exchange. Growth plots were used to study the within firm behavior of cash flow. Figure 4.1 below shows the empirical growth of cash flow over a period of five years under the study. From the growth plot, it was revealed that for most of the firms cash flows did not change much during the period under study. However, there are two firms in which cash flows behave differently from the others i.e. 4 and 7. These two outliers did not suggest the existence of significant time related fixed effects.

Within individual firms behaviour of cash flows over time.

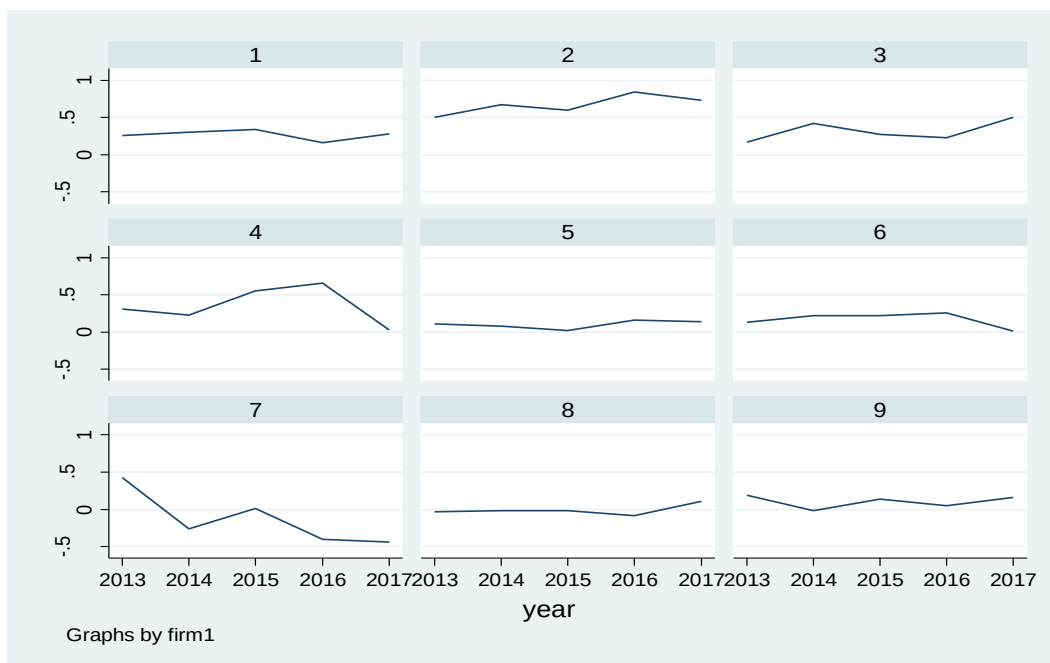


Figure 4.1 Growth plots-Trend plots for the dependent Variable.

Source: Researcher (2019)

4.4 Diagnostic Testing

This section reports on results of diagnostic analysis of panel data. The reports specifically includes the existence of time related fixed effects and the suitability of fitting pooled regression model as compared to panel data models. The presence of serial correlation and heteroscedasticity was also examined in the study. An analysis of the data was also done to determine if to use random effects or fixed effects models.

4.4.1 Test for Random Effects.

The researcher started by examining the practicability of fitting a pooled regression model or a panel data model. Breuch-pagan LM test was used to determine if a simple linear regression model was more preferable than random effect model. The Breuch-Pagan LM test was also used to check for random effects and thus helped in choosing between POLS model and Random effect model.

Table 4. Random effect model results.

```
. xtreg cashflow investments inventorycontrol profitability, re
```

Random-effects GLS regression	Number of obs	=	45
Group variable: firm1	Number of groups	=	9
R-sq: within = 0.3319	Obs per group: min =		5
between = 0.7519	avg =		5.0
overall = 0.4574	max =		5
	Wald chi2(3)	=	24.62
corr(u_i, X) = 0 (assumed)	Prob > chi2	=	0.0000

cashflow	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
investments	.3394311	.0949355	3.58	0.000	.153361	.5255012
inventorycontrol	-.0409692	.012347	-3.32	0.001	-.0651688	-.0167695
profitability	.2289808	.0990794	2.31	0.021	.0347888	.4231728
_cons	.4036945	.0766842	5.26	0.000	.2533962	.5539928
sigma_u	.1002301					
sigma_e	.14316531					
rho	.32892242	(fraction of variance due to u_i)				

Source: (Researcher 2019)

Table 5 chi-square values for the Breusch-Pagan LM test.

```
. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

cashflow[firm1,t] = Xb + u[firm1] + e[firm1,t]

Estimated results:
+-----+-----+
|                | Var      | sd = sqrt(Var) |
+-----+-----+
| cashflow       | .072971  | .2701315       |
| e              | .0204963 | .1431653       |
| u              | .0100461 | .1002301       |
+-----+-----+

Test:  Var(u) = 0
       chibar2(01) =    10.18
       Prob > chibar2 =    0.0007
```

Source (Researcher 2019)

The p value is less than 0.05 thus we reject the null hypothesis that the variance across group is zero .We therefore use random effect model and not POLS model as the p value is 0.0007.

Table 6 .Test for time fixed effects.

```

+-----+-----+-----+-----+-----+-----+
| Fixed-effects (within) regression | Number of obs   =    45 |
| Group variable: firm1             | Number of groups =     9 |
|                                   |                   |
| R-sq:  within  = 0.3758           | Obs per group:  min =     5 |
|         between = 0.5112           |                   avg  =    5.0 |
|         overall  = 0.3839         |                   max  =     5 |
|                                   |                   |
| corr(u_i, Xb)  = 0.2936           | F(7,29)         =    2.49 |
|                                   | Prob > F         =    0.0390 |
+-----+-----+-----+-----+-----+-----+

+-----+-----+-----+-----+-----+-----+
| cashflow | Coef.   | Std. Err. | t    | P>|t|   | [95% Conf. Interval] |
+-----+-----+-----+-----+-----+-----+
| investments | .2714679 | .0974823 | 2.78 | 0.009   | .0720941 .4708416 | |
| inventorycontrol | -.039993 | .0129371 | -3.09 | 0.004   | -.0664524 -.0135337 |
| profitability | .0863215 | .1255835 | 0.69 | 0.497   | -.1705256 .3431686 |
| year      |         |         |         |         |         |         |
| 2014      | -.0471698 | .0709581 | -0.66 | 0.511   | -.1922954 .0979558 |
| 2015      | -.0443473 | .0741414 | -0.60 | 0.554   | -.1959834 .1072888 |
| 2016      | .002661   | .0754561 | 0.04  | 0.972   | -.151664 .1569861 |
| 2017      | -.0618999 | .0704711 | -0.88 | 0.387   | -.2060294 .0822296 |
| _cons     | .4348239 | .0823918 | 5.28  | 0.000   | .2663138 .6033339 |
+-----+-----+-----+-----+-----+-----+
| sigma_u    | .1908828 |         |         |         |         |         |
| sigma_e    | .14929656 |         |         |         |         |         |
| rho        | .62044796 | (fraction of variance due to u_i) |
+-----+-----+-----+-----+-----+-----+

F test that all u_i=0:   F(8, 29) =    5.61         Prob > F = 0.0002

. testparm i.year

( 1)  2014.year = 0
( 2)  2015.year = 0
( 3)  2016.year = 0
( 4)  2017.year = 0

F( 4, 29) =    0.34
Prob > F =    0.8512

```

Source :(Researcher 2017)

The p value was greater than 0.05 which meant that there were no significant time fixed effects ($P > 0.05$) thus fitting a two way component model or inclusion of dummies was not appropriate. All the dummies for the years were zero. The P value was 0.8512.

4.4.3 Testing for multicollinearity

Multicollinearity refers to the relationship between the independent variables. The researcher analyzed the relationship between investments, inventory control and profitability to see if they are highly correlated. Variance inflation factor analysis was used to test the presence of multicollinearity. The mean VIF was 1.05 thus it was concluded that there was absence of strong correlation between two or more independent variables. The variables are within the threshold for multiple regression analysis.

Table 7. Collinearity test.

. regress cashflow investments inventorycontrol profitability

Source	SS	df	MS	Number of obs =	45
Model	1.50533034	3	.501776781	F(3, 41) =	12.06
Residual	1.70539415	41	.041594979	Prob > F	= 0.0000
				R-squared	= 0.4688
				Adj R-squared	= 0.4300
Total	3.21072449	44	.072971011	Root MSE	= .20395

cashflow	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
investments	.4857163	.1071956	4.53	0.000	.2692304 .7022022
inventorycontrol	-.0466324	.0133101	-3.50	0.001	-.0735126 -.0197521
profitability	.3653795	.0961286	3.80	0.000	.1712438 .5595152
_cons	.4268007	.0740092	5.77	0.000	.2773361 .5762652

. vif

Variable	VIF	1/VIF
investments	1.07	0.934413
profitabil~y	1.06	0.945926
inventoryc~l	1.02	0.977488
Mean VIF	1.05	

Source :(Researcher 2019)

The mean VIF is below 5 which show the absence of multicollinearity.

Table 8 Correlation Matrix.

```
. pwcorr cashflow investments inventorycontrol profitability,sig star(0.05)
```

	cashflow	invest-s	invent-1	profit-y
cashflow	1.0000			
investments	0.3871*	1.0000		
	0.0086			

The correlation matrix above shows the absence of multicollinearity. According to (Fied, 2009) a correlation matrix is a conventional check for multicollinearity. The Matrix measures the nature and strength of the relationship between the independent variables under the study. The correlation between investment and cash flow is 0.3871 .This shows that the two variables have low correlation. A correlation factor of one show that the study variables are highly correlated and thus not suitable for the study. As the correlation factor approaches to Zero, collinearity reduces.

4.4.4 Testing for Serial Correlation

Auto correlation or serial correlation is a situation which occurs if the error terms of the regression variables for successive periods are correlated. Serial correlation distorts the efficiency of regression estimators if present in a data set. The presence of auto correlation was tested by the researcher by use of the Wooldridge test. The STATA command was xtserial. The null hypothesis for this test was that there was no first order auto correlation in the panels. This hypothesis is rejected if the p value of the test is less than 5%.

Table 9. Wooldridge test for serial correlation.

```
. xtserial cashflow investments inventorycontrol profitability
```

Wooldridge test for autocorrelation in panel data

H0: no first order autocorrelation

F(1, 8) = 5.693

Prob > F = 0.0441

The p value from the study was less than 0.05 indicating the presence of serial correlation. This implied that a robust model needed to be fitted to correct the problem of serial correlation otherwise the efficiency of the regression estimators could be distorted. The p value was 0.0441.

4.4.5 Test for heteroscedasticity.

The researcher used the modified Wald test for group wise heteroscedasticity to test if heteroscedasticity was present in the data. The results of the test are portrayed. Presence of heteroscedasticity tends to inflate the standard errors, which increases the probability of committing type two errors i.e. Failing to reject a false hypothesis about a coefficient. Modified Wald test null hypothesis is that data is homoscedastic across entities i.e. Error terms have a constant variance

Table 10. Modified Wald test for GroupWise Heteroscedasticity.

```
. xtreg cashflow investments inventorycontrol profitability,fe
```

Fixed-effects (within) regression	Number of obs	=	45
Group variable: firm1	Number of groups	=	9
R-sq: within = 0.3468	Obs per group: min	=	5
between = 0.5540	avg	=	5.0
overall = 0.4627	max	=	5
	F(3,33)	=	5.84
corr(u_i, Xb) = 0.2948	Prob > F	=	0.0026

cashflow	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
investments	.311671	.0933666	3.34	0.002	.1217153	.5016267
inventorycontrol	-.051065	.0162168	-3.15	0.003	-.0840582	-.0180717
profitability	.1193912	.1077563	1.11	0.276	-.0998407	.3386231
_cons	.4596201	.085008	5.41	0.000	.2866699	.6325702
sigma_u	.16945588					
sigma_e	.14317678					
rho	.58346766	(fraction of variance due to u_i)				

F test that all u_i=0: F(8, 33) = 4.99 Prob > F = 0.0004

```
. xttest3
```

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: $\sigma(i)^2 = \sigma^2$ for all i

chi2 (9)	=	117.36
Prob>chi2	=	0.0000

The p value was less than 0.005($p < 0.005$) thus indicating the presence of heteroscedasticity in the data set. To correct this robust model must be fitted to take into account the effects of heteroscedasticity .The p value for the data was 0.0000. This implied that the data is heteroskedastic which means that the error terms across the entities are not constant.

4.5 Model Fitting: PraisWinsten Panel Regression Model with Corrected Standard Errors.

The data set had serial correlation and heteroscedasticity thus a robust model had to be fitted to correct the same. The linear regression assumptions were violated by the presence of this two. The researcher fitted a PraisWinsten Panel Regression Model with corrected standard errors .This was done to produce robust results in the presence of serial correlation and heteroskedasticity. Figure 4.8 below shows the results after fitting the model.

Table 11 PraisWinsten Panel Regression Model with Corrected Standard Errors.

. xtprcse cashflow investments inventorycontrol profitability, correlation(ar1) hetonly						
Prais-Winsten regression, heteroskedastic panels corrected standard errors						
Group variable:	firm1	Number of obs	=	45		
Time variable:	year	Number of groups	=	9		
Panels:	heteroskedastic (balanced)	Obs per group: min	=	5		
Autocorrelation:	common AR(1)	avg	=	5		
		max	=	5		
Estimated covariances	=	9	R-squared	=	0.4298	
Estimated autocorrelations	=	1	Wald chi2(3)	=	22.18	
Estimated coefficients	=	4	Prob > chi2	=	0.0001	

cashflow	Het-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
investments	.428092	.1156557	3.70	0.000	.2014109	.6547731
inventorycontrol	-.0439795	.0158903	-2.77	0.006	-.075124	-.012835
profitability	.3185589	.0855904	3.72	0.000	.1508047	.4863131
_cons	.4165713	.0910387	4.58	0.000	.2381387	.5950039
rho	.1548155					

Source: Researcher (2019)

The results presented in figure 4.8 above showed that the constant was 0.4165713 and this value was statistically significant at 5% significance level as the P value was 0.0000. The implication from these results is that without the influence of the independent variable, the dependent variable will have a value of 0.4165713. This means that firms will be able to cover 41% of their current liabilities.

The results indicated that investments had a regression coefficient of 0.428092 with a p value of 0.000. This implied that there was a statistically significant positive relationship between cash flow and investments in manufacturing and allied firms listed in the Nairobi stock

exchange. Essentially, 1% increase in investments would result in 42.8092% increase in cash flow.

The co efficient for inventory control was -0.439795 with a p value of 0.006 this implied that 1%decrease in inventory control resulted into 43.9795% decrease in cash flow. This showed that there was a statistically significant negative relationship between cash flows and inventory control at 5% confidence interval.Profitabilty had a co efficient of 0.3185589 and a p value of 0.000.This implied that there was a statistically significant positive relationship between profitability and cash flows at 5% confidence level. This is because the P value was less than 0.05.A 1% increase in profitability would result to 31.85589increase in cash flows.

Therefore the model equation for the study was,

$$Y = 0.4165713 + 0.428092X_1$$

Where:

Y= Dependent Variable (Cash Flow)

0.4165713 = Constant (cash flow level when all the independent variables are at Zero)

0.428092 = Co efficient of X₁(change in the dependent variable due to a unit change in X₁).

X₁ = investments

4.6. Discussion of results

4.6.1 Investments and Cash Flows

The results indicated that investments had a regression coefficient of 0.428092 with a p value of 0.000.This implied that there was a statistically significant positive relationship between cash flow and investments in manufacturing and allied firms listed in the Nairobi stock exchange. From these findings the implication is that investments tend to influence cash flows positively. AS such, manufacturing firms should increase investments which in turn will increase cash significantly. Firms should invest more in manufacturing firms as this improves their efficiency which inturn influences cash flows significantly. This study is in agreement with Kinyanjui (2013) who concluded that there is a significant positive relationship between investments and cash flows. Imtiaz (2017) concluded in his study that there is a positive relationship between cash flow and investment but the relationship is insignificant in low investment firms. Letenah (2014) and Atil(2003) concluded that there is a positive cash flow –investment sensitivity in manufacturing firms.Degryse and De-Jong (2005) carried out a study to establish the relationship between cash flow and investment and established a positive relationship between cash flow and investment for both types of manufacturing organizations having low and high investment opportunities.

5. Conclusion

Cash flows had a similar trend in almost all the firms except in one firm for the period covered by the study as showed in the growth plot. The researcher established that a relationship exists between investments and cash flows. There was a statistically significant positive relationship between investments and cash flows. From these findings the implication is that investments tend to influence cash flows positively. As such, manufacturing firms should increase investments which in turn will increase cash flows. By

acquiring enough machines and equipment for production can increase the output of the firm which in turn increases cash flow from operations.

The general objective of the study was to establish the factors that affect cash flow in manufacturing firms listed in the Nairobi stock exchange. The specific objective of the study was to establish if investments had any effect on cash flows. The results showed that investments had a relationship with cash flows which was significant in the period the study covered. Investments have a significant positive relationship with cash flows which meant that by increasing investments, the firms would end up increasing their cash flows.

From the study findings, the following will be recommended. Manufacturing firms should consider increasing investments in terms of capital expenditure to acquire more machines and equipment as firms with high investments have a high cash flow investment sensitivity. This is because the production efficiency of manufacturing firms increases when a firm has enough machines and equipment which in turn increases cash flows.

The research gaps arising from this study form the basis for further research by different researchers. There is a need to consider carrying out a similar study that will consider other factors which affect cash flows like trade payables, trade receivables and budgets as very little literature exists on this. Further there is little literature that exists on the factors affecting cash flows in manufacturing firms. A lot of emphasizes has been put on the importance of cash flows but the factors which affect cash flow have not been discussed conclusively thus need to conduct more research in this area.

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Agricultural Financing - Agricultural Sector Output Nexus: A Case Study of the Nigerian Economy

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Abstract

The study “Agricultural Financing -Agricultural sector output nexus: in Nigeria” investigated the effect of agricultural financing, both public and private on the outputs of two main sectors of agriculture: crop production and livestock production. Three objectives were formulated to provide guide to this study: examine the long and short run relationship of agricultural financing on crop production output and livestock production output, and to examine the causal relationship between agricultural financing and agricultural sector output. To achieve these objectives, the study employed two models, each using ARDL Test, Bounds Test, and Granger causality test using time series data from 1981 to 2019. Data was obtained from CBN and World Bank data base. Dependent variables were Crop Production output and Livestock Production output respectively and independent variables were Public Finance, Commercial Bank Credit to Agriculture, Inflation Rate and Interest Rate. The model was tested using descriptive statistics to analyse the significance of the relationship between the dependent and independent variables. The results show that both public and private finance were positive but insignificant in the short run. In the long run, public finance remained insignificant whereas private finance was positive and significant. Thus, private financing is more effective at improving agricultural output than public finance. The study also revealed a negative long run relationship between interest rate and the outputs of crop and livestock production during the period. It is therefore recommended that the government encourages private investment in agricultural activity, and puts measures in place to curb corruption and embezzlement. Government should also ensure that credit facilities are provided to farmers at low interest rate to reduce detrimental influences.

Keywords: Agricultural Financing, Agricultural Output, ARDL, Nigerian Economy

JEL Code: M0, M11, M12

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1. Introduction

Agriculture is the largest sector in many developing countries, Nigeria inclusive. More importantly, most of the world active but poor live in rural areas and are primarily engaged in agriculture in economic growth and development and this development cannot be over emphasized as it provides employment opportunities to its teeming youths in a country. Government intervention in the agricultural sector was primarily informed the need for national food security to ensure sustainable access to and availability and affordability of good quality food for all Nigerians (CBN, 2010).

Agricultural activity constitutes the mainstay of the rural population which account for two-thirds of Nigeria's population. It is the single most important activity and employs over seventy percent of the working population while contributing a range of thirty to forty percent of the Gross Domestic Product. The agricultural sector is the second largest sector after oil. It was once the primary sector but investment in the sector as more people rushed to the lucrative oil sector dropped significantly.

Agricultural productivity in Nigeria has largely been accounted for by resilient growth performances in four constituent sub-sectors: crops, livestock, fisheries and forestry (EBOH et al., 2012). While the agricultural sector may have in recent years contributed significantly to improved growth performance in Nigeria, its actual contribution appears to be much short of overall potential.

The subsectors of the agriculture sector in Nigeria have potentials that give the sector opportunity for growth. According to CBN (2012), between 1960 and 2011, an average of 83.5% of agriculture GDP was contributed by the crops production subsector making it the key source of agriculture sector growth.

Agricultural output has fluctuated widely and productivity has also declined. In terms of contribution to GDP, available statistics from the CBN shows that the agricultural sector's share of GDP increased from 28% in 1985 to 32% in 1988, dropped to 31% in 1989, rose to 37% in 1990 but fell significantly to 24% in 1992, it increased again to 37% in 1994. It was 32% in 1996 and rose to 40% in 1998, dropped again to 27% in 2000, increased to 37% and fell to 31% in 2002 and 2006 respectively. The percentage contribution of the agricultural sector to GDP fell persistently from 0.37 in 2009 to 0.22 in 2012 and to 0.20 in 2014

In today's world, the agriculture sector acts as a catalyst, accelerating the pace of restructuring and diversifying the economy that depends less on the supply of foreign agricultural products or raw materials to economic growth and sustainable development. The agricultural sector contributes mainly to the nation's development in the aspect of enhancing government revenue, expenditure and aspect of enhancing government revenue; infrastructural, living standards and

also contribution to Gross Domestic Product.

The sheer size of agriculture suggests that strategies designed to promote the early stages of economic growth cannot ignore agriculture. The promotion of the rural economy in a sustainable way has the potential of increasing employment opportunities in rural areas, reducing regional income disparities, stemming pre-mature rural-urban migration, and ultimately reducing poverty at its very source (Anriquez and Stamoulis, 2007).

2. Literature Review

Agriculture is the way of life that involves the production of food, livestock rearing through fishing, animal husbandry, systematic growing and harvesting of crops for production of commodities such as feed and fibre among others. Agricultural activity is integral to the survival of the human race. It was key to the development and the rise of primitive human civilisations and nurtured the growth and subsequent prosperity of these civilisations. Agriculture can be dated back thousands of years and marks man's transition from rudimentary hunter and gatherer communities to the societies that will birth the greatest civilisations.

2.1. Public Finance

Government financing are strong instruments introduced to remove market failure (tendency for an economy to produce too much of some goods and an insufficient number of others) and can launch an economy into achieving economic growth. Government finance or expenditure are the expenses which a government incurs for (i) its own maintenance (ii) society and the economy (iii) helping other countries (Bhatia 2002).

Government finance represents the total government spending to attain the predetermined macro-economic objectives. In the Nigerian economy public finance can broadly be categorized into capital and recurrent financing. The recurrent financing are government expenses on administration such as wages, salaries, interest on loans, maintenance etc., whereas expenses on capital projects like roads, airports, health, education., telecommunication, electricity generation etc., are referred to as capital financing (Obinna, 2003).

2.2. Agricultural Financing

Agricultural credit is often seen as any of several credit vehicles used to finance agricultural transactions, including loans, notes, bills of exchange and bankers acceptances. Agricultural credit enhances productivity and promotes standard of living by breaking vicious cycle of poverty of small-scale farmers. Credit has also been discovered to be a major constraint on the intensification of both large and small-scale farming. Agricultural financing refers to all efforts to provide easier access to such credit facilities.

Agricultural financing is crucial to agricultural and rural development in Nigeria. Approximately 70% of the population is concentrated in rural areas with agriculture not just as a means of income but also a lifestyle. Improvement in finance accruing to agriculture will greatly enhance its productivity.

2.3. Theoretical Review

John Maynard Keynes was the first proponent of government expenditure as instrument of fiscal

policy in 1936 after when classicalist's postulation stated that economy is regulated with the help of market mechanism and there is no government intervention has failed and led to the great depression of 1930. Keynesian (Modern Concept) view: this opines that Government must play a positive role in order to regulate the economy by government spending and taxes in the most desirable manner. This school of thought discredits the belief of classical that supply creates its own demand and the automaticity of the economic system to generate full employment and growth by itself without interference. Keynes believes that the propensity to consume reduces as income increase and the propensity to save increase as income increase. This will bring about disequilibrium in the economy as consumptions (aggregate demands) do not grow proportionally with savings when income is rising. Thus, to maintain income, employment and growth it is necessary to off-set the effects of reducing demand for outputs by a corresponding increase in public expenditure. Hence, if undesirable economic conditions are to be avoided the gap between the income and expenditure must be filled either by increasing propensity to consume in the economy or by increasing government expenditure.

2.4. Review of Empirical Studies

Yusuf and Mohammed (2017) assessed the effect of public expenditure on crop production in Yobe State using primary data. The study adopted survey research design and collected cross-sectional data. The study used Chi-square to test the hypothesis and found out that public expenditure does not have effect on the output of crops and therefore recommended that a policy framework needs to be instituted in the diversification of public expenditure. However, the study was carried out in Yobe State and include only capital expenditure and there is need for similar study to be replicated in Kogi State using both capital and recurrent expenditure.

Uremadu, Ariwa and Uremadu (2018) examined the effect of government agricultural expenditure on agricultural output in Nigeria using time series data from Central Bank of Nigeria from 1981 to 2014. Vector Error Correction model estimation technique was used and the study revealed that total government agricultural expenditure (TGEX) had a positive and significant effect on agricultural output (AGO) in Nigeria during the period studied. The major weakness of the work was that the independent variable was not disintegrated; the study used total government expenditure as the independent variable. Therefore, the current study will disaggregate the expenditure into capital and recurrent.

Rufus and Oyewole (2018) empirically evaluated the nexus between public spending on agriculture and Nigerian output growth. The findings show that agricultural sector output has positively impact on the economic growth in Nigeria over the period under study. The main weakness of the study was failure to test for long-run relationship between the variables using Johansen cointegration analysis.

Mgbanya, Onwumere, Eze, Nwokenekwu & Igwe (2018) assessed the impact of the national recurrent expenditure on Nigeria's agricultural growth from 1990 to 2017. The Wald test result showed that the F-statistics (23.126) was greater than the F-tabulated (4.32) at p-value < 5%, this implies that the recurrent expenditure on agriculture has a significant impact on the agricultural share of GDP from 1990 to 2017. However, this study overlooked capital expenditure on agricultural growth and also relied on only secondary data for data collection.

Brown and Ajayi (2015) in their study examined the effects of government spending on the

agricultural sector in Nigeria. The study revealed that total government expenditure had positive and significant impact on agricultural output in Nigeria during the period under study. Based on the above findings, the study recommended for an increase funding of the agricultural sector in Nigeria. However, the study fails to disaggregate the components of public expenditure.

Emmanuel (2008) carried out a study on the impact of macroeconomics environment on agricultural sector growth in Nigeria. The macroeconomic policies included in the model are:- credits to the agricultural sector, nominal interest rates on the loan, exchange rate, world prices of agricultural produce, foreign private invest-government expenditure and inflation rate. Here recommends that macroeconomic policies that enhance favourable exchange rates, make agricultural credit widely available at low interest rate, reduce the rate of inflation, increase foreign private investment in agriculture, would not fortify government investment in the sector but would be invaluable in supporting agriculture and agricultural output growth in Nigeria.

3. Research Method

3.1. Theoretical Framework

The model is anchored by the Keynesian theory of public expenditure which makes up a key component of public finance. It is a macroeconomic theory of the total expenditure Keynes believed in the use of public expenditure as a tool of fiscal policy to stimulate the economy and encourage increased productivity as well as economic growth. Public expenditure can be used to finance the agricultural sector and improve agricultural productivity.

3.2. Model Specification

The model incorporates public finance given to the agricultural sector and commercial bank credit to agriculture as major independent variables. Agricultural output broken down into crop production output and livestock production output are respective dependent variables. Inflation rate and interest rates are further included as control variables within the model. Following the above, the implicit forms of the models are:

Model 1 (one) is structured as thus:

$$CPO = f(PF, CCA, INFR, IR) \dots\dots\dots (1)$$

Model 2 (two) is structures as thus:

$$LPO = f(PF, CCA, INFR, IR) \text{-----} (2)$$

Where CP is crop production output

LP is livestock production output

PF is public finance to the agricultural sector.

CCA is commercial bank credit to the agricultural sector.

INFR is the annual inflation rate.

IR is the lending interest rate

The explicit forms of the models are specified as:

Model 1 (one):

$$CPO = \alpha_0 + \alpha_1 PF + \alpha_2 CCA + \alpha_3 INFR + \alpha_4 IR + \mu \dots\dots\dots (3)$$

Model 2 (two):

$$LPO = \alpha_0 + \alpha_1 PF + \alpha_2 CCA + \alpha_3 INFR + \alpha_4 IR + \mu \dots\dots\dots (4)$$

α_0 is the intercept, α_1 , α_2 , α_3 , and α_4 are coefficients of their respective variables. While μ is the error term.

3.3. *Apriori Expectation*

From the models specified, the a priori expectation is written as $\alpha_1 > 0$, $\alpha_2 > 0$, $\alpha_3 > 0$, $\alpha_4 < 0$. Public finance and commercial bank credit to agriculture are expected to have a positive relationship with crop production output and livestock production output respectively. Interest rates and inflation rates are expected to have a negative relationship with the crop and livestock production outputs.

3.4. *Estimation Techniques*

Unit root test, Autoregressive distributed lag, Bound's test and Granger causality were employed to estimate the model and to achieve the objectives.

4. **Result and Discussion**

Unit root test was conducted at level and at first difference, using 5% significance level as the criteria. Considering the results of the table below, it shows that all variables exempting inflation are stationary at first difference. Whereas inflation is stationary at level.

Table 1. Augmented Dickey Fuller (ADF) Test Result

Variables	ADF statistic	Probability value	Order of integration	Maximum lag length
CPO	-4.190273	0.0022	I(1)	9
LPO	-3.246824	0.0251	I(1)	9
PF	-8.570666	0.0000	I(1)	9
INT	-5.365600	0.0001	I(1)	9
CCA	-7.001994	0.0000	I(1)	9
INFL	-3.391148	0.0175	I(0)	9

Source: Author's computation, from EViews 9, 2021.

4.1. Results for Model 1 (one) the Bound's Test

From examining the findings, the existence of a co-integrating relationship can be inferred. The F-statistic has a value of 8.015397. This is greater than the upper bound value at 5% level of significance which is, 4.01. Therefore, it can be concluded from the results of the Bound's test, that the variables are indeed co-integrated which implies that there is existence of long-run equilibrium relationship existing between the variables.

Table 2. ARDL Bounds Test Result

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	8.015397	4

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: Author's computation from Eviews 9, 2021.

4.2. ARDL Co-integrating and long Run Form Result

In light of the results displayed below, the R-squared has a value of 0.99. This shows that the independent variables explain changes in the dependent variable of crop production to the tune of 99%.

The co-efficient of the adjusted R-squared equals 0.99, which confirms the extent to which variation in the chosen independent variables explains variation in the chosen dependent variable.

The Durbin Watson statistic evaluates serial correlation within a model. The Durbin Watson has a value of 1.77, which indicates that there is positive serial correlation within the model.

The probability value of the F-statistic equals 0.0000 showing that the model is significant at the 5% level of significance.

ARDL result is to determine the variables that are responsible for short run shocks within the model. The errors are corrected by the magnitude of the R- squared that is after another regression have been carried out.

The dependent variable of this study is the output of crop production. The coefficient of public finance in the current year is 0.026146. The sign is positive, which indicates that public finance is positively related to the output of crop production. Public finance might have been expended in the provision of credit facilities to crop producers which had positive effect on the output. However, probability value of 0.4251 suggests that public finance of the current period is insignificant.

In the first lag, the coefficient of public finance is -0.006248. Public finance is found to be inversely related to the output of crop production, in the first lag. Public finance of the previous

year has negative effects on current levels of crop production output. This can be attributed to the embezzlement of public funds, rather than investment in crop production. Although government budgets show increasing levels of funding, this money does not meet its intended recipients. Therefore, a unit increase in public finance will decrease crop production output. The probability value of 0.8380 also indicates that public finance is insignificant to crop production output.

The coefficient of public finance in the second lag is -0.154746 also denoting a negative relationship between crop production and public finance in the second lag. This negative relationship is caused by the high level of corruption and fraud that occurs at high levels of government. Although, the probability value of 0.0000 suggests that public finance in the first lag is significant at 5% level of significance.

The coefficient of commercial bank credit to agriculture which is denoted by CCA is 0.042627 is positive. Thus, there is a positive relationship between commercial bank credit to agriculture and the output level of crop production in the current period. A unit increase in commercial bank credit to agriculture will result in a 0.04262 increase in the output level of crop production. The probability value of 0.3849 indicates that this is insignificant at the 5% level of significance.

The interest rate of the current period has a coefficient of -0.002114 which is negative. Therefore, interest rates have an inverse effect on crop production output. This conforms to apriori expectations. The probability value of 0.7447 also indicates that interest rate is insignificant.

The ARDL result overall is statistically significant and negative. The coefficient is -0.266230, which is negative and complies with apriori expectations. The probability value is 0.0009, which is statistically significant at the 5% level of significance.

The ARDL also specifies the nature of the long run relationship within the model. From the probability value of the long run coefficients, one can conclude if there is a significant relationship between the respective dependent variable and the independent variable in the long run.

The coefficient of inflation equals 0.449455 with a probability value of 0.0125. Thus, it can be concluded that in the long run, there is no co-integration between inflation and crop production output. Inflation does not affect crop production output in the long term.

Public finance has a coefficient of 0.682227 as well as a probability value of 0.0000. Considering the probability value, we conclude that there is no significant co-integrated relationship between public finance and the output of crop production. Plainly put, government financing geared towards the agricultural sector has no significant effect on the long term outputs of crop production.

The analysis also presents the long run coefficients of commercial bank credit to agriculture which has a value of 0.160114 and a probability value of 0.3301. There exists a positive long run relationship between commercial bank credit and crop production output. From the probability value, we can conclude that there is existence of co-integration between commercial bank credit to agriculture and crop production output. That is to say that commercial bank credit to agriculture affects crop production in the long run.

Interest rate has a coefficient of -0.007940 with a probability value of 0.7324. The negative coefficient indicates that there is an inverse relationship between interest rate and crop production output in the long run. This denotes the existence of co-integration and asserts that there is a significant long run relationship between interest rates and crop production output.

Table 3. ARDL co-integrating and long Run form Result

Dependent Variable: LNCP_OUTPUT

Co-integrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNINFL)	0.119658	0.030766	3.889304	0.0006
D(LNPF)	0.026146	0.032287	0.809787	0.4251
D(LNPF(-1))	-0.006248	0.030261	-0.206470	0.8380
D(LNPF(-2))	-0.154716	0.030639	-5.049703	0.0000
D(LNCCA)	0.042627	0.048266	0.883172	0.3849
D(INT)	-0.002114	0.006426	-0.328966	0.7447
CointEq(-1)	-0.266230	0.071512	-3.722872	0.0009
Cointeq = LNCP_OUTPUT - (0.4495*LNINFL + 0.6822*LNPF + 0.1601				
*LNCCA -0.0079*INT + 5.7251)				

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNINFL	0.449455	0.167844	2.677805	0.0125
LNPF	0.682227	0.110646	6.165854	0.0000
LNCCA	0.160114	0.161429	0.991849	0.3301
INT	-0.007940	0.022978	-0.345552	0.7324
C	5.725123	0.611458	9.363071	0.0000

R-squared	0.998483	Durbin-Watson stat	1.773635
Adjusted R-squared	0.998033		
Prob(F-statistic)	0.000000		

Source: Author's computation from Eviews 9, 2021.

4.4. Granger Causality

According to the results of the analysis below, granger causality runs uni-directionally from inflation to crop production output. It is evident that Inflation granger causes Crop Production output whereas, crop production output does not granger cause inflation. Hence, this relationship is one-sided in nature.

It can also be inferred that public finance does not granger causes crop production output and neither does crop production output granger causes public finance. Thus, there is no causal relationship existing between the two variables.

Similar to public finance, commercial bank credit to agriculture does not granger cause crop production output and neither does crop production output granger cause commercial bank credit to agriculture. There is also no causal relationship existing between the variables.

In a similar vein, interest rate does not granger caused crop production outputs and neither does crop production output granger cause interest rates. There is also no causal relationship existing between the variables.

Table 4. Granger Causality Test Result

Pair wise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
INFL does not Granger Cause CP	37	3.57924	0.0396
CP does not Granger Cause INFL		3.27420	0.0509
PF does not Granger Cause CP	37	2.65008	0.0861
CP does not Granger Cause PF		1.90134	0.1659
CCA does not Granger Cause CP	37	1.70278	0.1983
CP does not Granger Cause CCA		0.71198	0.4983
INT does not Granger Cause CP	37	2.66563	0.0850
CP does not Granger Cause INT		0.69595	0.5060

Source: : Author's computation from Eviews 9, 2021.

4.4. Residual Diagnostics

The Jarque-Bera normality test was conducted to test for the normal distribution of the variables within the model. The null hypothesis states that the variables are normally distributed within the model. The JarqueBera test has a probability value of 0.259560, thus is insignificant at 5% level of significance. Therefore, the null hypothesis is accepted and it is concluded that the variables within the model are normally distributed.

The Serial Correlation LM test was also conducted to check the existence of serial correlation, otherwise known as auto correlation within the model. The null hypothesis states that there is no serial correlation within the model. The Serial Correlation LM test has a probability value of 0.8570, therefore it is insignificant at the 5% level of significance. Thus, the null hypothesis is accepted and it is concluded that there is no serial correlation within the model.

Furthermore, the heteroskedasticity test was conducted to check the variance of the residuals. The null hypothesis states that there is no heteroskedasticity. The probability value of the heteroskedasticity test is 0.0418, therefore it is significant at 5% level of significance. The null hypothesis is rejected and we conclude that the variables are heteroscedastic.

The Ramsey RESET test was employed to check for specification errors within the model. The null hypothesis states that there are no specification errors. The Ramsey RESET test has a

probability value of 0.0843, which is insignificant at 5% level of significance. Therefore, we accept the null hypothesis and conclude that there are no specification errors.

4.4. Residual Diagnostics

Table 5. Residual Diagnostics Test Result

Residual Diagnostics Test	Statistics	Probability Value
Jarque-Bera Normality test	2.697537	0.259560
Serial Correlation LM test	0.155280	0.8570
Heteroskedasticity test	2.314727	0.0418
Ramsey RESET test	3.231881	0.0843

Source: Author's computation from Eviews 9, 2021.

5. Conclusion

The study concentrated on the agricultural financing –agricultural sector output in Nigeria. From examining the findings, it can be inferred that agricultural financing has an overall positive effect on agricultural productivity.

In the short run, the effects of public and private finance were largely insignificant due to the long-term nature of agricultural ventures. It often takes years to see the results of agricultural investment.

In the long run however, only private financing proved to have any relationship with crop production output and livestock production output. Public finance did not have any significant long run relationships with either crop production or livestock output. It can be concluded that public finance has no significant effect on crop production or livestock output

It can also be inferred that neither public nor private finance share a causal relationship with the outputs of crop production and livestock output.

In light of the findings of this study, application of suitable policies is necessary to ensure increase in agricultural sector output and all the benefits it affords. Such policies will also be beneficial to the nation's economy and achievement of economic growth through agricultural development.

As indicated by the above findings, the following policies are recommended

Firstly, the futility of public finance in improving agricultural sector output has been proven, due to the large amount of corruption and embezzlement. Discrepancies between the actual amount allocated to the sector and recorded funds exist. Government should put in extra measures to curb corruption and ensure that these funds reach their intended recipients. Establishment of necessary checks and balances as well as creation of devoted anti-corruption agencies are recommended, in order to curb fraud.

Secondly, the Nigerian government should focus more on encouragement of private investment through special directives to commercial banks among others. Governments should encourage financial institutions to make certain percentage of their credit facilities available to the agricultural sector. This will increase private investment and therefore increase the long run

outputs of crop production and livestock production.

Thirdly, interest rate has been proven to have an inverse long run relationship with the outputs of crop production and livestock production. High interest rates make it difficult for farmers to procure credit facilities and as a result, cause declines in productivity. Government should therefore regulate interest rates to ensure that credit facilities are provided to farmers at lower interest rates. This will encourage farmers to make use of credit facilities to improve agricultural yield.

Finally, in order to improve agricultural sector output, it is important to provide the necessary public goods that aid in conducting business and other economic activities. Infrastructural decay is a major issue faced by the agricultural sector, eliminating it will greatly help agriculture in Nigeria. Public funding should be geared towards providing adequate infrastructural facilities to create a more conducive business atmosphere. Facilities such as good roads, electricity, water etc should be concentrated in rural areas where the bulk of agricultural activity takes place.

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Nexus Between Monetary Policy & Liquidity Creation; Study From The Perspective Of Pakistan

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Abstract

The study investigates whether Pakistan's conventional banks create liquidity in response to monetary policy. The secondary data is gathered from the Thomson Reuter financial data streams. The annual time series data is collected from 2000 to 2021. Conventional banks create liquidity by using liquid liabilities to finance illiquid assets. Ali & Ahmad (2022) estimated the quantity of liquidity created by conventional banks in Pakistan over the past 21 years using the Catfat model developed by Berger and Bouwman (2009). The current study used the estimated amount to examine the impact of monetary policy on liquidity creation by using the simple linear regression econometric model. The outcomes of the study indicate that monetary policy has a significant positive impact on liquidity creation in Pakistan. By regulating the monetary policy rate, the State Bank of Pakistan manages the amount of liquidity that conventional banks create. The decisions made by the State Bank of Pakistan are crucial for the economic development of a country. The future implication of the study is that several bank-specific and industry-specific factors affect liquidity creation, so there is a need to explore the same in different regions of the world.

Keywords: Conventional Banks, Liquidity Creation, Monetary Policy Rate

JEL Code: C22, G21, O10

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1. Introduction:

The Quantitative Asset Transformation Function asserts that conventional banks play a significant role in creating liquidity, which fosters a nation's economic expansion. Banks use both on- and off-balance sheet items to create liquidity. Conventional banks create liquidity on balance sheets by financing illiquid assets with liquid liabilities (Diamond & Dybvig, 1983). On the contrary, conventional banks create liquidity off balance sheets through commitments (Kashyap et al., 2002). Liquidity creation by conventional banks significantly impacts a nation's economy's expansion, stability, and prosperity (Berger & Sedunov, 2017; Fidrmuc et al., 2015).

There needs to be more literature available on the liquidity creation function of the bank. However, Berger and Bouwman's (2009) thorough methodology for quantifying liquidity creation piques the researcher's interest in the context. Berger and Bouwman (2017) examine how liquidity creation is affected by the monetary policy in the US. According to Bernanke and Blinder (1992), monetary policy changes can affect conventional banks' access to loanable funds, affecting loan availability. The bank liquidity creation channel makes a more comprehensive prediction about how monetary policy affects bank operations. The monetary expansion aims to improve the creation of liquidity on the balance sheet by raising loans and deposits. Moreover, lower interest rates could raise financial institutions' profitability, which they might use to lend more money in response (Kane, 1989). Conventional banks could make more significant binders to their customers off the balance sheet because they have loanable funds and lower expenses (Kashyap et al., 2002).

Researchers and decision-makers are curious about how the conventional bank advances channel functions under diverse monetary conditions. Contrary to the extensive literature on the conventional bank advances channel, more research is needed to understand the nexus between liquidity creation & monetary policy. Berger and Bouwman (2017) proposed the conventional bank liquidity creation channel for a pool of commercial, credit card, and western union banks in the US. Furthermore, only some empirical studies investigate how monetary policy influences conventional bank liquidity creation. However, there are also circumstances in which monetary policy in the sense of creating liquidity is allowed, which eventually results in ambiguous findings (Chatterjee, 2015). Additionally, it is crucial to remember that creating liquidity involves actions other than lending (Davydov et al., 2018). Therefore, empirical data is required to validate and broaden the bank liquidity creation route.

The current study examines the nexus between liquidity creation and monetary policy in Pakistan. Since bank incentives are necessary for the proper operation of the bank advances channel, monetary policy may impact the amount of liquidity generated by conventional banks. Every time the State Banks of Pakistan reduce the monetary policy rate by a basis point, the advances for the borrowers become more affordable. People and businesses attempt to borrow more due to the lower cost. On the other hand, loans for individuals and companies become more expensive when the State Bank of Pakistan fluctuates the basis point of policy rates. Our research is the first to examine how monetary policy affects liquidity creation in a developing country.

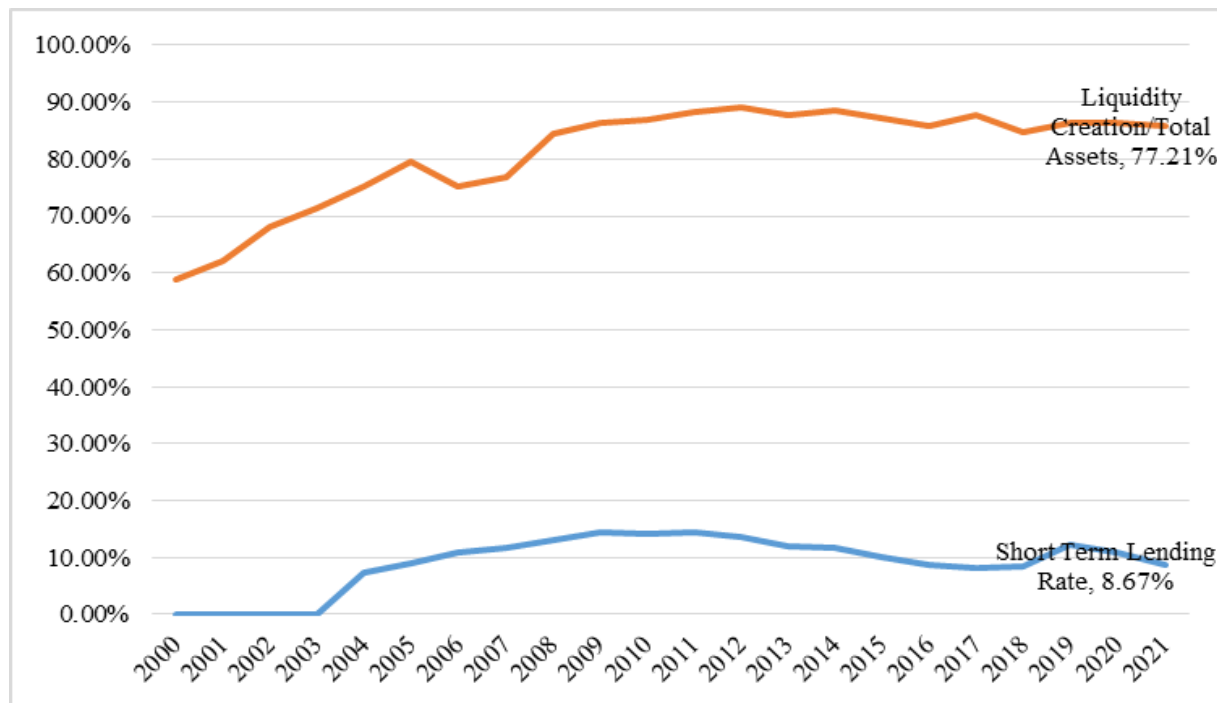


Figure 1: Trend of Short-Term Rate and Liquidity Creation / Total Assets

Liquidity creation is an essential function of conventional banks. Hypothetically, they create liquidity off-balance sheets by issuing credit commitments & on-balance sheets by financing illiquid assets with liquid liabilities. The creation of bank liquidity significantly accelerates a country's economic growth (Ali et al., 2022). Liquidity Creation significantly influences the economy's prosperity, stability, and expansion. Figure 1 shows historical data on short-term loan rates beginning in 2004 at around 8%. However, the liquidity creation/total assets ratio's trend over the previous 21 years shows that the ratio has increased. The loan interest rate increased until 2009, when it stood at 14.5%. Additionally, liquidity creation was about to begin on the verge of increasing and reaching its peak in 2017 at 79.4% (Ali & Ahmad, 2022).

The challenge is intriguing, particularly in a developing country like Pakistan, where financial institutions are essential and where the diffusion of monetary policy through this channel is significant and vital. In contrast to their advanced counterparts, emerging economies typically have different market structures and monetary policy frameworks. Pakistan is likely a fruitful laboratory for conducting experiments due to the unique and significant banking sector reforms implemented over the last ten years, which have considerably changed conventional banks' size, capital structure, and financial performance. In light of this context, our research broadens and deepens our understanding of liquidity creation and the bank advancing channel from a monetary regime perspective (Distinguin et al., 2013).

The article is a banking literature review of how macroeconomic indicators influence liquidity creation. Prior research has focused on the theoretical and empirical relationship between bank

capital and liquidity creation (Berger & Bouwman, 2009). Toh (2019) asserts that smaller banks produce more liquidity relative to bank size because of their competitive advantages in lending technology. When it comes to financial performance, less profitable banks are urged to increase profitability by intensifying higher-yielding credit sectors. Conventional banks with higher risk would restrict liquidity creation to protect their portfolios (Daz & Huang, 2017). According to Davydov et al., (2018), liquidity is pro-cyclical, and banks produce more when the economy is booming.

Several studies on the diversity of the bank lending channel also served as inspiration for our research. Changes in monetary policy might be more responsive to the lending activity of conventional banks with frailer balance sheets because it may be more difficult and expensive for these banks to obtain external capital (Kishan & Opiela, 2006). The lending channel could be strengthened by incorporating more small, risky, liquid, and undercapitalized institutions (Kashyap & Stein, 2000). The prominent question researcher wants to answer is whether or not the bank's channel for generating liquidity is aided by poor balance sheets (Altunbas et al., 2010).

The bank performs two crucial tasks: risk transformation and liquidity creation. A large number of studies have been conducted regarding the role conventional banks play in transforming risks; however, banks' role in creating liquidity still needs to be explored in Pakistan. Analyzing the bank's ability to increase market liquidity is crucial. The literature informs us that monetary policy is one factor that influences the market's ability to create liquidity. The literature on how macroeconomic indicators affect liquidity creation in developing nations is scarce. The current study aims to close the literature's theoretical, practical, and geographic gap. According to Ali (2022), the creation of liquidity has a favorable, significant impact on a nation's economic development.

The idea of empirically measuring the creation of liquidity is a recent one. The influence of macroeconomic indicators on liquidity creation for the Pakistani conventional banking sector has yet to examine in the literature empirically. Concerns were raised about the nation's banking industry's capacity to provide liquidity due to the need for appropriate action. As a result, the following query must have a sufficient response: What effect does the monetary policy have on liquidity creation? Does Pakistan's conventional banking sector create more or less liquidity due to changing the basis point of monetary policy?

The above-mentioned research question inspired the researcher to develop the research goal. The study's primary aim is to examine the nexus between liquidity creation and monetary policy. Another goal is to examine the impact of fluctuation in the basis point of the policy rate on the volume of liquidity creation.

The current study's research area is only as far as Pakistan. Using the Berger & Bouwman (2007) Model for measuring liquidity creation, Sabahat (2017) estimated the amount of liquidity created by banks in Pakistan. The researcher was inspired to carry out the study because more literature is needed. Alternatively, research has yet to be done in Pakistan regarding the effect of macroeconomic indicators on liquidity creation. The current study fills the research gap by examining the influence of monetary policy on liquidity creation in Pakistan.

The main goal of this study is to examine the nexus between liquidity creation & monetary policy in Pakistan. These metrics were created, as in Berger and Bouwman (2009), by merging various elements relevant to on and off-balance sheet banking industry activity. This study uses annual bank balance sheet data from January 2000 to December 2021. Once the liquidity creation's actual amount is calculated, the study examines the impact of monetary policy on liquidity creation.

This study covers the following sections. Section 1 discussed the problem statement and research question that led to this study's research objective, scope, and significance. In section 2, researchers discuss the literature in the context of liquidity creation & monetary policy. Whereas in section 3, researchers discuss the research methodology. Moreover, section 4 reports the study's findings, followed by a discussion. At the end of the study, the researcher wraps up the study and gives a conclusion and recommendations.

2. Literature Review:

This study is relevant to two emerging fields in banking literature. The first examines the process of creating bank liquidity. In contrast, the second examines the influence of conventional bank market power & funding structures on the advancing channel that disseminates a monetary policy. Concerning the first literature stream, academics have focused mainly on liquidity creation. Although the idea of liquidity generation in banks has been theorized about for a while (Diamond & Dybvig, 1983), empirical research on this topic has only recently begun to gain traction after Berger and Bouwman (2009) created novel metrics to measure it.

The authors' choice was determined by the simplicity, expense, and speed of receiving liquid funds from banks. Banks can quickly, cheaply, and easily sell their commitments to satisfy their liquidity needs. Can produce the most significant amount of liquidity when financing liquid assets with the most incredible amount of liquidity, such as government securities). The drivers of bank liquidity creation have been the subject of a flurry of empirical studies using the unique metrics offered by (Berger & Bouwman, 2009).

As a result, numerous studies demonstrate a strong correlation between liquidity yield and bank-level factors, including frequently discussed components like bank capital (Berger & Bouwman, 2009). Some studies concentrate on how bank competition affects the production of liquidity. Horvath et al., (2016) show how competition among banks negatively affects liquidity through research on a sample of Czech banks.

Toh et al., (2020) and Jiang et al., (2019) support the assertion that such an effect will vanish for Malaysia's diversified banks and US banks. Additionally, it has been found that bank-specific, industry-specific, and economic factors influence the creation of bank liquidity. Banks frequently produce additional liquidity, particularly when the economy is expanding or the increase in the basis of the stock market exhibits strong liquidity (Davydov et al., 2018). Another body of literature focuses on the availability and usefulness of the bank advancing channel. Its fundamental goal is to determine how this crucial banking channel is utilized to spread monetary policy among conventional banks with various characteristics at different bank levels. The percentage change in client loans demonstrates how different aspects of banks' financial health impact how effectively the monetary policy is transmitted through bank lending. Liquidity, bank risk, bank size, and capital are standard measures of this financial strength (Kaship & Stein, 2000; Rashid et al., 2020).

According to previous authors, smaller, less liquid, undercapitalized, and riskier conventional banks are generally more susceptible to financial tremors because they have less access to outside funding.

Market power has drawn the most attention because it has changed significantly due to banking integration and financial liberalization and has the potential to affect how monetary policy transitions are handled. Banks with more market power typically reduce their loan supply during more minor monetary contractions than banks with less power, and this is due to two factors. First, it is possible to justify banks' use of market dominance to control prices. Market leaders may frequently need to modify their funds and loans to reflect price changes. These banks are consequently more circumspect and want to maintain their position by quickly maintaining the exact yield (Baarsm & Vooren, 2018). Second, access to alternative sources of funding may be the cause of banks' dominance in the market (Funga'cova et al., 2014; Turk Ariss, 2010). More stressed banks respond less strongly to changes in monetary policy when more money is available. Riffat et al., (2022) examine the nexus between risk management and financial performance in Pakistan's banking sector.

Despite these potential channels, recent empirical research on the marginal effects of bank market power on the dissemination of monetary policy has produced conflicting findings. The Lerner index is used by Funga'cova et al. (2014) to measure market power in the euro area and demonstrate how it limits the transmission of monetary policy through the bank advances channel. This phenomenon is also frequently seen in other nations & regions, including Latin America, ASEAN, China, Asia, and others (Olivero, 2011; Hussain & Bashir, 2019). However, there is an indication that the monetary policy spread is strengthened in less competitive markets (Amidu & Wolfe, 2013). In other words, more market power promotes the efficient transmission of monetary policy on bank advances.

2.1. Financial Intermediation Theory & Concept:

The foundations of traditional theories of intermediation are asymmetric information & transaction costs. They are designed to consider organizations that offer insurance, accept deposits, and disperse funds to businesses. However, there have been a lot of significant developments lately. The transformation by a bank of many short-term, low-risk, small, and liquid deposits into a small number of much more significant, long-term, risky, and illiquid advances (loans).

2.2. Liquidity Creation:

Banks are exposed to more risk when more liquidity is created. Selling illiquid assets to meet client liquidity demands carries greater risk and potential losses (Diamond & Dybvig, 1983). Liquidity is the ability of a financial institution to meet all of its customer's financial needs (Yeager & Seitz, 1989). Basel Committee on Banking Supervision (BCBS) defines bank liquidity as a bank's ability to finance asset growth and short-notice obligation fulfillment while sustaining a minimum level of modest losses (BCBS, 2009). Empirical studies frequently use accounting data ratios, such as liquid assets over total assets, to evaluate bank liquidity (Bunda & Desquilbet, 2008; Distinguin et al., 2013).

2.3. Monetary Policy:

Monetary policy is a macroeconomic tool that can be used by the State Bank or other regulatory bodies to alter the level of the money supply in a given economy. The availability of conventional bank loans is influenced by how monetary policy affects bank deposits, which in turn affects the creation of bank liquidity. According to some research, constricted monetary policy affects the return on deposits, which affects householders' preference to hoard money rather than deposit it in banks (Kishan & Opiela, 2000). Some authors have a slightly different perspective on the relationship between bank deposits, and bank advances during monetary policy contraction (Cantero-Saiz et al., 2014; Disyatat, 2004). According to Disyatat (2004), bank deposits might not matter in terms of decreasing bank lending after a contraction in monetary policy if three conditions are met (Fiat money, adequately capitalized, and a liberalized financial sector). The conventional bank can meet advanced demand without affecting credit availability. Disyatat (2004) emphasizes the link between loan demand and bank deposits. However, it also considers the significance of the balance sheet and market funding premium in enhancing the bank's advancing channel of monetary policy transmission.

2.4. Liquidity Creation and Monetary Policy:

Berger et al., (2016) demonstrate the requirement for limiting bank liquidity generation during capital support measures and regulatory actions during ongoing bank supervision. Conventional banks adjust their advances and liquidity policies in direct reaction to shifts in monetary policy, which impacts how effective monetary stimulus is. A monetary policy easing for small banks, according to Berger and Bouwman (2017), promotes the creation of liquidity. However, the minimal impact on large and medium-sized banks shows that monetary policy does not consistently influence the liquidity these institutions produce on or off their balance sheets.

Additionally, they discover the significance of the State Bank of Pakistan's liquidity creation by conventional banks, particularly during times of crisis. According to Berger et al., (2016), monetary policy's effects on liquidity creation are frequently less significant in low times than under normal circumstances. Regulatory bodies contend that conventional banks are reluctant to increase advances in low times due to incomplete information and elevated levels of uncertainty, which lessens the impact of loosening monetary policy.

According to Chatterjee (2015), monetary policy impacts banks' borrowing costs, which aligns with earlier research by Berger and Bouwman (2017). The author concludes that changes in credit spreads and asset market liquidity, both of which are significant drivers of bank liquidity creation, are caused by monetary policy. Again, it is asserted that this effect will be more prominent for smaller banks. Based on the size of the banks, Pham et al., (2021) investigate the impact of monetary policy on liquidity creation by Vietnamese banks. The findings are consistent with Berger and Bouwman's (2017) findings for the US market, which demonstrated that a contractionary monetary policy hinders new liquidity creation, with the effect being more substantial for smaller banks. Dang (2022) finds that easing monetary policy promotes liquidity formation using data from the Vietnamese market. However, a more diverse funding structure and greater market power could reduce the transmission effects.

Banks are exposed to more risk the more liquidity is provided. Even more unbelievable is the possibility and size of losses linked with having to dispose of illiquid assets to meet client liquidity requirements (Allen & Gale, 2003; Allen & Santomero, 1998). Monetary policy is a macroeconomic tool that can be used by the State Bank or other regulatory bodies to alter the level of the money supply in a given economy. The availability of conventional bank advances is influenced by how monetary policy affects bank deposits, which in turn affects the creation of bank liquidity. The author is doing this research because it currently needs to be done in Pakistan. There have been few studies on monetary policy's influence on liquidity development.

H₁ = Monetary Policy has a significant impact on liquidity Creation

The researcher creates the following research framework to study the nexus between liquidity creation and monetary policy. To the researcher's knowledge, only a few studies have been done on liquidity creation in developing nations like Pakistan, and various variables can influence liquidity creation. The framework that has been created aids the researcher in examining how different variables interact in a developing nation.

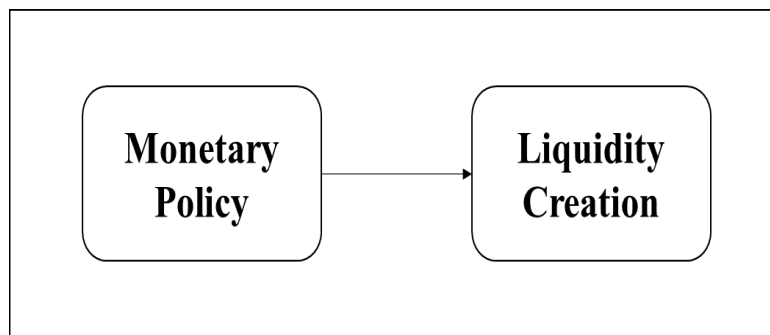


Figure 2: Theoretical Framework

3. Research Method

This study investigates the impact of bank characteristics on the monetary policy's channel for creating liquidity. The researcher adopts the positivism philosophy and employs the deductive method. The quantitative research methodology uses a deductive approach to accomplish the research objectives. The secondary sources used to gather the data include the Thomson Reuters financial data stream. Data for the time series is collected between 2000 and 2021. The dependent variable in the study is liquidity creation, and the independent variable is monetary policy.

$$LC_t = \beta_{0t} + \beta_1 MP_t + \epsilon_t$$

The Catfat model is used to measure the amount of liquidity creation (LC) in this study utilizing the three-stage method (Berger & Bouwman, 2009). Step 1 involves categorizing all on-balance and off-balance sheet activities as liquid, semi-liquid, or illiquid based on how easily banks and customers can raise money and avoid commitments. The activities identified in step 1 are given varied weights in step 2, which can either be +1/2, 0, or 1/2 depending on the liquidity trait attached to the specific activity. Creating the appropriate model of measuring liquidity creation using the

on-balance sheet and off-balance sheet activity is merged in step 3. These measures are differentiated based on the classification of advances and the inclusion & exclusion of off-balance sheet operations. For instance, categorical classification methods are designated as "Cat," and maturity-based classification methods are designated as "Mat." Similar to how "fat" denotes metrics that incorporate off-balance sheet activity, and "non-fat" denotes measures that exclude them. Finally, Cat fat, Cat non-fat, Mat fat, and Mat non-fat are four liquidity creation measures developed using Berger and Bouwman's (2009) methodologies. In Berger & Bouwman (2009), they have applied the Catfat model to estimate the amount of liquidity creation in the study in the US. However, the current study has adopted the Catfat model to estimate the amount of liquidity created by Conventional Banks in Pakistan. Berger & Bouwman has preferred and recommended the Catfat model over other models.

Table 1: Variables and Measurement Tools

S No.	Variables	Indicator	Measurement Tool	Test
1	Liquidity Creation	LC	$\text{Catfat} = + (1/2) * \text{Illiquid Assets} (0) * \text{Semi Liquid Assets} - (1/2) * \text{Liquid Assets} + (1/2) * \text{Liquid Liabilities} (0) * \text{Semi Liquid Liabilities} + (1/2) * \text{Illiquid Liabilities} + (1/2) * \text{Liquid Equity} (0) * \text{Semi Liquid Equity} + (1/2) * \text{Illiquid Equity} + (1/2) * \text{Illiquid Guarantees} (0) * \text{Semi Liquid Guarantees} - (1/2) * \text{Liquid Guarantees}$	Berger & Brown (2009)
2	Monetary Policy	MP	Short Term Lending Interest Rate	World Bank

The data is collected from the financial statements of the conventional banks registered on the Pakistan Stock Exchange from 2000 to 2021. The total number of observations is 21. The short-term lending rate is gathered from the World Bank website. The current study has used the amount of liquidity creation estimated by the researcher in their study of liquidity creation by Conventional Banks in Pakistan (Ali & Ahmad, 2022).

The researcher used a simple regression technique for the data analysis. The time series data is collected from 2000-2021. The researcher used E-Views as it is preferable for the time series analysis. The simple linear regression model tests the relationship between the dependent and independent variables. Statistical tests were applied to check the reliability and validity of the data.

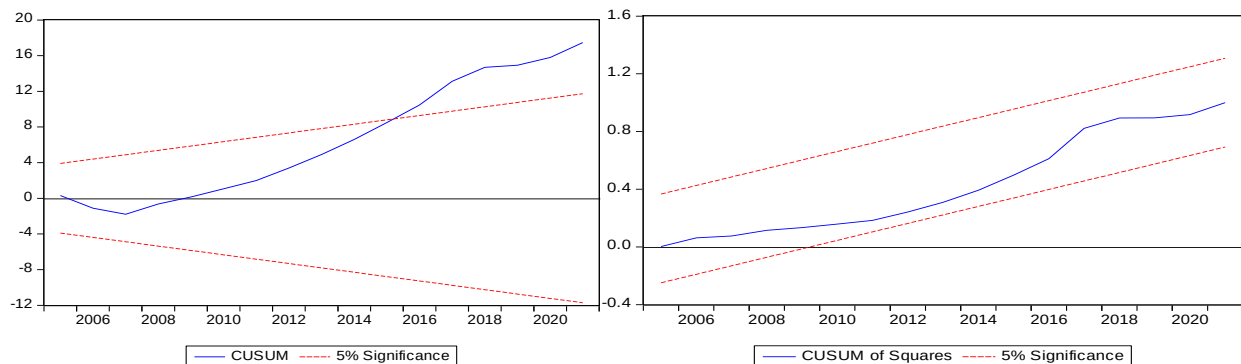
4. Result and Discussion

4.1. Result

Table 2: Regression Analysis

Variable	Coefficient	Std. Error	t-Statistics	Prob.	Centered VIF
C	0.667566	0.022442	29.74665	0	NA
MP	0.574686	0.219368	2.619729	0.0164	1
R-squared	0.255481				
Adjusted R-squared	0.218255				
F-statistic	6.86298				
Prob(F-statistic)	0.016411				
Durbin-Watson stat	0.557191				

The Ordinary Least Square estimation technique was implemented to evaluate the relationship between the dependent variable, i.e., liquidity creation, and the explanatory variable, i.e., monetary policy. There was a total of 21 observations utilized to run the regression model. The constant parameter has a positive value of 0.667, the monetary policy has a positive value of 0.574, and it is significant at 0.0164 Prob value which is less than the criteria of 5%. Results indicate that research hypotheses are accepted i.e., monetary policy has a significant positive impact on liquidity creation. The positive change in monetary policy brings positive change in liquidity creation. Results are significant at a 5% confidence level. The explanatory variable in the model can explain 25.5 percent (R- Squared) of the variation in the dependent variable. Thus, Monetary policy has a significant positive impact on liquidity creation.


Figure 3: Cumulative Sum & Cumulative Sum of Square

The CUSUM test, which determines whether the model is stable based on a blue line, is used for sensitivity studies (if it crosses the red line, the model is unstable). The results of CUSUM show that the model is not stable. However, the CUSUM Sum of Square test results determine whether the model is stable. The Chow breakpoint test results demonstrate that the model is stable. The results of the CUSUM of the square also indicate that the model is stable. Thus, Monetary policy has a significant positive impact on liquidity creation.

4.2. Discussion:

The study's results demonstrate that monetary policy significantly enhances liquidity production. Changes have significantly influenced liquidity in the market in the monetary policy rate set by Pakistan's State Banks over the past 21 years. By controlling the basis point of monetary policy rates, the State Bank of Pakistan managed the creation of liquidity by conventional banks. Due to the financial sector's continued expansion since 2000, Pakistan's banking industry has grown. The number of regular bank customers also increased due to population growth. More advances are made as a result of the monetary policy rate reduction because bank borrowing costs for people and businesses are reduced. On the other hand, a decrease in advances happens as the monetary policy rate rises. By changing the monetary policy rate, the State Banks of Pakistan can regulate the liquidity produced by banks.

Our findings demonstrate that the monetary policy positively influences liquidity creation as the economy grows and more banks open. Pakistan's state bank publishes the monetary policy rates. They change over time. They evolve with time. The state bank of Pakistan is successfully regulating the rate by increasing the creation of liquidity in the market. The number of bank customers and users increased due to the expanding population, which also increased the number of borrowers. In more developed economies, interest rates are typically the central bank's primary tool for implementing policy.

However, non-interest rate instruments in emerging markets are frequently used to complement or replace interest rate-based monetary policy (Chen et al., 2017). The State Banks of Pakistan should raise the rate during times of high bank liquidity creation to deter bank risk-taking and lower it during times of low liquidity creation to promote investment. Overall, the market size is growing, which causes the monetary policy rate to rise and create more liquidity, according to our research. The US market is enormous; they have small, medium, and large banks, around 4,000. The total number of conventional banks registered on the Pakistan Stock Exchange is 20. That is why this study did not classify the banks into different sizes.

5. Conclusion

The study concludes that monetary policy has a significant positive influence on banks' liquidity creation. The time series data was gathered from 2000 to 2021 from the conventional banks registered on the Pakistan Stock Exchange. A linear regression model was used to test the relationship between liquidity creation and monetary policy. The conclusions provided different viewpoints on the connection between liquidity creation and monetary policy in Pakistani conventional banks. By increasing loans and deposits, monetary expansion is anticipated to expand the creation of liquidity on balance sheets (Bernanke & Blinder, 1992). It has been demonstrated that credit, liquidity, and operational risks can positively or negatively impact bank profitability (Saleh & Afifa, 2020).

Additionally, the nexus between the dependent variable (liquidity creation) and the explanatory variable (monetary policy) was evaluated using the Ordinary Least Square estimation method. There were 21 total observations used to run the regression model. The constant parameter's positive value of 0.6675, with a significance value of 0.0164, shows that monetary policy positively influences liquidity creation in Pakistan. The explanatory variable in the model can

account for 25.5% (R-Squared) of the variation in the dependent variable. The study's results confirm Berger and Bouwman's (2017) seminal work from the perspective of a developing market by demonstrating the existence of the bank liquidity creation channel.

Moving forward, we discover that various bank groups behave differently regarding the bank's route for creating liquidity. Banks prefer to raise more capital when they have lower capitalization levels and better liquidity positions. Monetary policy of expansion. Our research also indicates that other bank-level variables like capital, risk, and return have no impact on generating new liquid assets. Our research also assists the government in making wiser decisions. This study will benefit banks and be helpful in a variety of circumstances. The government can comprehend how monetary policy affects the creation of liquidity thanks to our research. For instance, if the government successfully controls interest rates, the cost of loans will drop, and banks will extend more loans to the general public, increasing the amount of liquidity created. As banks would be lending more loans to support the economy's expansion, lowering the cost of loans would boost investment.

Lower interest rates could also boost banks' net worth, prompting banks to repay more loans in response (Kane, 1989). With more liquidity creation, this study can assist banks in managing their liquidity creation. The profitability of the bank is crucial. Our study gives banks a better understanding of how monetary policy rates affect their profitability. The government and policymakers should pursue independent credit policies and alter the credit risk structure to achieve future financial investment goals (Kioko et al., 2019). Our conclusions have political ramifications. Because monetary policy is an effective tool for controlling bank liquidity creation, authorities should carefully consider using it. Notably, specific bank-level characteristics can reduce, enhance, or neutralize the power of monetary transmission. Our findings open the door for more investigation into the bank liquidity creation channel in other nations and regions from the perspective of research.

There is a nexus between liquidity creation and monetary policy, which is investigated in the current study in Pakistan. The current study recommends that there is a need to investigate whether bank-specific traits impact the Bank's channel for creating liquidity. Bank size, capital, risk, and many other factors are crucial determinants of the creation of liquidity and traditional moderators of the Bank's advancing channel. Banks must take the necessary actions to enhance their financial performance to continue offering loans at fair interest rates. Policymakers should increase investment opportunities resulting from favorable economic development arrangements, strengthen practical exchange credit, and lessen financial institutions' financial dependence on them. The study's findings show a positive-significant impact of monetary policy on liquidity creation in Pakistan. Because of this, all listed conventional banks should work to increase asset quality by implementing stringent customer screening and other controls.

For risk managers to effectively manage credit risk, top bank management must provide clear and appropriate instructions. Additionally, it is recommended that bank management must ensure that long-term borrowers are regularly watched and managed to ensure loan repayment on time and prevent credit risk. In addition, we implore banking leaders, decision-makers, and professionals to create detailed standards for loan issuance and prompt consumer repayment of loan installments. To make sure banks address the risks, they deal with daily. Collectively, financial institutions must

prepare for and adapt to deterministic and plausible credit risk scenarios. To prevent incompetence and subpar financial performance, banks must make effective strategies to adopt technology in the business. These preparations are made within the context of a bank's risk appetite (Manu et al., 2020). The credit risk could worsen into a liquidity crisis if banks cannot manage their long-term borrowers. Banks should monitor the liquidity position to ensure enough short-term assets are available to cover short-term liabilities. However, banks must manage loan-to-deposit ratios to control liquidity risk.

The strict liquidity risk management guidelines provided by the State Banks of Pakistan must be followed by conventional banks to avoid the consequences. This policy will set the foundation for developing a solid framework for managing liquidity risk. This framework will outline the Bank's significant funding and liquidity risks, how they are measured, tracked, and reported, and the management and mitigation tactics to be employed. The policy should also specify the upkeep of different ratios, funding preferences, and an evaluation of the Bank's liquidity in both standard and emergencies (stress testing).

The Bank should have a contingency funding plan to deal with emergency liquidity issues. This strategy should identify early warning signs to avoid unexpected liquidity crises. As a result, the liquidity position of the banks will improve. Conventional Banks must have enough resources to manage operational risk to avoid bank failure. Furthermore, if banks successfully implement these policies, they can mitigate the adverse effects of credit, liquidity, and operational risks while improving financial performance. Because of the uncertainty in the banking environment in developing countries, management must be cautious and focus more on these risks to maintain profitability and keep a strategic distance from bank failure and insolvency. The author only took one macro factor into account, but multiple factors like Inflation and unemployment can expand the scope of the study. Moreover, bank-specific factors like corporate governance and firm size can be taken. On the micro level, we can check the impact of Bank and industry-specific variables on liquidity creation, which would help better understand.

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