



The impact of internal control practice on management performance in the Telecom industry during the pandemic period in Ghana

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Abstract

The study aims to investigate current and recent rampant weak internal controls and their impact on the financial performance of the mobile payment companies in Ghana. The study used Secondary data to perform multiple linear regression analysis for the past ten years of the mobile payment companies' operations around the globe. Methodically, partial and cross-correlation tests, regression analysis, ranking, and ANOVA analysis were exploited in the analysis to estimate and predict the relationship between internal controls and their impact on financial performance indicators. The tests predicted either positive or negative bi-directional relationships of the variables of the mobile companies used in the study. Among the four competing firms, MTN portrayed the strongest cashflow position whereas the Airtel depicted the weakest in the current and acid test ratios. The study outcome is expected to enforce the stakeholders and government to establish specific policies that will regulate the internal control to improve the liquidity of mobile payment companies.

Keywords: COSO Framework; Enterprise control; Ghana; internal control system; Telecom.

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1. Introduction

Internal Financial Control is a process that encompasses systems, policies, and procedures that protect the assets of the Company, create reliable financial reporting, promote compliance with laws and regulations and achieve impact and efficient operations (Agbenyo, Jiang & Cobblah, 2018). In the past, in 1930, the concept of internal controls was limited to that of internal checks. In 1949, the American Institute of Certified Public Accountants(AICPA) broadened the definition of internal control as the plan of organization and all of the coordinated methods and measures adopted within a business to safeguard its assets, check the accuracy and reliability of its accounting data, promote operational efficiency, and encourage adherence to prescribed managerial policies.

Gupta(1987), defines internal control as the plan of organization and all the methods and procedures adopted by the management of an entity to assist in achieving management objectives of ensuring as far as practicable, the orderly and efficient conduct of its business including adherence to management policies, the safeguarding of assets, prevention and detection of fraud and error, the accuracy and completeness of accounting records and the timely preparation of reliable financial information. The aim of internal control systems in an institution is to implement economic, efficient operations; fulfill accountability obligations, safeguard resources against loss, damage, and misuse and comply with applicable regulations and laws (Agbenyo, Jiang & Cobblah, 2018). Internal control supports the deployment of resources and therefore helps the management to achieve the objectives of companies. This study, therefore, analyzes the impact of weak controls on management performance of profitability. Recent happenings in the mobile payment industry are worrying and have portrayed to the public that weak internal controls are in place. Many are the voices that have bemoaned the state of weak controls within mobile payment companies. Efforts by previous and present governments and customers to improve the situation have not been of much significance. The absence or weak capacity to modify the internal control criteria has become a major challenge to most mobile financial companies and studies have indicated that some components of the control system are not properly implemented (Magu and Kibati,2016; Gyebi and Quain,2013). Years of weak internal control have also caused serious impacts on profitability. These have caused the use of mobile payment services to be much lower than expected (Pedro, 2010) and still underused (Huili and Chunfang2011), and the market of mobile payment remains very small compared to the whole banking transactions (Luarn and Lin 2005; Laukkanen 2007).

1.1. Purpose of study

However, despite all these, it appears as though the controls are inadequate. This has sounded a caution to both the government, companies, agents and potential customers on the need to adhere to the practice that guides against weak controls. Ascertaining the causal factor that leads to weak controls will enable both companies and agents to improve their services and restore public trust in mobile payment methods. This study aims at solving this unresolved question and explores how to control practice affects the financial performance of mobile payment companies in Ghana. A study into the causal relationship in internal control in mobile payment is needed to broaden the frontiers of knowledge on mobile payment companies, especially in Ghana where research in this emerging service is very limited.

1.2. Research Objectives

The research field for this study is Finance and the subject area of study is internal control. The study seeks to achieve its purpose through the accomplishment of the following specific objectives;

- i. To examine the impact of internal control practice on the level of cash the companies can use quickly to settle unforeseen demands.
- ii. To assess the impact of internal control on the current assets of mobile payment companies.

iii. To investigate how internal control influences all current assets except for inventories.

The specific questions that will be answered to achieve research objectives include the following.

i. In what ways does internal control practice impact the level of cash the companies can use quickly to settle unforeseen demands?

ii. Can internal control practice cope with all current assets without exception?

iii. To what extent does internal control practice influence all current assets except for inventories?

1.3. Significance of the study

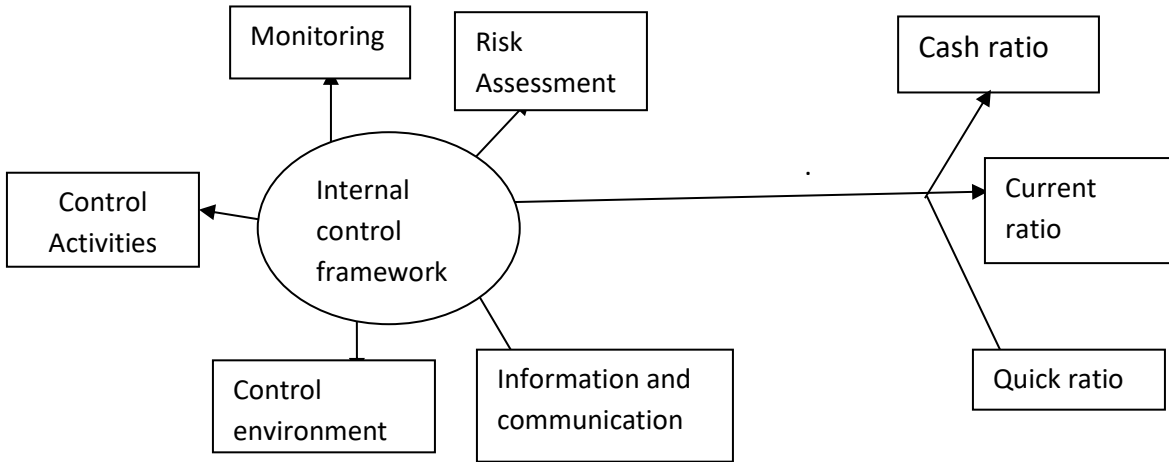
This research study will contribute to a theory in the mobile Payment industry and will ensure prospects in the foreseeable future. The concept of weak internal controls in mobile payment in Ghana has begun to be discussed but lags behind the ideological justification from many researchers' perspectives. It is not an object but rather national, local, political and practice actions must complement the implementation of strong internal control. This study has theoretical, practical, and policy implications. The findings of this study will be very useful to researchers, practice makers, investors, corporate managers, customers, and other stakeholders. Secondary, the findings of this study can be used to point policy in the right direction by either, revising or extending the existing government practice or formulating a new practice for the mobile payment companies. Thirdly, the study will also contribute to the efforts of academicians in training future managers in the area of internal control research.

Providing justification for this research topic stemmed solely from the outcome of the literature review. From the review, it is shown that the methodologies previous studies employed did not adequately explain the phenomenon of internal control; the way the internal control problem and its associated concepts were approached and defined were problematic; because most of the previous studies didn't tackle the contemporary problem or the issue being investigated. The research is justified because it will fill up existing gaps in other similar research already done and provide effort made towards addressing the pressing debate in mobile payment to the benefit of, society, nation, and the world at large.

1.4. Conceptual framework

The review considers the main framework of the COSO framework which is adopted for the study and the theoretical framework underpinning the study. Types of internal financial control and key assumptions are discussed and explained. Different theoretical frameworks on controls such as Committee on Sponsoring Organization (COSO) framework have been adopted in developed economies to improve the performances of profit-seeking organizations. This study intends to explore whether these frameworks are adopted by mobile payment companies in Ghana and clearly and succinctly identify their adherence by both the merchants and the companies to guide against factors that eventually improve the financial performance of the mobile payment companies in Ghana. The use of the framework to guide against controls will unearth the main causes of the failure on the part of the companies and their merchants which have contributed to recent weak financial controls practice. Examining the compliance of the framework will also help to identify whether the current control practice conforms to the generally and internationally acceptable standards of improvement in controls and this will enable the companies to become aware of the underlying causes of the happenings in the mobile companies to improve their service delivery.

Figure 1
COSO framework 2013 underpinning the study



Source: Author's construct, 2020.

1.4.1. *The concept of internal control: Theoretical aspect*

One of the basic instruments of enterprise control, whose implementation in modern economic conditions provides conditions for achieving a competitive advantage over other enterprises is the creation of an effective internal control system. According to Walsh and Seward (1990), control may broadly be divided into two types – internal and external controls (as seen in Seo, Lee & Park, 2022). Internal control involves the supreme enterprise control apparatus and enterprise shareholders, whereas external control might be defined as the power in the market or branch, competitive environment, or state business regulation. In the United State of America, many organizations have adopted the internal control concepts presented in the report of the Committee of Sponsoring Organizations of the Trade way Commission (COSO) published in 1992. COSO report has expanded the definition of internal control system beyond mere mechanism for reducing instances of fraud, misappropriation, and errors. It is now considered to be an integrated framework, with direct involvement of the board of directors, management, and other key personnel to provide assurance that would pursue the achievement of the company's objective.

1.4.2. *Types of internal control concepts: a theoretical perspective*

According to Pfister (2009), there are several types of control, and they can be grouped into strategic, management, and internal control. Hoskisson et al., (1994) supported this view but rather grouped the two types into strategic controls and financial controls. Gupta (1987) explained that strategic controls emphasize largely sub-criteria for evaluation. Hoskisson, Hitt, and Ireland (1994) added that strategic controls require a rich information exchange between corporate and divisional managers. On the other hand, financial controls entail objective criteria such as Return on Investment (ROI) in the evaluation of business-level managers' performance. Therefore, this research work is on financial controls on mobile payment companies in Ghana. In the modern business world, the term "Internal Control" is being used to refer to two basic concepts: the Internal Control System and the Internal Control itself. These terms are often used interchangeably but the facts are that the two concepts mean differently to researchers.

1.4.3. Internal Control System

According to Cook and Winkle (1976), the Internal Control System resembles the human nervous system which is spread throughout the business carrying orders and reactions to and from the management. It is directly linked to the organizational structure and the general rules of the business (Cai,1997). The objective of the efficient internal control system is primarily to ensure assurance that things are working according to plan, hence every establishment must institute controls that will capture both the operational and compliance aspects as existence, occurrence, completeness, validation, and rights and obligations to ensure complete booking of all transactions at all time. According to Cheung and Qiang,(1997), the Internal Control System refers to an organized amalgamation of functions and procedures, within a complete system of controls established by the management and whose purpose is the successful function of the business. The Internal Control System is all the methods and procedures followed by the management to ensure, to a great extent, as much successful cooperation as possible with the director of the company.

1.4.4. Internal Control itself

The term refers to the unit of Internal Control which aims the evaluation of the sufficient functioning of the Internal Control System. Besides, the purpose of this control is the intentional, programmed, and focused effect of the company on the current situation, so that this situation to be reformed in the future and become the one that ought to exist (Mcnamee and Mcnamee, 1995). The Worldwide known collapses of such companies as Enron, Worldcom, Ahold, Parmalat, and others determined to issue in 2002 the Law of Sarbanes–Oxley in the USA, in which attention is focused on the effectiveness of the enterprise internal control system and its assessment. Such a significant law as section 147 of Sarbanes–Oxley has clearly shown that not only the internal control system must be concretized and clearly defined, but also the means of implementing the internal control system and assessing its effectiveness must be covered.

ASOBAC (Committee on Basic Auditing Concepts, (1973), emphasized that internal control itself is a systematic procedure that leads to evaluating the degree of correlation between those established criteria and the real results of the business. Furthermore, according to Miller and Bailley (1989), internal control itself is a systematic review and a subjective investigation of one element and encompasses the verification of the specific information as these are determined from the general practice. Internal control helps the company to achieve its goals using a systematic approach to assessing the effectiveness of handling dangers. In 1992, the COSO framework which has been updated on May 14th, 2013 appeared as the most integrated system and has been adopted for this study because of its importance and comprehensive

1.4.5. Theories of internal control: Commission of Sponsoring Organizations of the Treadway Commission (COSO) Framework 1992 as amended in 2013

COSO report on internal control is defined as a procedure that offers fundamental security to the business concerning the credibility of financial affairs. The report defines internal control and describes a framework for internal control. But the difference of this report is that it also provides criteria for the management to utilize to evaluate controls. COSO tries to establish a common definition and standard that can serve such parties. Under COSO's report, "Internal Control is broadly defined as a process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories: effectiveness and efficiency of operations, Reliability of financial reporting and compliance with applicable laws and regulations. As defined in COSO Report, Internal Control consists of five interrelated components, monitoring, information and communication, control activities, risk assessment, and control environment.

1.4.5.1. Monitoring

According to COSO Report, Internal control systems change over time. Once effective procedures can become less effective or perhaps are no longer performed, monitoring ensures that the internal control continues to operate effectively. Monitoring can be done in two ways: through ongoing activities or separate evaluations. Internal control systems usually will be structured to monitor themselves on an ongoing basis. The greater the degree of effectiveness of ongoing monitoring, the less need for separate evaluation exists. In summary, monitoring consists of the following: Internal control systems need to be monitored over time to assess their quality and performance. A combination of ongoing and separate evaluations of internal control systems must be conducted by management. Management and supervisory activities are required to be evaluated and monitored on an ongoing basis. An audit of internal control systems needs to be done by management to ensure the internal control are functioning as expected. This was why the Treadway Commission declared that to be effective, the audit committee should exercise vigilant and informed oversight of the financial reporting process, including the entity's internal controls.

1.4.5.2. Information and communication

According to COSO Report, information is needed at all levels of an organization to run the business, and move towards the achievement of the entity's objectives in all categories (operations, financial reporting, and compliance). The quality of system-generated information affects management's decisions. The quality of information includes ascertaining whether the content is appropriate, and the information is timely, current, accurate, and accessible to the appropriate parties. Communication is inherent in the information system and must take place in a broader sense dealing with the expectations, and responsibilities of individuals and groups. In summary, information and communication consist of the following: all personnel must receive a clear message from top management to take control activities seriously. Effective dissemination of information has a pivotal role to play in the internal controls system as all personnel must receive a clear message from top management that control responsibilities must be taken seriously.

1.4.5.3. Control Activities

According to COSO Report, control activities are policies and procedures to implement management directives. Control activities can be divided into three types activities; operation, financial reporting, and compliance. Control activities consist of preventive controls, detective controls, manual controls, computer controls, and management controls. Control activities include approvals, authorizations, verifications, reconciliations; reviews of operating performance, security of assets, and segregation of duties. Control activities cover controls over IT infrastructure, and software security, including legal and contract activities and off-balance sheet transactions. Control also embodies physical control with physical access to assets and important records, documents, blank cheques, vouchers, inventory, and securities should be restricted to only those who handle them.

1.4.5.4. Risk assessment

According to COSO Report, every entity faces a variety of risks from external and internal sources that must be assessed at entity-wide and activity levels throughout its operation. In summary, the following are the steps that need to be taken by the management to assess its risks: establishment of the company's risk to achieve its objectives, identification, analysis, and assessment of risks to achieve objectives, assessment of risks from internal and external sources at both the entity and the activity levels. Risk is part of business and every business concern is faced with both financial and business risks. Every business is expected to take steps to identify risks, estimate their significance and likelihood and consider how to manage them. The management should pay serious attention to risks at all levels and take necessary

actions to manage them. The management should be ever ready to resolve any risk that can derail its operations.

1.4.5.5. Control Environment

The control environment is influenced by the style of management, the competence of the employees, and the positive ethical values of the corporation, which are determined by the board of directors and get implemented in the functional units. The integrity and ethical values of a corporation are important factors in designing, administering, and monitoring all other internal control components of an organization. The board of directors and its audit committee significantly influence the control environment of a corporation. Control environment factors include the integrity, ethical values, and competence of the entity's people and it is the foundation for all other components of internal control as it provides the discipline and structure within which the organizations function. Part of the key elements of the control environment is the existence of a good corporate governance code in a company, as this code gives birth to the audit committee, which is a subcommittee of the board of directors that is composed of three to six non-executive board members.

1.4.5.6. Empirical studies on internal control issues in Kenya's mobile payment industry

Mbogo (2010) investigated the success factors attributable to the use of mobile payments by micro-business operators in Nairobi, Kenya. The study is based on a survey conducted through the administration of questionnaires. The data was collected from a sample of 409 micro-business entrepreneurs in Nairobi, Kenya. The study applies the theory of the Technology Acceptance Model (TAM) which was extended to include other factors to help predict success and growth in micro-businesses. Analyses of the data revealed that the convenience of the money transfer technology plus its accessibility, cost, support, and security factors are related to behavioral intention to use and actual usage of the mobile payment services by the micro-businesses to enhance their success and growth. Porteous,(2006) stated that there is appeal and utility of mobile banking and mobile payment services across the country of Kenya as there are probably more people with mobile handsets than with bank accounts. Thus, the security issues related to internal control were one of the main concerns of the customers to ensure the success of the growth of mobile payment in the country.

1.4.5.7. Extension of the study to previous research

Previous research did little to cover internal control in mobile payment companies. In Ghana, there is literature on internal controls in other industries but not in mobile companies. Mobile payment companies sprang up in Ghana a few years ago and have seen major changes but literature on internal control practices in the industry is very limited. This is one of the distinguishing aspects of this study. The study relates internal control practices and their impact on financial performance indicated by the mobile companies. Cyber frauds can be reduced and properly checked when internal control practices are strengthened. The existing knowledge on mobile payment focused mostly on consumer adoption without considering internal control practices that may occur when the mobile payment increases in the future. This research, therefore, resolves the concerns of both Kenya and Ghanaian customers and Fills the gap therefore will establish a solid linkage between previous investigations and contemporary practice.

1.4.5.8. Key Assumptions of the study

The study assumes that the consolidated financial statements have been prepared with all integrity taking into consideration audited reports on the effectiveness of internal control in each subsidiary audited in different countries. The study also assumes that management ensured effective communication on the system of internal control between the auditors before financial reports were issued for publication and

that all the mobile payment companies used for the study are duly registered with their respective regulatory bodies in their respective countries.

2. Materials and Methods

2.1. Research Design and Method

The study uses a mixed research method (that is both quantitative and qualitative research methods) by the use of a simple to the complex financial matrix to collect the required data of interest. The mixed-methods study approach is a rapidly evolving field of study both conceptually and practically. Spratt, Walker, and Robinson (2004) state that using multiple approaches can aid the researcher to capitalize on the strengths of each approach and offset their different weaknesses.

The purpose of using a mixed-method is useful because three obvious reasons: First, both quantitative and qualitative data together will provide a better understanding of the research problem than either of them. Second, either quantitative or qualitative will not be enough to answer all the research questions that the two together can answer. Third, the two approaches together provide multiple viewpoints, address biases, and give subjective and objective views. According to Owusu-Frimpong and Martins,(2010) managers in Ghana have little understanding of the internal control concept, coupled with challenges with implementation, hence, a mixed method of study could enable this study to gain insights into the mobile payment industry.

2.2. Data Collection Method

The study employed secondary data based on the objectives of the study which were related to the research questions. The secondary data was collected on the main independent variables, Internal control (IC) as well as selected financial performance variables which were used as predictors. To ensure the reliability of the data collected, simple to complex financial matrix was designed to aid in the extraction of financial figures from the consolidated financial statements of all the four registered mobile payment companies from 2010 to 2019. The rationale for choosing this method was to observe different patterns over the ten years of the phenomenon under investigation.

Audited annual global financial reports of the four mobile payment companies in Ghana were collected. Based on the research objectives, a financial matrix was designed with formulas for each ratio and the relevant figures were extracted and computed for indicators for the ten years under study. The final results from the financial matrix were used as raw data to serve as an input into the statistical software.

2.3. Participants

The study covers the four registered mobile payment companies in Ghana and all their subsidiaries around the world. The study uses secondary data from consolidated financial statements prepared to cover all the subsidiaries of the mobile companies in Ghana and around the world. A population is a group of people or objects of interest to the data collector. The population of this study is the five mobile payment companies registered in Ghana and all their subsidiaries around the world for MTN, Vodaphone, Airtel, Tigo, and Glo. The study examines their financial data for the ten years of operation. The study adopted non-probability sampling because of the intention to include all the four registered mobile payment companies in the study due to easy accessibility of data and the relatively limited population size. It was also to ensure that the study portrays wider coverage of mobile companies as possible using the secondary Data.

The study surveyed four out of the five registered companies which audited consolidated financial statements that were available for public use. Therefore, the sample size of this study would be (MTN, Vodaphone, Airtel, and Tigo). The sample is limited to the quota of the four registered companies. In quota

sampling, randomness is forfeited in the interests of administrative reasons since the study seeks information to meet a specific quota.

2.4. Variable Definitions

This research will use finance-specific variables. This section defines these variables and theoretically what will be expected to be their relationship with the independent variables.

Table 1

Variable definitions

Terms	Explanation	Basis
Cash Ratio	Indicate cash at hand for a long term commitment	Net cash inflow from operation divided by Total debts
Current Ratio	An indication of liquidity in the short term.	Current assets are divided by current liability.
Quick ratio	Shows liquidity in the short run with the exclusion of inventory	Current assets less stock divided by current liability.
Internal control	An indication of how well the enterprise systems work	Measured as either strong or weak financial performance indicators.
COSO framework	An integrated approach to measuring internal control	Measured by achieving the five variables in the framework

2.5. Ethical Considerations

Ethical issues have become very important in contemporary research. Individuals company anonymity and confidentiality regarding certain information are kept assured and treated with the utmost confidentiality and used for the research only. Since this research uses secondary data, it follows professional ethics by ensuring that the figures published on financial statements are quoted exactly to ensure the reliability and validity of the results.

2.6. Analysis

The data collected through the financial matrix was analyzed using the latest version of the statistical package for social science (SPSS) version 26 to describe the variables collected. The key reasons why SPSS is the best option to use in this study are to ensure effective data management and to give better output organization.

3. Results

Table 2

Internal control and cash situation (cash flow ratio) Financial Matrix results = net cash inflow from operation//Total debts

Year	MTN	Vodaphone	Airtel	Tigo	Ranking	
					High	Low
2010	0.43	0.41	0.40	0.30	Mtn	Tigo
2011	0.31	0.19	0.08	0.33	Tigo	Airtel
2012	0.40	0.18	0.22	0.27	Mtn	Vodaphone
2013	0.32	0.17	0.21	0.14	Mtn	Tigo
2014	0.23	0.12	0.22	0.15	Mtn	Vodaphone
2015	0.39	0.17	0.21	0.13	Mtn	Tigo

2016	0.73	0.17	0.18	0.26	Mtn	Vodaphone
2017	0.25	0.21	0.19	0.13	Mtn	Tigo
2018	0.11	0.20	0.17	0.11	Vodaphone	Mtn, Tigo
2019	0.13	0.16	0.10	0.08	Vodaphone	Tigo

Liquidity measures the amount of cash a company can put its hands on quickly to settle its debts and possibly to meet other unforeseen demands for cash payments too. Table 4.1 gives the results of the financial metrics which the firms achieved by following the internal controls procedures (COSO framework) on their cash situation. Based on high ranking, MTN remains more competitive seven times than their competitors, Vodaphone appeared twice while Tigo appeared only once within the ten years. Based on low ranking, Tigo portrays six times weaker in cash situation followed by Vodaphone which is depicted as three times weaker in cash. Airtel and MTN appeared only once within the ten years.

Table 3

Regression

Variables Entered/Removed ^{a,b}			
Model	Variables Entered	Variables Removed	Method
1	TIGO	.	Stepwise (Criteria: Probability-of-F- to-enter <= .050, Probability-of-F- to-remove >= .100).

a. Dependent Variable: VODAPHONE

b. Weighted Least Squares Regression - Weighted by YEARS

Table 4

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	847.730	1	847.730	59.569	.000 ^c
	Residual	128.080	9	14.231		
	Total	975.810	10			

a. Dependent Variable: VODAPHONE

b. Weighted Least Squares Regression - Weighted by YEARS

c. Predictors: (Constant), TIGO

The ANOVA table above indicates that if any of the group means is significantly different from the overall mean, then the research question is rejected. The Sum of squares column displays the sum of squares also known as the total variation between the group means and the overall mean explained by that variable. Once the sum of squares for the Vodaphone and its sum of squares of the residuals is less than the total mean, it implies that there is a positive impact of internal control on the cash situation of the company.

Table 5

Correlation matrix

Coefficients^{a,b}

Model	Unstandardized Coefficients		Standardized Coefficients			Correlations		
	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1 (Constant)	.010	.035		.276	.788			
TIGO	.874	.113	.932	7.718	.000	.932	.932	.932

a. Dependent Variable: VODAPHONE

b. Weighted Least Squares Regression - Weighted by YEARS

A correlation matrix in Table 5 shows correlation coefficients between Vodaphone and Tigo. A correlation matrix is used to summarize data, as input and diagnostic into a more advanced analysis. The Beta value for unstandardized and standardized coefficients of .874 and .932 respectively for Tigo indicate a statistically positive relationship between the two firms.

Table 6

Partial Correlation

Excluded Variables^{a,b}

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	AIRTEL	.471 ^c	1.881	.097	.554	.182
	MTN	-.122 ^c	-.478	.645	-.167	.244

a. Dependent Variable: VODAPHONE

b. Weighted Least Squares Regression - Weighted by YEARS

c. Predictors in the Model: (Constant), TIGO

Table 7

Coefficient Correlations^{a,b}

Model	TIGO		
1	Correlations	TIGO	1.000
	Covariances	TIGO	.013

a. Dependent Variable: VODAPHONE

b. Weighted Least Squares Regression - Weighted by years

Partial correlation in Table 6 shows the association between Airtel and MTN while controlling or adjusting the effect of Tigo or Vodaphone. A partial correlation is a correlation between two variables when a third variable is held constant. There is a negative partial correlation between MTN and Airtel while Tigo has a perfect positive correlation with Vodaphone as far as acid test ratio is concerned. What this means, in a practical sense is that the more Airtel becomes liquid, the more MTN becomes less liquid.

However, the purpose of the test is to determine whether there is statistical evidence that the mean difference between Airtel and MTN is significantly different from zero. The results of .097 and .645 indicate that there is no strong evidence to prove that MTN and Airtel are negatively related to liquidity. Both firms have positive p-values giving an alpha of 0.05. One can say that the result between MTN and Airtel are statistically significant.

Table 8

Internal control and current ratio(Financial Matrix results) = Current Asset/Current Liability

Year	MTN	Vodaphone	Airtel	Tigo	Ranking		
					Low	Average	High
2010	1.6	4.8	0.93	0.67	Tigo	2.0	Vodaphone
2011	1.2	0.61	0.30	0.64	Airtel	0.17	MTN
2012	0.69	0.83	0.30	0.65	Airtel	0.62	Vodaphone
2013	0.75	0.75	0.45	0.95	Airtel	0.73	Tigo
2014	0.76	0.99	0.39	0.52	Airtel	0.67	Vodaphone
2015	0.79	0.69	0.42	0.76	Airtel	0.67	MTN
2016	0.6	0.76	0.39	0.88	Airtel	0.66	Tigo
2017	0.79	0.84	0.32	0.80	Airtel	0.69	Vodaphone
2018	1.0	0.86	0.43	0.57	Airtel	0.72	MTN
2019	0.96	1.56	0.35	1.10	Airtel	0.99	Tigo

The current ratio assesses whether there are sufficient current assets to meet current liabilities as they fall due. An acceptable level may be considered to be 1.5-2:1. However, this depends on the industry. Within the ten years. Vodaphone seems to be the best company with the best current ratio for four years whereas MTN and Tigo followed with three years each. Airtel is the firm with the lowest level of the current ratio for nine years with an absolute ratio lower than the average mean of the four companies.

Applying the model specifications from MOD_8

Table 9

Cross correlation ;Model Description

Model Name		MOD_8
Series Name	1	MTN
	2	VODAPHONE
	3	AIRTEL
	4	TIGO
Transformation		Natural logarithm
Non-Seasonal Differencing		1
Seasonal Differencing		0
Length of Seasonal Period		No periodicity
Range of Lags	From	-10
	To	10
Display and Plot		All lags

Case Processing Summary

Series Length	11
Number of Excluded Negative or Zero Cases Due to Value Before Log Transform	0
User-Missing Value	0
System-Missing Value	0
Number of Valid Cases	11
Number of Computable Zero-Order Correlations After Differencing	10

Table 10

MTN with VODAPHONE Cross Correlations

Series Pair: MTN with VODAPHONE

Lag	Cross-Correlation	Std. Error ^b
-10 ^a	.	.
-9 ^a	.	.
-8	-.148	.707
-7	-.255	.577
-6	-.164	.500
-5	.073	.447
-4	-.105	.408
-3	-.071	.378
-2	-.047	.354
-1	.300	.333
0	.309	.316
1	.857	.333
2	-.110	.354
3	.020	.378
4	-.111	.408
5	.104	.447
6	-.068	.500
7	-.171	.577
8	-.090	.707
9 ^a	.	.
10 ^a	.	.

Table 11

MTN with AIRTEL Cross Correlations

Series Pair: MTN with AIRTEL

Lag	Cross-Correlation	Std. Error ^b
-10 ^a	.	.
-9 ^a	.	.
-8	-.243	.707
-7	-.294	.577
-6	-.005	.500
-5	.007	.447
-4	-.041	.408
-3	-.097	.378
-2	.225	.354
-1	.220	.333
0	.866	.316
1	.355	.333
2	-.079	.354
3	-.227	.378
4	-.039	.408
5	-.105	.447
6	-.127	.500
7	-.064	.577
8	-.221	.707
9 ^a	.	.
10 ^a	.	.

Table 12
Airtel with Tigo Cross Correlations
Series Pair: AIRTEL with TIGO

Lag	Cross-Correlation	Std. Error ^b
-10 ^a	.	.
-9 ^a	.	.
-8	-.219	.707
-7	-.028	.577
-6	-.056	.500
-5	-.086	.447
-4	-.060	.408
-3	-.167	.378
-2	-.026	.354
-1	.346	.333
0	.820	.316
1	.030	.333
2	-.061	.354
3	-.034	.378
4	.121	.408
5	-.198	.447
6	-.034	.500
7	.019	.577
8	-.065	.707
9 ^a	.	.
10 ^a	.	.

Table 13
Vodafone with Tigo Cross Correlations
Series Pair: VODAPHONE with TIGO

Lag	Cross-Correlation	Std. Error ^b
-10 ^a	.	.
-9 ^a	.	.
-8	-.060	.707
-7	-.076	.577
-6	-.021	.500
-5	.059	.447
-4	-.086	.408
-3	.047	.378
-2	-.151	.354
-1	.827	.333
0	.267	.316
1	.019	.333
2	-.160	.354
3	.162	.378
4	-.145	.408
5	-.087	.447
6	-.065	.500
7	.091	.577
8	-.246	.707
9 ^a	.	.
10 ^a	.	.

Table 14
Vodafone and Airtel Cross Correlations
Series Pair: VODAPHONE with AIRTEL

Lag	Cross-Correlation	Std. Error ^b
-10 ^a	.	.
-9 ^a	.	.
-8	-.186	.707
-7	-.087	.577
-6	-.028	.500
-5	.095	.447
-4	-.025	.408
-3	-.008	.378
-2	-.127	.354
-1	.797	.333
0	.570	.316
1	.103	.333
2	-.201	.354
3	-.098	.378
4	-.082	.408
5	-.095	.447
6	-.014	.500
7	-.212	.577
8	-.105	.707
9 ^a	.	.
10 ^a	.	.

Cross-correlation is a measurement that tracks the movements of two variables or sets of data relative to each other. In cross-correlation, if one variable influences another variable and the two are positively correlated, then as the value of the first variable rises so will the value of the second variable. Table 10, Table 11, Table 12, and Table 13 portray the cross-correlation tested for the four competing firms. In table

10, out of the seven elements tested, between MTN and Vodaphone, six(6) out of seventeen(17) of them were cross-correlated because their behavior is positively related. This means that if the current ratio for MTN increases the current ratio for Vodaphone also increases. The other eleven(11) indicated a negative relationship. With regards to Table 11 between MTN and Tigo, five (5) of the variables tested indicate cross-correlation between them whereas twelve (12) of them portrayed a negative relationship. In the same way Table 12, which depicts the relationship between Airtel with Tigo indicate cross positive correlation between five (5) variables and twelve(12) negative relationship. Table 13, however, depicted seven (7) variables being positively cross-correlated between Vodaphone and Tigo with the remaining ten(10) showing a negative relationship. Finally, Table 15 which shows the relationship between Vodaphone and Airtel indicates four (4) results being positively cross-correlated whiles thirteen (13) variables are negatively related. With these results, one can say that all the four competing firms have a more negative relationship than positive cross-correlations with each other which means that the current ratios of the firms increase but at more reducing rates. The four competing firms in the industry experience more reductions in their current ratios than increases as expected.

Table 15

Internal control and Quick /acid test ratio (financial Matrix) = Current Asset-stock/Current Liabilities

Year	MTN	Vodaphone	Airtel	Tigo	Weak firm	Strong firm
2010	1.55	5.7	0.92	0.56	Tigo	MTN
2011	1.18	5.6	0.30	0.54	Airtel	MTN
2012	0.68	0.81	0.30	0.63	Airtel	Vodaphone
2013	0.73	0.73	0.45	0.91	Airtel	Tigo
2014	0.75	0.97	0.39	0.49	Airtel	Vodaphone
2015	0.78	0.67	0.42	0.73	Airtel	MTN
2016	0.52	0.75	0.34	0.84	Airtel	Tigo
2017	0.77	0.82	0.32	0.77	Airtel	Vodaphone
2018	1.0	1.4	0.43	0.55	Airtel	Vodaphone
2019	0.95	1.4	0.35	1.08	Airtel	Tigo

The quick ratio eliminates the illiquid and subjectively valued inventory from the current ratio. When that is done, Vodaphone emerges as the strongest among the four competing firms followed equally by MTN and Tigo. However, Airtel was portrayed as the weakest firm for nine continuous years as far as quick or acid test ratio is concerned.

Table 16

Two-stage Least Squares Analysis; Model Description

		Type of Variable
Equation 1	Years	dependent
	MTN	predictor
	VODAPHONE	predictor
	AIRTEL	instrumental
	TIGO	instrumental
MOD_3		

Model Summary

Equation 1	Multiple R	.558
	R Square	.312
	Adjusted R Square	.115
	Std. Error of the Estimate	3.153

Two-Stage least squares (2SLS) regression analysis is a statistical technique that is used in the analysis of structural equations. It is used when the dependent variable's error terms are correlated with the independent variables. This technique is an alternative in Structural equations modeling (SEM) to estimate the path coefficient. The value of multiple R² for the regression model predicts the variables of interest and can be interpreted as the proportion of variation in that variable explained by the factors being measured. In other words, if multiple regression of Internal control is performed against the acid test ratio, the result is R² = 0.312, indicating that about 31% of the variation in internal control is explained by the acid test model. This indicates that the model explains less than half (50%) of the variation for those variables.

Table 17

Coefficients

		Unstandardized Coefficients		Beta	t	Sig.
		B	Std. Error			
Equation 1	(Constant)	2012.374	10.666		188.672	.000
	MTN	8.549	18.577	.836	.460	.659
	VODAPHIONE	-2.913	3.316	-1.926	-.879	.409

Table 18

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Equation 1	Regression	31.511	2	15.756	1.585	.271
	Residual	69.603	7	9.943		
	Total	101.114	9			

Table 19

Coefficient Correlations

		MTN		VODAPHONE	
Equation 1	Correlations	MTN	1.000	-.968	
		VODAPHONE	-.968	1.000	
	Covariances	MTN	345.089	-59.621	
		VODAPHONE	-59.621	10.998	

Two-Stage least squares (2SLS) regression analysis is a statistical technique that is used in the analysis of structural equations. In Table 17, the Sig(2-tailed) items 0.659 and 0.409 in the output are the two-tailed p-values between MTN and Vodaphone. The p-value is the evidence against a null hypothesis or research question. The smaller the p-value, the stronger the evidence that we should accept the research question, and then the test has a significant result at a conventional alpha level of 5% (0.05). Both values suggest that there is no strong evidence to support the facts that internal control impacts the quick assets of the two competing firms. The correlation coefficient between MTN and Vodaphone as shown in Table 19 indicate that the two firms are negatively correlated.

4. Discussion

When undertaking cross-sectional analysis, comparability between companies may be impaired due to the reasons such as different degrees of diversification, different production and purchasing policies, different financing policies, different accounting policies, and different effects of government incentives on the four competing firms (Agbenyo, Jiang & Cobblah, 2018). Internal control is such an important indicator in today's enterprise risk assessment. This study measures the impact of internal control on three major indicators; cash flow, current ratio, and quick asset of the competing firms. The first analysis between internal control and cash flow indicates that MTN is the best competing firm with high cash flow to run its operations. MTN, therefore, shows inverse correlations with Airtel while Vodaphone has a positive correlation with Tigo.

The second analysis shows how internal control impacts the current assets. Here, Vodaphone emerges as the best company with the highest quick assets while MTN and Tigo remain in an equal position. The cross-correlation calculated showed mixed results with most variables having a negative relationship with each other. Airtel shows strong weaknesses in current assets which calls for a strategic plan on the part of top-level management to boost the current assets situation of the company to be able to meet its short-term obligations.

The third analysis shows the impact of control on the quick assets also revealed Airtel again as the weakest firm among the four competing firms and again this calls for a strategic plan to redeem the fallen image of the company. The p-values of .659 and .409 between Vodaphone and MTN indicate that there is no strong evidence to prove that internal control impacts the quick assets of the company.

5. Conclusion

While there have been several contributions to the literature on the impact of internal control, empirical studies have been at variance in the results. This research attempted to address these shortcomings by extending the scope of the methodology to embrace regression, ratio, and partial and cross and partial correlation, instead of limiting it to only the basic descriptive analysis which has always been the case. Various stakeholders must work together to establish an innovative platform for controlling current assets. Through innovative means, governments can use the mobile payment industry to address the liquidity challenges faced by the competing firms.

The results of this study could provide a framework for providing relevant educational programs that could be exploited to ensure policy changes by different stakeholders in the mobile payment industry as far as internal control practices are concerned. Internal controls concerning liquidity and cashflow situations of the four competing firms must be monitored by the key stakeholders.

The results and limitations of this study serve as a guide to future researchers in the study area to know where to focus their efforts. The methodological approach in this research is quite different from the general approach in previous research works. First, this research adopted an unbalanced panel data suggesting that data on all mobile payment companies in existence at any point in time will be used instead

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of some selected few to represent the population. The research, therefore, avoids the loss of data and minimizes the loss of valuable information.

Future researchers must adopt different modern methods as used in this research especially on primary data to support these findings in different countries. Future researchers must also be concerned with policy direction on internal controls, especially for small and medium-size firms that cannot adopt the full COSO framework. The research covered global data up to 2019, therefore future researchers must use data from 2020 and beyond to undertake similar work in developing countries.

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