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Minyoso, J., & Maniagi, M.

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EFFECT OF WORKING CAPITAL MANAGEMENT ON FINANCIAL SUSTAINABILITY OF PUBLIC UNIVERSITIES IN KENYA

Minyoso, J.,[1*] & Maniagi, M.[2]

[1*] Master Candidate, Jomo Kenyatta University of Agriculture & Technology [JKUAT], Kakamega, Kenya

[2] Ph.D, Lecturer, Masinde Muliro University of Science and Technology [MMUST], Kenya

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ABSTRACT

This paper examined the effect of working capital management on financial sustainability of public universities in Kenya. Thirteen chattered public universities were considered using the census sampling technique. Working capital management theory was employed. A customized data collection tool was used to collect secondary data from the published Financial Statements of public universities in Kenya covering a total of four years an equivalent of a complete academic cycle for regular courses in a public university. Correlational research approach was used to show the degree of effect of the independent variable on the dependent variable. Time series and panel data technique were used to group the data. The data was analyzed both descriptively and inferentially using Stata program. Regression and correlation (ANOVA) were used for inferential analysis. Linear regression model was then fitted. Working capital management was found to be positively correlated to financial sustainability. The study recommended that more emphasis be put on working capital management to ensure enhanced cash flows since it has an effect on sustainability of public universities in Kenya.

Key Words: *Working Capital, Financial Stability*

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INTRODUCTION

In the recent past public universities in Kenya have been experiencing cash flow issues (Gudo, 2014). The main challenge is remaining sustainable in the foreseeable future. Financial sustainability enhances proper and smooth operation of public universities (Leon & Cock, 2016). It enables the organization to survive future challenges meet firms' financial obligations independent of donor funds. (Mutinda & Ngahu, 2016). Most public universities globally do experience financial constraints. According to Estermann and Pruvot (2011) financial sustainability is one of the challenges that face European universities. Most of the countries have endeavored to put in place mitigation measures. For example in Spain, according to Alonso, Alejandra and Perez (2017) Spanish public universities are compelled by law to comply with the principle of financial sustainability in its operations.

According to Pandey, (2000), net working capital of a firm can be either negative or positive. Maintaining a healthy balance between the firms' short term assets and liabilities ensures sufficient cash flows that contribute to smooth operations and manage financial commitments (Mansoori & Muhhamad, 2012). Working capital management entails the prudent planning and control of short term assets and liabilities to ensure that financial incapacitation is eliminated. It aims at avoiding excessive financial investments that could cripple the firm financially (Padachi (2006). Financial investments in assets should be done prudently to avoid imposing opportunity cost on the firm due to over investment which eventually has a ripple effect on the firms' financial life (Mansoori & Muhammad, 2012)

Statement of the problem

Public universities in Kenya have been experiencing cash flow issues that eventually impose a ripple effect to the general operation and management of these institutions (Gudo,2014). The main challenge is how to face the foreseen future confidently without struggles (Leon & Cock, 2016). The continuity of a firm is based on working capital management decisions that ensure that the firm is facilitated with adequate funds for its fast maturing short term financial obligations and also any upcoming costs. Efficient management of working capital works towards financial sustainability (Nimalathason, 2010) .The main reason why most firms grow into financial distress is actually anchored on this critical aspect of working capital management. Working capital management gives the firm the right information about the funds required to run efficiently while maintaining a balance between liquidity and sustainability (Padachi 2006)

Working capital plays the pivotal role of switching in between the firms' assets and liabilities to meet the firm's needs whenever they fall due. At one point an asset is in the form of cash and at the next moment it's changed into inventories, receivables and vice versa. Public universities worldwide face financial constraints for example in Europe, where the government as developed mitigation measures to curb the situation (Estermann & Pruvot, 2011). According to Gudo (2014), Kenya's Public universities receive most of their funding from the Government. A huge percent goes to the wage bill while a lesser percentage is used for day to day operations and maintenance. He further states that Kenya's public university system has experienced considerable growth in size and number which has not been accompanied by a review in the level of financial facilitation to bring a balance (Gudo, 2014). This lands them into sustainability challenges. The only remedy therefore is proper management of the short term assets and liabilities which is basically working capital management. This study sought to address this issue.

Research objective

The objective of this study was to determine the effect of working capital management on financial sustainability of public universities in Kenya. The research was guided by the following hypothesis;

- $H0_1$: Working capital management does not influence financial sustainability of public universities in Kenya.

The study focused on chartered public Universities in Kenya as at July 2014 which totaled to eighteen. Data was captured for a period of four financial years 2014/15 to 2017/18.

LITERATURE REVIEW

Working capital Management is the measures put in place by the firm to bridge any existing gap between the firms' short term assets and liabilities (Tran, Abbott, & Yap, 2017). A healthy balance between the two contributes towards the enhancement of competitiveness and healthy relations with the third parties and also promotes solvency (Njeri, 2017). Proper management of university assets eliminates idle assets and henceforth promoting prudent resource management. When the working capital of a firm is high, it then translates to a strong liquidity position of the firm. Gill, Biger, and Mathur (2010), concluded that there is a positive significant relationship between cash conversion cycle and profitability of a firm.

Working capital management promotes wealth creation and enables the firm to achieve set goals and objectives (Sazonov & Kharlamova 2015). Third parties interested in the firm usually insist on the working capital (Financial executives International Canada, 2013). Sharma and Kumar (2011) carried out a research on the effect of working capital management on profitability of firms based in India. They then concluded that working capital management and firm's profitability are positively correlated.

According to Munene (2019), one of the key challenges for universities in the next decade is how to attain sustainability financially. Only those institutions that have sound financial structures and stable income flows are be able to fulfill their set goals and respond to the upcoming issues in the dynamic environment. According to Nganga and Kibati (2016), sustainable finances aims at ensuring that university's goals are attained by guaranteeing sufficient income to facilitate investments in its future academic and research activities. When a firms' working capital is prudently managed, this results in appropriate guidance on investment decisions (Tran, Abbott, & Yap, 2017).

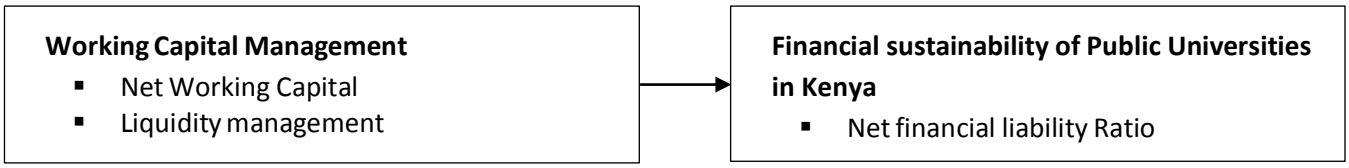
Working capital management helps in mitigation of risks through good planning practices. This ensures that financial incapacitation is eliminated while at the same time avoiding excessive financial investments in assets that can as well cripple the firm financially. It involves ensuring sufficient cash flows that enhance normal business operations especially with fast maturing financial obligations (Mansoori & Muhhamad, 2012). A firm should strive to achieve a healthy balance between short term assets and liabilities to avoid over investment that could impose opportunity cost on the firm hence reducing its profitability (Mansoori & Muhammad, 2012).

Working capital management theory

Working Capital Management theory shows the interaction between current assets and liabilities Sagan (1955). This theory is useful in managing the working capital and the existing interrelationship between its components. It is the strategy adopted by an organization to ensure that there is no gap between the short term assets and liabilities (Tran, Abbott, & Yap, 2017). The significant goal of working capital management is to plan and control firm's short term assets and liabilities in such a way that a satisfactory level of

working capital is achieved and maintained (Rekha, 2014). The short-term debts are measured and analyzed in their performance in order to ensure that assets are utilized effectively and efficiently (Almazani, 2014).

Njeri (2017) urges that Working capital Management theory will help in showing how universities are able to balance between the components of working capital to ensure competitiveness and solvency. According to Njeri (2017), if working capital is managed according to prescriptive theory then investing in working capital means to, finance it, manage cash, accounts receivable, inventory, accounts payable, the cash conversion cycle and ensure effective and efficient management of assets for optimal returns. This eliminates holding a lot of dormant assets to ensure prudence in resource management. The larger the amount of working capital the more sustainable the firm is (Karvonen 2010)



Independent Variable **Dependent Variable**

Figure 1: Conceptual Framework

METHODOLOGY

Correlation research design was used on a study population of thirteen. Secondary data was collected from official website of the Office of the Auditor general, CUE website and also official websites for the Universities using a customized data collection tool. Data was later arranged into panels and time series. Census sampling technique was used and thirteen universities observed recording a response rate of 72%. Data was analyzed descriptively into mean, mode, median and standard deviation using Stata program. Inferential analysis was done using correlation and regression (ANOVA). The outcome was presented in form of tables and graphs. A linear regression model was then fitted and used to show the degree of the effect of working capital management on finance sustainability of public universities in Kenya.

$Y= \beta 0 + \beta 1X1 + \varepsilon$

Where Y= Financial Sustainability

β0= Constant term.

B1= Regression Coefficient.

X1 =Working Capital management, Ɛ =Error term

Pretests were done on the data before using for analysis to ensure accuracy in the outcome.

Normality test was done to determine whether the data set was well modeled and normally distributed. Normality test was done using Jarque-Bera, kurtosis and skewness. The skewness value was more than 2 (p>2), kurtosis, more than 6 according to (Tabor, 2011). Jarque-Bera, a more advanced and efficient technique was used to ascertain the normality of data further, the probability value for Jarque-Bera was greater than 5%. The study carried out a unit root test to ensure that there was no presence of unit roots (the panel data are stationary) and a spurious regression. Augmented Dickey-Fuller was used. The results indicated that there was absence of unit root for natural log of financial sustainability and working capital management therefore data was fit to be

used for further inferential statistics.

The study used the financial sustainability of public universities as the dependent variable while the independent variable was working capital management.

FINDINGS AND DISCUSSIONS

Descriptive statistics comprised of Minimum, Maximum, Mean and standard deviation as obtained from panel data. They were shown in the table below;

Table 1: Descriptive Statistics

Statistics (N=52)	FS(ln)	WCM (ln)
	2014/15	
Minimum	7.320395	7.382878
Maximum	8.656372	9.787961
Mean	7.803066	8.300691
Std Dev.	0.426426	0.610114
	2015/16	
Minimum	7.336506	7.358604
Maximum	8.73618	9.125621
Mean	7.938183	8.281843
Std Dev.	0.433575	0.477521
	2016/17	
Minimum	7.294989	7.998835
Maximum	8.875659	9.476666
Mean	7.950081	8.550928
Std Dev.	0.526331	0.467532
	2017/18	
Minimum	7.313533	7.655258
Maximum	8.90839	9.371239
Mean	7.967634	8.531362
Std Dev.	0.531647	0.534999
	OVERALL	
Minimum	7.294989	7.358604
Maximum	8.90839	9.787961
Mean	7.914741	8.416206
Std Dev.	0.472288	0.525383

FN-Financal Sustainability, WCM- working Capital Management, ln-Natural Log

From Table above, overall statistics (mean and standard deviation) from panel data showed natural logarithm of financial sustainability ranged from 7.29 to 8.90 with a mean of 7.91. Using ANOVA, the distribution had a standard deviation of 0.47. Working capital management ranged from 7.36 to 9.79 with a mean of 8.42. The standard deviation for natural log of working capital management was 0.53. This was presented in a line graph as below showing sustainability (FS) between 2014/15 and 2017/18 for sampled universities. University of Nairobi (UoN) had the highest mean financial sustainability followed by Kenyatta University (KU). Meru University (MER) had the lead mean financial sustainability. The scatter plot of financial sustainability depicted a distribution with low variability across the years for SEKU, Karatina, M M U S T, Meru University and University of Eldoret. There was high variability for Pwani University, Moi University and Laikipa University.

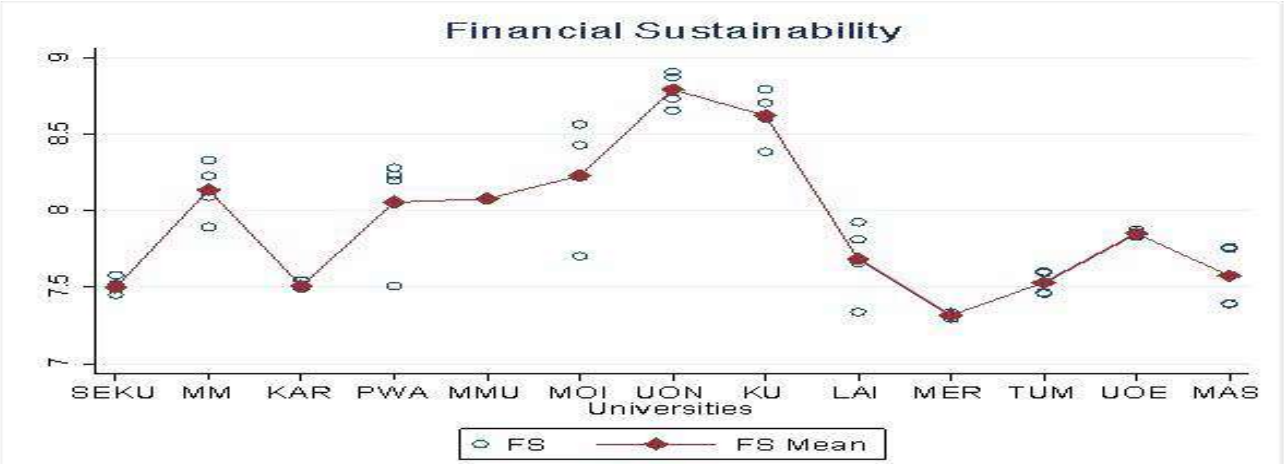


Figure 2: Financial Sustainability

Table 2: Effect of working capital management on Financial Sustainability

Correlation analysis

FS	Coef.	Std. Err.	T	P>t	[95% Conf.	Interval]
WCM	0.052099	0.073511	0.71	0.483	-0.09672	0.200915
_cons	7.476268	0.619266	12.07	0.000	6.222629	8.729907
sigma_u	.44132792					
sigma_e	.19303568					
Rho	.83940751	(fraction of variance due to u_i)				

F test that all u_i=0: F(12, 38) = 16.11 Prob> F = 0.0000.

The correlation coefficient for WCM was 0.052099 with a standard deviation of 0.0735. The estimated coefficient of working capital was significantly not equal to zero (β=0.052099, t= 0.719, p-value= 0.483). The P-value was greater than 0.05 thus estimated coefficient was not significant at 5% significance level. The estimated coefficient of working capital management here implied that a unit increase in working capital management would cause the levels of financial sustainability to increase by 0.052 units. The p-value of the constant was however less than 0.05 which showed a significant constant term.

Table 3: Regression Analysis

Fixed-effects (within) regression		Number of obs	52
Group variable: University		Number of groups	13
R-sq:		Obs per group:	
Within	= 0.013	min	= 4
Between	= 0.4827	Average	= 4
Overall	= 0.2423 (24.23%)	Max	= 4
		F(1,38)	=
corr(u_i, Xb)	= 0.4791	Prob> chi^2	= 0.4828

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There were a total of 52 observations used in the analysis considering 13 universities for four years. The minimum, maximum and average numbers of observations per groups were all equal to 4. Correlation coefficient between regressors in the fixed model was 0.4791 (less than 0.9)

The R^2 measures the variation of the dependent variable performance as explained by the variation of the predictors in the model. It showed working capital management had an effect represented by 24.23% (Overall R square=0.2423) on sustainability of public universities in Kenya. ANOVA showed the significance of the model. The F-statistic to the model was 0.50 which was greater than 0 at least not equal to zero. This meant that working capital management has an effect on sustainability of public universities in Kenya. However, the effect is not significant (P=0.4828).

The model is then fitted as; FS = 7.476268+0.052099WCM

The study therefore rejected the null hypothesis that Working capital management does not influence financial sustainability of public Universities in Kenya and concluded that there is influence of working capital management on financial sustainability. An increase in working capital management by one unit would results to increase of 24.23% financial sustainability of public universities in Kenya.

CONCLUSIONS AND RECOMMENDATIONS

The study established a positive regression coefficient. The null hypothesis, $H0_1$: Working capital management does not significantly influence finance sustainability of public universities was therefore rejected. From the results, working capital management was found to have a significant statistical effect on sustainability leading to the conclusion that working capital management has determines the financial sustainability.

The researcher recommended further study to be done to establish other factors not considered in this study. Such or similar studies be done in private universities as well.

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