

# Financial Risk Management Practices and Business Sustainability: Empirical Findings from Private Hospitals in Nairobi, Kenya

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**Abstract:** Access to affordable and equitable health is a global challenge. Health is the third sustainable development goal under the seventeen United Nations sustainable development goals of 2015. Private hospitals play a key role in promoting the well-being of citizens. In Kenya, private hospitals provide over 47% of the healthcare services to the general population of over 53.8 million people in Kenya. Health is one of socio-economic factors that have a strong bearing on the economic growth of a nation. Despite their importance, their sustainability has been at risk, threatening provision of health services to Kenyans, achievement of social pillar agenda under Kenya's vision 2030 and the implementation of the Kenya Health Policy 2014-2030. Effective risk management plays a fundamental role in ensuring business continuity. The study investigated the effect of financial risk management practices on sustainability of private hospitals in Nairobi County, Kenya. This study adopted positivism research philosophy and a descriptive research design. The sampling frame was 68 private hospitals that are located in Nairobi based on the Kenya Medical Practitioners and Dentist Board retention register (2019) and NHIF accredited Hospitals. A closed ended questionnaire was used to collect primary data. In order to test the reliability of the instrument, a pilot study was carried out on 30 respondents from private hospitals in Mombasa, Siaya, Kakamega and Meru Counties. The study utilized the Statistical Package for Social Sciences (SPSS) for data analysis. In order to enhance construct validity, Principal Component Analysis (PCA) was done and generated KMO and Bartlett's Chi-Square for factorability analysis. Total variance explained, Scree plot and rotated component matrix were generated and interpreted. Bivariate linear regression was used for inferential analysis after testing the data for normality, linearity and independence. Regression results showed that the regressor had a positive and statistically significant effect on regress and, with an explanatory power (R-Square) of 23.6%. The study recommends that first; private hospitals should continuously build, monitor and review capacity of the financial risk management function as it has a significant relationship with sustainability of hospitals. In addition, they should also continuously update the risk register and carry out risk assessments on regular basis as a sustainability safeguard. This will not only improve organizational performance but also strengthen sustainability potential of these entities and increase customer base, asset quality, quality of service and enhance competitiveness.

**Keywords:** financial risk management practices, sustainability, healthcare

## 1. Introduction

### 1.1 Background of the Study

The Constitution of Kenya 2010 provides in part that every person has a right to the highest attainable standards of health and obligates every state organ to observe, respect, protect, promote and fulfil the rights (under article 43) in the constitution and progressively endeavour for their realisation. Under the devolved form of government, the Kenya Health Policy 2014-2030 takes cognizance that the County governments have a pivotal role to play in enhancing access to quality healthcare through (among others); promotion of social and economic development and the provision of proximate, easily accessible health services throughout Kenya. The overall expenditure on health services by the National Government per year from the year 2015, has risen from Kes 40 Billion to a high of Kes 76.7 billion (2018). This further rose by 50.9 per cent to Kes 115.8 billion in 2019/20 while that of County Governments' grew by 24.6 per cent to Kes 114.7 billion in 2019/20. This government spending presents a favorable commitment by

the government to continued support for health in the Kenya. The trends in the past years have seen the membership of the National Hospital Insurance Fund grow to 8.5 million by 2018 from a low of 5.4 in 2015. Owing to the remarkable gap in provision of services by the government, it has encouraged the private sector to partner and collaborate to support bridging this gap. Over 47% of the health services are actually provided by the private hospitals. These important institutions are credited for better customer relationship management and modern technological investments and management. Despite their relevance in the health sector, their sustainability is a matter of interest and also research.

Sustainability is the likelihood of a continuation in the stream of benefits produced by the project after the period of external support has ended. Sustainability enables firms to meet their annual budgets without constraints. It is therefore the capability of the organization income or revenue to cover its operational costs for a sustainable future, regardless, whether these funds come from donors, subsidies or internally generated (Mutinda & Ngahu, 2016). The dream of every nation's government is to achieve a sustainable

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improvement in the quality of life and healthcare to its citizens, the challenges of improving financial performance and operating margins have remained a top issue in many public and private healthcare systems that have experienced revenue pressure, rising costs and stagnating margins for decades, this has been coupled with increasing demand for quality care and limited funding (Obansa & Orimisan, 2013). According to WEF (2013), in the last two decades the healthcare expenditure was up against the Gross Domestic Product for Organization of Economic Cooperation and Developing countries, this was reflected at the average rate of 2% annual and estimated to rise by between 50-100% by 2040, this calls for sustainable measures that can deliver and assure quality healthcare (OECD, 2017).

The new challenge facing private hospital today is how to sustain hospital operations by making prudent financial risk management decisions on how to meet the increasing consumer demands and at the same time retain the market, besides the sky rocketing costs associated with the dynamic changes in the environment (Kinuthia & Awuor, 2013). These challenges have made it difficult for the private sector hospitals to rapidly expand and adequately cover the increased population, accessibility and acceptability of health services. Sustainability of private hospital requires examining of the financial risk management practices adopted to find out if they can be considered as an important predictor in the changing environment in Kenya.

## 1.2 Problem Statement

Health is global challenge. It is the third development goal agenda under the United Nation's list of seventeen development challenges of 2015. It has been noted to have a strong correlation with economic productivity of a nation. In Kenya, health sector contributes an estimate of 6% to the Country's Gross Domestic Product. The need for health services increases with rise in general population. Kenya's population has been projected to grow to a high of 79.5 million people by the year 2040 from the current estimate of 53.8 million people. This implies that demand for health services will rise by approximately 47.7% in the next 20 years. Further, health projections by disease domain (2011-2030) report that although the general trend in communicable disease will be on a downward trend, cases of all types of cancers will be on the rise. International Agency for Research on Cancer (IARC) project that cancer cases in Kenya will grow from current 42,000 cases per year to over 95,000 cases by the year 2040, if a workable response in not sought (WHO,2020). Kenya's economic survey (2020), a publication of the Kenya National Bureau of Statistics (KNBS), report that total disease incidences reported in public health facilities increased by 17.3% to 87.8 million cases in 2019. Morbidity levels among the adults stood at 25% respiratory system diseases, a1.9% malaria, 5.1% skin diseases, 4.1% diarrhoea and 2.9% being urinary tract infections. Similarly, the leading cause of infants' admissions in health facilities in 2019 was pneumonia. All these economic, demographic and health vital statistics demonstrate that health, although the government has invested in provision of this important need, the gap is such that the role played by private hospitals is critical to achieving the national targets under the Kenya's

vision 2030 and Africa Union's (AU) aspiration of a prosperous Africa based on inclusive growth and sustainable development.

However, their demonstrated significance in actualization of a development goals, sustainability of private hospitals has been put to question, threatening the socio-economic status of both developing and emerging economies. For example, NHIF Report (2019) indicated that 88% of the private hospitals had less than 99 bed capacity while only 4% of the private hospitals had bed capacity of over 200. In addition, most of the private hospitals cannot be able to increase their bed capacity despite the high demand of health care due to financial constraints. This challenge has far reaching effects on ability to equip the facilities, attract quality health professionals, and general turn around for survives. The end implication is a sustainability threat to private hospitals. The government partially supports in payment for services through the National Hospital Insurance Fund and the customers pay the balance in either cash or through private insurance companies. In Finance Theory, prudent risk management is one of the pillars of business sustainability. In popular strategic financial management, the Balanced Score card (BSC) is such one tool that is available for evaluating business sustainability. The health sector has a daunting task in ensuring efficient and timely provision of the highest attainable level of standards of health to its population as enshrined in the constitution of Kenya under the bill of rights and in tandem with the Sustainable Development Goals and Vision 2030.

## 1.3 General Objective

The general objective of the study was to investigate the effect of financial risk management practices on the sustainability of private hospitals in Nairobi County, Kenya

## 2. Literature Review

### 2.1 Theories

#### 2.1.1 Modern Portfolio Theory

The history of Modern portfolio management was postulated by Harry Markowitz (1952, 1959). The Modern portfolio theory (MPT) explored how risk averse investors could construct portfolios to optimize or maximize returns based on a given level of market risks and expected returns. Njeru (2014) concluded that the portfolio theory was a good measure to evaluate the process of selection and allocation of various firm's assets that could aid in minimizing adverse exposure to risk. According to Jafarzadeh *et al.* (2015) they established that investors given two portfolios with the same expected returns but different level of risks, financiers will choose less perilous one. Thus an investor will only take increased risk investments if only compensated by higher returns; they argued that different investors will evaluate the tradeoff differently based on the individual investors risk aversion traits. Modern portfolio theory provides a holistic view on how systematic risks and reward shape an institution use of various investment strategies in their portfolios' to minimize the risk. According to Stalebrink (2016) investors are at liberty to hold their investments for a

specific period of time in which they may decide to liquidate and use the proceeds for the firm growth after the expiry of the period. MPT was relevant in this study as diversification in investment of funds using prudent financial risk management practice will be key to ensuring sustainability of Private Hospitals in Kenya.

## 2.2 Balanced Scorecard

This study used a balanced scorecard to measure sustainability. The scorecard developed over several years to support different organizational missions, from profit maximization, to service delivery in public, private, and not for profit, it played a role of realizing and integrating the contributions of all the relevant organizational value drivers that promote alignment between the non-financial and financial measures. Also, the scorecard helps in identifying and measuring the specific value drivers that underpin sustainability both externally and internally (Chartered Institute of Management Accountants, 2005).

In their analysis, Kaplan & Norton (1992), aimed at adding leading measures that represented indicators of future financial performance to the traditional financial measures. According to Kaplan & Norton (1992), the traditional measures were based on past performance and therefore lacked the aspects of the other non-financial measures. This view was also shared by Asiedu (2015), who affirmed that the tool was excellent in measuring and monitoring performance values with drivers originating from customer value, internal business, and employee performance. The BSC tool utilizes a four balanced perspective dimension as organizations are required to think in terms of all the four perspectives together to enhance inclusivity as all the individual contributions of the perspectives are key to the holistic sustainability of an institution (Gawankar et al., 2015).

## 2.3 Empirical Literature

Dalvadi and Warriar (2017) carried a study on financial risk management practices on profitability of selected information technology companies in India. The study used 20 firms for a period of 5 years from 2007 and 2011, the dimensions adopted were, operational risk, credit risk and market risks. The conclusions were that financial risks identified affected the net profits of companies positively. Tafri *et al.* (2009) carried a study on the effect of financial risk and profitability of the conventional and Islamic banks in Malaysia. The time of study was between 1996-2005. The study used credit risk practices, liquidity practices and interest rate as parameters. Panel data regression analysis was employed together. The study concluded that credit risk practices have a significant positive relationship on profitability, Interest rate and ROE were found to have a weak relationship for the conventional banks and had insignificant effect for the Islamic banks. Other findings were liquidity risk practices portrayed an insignificant relationship on profitability while interest rate on ROA was significant on conventional banks.

Amin *et al.* (2014) in a study in Tanzania, investigated the simultaneous influence of the financial risk practices and

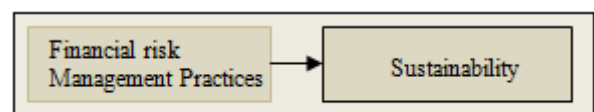
financial performance of commercial banks. Financial performance was measured using ROE and ROA. On the other hand, financial risk was taken as the average of all the financial risks. The study was carried out using fixed effect regression to solve simultaneous equations using two stage least squares. In addition, the unbalanced panel data of 21 banks was employed for the period between 2003-2012. The study findings were when both ROA and ROE were used simultaneously in the performance equation financial risk was significant to performance. Further results indicated an inverse relationship between financial risks and performance.

A study by Lake (2013) in Ethiopia on the financial risk practices and profitability of commercial banks covered the period between 2000-2011. The study was carried out using the least square method and concluded that credit risk practices and liquidity had a negative and significant relationship with the bank's profitability. Other findings indicated that interest and foreign exchange rate practices were statistically insignificant to performance. Al-Tamimi *et al.* (2015) employed credit risk, liquidity risk, operational risk and capital risk. The study period was between 2002-2012. The findings were Capital risks and Operational risk had negative relationship with performance.

Nacaskul (2017) determined the effect of financial risk management on sustainability. The study used desktop research methodology. The study focused on market, operational and credit risk. The study found that financial risk management practices had a positive influence on sustainability. Nyambura (2017) investigated the effect of financial risk management practices on efficiency of micro finance institutions in Kenya. Findings showed that risk management system was the most utilized in institutions as compared to other systems. In addition, FRMP had an influence on efficiency of micro finance institutions. Wanjiku (2016) focused on effect of financial risks on institutional efficiency among Companies Listed in the Nairobi Securities Exchange. The study applied descriptive research design. Secondary data was used in the study. Categorical Data Envelopment Analysis (DEA) was used to measure institutional efficiency of the companies listed in the NSE. The study found that foreign currency contributes most to the institutional efficiency followed by interest rate risk, then credit risk while liquidity risk had the least effect on institutional efficiency.

## 2.4 Conceptual Framework

The Conceptual framework is based on the financial risk management practices as the stimulus variable and sustainability (financial perspective, customer perspective, internal business process and learning and growth perspective) as the measure of response variable.



Stimulus Variables (SV)    Response Variable (RV)

**Figure 1:** Conceptual Framework for Financial Risk Management Practices and Sustainability



## 2.5 Research Gaps

Contextual gaps were also drawn from the past studies as shown in the following studies. Tafri *et al.* (2009) carried a study on the effect of financial risk and profitability of the conventional and Islamic banks in Malaysia. Amin *et al.* (2014) in a study in Tanzania, investigated the simultaneous influence of the financial risk practices and financial performance of commercial banks. A study by Lake (2013) in Ethiopia on the financial risk practices and profitability of commercial banks covered the period between 2000-2011. All the above studies were carried out in different countries while the current study was done in Kenya. Nyambura (2017) investigated the effect of financial risk management practices on efficiency of micro finance institutions in Kenya. The study focused on microfinance institutions while the current study was done in private hospitals.

Methodological gaps were also identified. Tafri *et al.* (2009) carried a study on the effect of financial risk and profitability of the conventional and Islamic banks in Malaysia and used Panel data regression. The current study used a multiple and simple regression model. Nacaskul (2017) determined the effect of financial risk management on sustainability. The study used desktop research methodology. The current study adopted a descriptive research design. Other gaps included theoretical gaps. Turyahebwa *et al.* (2013) used knowledge-based, resource-based, and dynamic capability theories in their studies. The current study considered use of modern theory thus creating a theoretical gap.

## 3. Research Methodology

### 3.1. Research Design

This study adopted positivism research philosophy as the phenomenon that is observable and measurable. This study adopted a descriptive research design. This research targeted 68 private hospitals that are located in Nairobi based on the Kenya Medical Practitioners and Dentist Board retention register (2018) and NHIF accredited Hospitals. They were selected for this study since private hospitals are major contributors in the delivery of healthcare and complement the government hospitals towards achieving UHC, in addition to having a complex management structure. The hospitals are categorized into tiers that is Tier 1, 2,3 and 4. The current study focused on Tier 3 and Tier 4. Tier 3 and 4 hospitals were selected for the study since they have established finance departments. There are 13 tier 4 hospitals and 55 tier 3 hospitals. The specific respondents included staffs in the finance department who were; hospital finance manager, accountant payables, inventory accountant, assets accountant and internal auditor. These respondents were included since they work in the finance and Audit department and thus have reasonably sufficient knowledge on financial management. Since the population contained only of 68 private hospitals, no sampling was undertaken.

Therefore, census approach was applied in the research. All the 340 respondents were therefore included in the study.

Primary data was harnessed in this study. A structured questionnaire was employed in the collection of data. Questionnaires were utilized in the collection of primary data, which were then organized in a systematic manner in order to allow for easy analysis. The study utilized the Statistical Package for Social Sciences (SPSS) when carrying out the data analysis process. SPSS is favoured by various researchers given its systematic capabilities and the coverage capabilities of a wide range of the most graphical and statistical analyses and presentation.

### 3.2 Test of Reliability

Cooper and Scheduler (2011) view that data collection instrument's reliability is critical before its application in data collection. They posit that reliability can be tested through test –retest method, split half and internal assessment. This study used Cronbach Alpha Coefficient to evaluate the instrument for internal consistency.

**Table 1: Assessment of Reliability**

Variable	Number of Items	Cronbach Alpha Coefficient
Financial risk Management Practices	8	0.788

The results of reliability test are presented in Table 1. The results in this Table show that reliability of this construct using Cronbach was 0.788. Bryman (2009), Cooper and Schindler (2011); Gay, Mills & Airasian (2009), Charandakandan, Venkatapirabu, Sekar & Anandakumar (2011) suggest that Cronbach's coefficients of 0.7 should be employed as a rule of thumb to denote an acceptable level of internal reliability. These findings indicate that construct measure retained had high internal consistency. This level of construct measure reliability of 0.788 is well above threshold set by Bryman (2012) and Cooper & Schindler (2011); Zikmund, Babin, Carr & Griffin (2010) and Koshy (2010).

### 3.3 Data Analysis and Presentation of Results

Data analysis was carried in a sequential process and systematic manner; data coding, data entry and then data analysis. The descriptive analysis was first done generating the mean and standard deviation for preliminary evaluation. Secondly, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was used to assess the items constructs suitable for factor analysis. Thirdly, principle component analysis (PCA) was carried out using varimax, orthogonal rotation and Total Variance Explained, Scree Plot and Rotated Component matrixes were generated and interpreted. Finally, hypothesis testing was done using Bivariate Linear Regression model. Model  $R^2$ , ANOVA statistics (F Statistic and associated p-value) and regression coefficients (Beta and associated p-value) were generated and interpreted. The simple ordinary (bivariate) equation adopted by the study was in the form;  $Y/\text{Sustainability} = \alpha + \beta_1 X + \epsilon$  where sustainability is (dependent variable) and  $\beta_1$  is financial risk management practice (independent variable). This equation is supported

by Montgomery, Peck, & Vining, 2001; Garson, 2012; Argyrous, 2011).

## 4. Findings & Discussions

### 4.1 Response Rate

**Table 2:** Response Rate of the Respondents in Tier 3 and Tier 4 Private Hospitals

Hospital size	Questionnaires Distributed	Questionnaires Received	Response (%)
Tier 3	245	146	42.94
Tier 4	95	60	17.65
<b>Total</b>	<b>340</b>	<b>206</b>	<b>60.59</b>

A total of 245 questionnaires were distributed to the tier 3 hospitals. A total of 146 (42.94%) questionnaires were totally filled and returned. In addition, 95 questionnaires were distributed to the tier 4 hospitals. A total of 60 (17.65%) questionnaires were totally filled and returned. Therefore, the total response rate was 60.59% which implies a successful response rate.

### 4.2 Factor Analysis

Factor analysis was conducted on nine (9) statements regarding financial risk management practices after successful testing of sampling adequacy and reliability as opined by KMO Coefficient and Cronbach alpha findings.

#### 4.2.1 Test of Sampling Adequacy for Financial Risk Management Practices

In order to check if the nine (9) statements used to measure financial risk management practices were correlated or factorable, test of sampling adequacy was done and the results are presented in Table 3.

**Table 3:** Results for Test for Sampling Adequacy for Financial Risk Management Practices in Private Hospitals

KMO and Bartlett's Test		0.673
Bartlett's Test of Sphericity	Approx. Chi-Square	442.097
	Df	36
	Sig.	0.000

The results in Table 3 show KMO value for financial risk management practices was 0.673 and hence above the recommended minimum threshold value of 0.5. This statistic imply that the statements used to measure financial risk management practices were adequate for factorability. Further the results show that the Bartlett's Test of Sphericity show a Chi-square 442.097 with 36 degree of freedom and an associated p-value of  $p=0.00$ . This statistic imply that the statements measuring financial risk management practices are highly related and the hence suitable for structure detection in Principle Component Analysis. Based on test results of factorability, this study confirmed that further analysis could be conducted on factor analysis on the response variable financial risk management practices (Malhotra, 2004; Tabachnick & Fidell, 2014; Brett, Ted & Andrys, 2010; Costello & Osborne, 2005)

#### 4.2.2 Total Variance Explained for Financial Risk Management Practices

The next characteristic of interest was to evaluate how strong the nine (9) statements measuring financial risk management practices were in measurement of the variable. As a result, the next factor analysis output generation for financial risk management practices was Total Variance Explained (TVE) using the rotation sums of squared Loadings values. The results are presented in Table 4. Table 4 represent the distribution of the variance after the varimax orthogonal rotation of the statements measuring the variable.

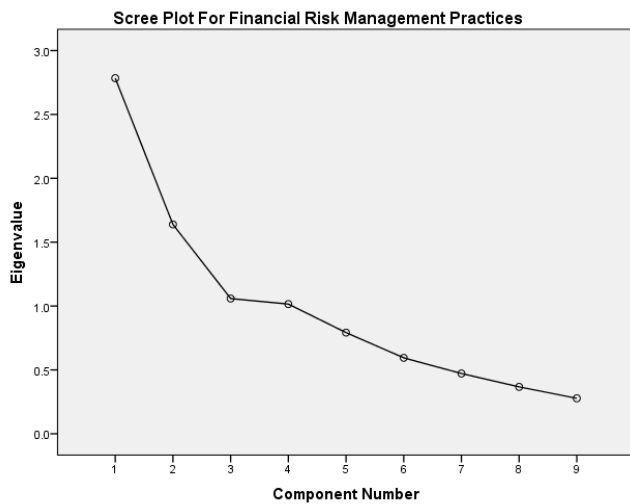
**Table 4:** Total Variance Explained for Financial Risk Management Practices

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.784	30.933	30.933	2.784	30.933	30.933
2	1.639	18.209	49.142	1.639	18.209	49.142
3	1.059	11.764	60.906	1.059	11.764	60.906
4	1.015	11.281	72.187	1.015	11.281	72.187
5	0.792	8.799	80.986			
6	0.595	6.608	87.594			
7	0.472	5.243	92.837			
8	0.367	4.079	96.915			
9	0.278	3.085	100			

Table 4 show that component one (1) to component four (4) had Eigen values of 2.784, 1.639, 1.059 and 1.015 respectively and in total accounting for a total variance of 72.187%. The variance explained is a way above the recommended minimum threshold TVE is 50%. These results imply that the four (4) components are adequate for measurement of financial risk management variable as the total variance explained (TVE) is above the recommended 50% threshold (Tabachnick & Fidel, 2012). This means that the 4 extracted factors out of the 9 components explained 72.187% of the total variations

#### 4.2.3 Scree Plot for Financial Risk Management Practices

Scree plot results are presented in Figure 2.



**Figure 2:** Scree Plot for Financial Risk Management Practices

Figure 2 shows a downward curve with a leveling – off (elbow) between component three (3) and component four (4). Further the plot shows that beyond component four (4) all the other components, which are component five (5) to component nine (9), had Eigen values less than 1.00. These results show that only four (4) components should be generated by the analysis for the variable financial risk management practices (Tabachnick & Fidel, 2012). Figure 4.10 show that out of the nine (9) statements used to measure financial risk management practices all could be reduced to four (4) components

**4.2.4 Rotated Component Matrix for Financial Risk Management Practices**

In order to evaluate the constructs for financial risk management practices, three components were generated and the results of the varimax orthogonal rotation are presented in Table 5.

**Table 5:** Results of Rotated Component Matrix for Financial Risk Management Practices

	Statement	Finance risk component
FRM1	Risk analysis and assessment is key in enhancing success of any project in the hospital	0.926
FRM2	Credit scoring mechanism have been adopted in the hospital	0.912
FRM3	The hospital usually does risk identification before engaging in any project	0.663
FRM4	Logical access control is enhanced in the hospital thus boosting the internal operating efficiency	0.853
FRM5	Physical security is enhanced in the hospital	0.624
FRM6	The hospital has ensured there is confidentiality authenticity in all its operations	0.583
FRM7	Illegal conduct of a hospital worker is taken seriously by the hospital management	0.845
FRM8	Patient safety measures have been put in place in the hospital	0.821
FRM9	Medical malpractice is a serious offense in our hospital that can lead to job loss by the medical worker	0.731

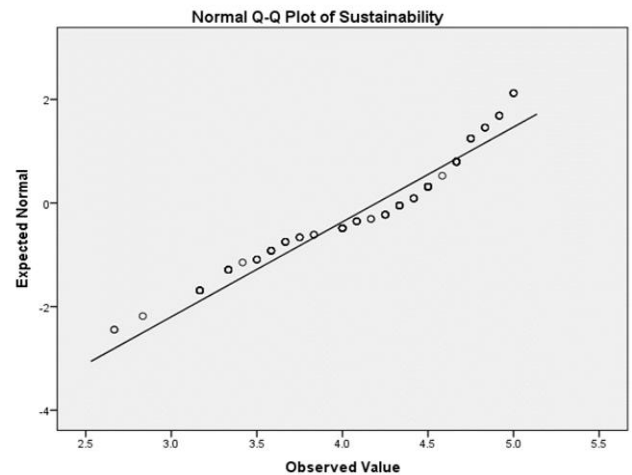
The findings in Table 5 show that, all drivers of financial risk management practices had factor loadings between 0.926 and 0.583. For each of the components all statements were retained as they had a loading above the minimum threshold factor loading of 0.4. Based on this analysis financial risk management practices were measured using the three constructs and nine (9) statements

**4.3 Test of Regression Assumptions**

According to Shevlin and Miles (2010), data analysis as a process requires a number of tests to be carried out before the actual process began. The assumptions are basically on the response variable distribution and that of the residuals distribution.

**4.3.1 Test of Normality for Sustainability**

Sustainability measure (BSC measures) was assessed for the Gaussian distribution using the graphical method. The visualized random distribution of the empirical together with the theoretical distributions of the variable, are presented in Figure 3.



**Figure 3:** Q – Q Plots for Sustainability

Results in figure 4.2 shows the Q-Q plots indicated that the data appears as roughly a straight line. This implied that the data set for the dependent variable (sustainability of private hospitals) is normally distributed. This further indicated that further regression analysis could be conducted since the data is normally distributed (Shevlin & Miles, 2010).

**4.3.2 Test of Independence**

The Durbin Watson test was used to test the independence. Findings are displayed in Table 6 below.

**Table 6:** Coefficient of Durbin Watson Test of Independence

Predictor Variables	Durbin-Watson Statistic
Financial Risk Management Practices	1.764

The results in Table 6 show that the Durbin Watson *d* statistic for financial risk management practice is 1.764. The rule of thumb states that values of  $1.5 < d < 2.5$  show that the assumption of independence is met (Garson, 2012). The

assumption of the independence of the study predictor variable in a regression model was therefore met for financial risk management practice.

**4.3.3 Test of Linearity Results**

The linear relationship flanked by the independent variable and the dependent variable was tested using Pearson’s correlation co-efficient between the sustainability and financial risk management as suggested by Gujarati and Porter (2009).

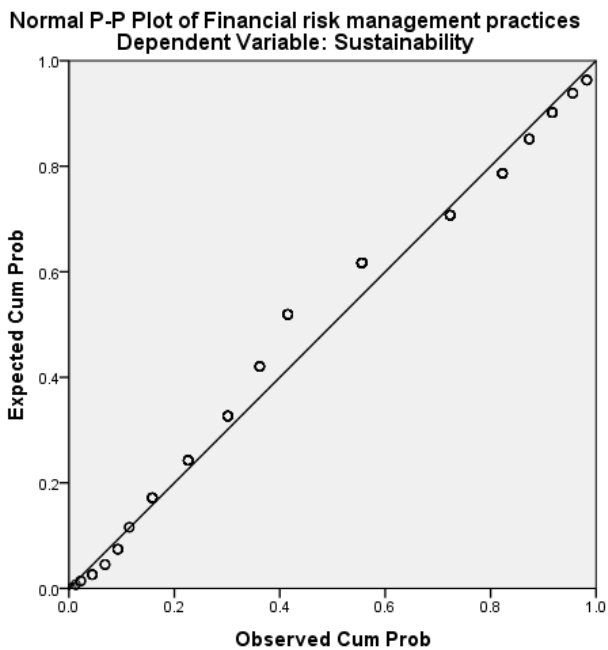
**Table 7:** Correlation Financial risk management practices and Sustainability

Independent Variable		Sustainability
Financial Risk Management Practices	Pearson Correlation	.486**
	Sig. (2-tailed)	0.000

The results show that financial risk management practices had a moderately positive linear association with sustainability of private hospitals ( $r = 0.486, p = 0.000$ ). This implied that financial risk management practice has a significant linear relationship with the sustainability.

**4.3.4 Assessment of Homoscedasticity of the Bivariate Regression between Financial Risk Management Practices and Sustainability**

Homoscedasticity results of the bivariate regression between financial risk management practices and sustainability in Figure 4.



**Figure 4:** Homoscedasticity for Financial Risk Management Practices

From the results above, the points are about the same distance from the line. Therefore, the data have homoscedasticity. This shows that the regression model chosen between financial risk management practices and sustainability was appropriate to the data.

**4.4 Inferential Results**

In order to assess the combined effect of financial risk management practices on sustainability of private hospitals in Nairobi County, Kenya. The following null hypothesis was tested by the study.

*H<sub>01</sub>: Financial risk management practices do not have a statistically significant effect on sustainability of private hospitals in Nairobi County, Kenya.*

In order to test the hypothesis H<sub>01</sub>, the weighted mean of financial risk management practices measures was regressed on the weighted scores of sustainability of private hospitals measures.

In order to assess the model appropriateness, the overall model level of significance and financial risk management practices significance in the model: Model summary, ANOVA and regression model coefficients output were generated and the results presented in Table 8, Table 9 and Table 10.

**Table 8:** Model fitness for Financial Risk Management Practices

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.486a	0.236	0.233	0.47812

Table 6 shows that the R was 0.486. This implied that there is a weak correlation between financial risk management practices and sustainability of private hospitals. In addition, the R square was 0.236. This implies that financial risk management practices accounts for approximately 23.6% of the variation in sustainability of private hospitals ( $R^2 = 0.236$ ). The model in Table 9 was further examined for its significance in predicting financial risk management practices on sustainability of private hospitals in Nairobi County, Kenya using ANOVA. The results for ANOVA for financial risk management practices and sustainability are presented in Table 9.

**Table 9:** ANOVA for Financial Risk Management Practices

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	14.444	1	14.444	63.185	.000 <sup>b</sup>
Residual	46.634	204	0.229		
Total	61.077	205			

Table 9 shows that F statistic of 63.185 and the associated P-value of 0.000. This implies that the financial risk management practices have statistically significant effect on sustainability. Based on these results the study rejected the H<sub>01</sub> hypothesis that stated that financial risk management practices does not have statistically significant effect on Sustainability of private hospitals in Nairobi County, Kenya and concluded that financial risk management practices have statistically significant effect on Sustainability of private hospitals in Nairobi County, Kenya on 95% confidence interval.



Regression of Coefficient for financial risk practices was presented in Table 10.

**Table 10:** Regression of Coefficient for Financial Risk Management Practices

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.703	0.316		5.392	0.000
Financial risk management practices	0.594	0.075	0.486	7.949	0.000

Table 10 shows that financial risk management practices have beta coefficient of 0.594 and associated p value of 0.000. This implied that financial risk management practices explains 0.594 of the variation in sustainability of private hospitals. Based on the analysis the study's bivariate model would be in the form; sustainability = 1.703+ 0.594 FRMP

## 5. Conclusions and Recommendations

### 5.1 Conclusions

The study concluded that financial risk management practices had a positive and significant effect on sustainability of private hospital. The ANOVA statistics for financial risk management practices had an associated p-value of  $p=0.000 < p\text{-value of } .05$ . Based on this, the associated objective's null hypothesis was rejected. This study therefore concludes that indeed, at 95% degrees of confidence, there is a positive and statistically significant relationship between financial risk management practices and sustainability of private hospitals in Kenya. In addition, adoption of credit scoring mechanism appeared to enhance sustainability of the hospital. In addition, risk identification and risk analysis and assessment is key in enhancing success of any project in the hospital. In addition, they should also continuously update the risk register and carry out risk assessments on regular basis as a sustainability safeguard. This will not only improve organizational performance but also strengthen sustainability potential of these entities and increase customer base, asset quality, quality of service and enhance competitiveness.

### 5.2 Recommendations

The study recommends that first; private hospitals should continuously build, monitor and review capacity of the financial risk management function as it has a significant relationship with sustainability of hospitals. In addition, they should also continuously update the risk register and carry out risk assessments on regular basis as a sustainability safeguard. In addition, the hospitals should leverage on the National government existing structures for collaboration and partnership to build the critical infrastructure for provision of health services. Health vital s statistics of economic indicators project that demand for services will not be a problem in the next 20 years and as such investment in "high morbidity cases" infrastructure will even out the variation sin their income streams and demand levels. This will not only improve organizational performance but also strengthen sustainability potential of these entities and

increase customer base, asset quality, quality of service and enhance competitiveness.

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