

Effect of Liquidity Control on the Service Delivery Efficiency of County Governments in Kenya

John Kirika Kamau¹, Joshua Matanda², Florence Memba³

1 Jkuat Student, Nairobi, Kenya

2-Jkuat CBD Campus, Nairobi Kenya

3-Machakos University DVCF, Kenya

Abstract: *Effective fiscal management is critical to boosting public sector performance, particularly in developing nations. In Kenya, the 2010 Constitution ushered in a devolved system of governance, making fiscal accountability and efficient service delivery increasingly important. Research shows a strong connection between fiscal management and the efficiency of service delivery, underscoring the role of sound financial practices in improving public services. The study anchored on the liquidity preference theory. This study employed a descriptive research design encompassing all 47 Kenyan counties. Secondary data was extracted from audited financial statements covering fiscal years 2013/2014 to 2020/2021. The data was analyzed using STATA 27.0, incorporating descriptive statistics (percentages, frequencies, measures of central tendency and dispersion) and inferential techniques such as correlation, univariate regression, and diagnostic tests. Panel regression models were used to assess the influence of fiscal management and the moderating effect of county population size on the efficiency of service delivery. From the analysis there was a positive and significant effect of cash flow management on service delivery efficiency of county governments in Kenya while account payables had a positive but insignificant effect on service delivery efficiency of county governments in Kenya. In conclusion liquidity control had a Positive and significant effect of cashflow management on service delivery efficiency of county governments in Kenya, thus indicating that county governments had capabilities to meet their short-term obligations and positively impacted service delivery efficiency. However, there is a need for county government to exercise caution through optimization and correction of situations where cashflow management ratios are above or below recommended threshold of 2:1*

Keywords: Liquidity Control, Fixed Effects, Random Effects, Service Delivery Efficiency

1.0 Introduction

Public service is considered a trust of the public because of its non-profit relationship with government that is committed to providing the public with good deeds that help people in the community. In addition, service delivery refers not only to the experience of the customer but also to other factors such as how easy it is to access services, how quickly they are provided, whether or not you can afford them, the reliability of services, the completeness of the services provided, the courtesy extended to you as a customer, and finally, whether or not you received the right support for your need. According to Clinton (1995), the former President of the United States, public service is provided efficiently and with minimal cost. Governments must also continue to keep pace with their citizens as they provide services to them. Furthermore, there is a critical need to resolve the resentment and dissatisfaction many citizens have regarding their public service.

If the government can effectively serve the public, citizens will once again believe in their government, and will continue to have faith in their government. There is also a significant need to create a culture of quality governance within the realm of public service, so all future governments will be required to adhere to this standard in their service delivery.

Since the devolution process, research on fiscal management has made considerable progress in Kenya. The majority of this literature examines county governments' financial conditions using

factors such as revenue generation, expenditure management, and level of debt to assess how this affect service delivery performance in the various service areas in which they provide services. Studies completed by Owili et al. (2019) and Muriithi (2018) demonstrate that these three fiscal variables will have some level of impact upon service delivery, ranging from medical services to infrastructure creation and development. The studies also highlight both the potential of devolved fiscal authority to enhance local service delivery, as well as the challenges that accompany a lack of capacity, along with poor financial management practices.

The research conducted by Kimondo (2014) investigated the relationship between liquidity and profitability for companies listed on the NSE that are classified as nonfinancial companies. In the work, a descriptive research design was used, requiring the author to reasonably describe the distribution of scores/variable using various statistical methods. The author operationalized ROA to measure profitability, and liquidity was operationalized with quick ratio, current ratio, and the absolute liquid ratio. Results indicated there is a weak positive relationship between the liquidity measures and the profitability of the nonfinancial firms listed in Kenya.

2.0 Problem Statement

The Kenyan Constitution of 2010 introduced the principle of devolved Government an important milestone in Kenya's governance. This Constitution created 47 County Government entities, which devolved essential political, administrative, and fiscal functions from National to sub-National Levels. The aim of Devolution was to bring Government closer to its citizens, thus creating an environment that would provide for more responsive, accountable, and efficient service delivery by narrowing the existing distance between the State and the People. There is a significant volume of empirical research on the relationship between fiscal management and service delivery, which has revealed that the relationship is very complex. According to Koros and Oketch (2022), even with the implementation of the Integrated Financial Management Information System (IFMIS), the occurrence of misappropriated funds, unpaid projects, and corruption remains prevalent in Kenya. The sole reliance of County Governments on transfers from the National Government to improve service delivery is not adequate in the absence of robust Accountability and Control mechanisms. The Auditor-General's report of 2025 noted that approximately KSh:30.5 billion of County Public Funds were not recorded in the IFMIS system, thus indicating the continuing lack of adequate Oversight to enable efficient service levels. Based on information from Transparency International (2022), 53% of the Population expressed dissatisfaction with the level of service delivery they received from County Governments—indicating that the Public is widely dissatisfied with County Government service delivery and therefore has little confidence in the governance of sub-National Governments. This study will consider the effect of liquidity control mechanisms on the level of efficiency in service delivery of County Governments, as well as whether the level of County Population size influences the relationship between liquidity control mechanisms and the level of efficiency in service delivery through their effect on fiscal incentives and administrative capacity.

3.0 Objectives of the Study

The general objective of this study was to examine the effect of liquidity control on the service delivery efficiency of county governments in Kenya. The specific objectives of the study were;

- i. To find out the effect of Cashflow management on the service delivery efficiency of county governments in Kenya.
- ii. To find out the effect of accounts payable on the service delivery efficiency of county governments in Kenya

4.0 Research Hypotheses

H₀₄: Cashflow management does not have a significant effect on the service delivery efficiency of county governments in Kenya

H₀₄: Accounts payable does not have a significant effect on the service delivery efficiency of county governments in Kenya

5.0 Empirical Review

The study conducted by Chemngorem and Njeru (2023) was to examine how macroeconomic factors affect the liquidity of deposit-taking SACCOs within Nairobi County. The study looked at whether variables such as inflation, gross domestic product (GDP), interest rates, and exchange rates had an impact on SACCO liquidity. Using a descriptive research design and secondary data (2018 to 2022), the researchers found that inflation had a negative relationship with liquidity while there was a positive relationship between GDP increases and increases in liquidity. On the other hand, liquidity increased as interest rates rose; whereas, as exchange rates rose, liquidity decreased. Therefore, it is suggested that government will be able to manage the various macro-economic related variables in order to help control inflation and raise GDP, which ultimately would improve liquidity. In conclusion, the results indicate that the improved liquidity for SACCOs situated in the counties is likely to be associated with increased overall economic productivity and success of all residents. Thus providing support for why this study is of importance at this time to the research community.

In studying the relationship between liquidity and profitability among oil companies in Kenya, Maina (2011) evaluated data from 2007 to 2010. The analysis of the data was predicated on secondary data obtained from the financial records of the oil companies under study, while a regression analysis based on an estimated regression model was used to establish the relationship between profitability (the dependent variable) and the factors used to qualify profitability (the explanatory variables). It was established in the study that although the management of liquid assets was an important factor influencing the profitability of an oil company, it was insufficient alone to account for an oil company's return on assets (ROA). In addition, it is important for the oil company to consider all aspects of liquidity when determining the company's profitability and implement appropriate measures so as to optimise the company's liquidity. While the original study evaluated the impact of liquidity on an oil company's profitability, the present study is investigating the impact of the control of liquid assets on the speed and reliability of service delivery.

The study by Kimondo (2014) aimed to assess the relationship between liquidity and profitability for companies defined as nonfinancial companies that were traded on the Nairobi Securities Exchange (NSE). This was a descriptive study, where descriptive statistics were used to describe how scores or variable distributions were related to each other. The study in its entirety looked at 39 nonfinancial companies listed on the NSE in Kenya. Data were acquired from published

financial statements of these nonfinancial companies over the five years from 2009 to 2013 to arrive at conclusions. Correlation and regression analysis were used to evaluate if there was a statistically significant relationship between liquidity and profitability. For the metric of profitability, the measure used was ROA; for liquidity, quick, current, and absolute liquid ratios were all used to measure liquidity. The results indicated that there was a statistically significant, but weak, positive correlation between liquidity measures and profitability for the nonfinancial companies listed on the NSE. The current study will focus on county governments; while they are not profit-oriented, the purpose of county governments is to provide county citizens with essential services. Therefore, the dependent variable of service delivery efficiency will be used in this study.

Sanghani (2014) conducted a study on the effect of liquidity on financial performance of non-financial companies listed on the Nairobi Stock Exchange. The study utilized secondary data, which was analyzed through multiple regression analysis. The results showed a positive relationship between liquidity and financial performance for non-financial companies trading on the NSE. The study found that the current ratio had a positive effect on financial performance and that an increase in operating cash flow would have a positive impact on the financial performance of those firms. One recommendation from the study was that there is an inherent significance for non-financial companies trading on the NSE to take advantage of increasing their current assets, which would enhance their liquidity, in light of the finding that an increase in the current ratio would positively affect their financial performance. The current study used the current ratio as the operational definition of liquidity, while this study used cash flow management and accounts payable as the operational definitions of liquidity control.

Akhwale (2014) investigated the relationship that exists between profitability and liquidity of companies that are listed on the NSE. The type of study employed in this research was the diagnostic type. The data used for this study was secondary and was sourced from the annual financial statements of a sample of listed companies and covered the period of 2009 through to 2013. The study found that both the days to cash conversion and current ratio, as measures of liquidity have a negative impact on the profitability of the companies listed on the NSE over the 5-year period while the quick ratio measure of liquidity had no statistically significant effect on the profitability of the companies listed on the NSE over the 5 years. The researcher concluded that there is a significant and positive relationship between the liquidity and profitability of companies that are listed on the NSE. The researcher recommended that the management of companies that are listed on the NSE adopt cash management strategies that will reduce the time to cash conversion. The current study will investigate the impact of liquidity management on the efficiency of service delivery to county governments. In this study, liquidity management was measured using cashflow management and accounts payable.

The study carried out by Cheruiyot (2018) aimed at examining the influences of public financial management practices on the overall performance of county governments within Kenya. Specifically, the study aims to investigate how financial planning and budgeting, liquidity control, public financial procurement, revenue mobilization and public financial governance practices impact upon the performance of county governments in Kenya. The researcher based his research on various theories including, but not limited to, the Theory of Participative Budgeting, Agency theory as well as various other theories. In terms of methodology the researcher utilized a mixed research design as well as a purposive sampling technique. The participants for this study included the accounting officers and directors from all county treasuries across the top ten counties, as selected from the locally collected revenue list as provided by The Office of the Controller of

Budget in the Annual Budget Implementation Report for the financial year ending (2016/2017). The primary data for the study was collected through the use of a questionnaire and the secondary data was gathered from the Office of Controller of Budget, Office of the Auditor General and County Treasury Offices. Thus, the findings of the study revealed that those counties that adhered to liquidity control, integrity, application of ethical values, risk assessment, application of control activities and monitoring procedures recorded high levels of performance. This study differed from Cheruiyot's study in that it focuses on service delivery efficiencies as opposed to performance.

6.0 Theoretical framework

Liquidity Preference Theory

The three purposes for which liquidity is considered important according to Keynes (1936), in "The General Theory of Employment, Interest and Money," are transaction, precautionary and speculative motives for holding money. The demand for money for transaction-related motives represent funds used by financial institutions for purposes of completing economic transactions; and the amount of money that an economic agent has available to fulfill such transactions is determined largely by the level of income generated, the amount of time that has lapsed since the last payment was received and how the agent tends to spend their income. On the other hand, the demand for money for precautionary purposes is the demand by financial institutions for liquid assets to meet unforeseen emergencies, contingencies and events, and thereby to ensure that they have sufficient liquid funds available to cover such costs. The demand for money for speculative purposes can be viewed as those funds that financial institutions hold as cash to take advantage of fluctuations in bond prices and/or other government futures contracts.

Bibow (2005) outlined Keynes' theory of liquidity preference, which asserts that an economic agent's money's worth regarding their current-day transactions and as a store of wealth is also known as the money demand for current use and/or as a means of saving. When agents choose to hold money now to be used for future spending, they give up any interest they can earn on those funds. Conversely, when interest rates are high, they will tend to hold fewer liquid funds for precautionary reasons and only in order to maximize profits. Elgar (1999) underscored that one needs cash to cater for expenditure plans, or intended for future speculation to profit from future path of interest rate or for the reason of prevailing uncertainty regarding what the future may hold and hence being attractive to hold a portion of available resources in the form of pure purchasing power.

The liquidity preference methodology by banks insinuate that banking institutions pursue active policies pertaining balance sheet as opposed to passively accommodating credit demand. Accordingly, this theory was used to anchor the liquidity control research hypotheses. Keynes' theory of liquidity preference has been criticized on the ground that it is too narrow as an explanation of the rate of interest, because it unduly treats interest rate as the price necessary to overcome the desire for liquidity. In actual practice liquidity (desire for money) arises on account of many factors and not only on account of motives mentioned by Keynes. As such it becomes too narrow an explanation of the rate of interest. Further, the rate of interest influences and in turn is influenced by other important factors like the rate of saving, propensity to consume and marginal efficiency of capital, which the liquidity preference theory completely ignores.

7.0 Methodology

The study used a descriptive correlational research design to collect and analyze data at a specific time. This approach helped assess the strength of relationships among variables. The aim was to determine if there is a connection between fiscal management and the efficiency of service delivery in the 47 county governments in Kenya. Therefore, a descriptive survey was suitable for this study. This design allowed for data collection and analysis of study units at a specific moment to evaluate the impact among the variables (Saunders, Lewis & Thornhill, 2009). Mbau (2019) also used a descriptive correlational research design and gathered quantitative data to explore the relationship between fiscal decentralization and the performance of county governments in Kenya, focusing on the years from 2013 to 2018. Mose, Kibet, and Kiprop (2019) applied a descriptive research design to examine both the short-run and long-run effects of county spending components on growth in Kenya, using a panel data set from 2013 to 2017.

8.0 The Model Specification:

The Bivariate FEM or REM took the following form as was supported by the Hausman test;

$$Y_{it} = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \epsilon_{it} \dots \dots \dots 1$$

Where:

Y_{it} = Service Delivery efficiency, β_0 = Intercept, β_1 = coefficient, X_1 = cashflow management, X_2 = account payables, and ϵ_{it} = error term.

Decision Rule

The decision rule to test the hypothesis of the study is as follows: If the p-value of the t-coefficient is less than 5% (0.05), the null hypothesis is rejected, otherwise accept.

9.0 Diagnostic Tests

The study analyzed the data using regressions, correlation, and hypothesis testing. However, several assumptions related to the CRLM need to be satisfied. The data underwent various diagnostic tests, and appropriate measures were taken in case of any violations. Once the tests were conducted and conditions verified, the analysis was assumed to reflect the population being studied. The tests included normality tests, multicollinearity checks, autocorrelation checks, homoscedasticity tests, a panel unit root test, and a Hausman test.

10.0 Results and Discussions

This section presents the results of the analysis and discusses their implications.

10.1 Descriptive Statistics

Cashflow management results in Table 1 show a mean of 45.57, with a maximum of 3176.66 and minimum of -0.03 and standard deviation of 242.08 (skewness of 10.98, kurtosis of 132.95). Therefore, cashflow management is not normally distributed due to a skewness coefficient of greater than one and a kurtosis coefficient of greater than three, which indicates that county governments are not holding excessive current assets relative to their current liabilities. Account payable results in Table 1 show a mean of 43.45 with a maximum of 3176.66 and minimum of -0.03 and standard deviation of 241.02 (skewness of 11.13, kurtosis of 135.63); therefore, account payables are not normally distributed due to a skewness coefficient of greater than one and a kurtosis coefficient of greater than three, which means counties are not holding excessive liquid current asset relative to their current liabilities.

Tables 1: Descriptive Statistics

	Service Delivery Efficiency		Liquidity Control	
	CGP	CWB	CFM	AP
Mean	6.407888	58.18877	45.57074	43.45241
Maximum	9.460872	67.43294	3176.663	3176.663
Minimum	3.449968	46.96748	-0.03031	-0.03128
Std. Dev.	1.073848	2.893851	242.0826	241.0253
Skewness	0.19621	-0.61683	10.98814	11.1375
Kurtosis	-0.05239	1.151249	132.9554	135.6349
Jarque-Bera	117.44	883.36	7220.68	3173.16
Probability	0	0	0.009	0.009
Sum	2409.366	21878.58	17134.6	16338.1
Sample Variance	1.153149	8.374374	58603.99	58093,21
Observations	376	376	376	376

10.2 Panel Diagnostic Tests

In order to reduce the risk of fitting a model that was fictitious and then end up deriving findings that were erroneous, it was necessary to subject collected data to panel diagnostic tests to have assurance that classical regression linear model conditions were adhered to during the study. This included normality test, test for unit roots, multi-collinearity, serial correlation test using Woodridge, Cointegration test, Granger causality test and the likelihood ratio test for heteroskedasticity. Where CLRM assumptions were breached, corrective measures were undertaken.

10.2.1 Serial Correlation

The results presented in Table 2 had p-values less than the preset rejection level of 0.05 and were therefore strong enough to lead researchers to reject their null hypotheses and conclude that the

regression models were heteroskedastic. Researchers must use robust standard errors to account for violations of fundamental regression assumptions, depending on least squares (ordinary least squares) methods, while also using feasible generalized least squares (MGLS) estimation as well (Muigai, 2016). The current study developed a model that employed robust standard errors to examine the impact of fiscal management and efficiency of service delivery upon the county governments of Kenya, providing consistent results with Wanjau, et al., (2018) regarding corporate governance's transparency on financial performance for publicly traded companies in East Africa. The results of the present study also supported Mwai, et al., (2019), who found evidence of heteroskedasticity when comparing banking innovations with financial depth in Kenya. Greater expected effect has been associated with larger values for Chi Square; on the other hand, the larger Chi Square value for the moderated variable suggests that it was thought to have more potential for an expected effect than the unmoderated variable.

Table 2: Panel Serial Correlation Test

Dependent	Independent	F	P value
CGP	CM, AP	6.665	0.0115
CWB	CM, AP	7.931	0.0060

10.2.2 Heteroskedasticity

In regression analysis, the values of the error terms are assumed to have an equal variability (uniform). An examination of (1) whether the variance of the error terms is uniform will be undertaken using heteroskedasticity testing. The Breusch Pagan test was run with the null hypothesis (H0) being that there was no heteroskedasticity (H1) against the alternative hypothesis of heteroskedasticity. The null hypothesis from the Breusch Pagan test suggested that the data was homoscedastic (no heteroskedasticity) but that the data was heteroskedastic as indicated by the p-value being less than 0.05 (5% significance level). Heteroskedasticity indicates data that have no bias and minimum variation in the least-squares point estimates cannot be achieved (due to a violation of BLUE). A t statistic will therefore have a decrease in size and increase in the chances of rejecting an H0 and therefore not have uniform error terms.

Table 3 results with a p-value < 0.05 were sufficient to produce rejection of the null hypothesis and conclude heteroskedasticity. Violations of fundamental regression assumptions need to be addressed through the use of robust standard errors, in place of least squares methods, or FGLS estimation (Muigai 2016). In this study, a model with robust standard errors was created to evaluate the impact of fiscal management and efficiency of service delivery in Kenya's county governments. These findings were consistent with Wanjau et al.'s (2018) study of the impact on financial performance of listed companies in East Africa of transparency in corporate governance. The study also supported findings of Mwai et al., (2019), who found evidence of heteroskedasticity when comparing the effects of banking innovations to financial depth in Kenya. A higher value on Chi Square can be associated with a greater expected effect; similarly, the moderated variable was associated with a greater Chi Square value than the unmoderated variable.

Table 3: Heteroscedasticity

Dependent	Independent	Chi square	P value
CGP	CM, AP	4,600	0.0000
CWB	CM, AP	1,800	0.0000

10.2.3 Autocorrelation

The study adopted the Wooldridge test to ascertain the presence of autocorrelation in the residuals from the regression model (Muigai, 2016). The existence of autocorrelation would exaggerate the results. In testing for the serial correlation, the study aims at establishing if error terms were not independent from observation to observation. Table 4 demonstrated that there is no first-order serial/autocorrelation in the panel data since all the p values were less than the critical value of 0.05

Table 4: Autocorrelation

Dependent	Independent	F square	P value
CGP	CM, AP	4.8	0.0000
CWB	CM, AP	17.2	0.0000

10.2.4 Multicollinearity Test

The test for multicollinearity is useful for investigating how closely related variables are to each other (Miles, 2014). There are two forms of correlation; namely, positive correlation and negative correlation. With positive correlation the variables will both have positive correlations (greater than zero). Negative correlation is when the two variables are negatively correlated (less than zero). In correlation testing, the results will indicate whether or not there is multicollinearity amongst the variables. In her research, Stangor (2014) states there will be very high levels of correlation which will create multicollinearity. Additionally, Miles (2014) indicates that there should not be a correlation between the variables involved in the study. Correlation values (r) are recognized to fall between 0.3 – 0.7. For this study, VIF (Variance Inflation Factor) was included as one of the variables tested. A value of VIF should be less than 10 (Miles, 2014).

Table 5: Multicollinearity Test

	Collinearity Statistics		
	Tolerance	VIF	Remark
CM	0.184	5.441	No Multicollinearity
AP	0.702	1.424	No Multicollinearity

a Dependent Variable: County Service Delivery
 Source: Survey Data (2024)

The study did not have multicollinearity problem because none of the Variables had a VIF above 10. A review of Table 5 shows this. The results of the VIF show that all multicollinearity assumptions have been followed. Poole & O’Farrell (1971) indicated that when the multicollinearity assumption is not satisfied and the explanatory variables are multicollinear, separate regression coefficients for each variable cannot be obtained. Alita et al. (2021) indicated

that when determining the regression analysis should include a test for multicollinearity and require an assessment of independence of the explanatory variables.

10.3 Panel Data Tests

The information collected for this research is referred to as secondary panel data. However, in order to conduct these tests, the data was put through various panel data tests so that we could pick the appropriate model to use in our analysis. If the tests evidence were found to comply with the required conditions, then it was assumed that the analysis was representative of the actual population being studied for this research. The tests that will be discussed in the next sections of this report include the panel houseman test, panel unit root test, granger causality test, panel cointegration test and R-square estimate test.

10.3.1 Panel Unit Root for County Governments in Kenya

The diagnostic tests that preceded regression modelling are summarized in Table 6. The study found it necessary to perform panel unit root tests to determine how the variables that were used have been integrated. The test was conducted to determine whether the variables are stationary at all levels of the panel or not. The following general regression equation was adopted by the study to solve the value of ρ :

$Y_{it} = \alpha + \rho y_{it-1} + \mu_{it}$ Where: Y = County Gross Product, County Wellbeing index, $t=1 \dots 7$ years for every county and $i=1 \dots 47$ county governments in Kenya.

According to the observation of Granger & Newbold (1973) if $\rho = 1$, then the variable Y_{it} was found to be dependent on its lagged value Y_{it-1} , and thus, suggested that the data was non-stationary. Conversely, $\rho < 0.05$ indicates acceptance of the null hypothesis. The county gross product, county wellbeing index, and liquidity control showed that the observations were stationary as the respective p values were less than 0.05. The majority of the test statistics were also greater than 2.132 at the 0.05 level of significance. Therefore, before building regression models, it was not necessary to differentiate among the different variables. These findings supported the results of (Ngware, Muturi, & Olweny, 2020) that found stationarity in bank portfolio diversification and financial performance for commercial banks operating in Kenya, and concluded that the variables used for the analysis did not need to be lagged due to stationarity at all levels. The results also supported (Muchiri, Muturi, & Ngumi, 2016), who found stationarity in the financial composition and financial performance of the publicly listed companies on the East African securities exchanges and similarly concluded that the variables being used for the analysis do not need to be lagged to inspect the linkages. The outcome did not coincide with that of Ochieng et al. (2019), since they concluded that the study variables were non-stationary; whereas the findings were similar to those of Mwai et al. (2019), who established that data on banking innovation and financial deepening were stationary; and to Wairimu et al. (2019), whose argument was that the financial characteristics of Kenyan non-financial corporations and financial leverage were stationary at level.

Table 6: Panel Unit Root Test

Variable	Test	Statistic	Prob.**
----------	------	-----------	---------

County Gross Product	Levin, Lin & Chu t*	-9.587	0.000
	Im, Pesaran and Shin W-stat	-3.526	0.000
	ADF - Fisher Chi-square	23.2450	0.000
	PP - Fisher Chi-square	16.6079	0.000
County Well Being	Levin, Lin & Chu t*	-9.587	0.000
	Im, Pesaran and Shin W-stat	-3.526	0.000
	ADF - Fisher Chi-square	244.285	0.000
	PP - Fisher Chi-square	380.610	0.000
Cashflow Management	Levin, Lin & Chu t*	-17.134	0.000
	Im, Pesaran and Shin W-stat	-3.177	0.001
	ADF - Fisher Chi-square	270.410	0.000
	PP - Fisher Chi-square	302.117	0.000
Account payables	Levin, Lin & Chu t*	-4.206	0.000
	Im, Pesaran and Shin W-stat	-7.187	0.000
	ADF - Fisher Chi-square	408.275	0.000
	PP - Fisher Chi-square	1041.45	0.000

10.3.2 Panel Hausman Test

To assess the selection of the strongest model to describe fixed effects against random effects, the Hausman test was performed. The null hypothesis supported the favor of REM against FEM. The null hypothesis (H0) states that the REM best represents the effect of fiscal management and service delivery performance of Kenyan County Governments: if p-value < 0.05, then use FEM but if p-value ≥ 0.05 use REM. The decision for utilizing random versus fixed should be based on correlation between the unique errors and regressors of the study. H0 is that there is not a correlation present. The authors were very cautious to note that REM assumes that exogeneity of all regressors exists with respect to the random individual effects. In contrast the FEM assumes that there exist endogenous relationships with respect to all of the regressors and individual effects. (Baltagi, 2005). The Hausman test was performed in order to determine the validity and reliability of the estimated parameters of the research model. The Hausman test was used to help identify whether a Fixed Random Effect Model or Random Effect Model will best fit the different research variables. The results contained in Table 7 of the analysis support Random Effect Models for most variables because p values from the test were greater than 0.05. For two exceptions, CM and AP, CWB's fitted a Fixed Effect Model due to p values being less than the critical value of 0.05. These findings were similar to those of Wairimu et al., 2019 who fitted heterogeneous models with both Short Term, Long Term, and Total Debt as their dependent variables. The summary of the models used for this study is also contained in Table 7.

Table 7: Panel Hausman Test

Dependent	Independent	Chi square	df	P value	Model
CGP	CM, AP	.691	2	0.708	Random effects
CWB	CM, AP	77.144	2	0.000	Fixed effects

10.3.3 Inferential Statistics

To determine whether the independent variable was predictive of changes in the dependent variable, inferential statistics were used (Taherdoost, 2021). Inferential statistics determine how much of the change in the dependent variable is due to variation in the independent variables. Upon conducting analysis, both correlation analysis and regression analysis, specifically regression analysis, were performed in this study to determine how fiscal management correlated to service delivery efficiency for Counties in Kenya and to explain what factors affect the observed patterns of spatial variation while modelling, analysing and identifying the variables that explain why certain jurisdictions have varying levels of service delivery efficiency. The information received from the Hausman test indicated that either a Random Effects Model (REM) or Fixed Effects Models (FEM) should be utilized for this study.

10.4 Liquidity control does not have any significant effect on the service delivery efficiency of county governments in Kenya.

The objectives of the research were to establish how liquidity control impacts upon the efficiency of service delivery by county government in Kenya. Multiple Panel Regression was then used to analyze how the liquidity control affects the efficiency of county governments' service delivery in Kenya. From the Hausman test, a fixed effects model was used. The results of which as shown in tables 8 and 9 under Gross County Product indicates that Cashflow Management was more significant than Accounts Payable with $p=.000$ for Cashflow Management and $p=0.33$ for Accounts Payable.

The resultant equations are:

$$CGP = 6.431 + 0.0885 * CM + 0.008 * AP$$

$$CWB = 58.177 + 0.015 * CM + 0.016 * AP$$

The coefficient of determination, or r-square, shown for CGP is 0.013 and CWB is 0.026. This translates into a variance of services delivered by county governments due to liquidity control of only 1.3% and 2.6% respectively; therefore, if one were to measure all other factors affecting service delivery to counties, they would represent 98.7% and 97.4% respectively. Additionally, cashflow management and accounts payable are both found to be statistically significant based on the fact that the associated p-value was rejected at the critical alpha level of $\alpha = 0.05$. Thus, cashflow management was ultimately used as the means to operationalize liquidity control based on it having the greatest effect on service efficiency.

Maina (2011) conducted research on how liquidity and profitability are related in oil companies in Kenya from 2006 to 2009. The research showed that managing liquidity alone was not enough to ensure a company's profitability, and there are other factors affecting the firm's return on assets (ROA). Companies need to consider how different types of liquidity impact their profitability, and take action to improve their liquidity levels.

Kimondo (2014) found that liquidity and profitability are weakly positively correlated for non-financial companies listed on the Nairobi Securities Exchange (NSE) in Kenya. However, the relationship is still significant; therefore, for Kenyan non-financial institutions, a significant relationship exists between liquidity variables and profitability.

Table 8: Liquidity Control and County Gross Product

CGP	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
CM	-.0885	.003	-2.95	.000	-.011	.001	***
AP	.008	.003	2.65	.033	-.001	.011	***
Constant	6.431	.056	114.0	.000	6.321	6.542	***
			4				
Mean dependent var	6.408	SD dependent var		1.074			
Overall r-squared	0.013	Number of obs		376			
Chi-square	4.737	Prob > chi2		0.094			
R-squared within	0.016	R-squared between		0.000			

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 9: Liquidity Control and County Well Being

CWB	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
CM	.015	.005	3.19	.001	.006	.025	***
AP	-.016	.005	-3.27	.001	-.025	-.006	***
Constant	58.177	.351	165.9	0.00	57.491	58.864	***
			8				
Mean dependent var	58.189	SD dependent var		2.894			
Overall r-squared	0.026	Number of obs		376			
Chi-square	11.611	Prob > chi2		0.003			
R-squared within	0.032	R-squared between		0.048			

*** $p < .01$, ** $p < .05$, * $p < .1$

10.5 Discussion of Findings

The study's aim was to assess how liquidity management affects the efficient delivery of services by county governments in Kenya. The study found that liquidity management ($\beta=0.044$, $p<0.05$) had a positive and significant impact on counties' economies, and therefore has the means to improve their overall level of well-being ($\beta=0.078$, $p<0.05$). An operational definition was developed using cashflow management and accounts payable to establish how liquidity management impacts this variable. The results showed that cashflow management has a substantial positive (but insignificant) impact on the efficient delivery of services by county governments in Kenya; however, accounts payable has a lesser effect on this dimension of service delivery (but is

still considered as having some opportunity). The analysis of liquidity management (including cash management and accounts payables) and the effect it has on services offered by counties in Kenya provides valuable insight into the counties' economic viability and operational efficiencies.

The results of the study indicate the following with respect to the relationship between liquidity control and service delivery efficiency in the context of Kenya's county governments. Liquidity control positively and significantly impacted both the county gross product and wellbeing of the residents of Kenya. Thus, it can be inferred that good liquidity management by county governments is correlated to a favorable increase in the economic output of the county and an improvement in the overall wellbeing of its residents. The findings of this research support the findings of previous studies that have established a significant correlation between liquidity management and performance in the public sector. Macroeconomic variables that influence liquidity such as inflation and GDP, were shown to have a substantial effect on the financial performance of cooperative savings and credit associations (SACCOs) in Kenya (Chemngorem and Njeru, 2023). Similarly, studies on banking institutions have demonstrated the importance of liquidity management to the overall performance and profitability of those banks (Ansari et al., 2023; Edem, 2017).

The Chemngorem and Njeru (2023) study examined how macroeconomic variables affected the liquidity levels among deposit-taking SACCOs within Nairobi County. They examined a variety of macroeconomic variables, in particular economic growth rates, inflation rates, exchange rates and interest rates as determinants of SACCO liquidity, using a descriptive research design based on secondary data covering a period from 2018 through to 2022. From the analysis, the research established a negative relationship between inflation rates and SACCO liquidity levels, while an increase in the rate of economic growth resulted in an increase in SACCO liquidity. However, it also established that an increase in interest rates resulted in an increase in SACCO liquidity.

The existence of a positive relationship between effective management of liquidity and efficiency in the provision of county services indicates a need for county governments to implement sound financial management systems. This will be critical under Kenya's devolved government system where county governments have considerable discretion and autonomy in managing resources to provide services to counties (Barasa et al., 2017; Nyawira et al., 2022). Improved management of liquidity may lead to a more efficient and effective use of resources; resulting in higher quality service delivery, improved county-level economic performance and improved wellbeing of residents of the counties.

Conclusion and Recommendations

The connection between cashflow management and the efficiency of service delivery within county governments in Kenya was proven to be positively associated and significant enough to inform policy-making decisions within Kenyan county governments regarding their ability to satisfy short-term obligations while also having a positive impact on their efficiency in providing services. The effect of account payables on the efficiency of service delivery by the county governments of Kenya was positively associated but not statistically significant meaning that liquidity improvements through account-in-due will positively affect service delivery efficiency. The results indicate that the county governments of Kenya should take into consideration how each

liquidity measure influences the efficiency with which they provide services and adopt measures that will proactively improve their liquidity.

The relationship between liquidity control by county governments and service delivery efficiency was given seven of the same components that were tracked for cashflow management and feed back to the county governments for compliance with the established benchmarks of having current assets equal to current liabilities for the majority of county governments sampled in this survey. The county governments of Kenya must continue to be vigilant by working to improve their liquidity and by correcting instances where their cashflow management ratios are outside of the recommended range of 2:1, thereby allowing them to obtain the benefits associated with a longer credit period for their accounts payable and faster collection of their accounts receivable.

References

- Akhwale, E.F. (2014). Relationship Between Liquidity and Profitability of Companies Listed At The Nairobi Securities Exchange. *Unpublished MBA Project*, University of Nairobi.
- Alita, Debby, Ade Dwi Putra, and Dedi Darwis. "Analysis of classic assumption test and multiple linear regression coefficient test for employee structural office recommendation." *IJCCS (Indonesian Journal of Computing and Cybernetics Systems)* 15.3 (2021): 295-306.
- Ansari, M. S., Khan, A., Akhtar, S., & Shamshad, M. (2023). Consequence of Financial Crisis on Liquidity and Profitability of Commercial Banks in India: An Empirical Study. *Studies in Economics and Business Relations*, 3(2), 36–50. <https://doi.org/10.48185/sebr.v3i2.367>
- Auditor-General Kenya. (2025, January). *Report on county funds operating outside IFMIS*. Nairobi: Office of the Auditor-General
- Baltagi, Badi H., Espen Bratberg, and Tor Helge Holmås. "A panel data study of physicians' labor supply: the case of Norway." *Health economics* 14.10 (2005): 1035-1045.
- Bassey Edem, D. (2017). Liquidity Management and Performance of Deposit Money Banks in Nigeria (1986 – 2011): An Investigation. *International Journal of Economics, Finance and Management Sciences*, 5(3), 146. <https://doi.org/10.11648/j.ijefm.20170503.13>
- Bibow (2005), Liquidity Preference Theory Revisited
- Chemngorem, F., & Njeru, D. A. W. (2023). Influence of Selected Macro-Economic Factors on Liquidity of Deposit Taking Saccos in Nairobi County. *International Journal of Social Science and Humanities Research (IJSSHR)* ISSN 2959-7056 (o); 2959-7048 (p), 1(1), 291–302. <https://doi.org/10.61108/ijsshr.v1i1.30>
- Cheruiyot, M. P. (2018). *Effect of public financial management practices on performance of county governments in Kenya* (Doctoral dissertation, JKUAT-COHRED).
- Clinton, B. (1995). *Forward to Vice President Al Gore's Common-Sense Government, works better and costs less*. New York: Random House.

- Elgar (1999), *The Economics of Intangible Investment*.
- Granger, Clive WJ, and Paul Newbold. "Some comments on the evaluation of economic forecasts." *Applied Economics* 5.1 (1973): 35-47.
- Kimondo (2014). *The relationship between liquidity and profitability of nonfinancial companies listed in Nairobi securities exchange*.
- Koros, I. K., & Oketch, S. L. (2022). *Integrated Financial Management Information System and the Financial Performance of County Government of Nandi, Kenya*. Kenyatta University
- Keynes (1936). *The General Theory of Employment, Interest and Money*
- Maina, H. (2011). *Relationship between the liquidity and profitability of oil companies in Kenya. Unpublished MBA Project, University of Nairobi*
- Mbau, K., Mwangi, J., & Roba, A. (2019). Strategies for effective revenue mobilization in county governments: A case study of Kenya. *African Journal of Public Administration*, 8(1), 23-39.
- Mbau, P. E. (2019). *Fiscal Decentralization, Allocative Efficiency, Public Governance and Performance of County Governments in Kenya*. Unpublished PhD thesis, University of Nairobi.
- Miles, Matthew B., A. Michael Huberman, and Johnny Saldana. *Qualitative data analysis*. sage, 2014.
- Mose, N., Kibet, L., & Kiprop, S. (2019). The effect of county government expenditure on gross county product in Kenya: A panel data analysis. *African Journal of Business Management*. 25(4), 29-36
- Mose, N. (2020). An analysis of optimal devolved government size for growth: Armey curve in Kenya. *Revista Brasileira de Estudos Africanos*, 5(10).
- Muchiri, Mwangi Joseph, Willy M. Muturi, and Patrick M. Ngumi. "Relationship between Financial Structure and Financial Performance of Firms Listed at East Africa Securities Exchanges." *Journal of Emerging Issues in Economics, Finance & Banking* 5.1 (2016).
- Muigai, Robert Gitau. *Effect of capital structure on financial distress of non-financial companies listed in Nairobi Securities Exchange*. Diss. COHRED, Finance, JKUAT, 2016.
- Muriithi, R. W., Kyalo, T., & Kinyanjui, J. (2018). Assessment of the relationship between entrepreneurial orientation, organisational culture adaptability and performance of Christian faith-based hotels in Kenya. *International Journal of Entrepreneurial Knowledge*, 7(1), 31–45. <https://doi.org/10.37335/ijek.v7i1.86>
- Musa, Ahmed Balarabe, B. T. Matemilola, and A. N. Bany-Arifin. "Impact of non-financial firms capital structure on firm-value performance in developing Africa." *International Journal of Management (IJM)* 12.1 (2021): 1483-1491.

- Musiega, A., Tsofa, B., Nyawira, L., Njuguna, R. G., Munywoki, J., Hanson, K., ... & Barasa, E. (2023). Examining the influence of budget execution processes on the efficiency of county health systems in Kenya. *Health policy and planning*, 38(3), 351-362
- Mwai, Antony, Agnes Njeru, and Florence Memba. "Moderating effect of bank size on relationship between financial innovations adoption and financial deepening of listed commercial bank in Kenya." *American Based Research Journal* 8.11 (2019).
- Ngware, Stephen Githaiga, Willy Muturi, and Tobias Olweny. "Sectoral Credit Portfolio Diversification and Financial Performance of Commercial Banks in Kenya." *Journal of Finance and Economics* 7, no. 4 (2019): 127-136.
- Nyawira, L., Normand, C., Tsofa, B., Musiega, A., Mulwa, A., Munywoki, J., Barasa, E., Molyneux, S., Jemutai, J., Njuguna, R. G., Hanson, K., & Maina, I. (2022). Management of human resources for health: implications for health systems efficiency in Kenya. *BMC Health Services Research*, 22(1). <https://doi.org/10.1186/s12913-022-08432-1>
- Ochieng, Isaac L., et al. "Effect of foreign equity flows on stock market volatility in Kenya: Empirical evidence at Nairobi securities exchange." *J Financ Invest Ana* 8 (2019): 1-5.
- Owili, Patrick Opiyo, et al. "Quality of care in six sub-Saharan Africa countries: a provider-based study on adherence to WHO's antenatal care guideline." *International journal for quality in health care* 31.1 (2019): 43-48.
- Poole, Michael A., and Patrick N. O'Farrell. "The assumptions of the linear regression model." *Transactions of the Institute of British Geographers* (1971): 145-158.
- Sanghani, D.A. (2014). The Effect of Liquidity on the Financial Performance of Non-Financial Companies Listed at the Nairobi Securities Exchange. Unpublished MBA Project, University of Nairobi.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Students*. (5th ed.). London: Prentice Hall.
- Taherdoost, Hamed. "Data collection methods and tools for research; a step-by-step guide to choose data collection technique for academic and business research projects." *International journal of academic research in management (IJARM)* 10.1 (2021): 10-38.
- Transparency International (2016). *Corruption by country*. Retrieved from <https://www.transparency.org/country/>
- Transparency International Kenya. (2025). *County Governance Status Report 2025*. Nairobi: Kenya.
- Wairimu, Helen, Prof Willy Muturi, and Ken Oluoch. "Influence of Firm Financial Characteristics on Leverage of Non-Financial Listed Companies in Nairobi Securities Exchanges." *American Based Research Journal* 8.05 (2019)

Wanjau, Boniface Muriithi, Willy Mwangi Muturi, and Patrick Ngumi. "Influence of corporate transparency disclosures on financial performance of listed companies in East Africa." *Asian Journal of Finance & Accounting* 10.1 (2018): 1-15.

Wooldridge JM, Wadud M, Lye J. *Introductory econometrics: Asia pacific edition with online study tools* 12 months. Cengage AU; 2016 Oct 24.