

Cloud Accounting Cost and Market Value of Listed Food and Beverages Manufacturing Firms in Nigeria

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Abstract

Despite numerous empirical studies, the relationship between cloud accounting cost and market value of firms still provokes debate. Therefore, this study examined the effect of cloud accounting cost on the market value of listed manufacturing firms in Nigeria between 2012 and 2021. Ex post facto research design was adopted for this study. From population of twenty-three (23), a sample of ten (10) food and beverages manufacturing firm was purposively selected. The study's methodology involved the panel regression models using the fixed effect and random effect models. Based on the results, the coefficient of Cost of Training (COTR) was positive and statistically insignificant within the 1% and 10% conventional level of significance. Also, the results revealed that there is a positive and insignificant effect of Cost of Software (COSW) on Market Value (MKV) of food and beverages manufacturing companies in Nigeria while positive and significant effect exists between Cost of Risk (CORSK) and Market Value (MKV). The results further revealed that a positive and insignificant relationship exists between Firm Size (FMSZ) and market value of food and beverages manufacturing companies' (MKV). Sequel to the findings, the study concluded that cloud accounting cost has a significant contribution to the market value of foods and beverage manufacturing companies in Nigeria. This implies that with cloud accounting, business has real time access to their financial data as it allowed them to make more informed financial decisions, track expenses and monitor cash flow more effectively.

Keywords: Cloud Accounting Cost, Market Value, Cost of Software, Cost of Training, Firm size

1. Introduction

The requirement for accuracy and efficiency in the collection and distribution of high-quality data reports has drawn a lot of attention from both developed and developing countries worldwide. Numerous businesses with microcomputers and other related accounting packages have adopted the use of automated accounting information to improve their efficiency and strengthen the credibility of their information when reporting within the firm's departments, hence, firms have leverage on the use of cloud given the significant role that cloud computing plays in lowering the cost and stress associated with obtaining data (AL-Sharairi, Al-Hosban, & Thnaibat, 2018). Furthermore, Onyali (2016) claimed that because cloud accounting is less expensive than in-house accounting, it reduces the need for expanding manpower, office space, and technology like computers and printers, thereby

increasing the market value of businesses. Furthermore, there will be no need to shell out a lot of cash for new hires' training programmes.

Thus, several issues need to be addressed before cloud accounting becomes viable in Nigeria. First is the availability of broadband internet, which has been a problem for businesses who wish to set up in Nigeria. Fortunately, the country is receptive to progress, and bandwidth is showing dramatic improvements over the past few years. Besides broadband issues, potential cloud service providers in Nigeria need to face another important problem which is the power grid (Wisdom & Grace, 2023). The incumbent power provider is not very reliable, resulting in frequent outages. Besides being unreliable, there is also a lack of electrical capacity, there is simply not enough power being generated to sustain large companies with server. This very serious infrastructure problem scares away companies from building data centres in Nigeria.

Moreover, the Nigerian manufacturing sector continues to have uneven growth in their performance along with distress and failure brought on by poor profit, in spite of the efforts made by the regulatory authorities to resuscitate manufacturing enterprises. According to Oyedokun, Tomomewo, and Owolabi (2019), a significant number of manufacturing businesses in Nigeria have shut down, while others, more well-known businesses have either acquired most of them or, at best, merged with them. Some have moved their operations hub to nearby nations (Abdul & Isiaka, 2015). The majority of industrial enterprises operate below capacity, which can be attributed to outdated technological infrastructures and inadequate accounting systems.

In general, it is impossible to overstate the importance of manufacturing enterprises to the growth of any country. Particularly, managers of businesses have shifted to computerized accounting systems due to the importance of manufacturing industries to the health of the nation. Furthermore, the current spread of the corona virus has highlighted the need of cloud accounting, particularly in developing nations like Nigeria. The Covid 19 outbreak exposed the advantages of cloud accounting software in developed economies like the United States, the United Kingdom, and Canada. Given that cloud accounting facilitates remote access, it is possible that workers were able to work from home because real-time, remote access to information is possible from any location (Owolabi & Izang, 2020). More empirical research is required to determine how cloud accounting affects business performance in emerging markets like Nigeria (Abdul & Isiaka, 2015). There are not many research in this area, and those that do had varied findings because they did not examine all the aspects of cloud accounting. More empirical research is required to determine how cloud accounting affects business performance in emerging markets like Nigeria.

Cloud computing and information technology unquestionably contributed to the accounting information system's revolutionary change. Accountants are still hesitant to use this technology, despite it being abundantly evident that it does not mean the exclusion of human labor and that its goal is to ensure its optimization. The risks that they cite to support their opposition to the adoption of this technology relate to: data security because the service provider has access to private information; the feeling that users have no control and depend on the provider who is in charge of maintaining and managing the application; etc. People are naturally most afraid of new things. Accounting firms and pertinent professional organizations support accountants in the adoption and application of this technology since, according to accountants, the advantages it offers outweigh the risks it poses (Onifade et al., 2023).

According to Owolabi and Izang (2020), cloud computing is advantageous to corporate organizations because it improves the quality of financial reports by presenting them in a more structured manner thanks to advanced cloud accounting software. In a

different study, Saad, Lutfi, Almaiah, Alshirah, Alqudah and Abdelmakdoud (2022) asserted that cloud accounting operates similarly to traditional accounting, but online. Additionally, according to Owolabi and Izang (2020), cloud service providers provide online servers from which any client, organization, or association can access their information via the web.

Additionally, in connection to the adoption of cloud accounting in established and developing economies, Sufian, Jat and Banerjee(2020) presented a theoretical underpinning. The author noted that the term "cloud accounting" refers to the provision of computing services on demand without the requirement for active administration by the service's customers. Therefore, cloud accounting comprises all of the features and services offered by accounting software that is installed on a client's PC and operates on a common service provider's server. Evidence from the literature on cloud accounting points to data security, software acquisition costs, training costs, maintenance costs, and risk element costs as the primary determinants of cloud accounting in Nigeria. In a different study, Sun, et al. (2014) made the case that cloud accounting adoption has frequently been hampered by concerns about data security. Because data are dispersed across many computers and storage devices, including servers, PCs, and other mobile devices such wireless sensor networks and smart phones, data security becomes very important in the cloud accounting environment. Therefore, cloud accounting data security is more difficult than data security in traditional accounting systems.

The cost-effectiveness of manufacturing has been a key factor in Nigeria's adoption of cloud accounting. The use of cloud accounting is related with a variety of costs, including infrastructure purchases, website development, maintenance, and training costs. For instance, Effiong, Udoayang, and Davies (2020) highlighted how the performance of manufacturing enterprises has been negatively impacted by the manufacturing sector's major hindrances to cost management effectiveness. Therefore, despite significant attempts to encourage cloud accounting adoption in Nigeria, uptake is still met with a cool response, which is mostly motivated by the worry that cloud accounting is expensive to deploy. In contrast, Rashid and Chaturvedi (2019) suggested that cloud accounting lowers operating costs since it allows firms to share resources over a wide network of infrastructure, including both public and private networks. More empirical research on the effects of accounting technology from the perspectives of Nigerian industrial enterprises is therefore needed.

The majority of cloud accounting research, according to empirical reviews, has been done in developed nations, while nothing is known about how cloud accounting affects the performance of manufacturing enterprises in Nigeria. Additionally, the majority of researchers used a theoretical approach, and their conclusions lacked a quantitative methodology. Additionally, empirical analyses revealed that studies on cloud accounting only took data security into consideration as a proxy for cloud accounting, ignoring other crucial proxies like cost and risk element. Therefore, this research work will utilize a special combination to proxy cloud accounting cost which includes cost of training , cost of software and cost of risk element in order to close this significant observed gap in the literature.

2. Literature Review

2.1. Market Value

Market value is considered one of the most widely accepted factors that determine firm value. Literature shows that most individual investors take their individual investment decision based on the market price per share. According to Jensen (2015), the objective of increasing the long-term market value of the firm has its roots in economics and finance. Value is determined by the magnitude, timing and risk of the future free cash flows of the company. The price at which a stock has traded most recently is its market value. The

technique for calculating market value per share involves dividing the overall market value of a company by the total number of outstanding shares (Singh & Yadav, 2017).

2.2 Cloud Accounting

One of the newest developments in information technology is the use of the cloud as a creative means of processing and storing data. One of the main approaches to guarantee the effectiveness of the accounting information system is to use these technical solutions, therefore today the attention is increasingly on cloud accounting, also known as online accounting, web accounting, or virtual accounting system (Egiyi & Udeh, 2020). The context in which businesses operate today is one where rapid technological advancement forces ongoing changes to the way information systems, or the gathering, processing, and exchange of information, work. By enabling the development of new goods, businesses, and markets, automation and information technology development (IT) promote economic growth (Strusani & Hougbonon, 2019).

In a cloud computing environment, the organization running an application often doesn't own the physical equipment used for the apps and has no understanding where the computation work for the applications is being prepared. The technology gives businesses its distinctive benefits, such as high accessibility, versatile adaptability, fewer complexity, speed, nimbleness, adaptability, and financial flexibility. Despite its importance, a limited research has nonetheless thought about how distributed computing will be received by SMEs (Hassan, 2017). Consequently, the ability for companies and individual users to access apps from anywhere in the world on demand is what is meant by "cloud computing" (Abidde, 2021).

2.3. Theoretical Review

The TAM model will serve as the foundation for this study's construct, which will be incorporated based on the model's predicted fitness for ICT usage and how it affects the performance of certain listed manufacturing enterprises in Nigeria. Egiyi and Udeh (2020) state that three theories have historically been applied to study how people accept information technology. These theories include the technology acceptance model (Davis, 1989; Davis et al., 1989), the theory of planned behaviour (Ajzen, 1991), and the theory of innovation dissemination (Rogers, 1995). The innovation diffusion theory centres around five perceived properties of innovations, including relative benefit, complexity, compatibility, triability, and observability. Each theory focuses on a certain element. The only factors that have been found to be experimentally connected to the adoption of innovations are relative benefit, compatibility, and complexity (Park & Ryoo, 2017).

On the other hand, the technology attributes, like perceived utility and perceived ease of use, are the main emphasis of the technology acceptance model (TAM). TAM by Davis (1989) provides support for the study's framework. TAM specifically addresses two beliefs: perceived utility and perceived ease of use. The degree to which a person thinks using a system will enhance his performance is known as perceived usefulness. The degree to which someone thinks using a system will be simple is known as perceived ease of use. TAM aims to explain as well as anticipate, assisting practitioners and researchers in determining the reasons behind a system's potential unacceptability and taking the necessary action.

2.4 Empirical Review

Users of cloud accounting software have unrestricted access to resources while collecting them in cloud storage facilities (Malik, Wani & Rashid, 2018). Accordingly, cloud accounting is viewed as a new tool and mode for accounting data collection acquisition,

removing the information system's status as an information island and enabling access to a wider range of external data that can be used to analyze financial and nonfinancial information and control more efficiently, strengthening an organization's accounting (Hamundu, Husin, Baharudin & Khaleel, 2020).

A recent survey of the literature on the adoption of cloud computing discovered that many studies do not make use of the most widely used technology adoption theories (Azad, 2017). Additionally, research that do use a framework lack a consistent strategy, adopting and mixing components of the DOI, TOE, and HOT-fit theories. Cloud accounting uses software to gather and process data that is accessed through an Internet-based cloud provider's application, drawing on the properties of cloud computing. Therefore, the accounting software and data are located on the remote server, software installation and maintenance on individual computers are not necessary, and data "retrieval" by a large number of users is simultaneously possible at any moment from a large number of devices. Cloud technology application has by no means changed the function of accounting in relation to the use of traditional software.

The primary distinction between cloud computing and traditional accounting is that with the former, users buy the right to use software online (Software as a Service, or SaaS), while the latter is purchased as "physical" assets and installed on the user's computer system (Azad, 2017). This indicates a difference in the application support offered (Ionescu, 2017), as opposed to traditional platforms, which can only support a small number of users. This is because cloud platforms support the work of numerous users (in accordance with the authorizations they got). The most influential factors in cloud computing as identified in the literature of cloud computing and accounting can be categorized into four groups including human factors such as personal innovativeness, perceived technical competence; organizational factors including adequacy of resources, top management support, perceived indirect benefits, and relative advantages; technological factors such as perceptions of the innovation's complexity, compatibility, and reliability and security and environmental factors such as competitive pressure, government policy, and partner support.

Many of the popular technology adoption theories like DOI, TOE, and HOT-fit theories complement each other, to provide a comprehensive understanding of the key determinants of technology adoption. In terms of the human factors and HOT-fit theory, Lian, Yen and Wang (2014) found support for the influence of innovativeness and IT competence on cloud computing adoption by hospitals in Taiwan. In relation to the organizational factors listed across TOE and HOT-fit models, perceived indirect benefits (Hsu, Ray & Li-Hsieh, 2014), top management support (Oliinyk & Echikson, 2020) and the firm's IT capability all influenced cloud computing adoption (Hsu, Ray, Li-Hsieh, 2014). The technological factors from HOT-fit and TOE theories have received support from the literatures as influencing cloud accounting technology. This includes the role of complexity and compatibility from DOI theory which was found to influence cloud computing adoption in Taiwan and security (Lian *et al.* 2014).

Prior studies have provided varying degrees of evidence for the significance of environmental factors from TOE theory in the context of competitive pressure in cloud computing (Hsu, Ray, Li-Hsieh, 2014; Oliveira, Thomas, & Espadanal, 2014). Partner pressure and regulatory support (Oliveira, Thomas, and Espadanal, 2014) were both shown to be inconsequential in the context of the cloud. Egiyi and Udeh (2020) claim that current research on the determinant factors for cloud computing and accounting technologies that rely on the TAM, TOE, DOI, and Hot-fit theories is inconclusive. For instance, Haslinda, Mohd and, Norhaiza (2017) researched Cloud Computing Adoption in Organizations. The scientists arrange the variables that impact the distributed computing reception utilizing the

three settings recommended by the Technology Organization-Environment (TOE) system, to be specific, innovation, association, and condition. The finding from the examination found that the impacts of these elements differ across studies and a large portion of the investigations have operationalised distributed computing appropriation utilizing aim to embrace distributed computing or double factor, as opposed to the real utilization of the innovation.

Taking into account the studies mentioned, security of information is considered one of the most important factors for accepting cloud. Accordingly, providers must place greatest emphasis on providing the highest level of security and focus on current as well as potential users. In this context, two aspects need to be especially emphasized (Pfarr, Chowanetz & Winkelmann, 2013) first, the difference between the actual and the perceived security of information; second, enterprises based in the European Union are subject to strict laws, which prohibit the storage of certain information on servers outside the EU. Cloud providers as well as (potential) users need to bear in mind this aspect during the service selection phase.

Egiyi and Udeh (2020) made an effort to highlight specific aspects of using cloud technology in accounting, including the opportunities and hazards involved. Additionally, the authors hope to encourage and stimulate businesses in the Republic of Serbia to use the expanding cloud services market and incorporate this technology into their accounting information systems by outlining the advantages that cloud-based accounting brings to both companies implementing this technology and users of financial information. The conducted surveys and studies highlight the need for training and awareness raising campaigns on the importance of adopting cloud solutions in the business world. In most surveys, enterprises point out that the risk of security breach is a key factor of aversion or less use of cloud services. Besides, enterprises, especially small and medium-sized, point to insufficient knowledge of cloud computing as a significant factor discouraging the use of cloud services, but also a factor that affects the poor perception of security issues. Finally, expertise and knowledge of contractual, legal, and technical aspects of implementation are prerequisites for an enterprise that decides to purchase cloud computing services.

3. Methodology

Given the nature of the study as a cross section examination firm over a set period of time, Panel regression, simple percentage and descriptive statistics was used in this investigation. To determine the nature of the variables' collinearity, the correlation matrix, a fundamental test of descriptive statistics was used. In regards to the nature of this study, while Econometric View (E-view 9) tools was used to analyse the secondary data sourced. More so, as regards the panel regression technique, pooled regression, fixed effects model and random effect models was utilized for objective two and three of the study.

3.1 Model Specification

In order to investigate the effect of cloud accounting cost on financial performance of manufacturing firms in Nigeria, the work of Wisdom (2022) was adapted. Wisdom (2022) study premised on the cloud accounting and performance of listed manufacturing firms in Nigeria. Wisdom (2022) model is specified below:

$$FP_t = (SA_{it}, SAP_{it}, DAP_{it}, MC_{it}, FS_{it}, FA_{it})$$
$$FP_t = \beta_0 + \beta_1 SA_{it} + \beta_2 SAP_{it} + \beta_3 DAP_{it} + \beta_4 MC_{it} + \beta_5 FS_{it} + \beta_6 FA_{it} + \mu_t$$

Where:

FP= Financial Performance,

SA = Standardization of Accounting,

SAP = Simplification of Accounting Process,
 DAP= Documentation of Accounting Process,
 MC= Maintenance Cost,
 FS= Firm Size
 FA= Firm Age,

Taking cognizance of the model, the model for this study will be coined and modified. The model is given below:

$$MV=f(COTR, COSW, CORSK, FMSZ) \dots\dots\dots 3$$

Mathematically,

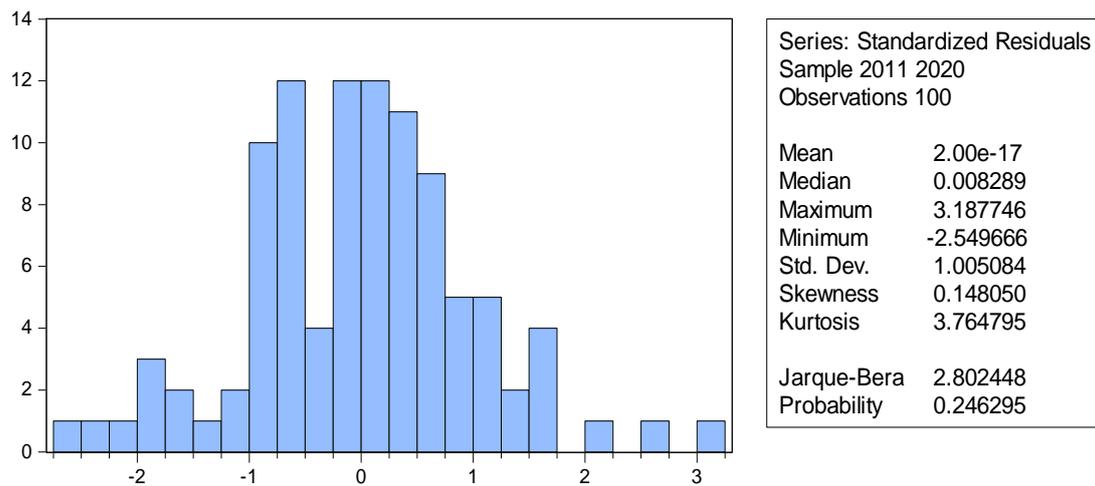
$$MV=\beta_0+\beta_1COTR+ \beta_2COSW+ \beta_3CORSK+ \beta_4FMSZ +\mu \dots\dots\dots 4$$

Where:

- MKVA is Market Value,*
- COTR is Cost of Training*
- COSW is Cost of Software.*
- CORSK is Cost of Risk*
- FMSZ is Firm Size*

4 Data Analyses and Discussion of Findings

4.1 Descriptive Statistics



This study used Jarque-Bera statistic to check whether the residual (error term) of the estimated model when the Market Value is regressed on Cloud Accounting Characteristic indicators is normally distributed. The results revealed that residual is normally distributed. For heteroskedasticity test, the insignificant value of p-value suggests the acceptance of the null hypothesis of homoskedastic. This means that the model is free from heteroskedasticity problem.

Table 1: Lagrange Multiplier and Hausman Test for Cloud Accounting Cost and Market Value

Tests	Chi2	P-Value
Breusch-Pagan Lagrange Multiplier (LM)	42.232	0.000
Hausman test	11.049	0.026

Source: Author's Computation (2024).

4.2 Cloud Accounting Cost And Market Value

From the results in Table 2, the Breusch and Pagan Lagrange multiplier (LM) [42.232 (p-value = 0.000)] and Hausman [11.049 (p-value = 0.026)] tests results for the model showed that the preferred model is Fixed Effect regression model since Hausman tests is significance at 5% level. Therefore, the Fixed Effect regression model is considered appropriate to establish the relationship that exists between Cloud Accounting Cost and Market Value (MKV).

Table 2: Regression result of Cloud Accounting Cost and Market Value

Variable	Pooled	Random	Fixed
	Coeff. Std. Dev. () Prob.[]	Coeff. Std. Dev. () Prob.[]	Coeff. Std. Dev. () Prob.[]
Constant	1.985 (2.643) [0.455]	8.732** (4.086) [0.035]	18.8*** (4.844) [0.000]
COTR	-0.017 (0.012) [0.157]	-0.001 (0.012) [0.965]	0.002 (0.012) [0.900]
COSW	0.023 (0.015) [0.132]	0.014 (0.017) [0.413]	0.008 (0.016) [0.638]
CORSK	0.206* (0.120) [0.088]	-0.184 (0.200) [0.358]	-0.682*** (0.234) [0.005]
FMSZ	-0.077** (0.038) [0.044]	-0.012 (0.032) [0.701]	0.030 (0.031) [0.339]
Observations	100	100	100
R²	0.100	0.018	0.526
Adj. R²	0.060	-0.024	0.454
F-Statistic	2.577	0.425	7.349
Prob. (F-Stat.)	0.042	0.790	0.000

Source: Author's Computation (2024) with underlying data from annual reports of food and beverages companies listed on Nigerian Exchange Group (NEG). Note: The dependent variable is MKV which is Market Value. The Independent variables are Cost of Software (COSW), Cost of Training (COTR), Cost of Risk (CORSK) and Firm Size (FMSZ). ; *** p<0.01, ** p<0.05, * p<0.1

$$\begin{aligned}
 MKV = & 18.8 + 0.002COTR + 0.008 COSW - 0.682 CORSK + 0.030 FMSZ \\
 & (4.844) \quad (0.012) \quad (0.016) \quad (0.234) \quad (0.031) \\
 & [0.000] \quad [0.900] \quad [0.638] \quad [0.005] \quad [0.339] \\
 \text{F-Statistic} = & 7.349 \text{ (0.000); } R^2 = 0.526 \text{ Adj. } R^2 = 0.454
 \end{aligned}$$

4.2.1 Model Interpretation

The study applied fixed effect model to examine the effect of cloud accounting cost on market value. Based on the result, the F-statistics value [7.349; p-value = 0.000] showed that the explanatory variables are jointly statistically significant in explaining the variations in Market Value (MKV). The coefficient of determination (Adjusted R²) value of 0.454 indicated that the explanatory variables were able to explain about 45.4% changes that

occurred in the dependent variable. Giving the F-statistics value of 7.349 with the probability value of 0.000 showed that Cloud Accounting Cost has statistical effect on Market Value of food and beverages companies in Nigeria, hence the null hypothesis of no significant effect of Cloud Accounting characteristic on Market Value of food and beverages companies listed in Nigeria was rejected.

Based on the results, the coefficient of Cost of Training (COTR) was positive and statistically insignificant within the 1% and 10% conventional level of significance (coefficient = 0.002; p-value = 0.900). Alternatively, the insignificant result suggested that the influence of Cost of Training (COTR) on financial performance of the Selected Food and beverages companies in Terms of Market Value (MKV) is positive. The results revealed that there is a positive and insignificant effect of Cost of Software (COSW) on Market Value (MKV) of food and beverages manufacturing companies in Nigeria (coefficient. = 0.008; P – value = 0.638).

Conversely, the results revealed that positive and significant effect exists between Cost of Risk (CORSK) and Market Value (MKV) at 1% significance level (coefficient. = 0.682; p-value = 0.005). Again, the significant result suggested that the influence of Cost of Risk (CORSK) on market value of the selected food and beverages companies (MKV) is positive and significant. The results further revealed that a positive and insignificant relationship exists between Firm Size (FMSZ) and market value of food and beverages manufacturing companies' (MKV) (coefficient. = 0.030; p-value = 0.339). It also suggested that the influence of Firm Size (FMSZ) on financial performance of the selected food and beverages companies in terms of Market Value (MKV) is insignificant.

This was in tandem with the work of Oliinyk and Echikson, (2020) who argued that the understanding of cloud computing adoption decisions is marred by inconsistencies on the influence of a myriad of organizational, technological, environmental, and human factors. More so, Tahmina (2017) also addresses the significant point of cloud accounting on financial performance. He demonstrates that one of the significant IT breakthroughs over the past ten years has been the creation of accounting software using cloud technology, which has improved the practice of bookkeeping overall.

Perri and Muça (2015) study was in tandem with this result as findings result views distributed computing as a web-based innovation that promotes the delivery of registering services through the system and is unquestionably the best solution to problems facing accounting businesses with regard to acquiring, storing, handling, and describing data. The researcher discovered that the cost reserve funds for programming and equipment are considered as the best benefits of distributed computing innovation, but data security and unwavering quality are mentioned as its biggest drawbacks.

However, study by Muhammed, Zaharaddeen, Rumana, and Turaki (2015) does not augur well with the empirical result as it reveals that an insignificant effect of cloud accounting cost on firms performance. They claim that there is no question that cloud computing technology has changed the way both private and public organizations provide their teaming customers with high-quality services. Furthermore, study by Mugenyi (2018) report an inverse effect on financial performance. He reported that an expansion has resulted in higher operational costs related to the purchase and maintenance of IT infrastructure and, in any case, a greater need for space to accommodate them, which is continually accompanied by helpless information storage and the board.

5. Conclusion and Recommendation

The impact of cloud accounting on the manufacturing sector's market value was investigated in this study. In light of the results, the study came to the conclusion that cloud accounting

costs significantly affect the market value of food and beverages manufacturing firms in Nigeria. This suggests that cloud accounting gives businesses instant access to their financial data, enabling them to better track spending, monitor cash flow, and make well-informed financial decisions.

Prior to the result of the study, the following recommendation were made: Food and beverages manufacturing firms must develop a comprehensive set of policies and procedures that govern the use of cloud accounting, including access controls, data protection, and backup and disaster recovery processes and also ensure that all employees understand these policies and procedures and comply with them. Food and beverages manufacturing firms should provide training to all employees who will be using cloud accounting to ensure they understand how to use the software effectively and follow the policies and procedures. Food and beverages manufacturing firm's decision management should implement strong security measures to protect sensitive financial data from unauthorized access, such as multi-factor authentication, encryption, and access controls.

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