

# Debt Financing Options And The Financial Sustainability Of Universities In Kenya

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## Abstract

We investigated the effect of debt financing options on the financial sustainability of universities in Kenya from 2015 to 2020. The data was obtained from 55 universities in Kenya registered by the Commission for University Education, as at December 31, 2020. We applied a random effects regression analysis in this study and the findings revealed that long-term debt has a positive, statistically significant impact on the financial sustainability of Kenyan universities. Thus, an increase in financial resources enhances financial sustainability. The findings further revealed that short-term debt and trade credit had no effect on financial sustainability. The study advises university management to employ optimal long debt levels because financing cost can affect an institution's financial abilities. Additionally, university management need to develop additional revenue-generating strategies to support their operations. Our study expands the literature on debt financing and the survival of higher learning institutions. We propose that future studies be conducted in other fields, including health and security, to contrast the influence of debt financing options on financial sustainability.

**Keywords:** financial sustainability, debt financing, trade-off theory, pecking order theory.

## 1. Introduction

Financial sustainability (FS) has been a persistent challenge to all universities globally. FS refers to the ability of an institution to meet its current financial obligations as they become due (Lucianelli & Citro, 2017). Thus, an organization that is not able to meet its current obligations is regarded as financially unsustainable. Researchers have measured FS using leverage, liquidity and net operating ratio (Afriye, 2015; Cernostana, 2017; Nalwoga, 2021; Sami & Sree, 2017; Wachira, 2018; Webb, 2015; Kelchevskaya, 2014). This study considered the leverage ratio and narrowed down to debt ratio to assess the FS of universities in Kenya. Debt ratio is of significance to this study because it measures the extent to which universities use debt to finance their operations.

The global challenge of funding in higher learning institutions has led universities to seek alternative financing options that guarantee their ability to cover annual budgets without constraints (Pollinger, Outhwaite & Cordero-Guzman, 2017). This means that the income generated by an institution should be sufficiently high to cover its operational costs. Financial sustainability ensures that a learning institution has adequate income to discharge its mandate of offering quality education. In Sub-Saharan Africa, capitation from governments to universities has been decreasing (Claessens, Kose & Terrones, 2012). The state of declining funds for universities is not unique globally, it has manifested itself in many countries in Africa, particularly Kenya (Mutula, 2001), as cited by Chumba, Muturi and Oluoch (2020).

In Kenya, the decline of funding to universities by the government has put pressure on the financial resources available for daily operations and infrastructure development in these institutions, especially at a time when there is an increasing demand for university education (Gichuhi, 2015). A study by CPS Research International (2018) revealed that poor funding adversely impacts university academic and research programs. As echoed by Archuleta, Dale and Spann (2013), the diminishing capitation to Kenyan universities has limited their effectiveness to perform their teaching and research duties. During the 2020/2021 financial year, the Kenyan universities' budget deficit was KES 54 billion (Republic of Kenya, 2020). The perception of these universities is that the government owes them, as the allocated funds are insufficient to meet their expected budget.

Over the last thirty years, inadequate funding has been a norm for Kenyan universities. Enrolment has been at an increasing pace and the government has been unable to proportionately maintain financial support. For instance, student enrolment has unprecedentedly increased 88,809 in 2016 to 122,831 in 2020 (Kenya National Bureau of Statistics, 2019). The budget allocations received by universities have been insufficient to meet the cost of student placement. For instance, the 2018/19 financial year, the estimated cost amounted to KES 120,619 billion and the allocation was KES 90,351 billion, KES 116,949 billion against KES 92,337 billion in 2019/20 financial year and KES 149,397 billion against KES 95,907 billion in 2020/21 financial year. In addition, the coronavirus disease 2019 (COVID-19) pandemic has strained the existing resources through additional costs to empower learning institutions to abide by the health rules on social distancing, purchase of sanitizers, and providing adequate water points, among others. Consequently, most universities have accumulated huge debts and delays in paying suppliers (Omondi & Muturi,

2013). A 2018/2019 report by the Auditor General revealed that major universities, such as Kenyatta University, University of Nairobi, and Jomo Kenyatta University, could be declared insolvent due to their inability to meet their short-term liabilities as they mature.

Like many other universities worldwide, Kenyan universities have embraced alternative financing decisions by utilizing external debt finance. Debt financing provides an avenue of satisfying the financial deficit of businesses that lack sufficient internal funds to support their operations and investments (Onchong'a, Atambo & Muturi, 2016). Debt finance improves the rate of investment by producing a return higher than the overall borrowing cost (Saad, Ghani, Ahmed and Salim, (2015). In addition, debt finance is cheaper in terms of the tax shield benefit, but it is prone to default risk if the interest and principle due are unpaid (Xu, Ou & Chen, 2016). Therefore, organizations should choose the appropriate debt mix to boost financial sustainability cautiously. Debt financing choices may include short-term loans, trade credit, and long-term loans (Obuya, 2017). This study considered debt financing as trade credit, as well as short-term and long-term debts.

The operating environment-related problems caused by underfunding in most organizations have motivated several researchers to examine the effects of debt financing options (Dube, 2013; Githaiga & Kabiru, 2015; Karuma, Ndambiri & Oluoch, 2018; Muchugia, 2013; Tauseef, Lohano & Khan, 2013; Kibunja & Fatoki, 2020; Herelimana, 2017; Ikapel & Kajirwa, 2017). The effect of debt financing on firm performance have been widely studied. Moreover, some studies have examined debt finance in secondary schools (Ng'ang'a, 2017; Metto & Ombaba 2021) and public universities (Kimathi, 2019). Most of these studies have focused on business entities leaving universities, despite the fact that these institutions also incur debts to finance their operations. In addition, the researchers have widely considered financial performance, and the unique study on financial sustainability only covers public universities and excluded private universities. This has led us to investigate the effects of debt financing options on the financial sustainability of universities in Kenya.

This study expands the current literature on debt financing in universities in several perspectives. First, the study contributes to the empirical evidence on the effects of debt financing on financial sustainability of universities in Kenya, a developing country. Secondly, the study covers a six-year period between 2015 and 2020, which is the period that focuses on universities that have existed for five continuous years and above. In addition, most universities are calling for financial assistance due to increasing enrolment, budget cuts, hard economic times, and the adverse effects of the COVID-19 pandemic.

To best of our knowledge, no study has examined the effects of debt financing options on the financial sustainability of universities in Kenya. Therefore, this study investigates the effect of debt financing options on financial sustainability of universities in Kenya and outlines recommendations that can be harnessed by university management and stakeholders in determining the best debt financing option.

## **2. LITERATURE REVIEW**

### **2.1 Theoretical review**

The study was anchored on the two theories, the pecking order theory and trade-off theory.

#### **The pecking order theory**

The pecking order theory was developed by Myers and Majluf (1984). The theory assumes that firms prefer to fund their activities by prioritizing them as less risky. It explains why a firm utilizes one financing option over another. Financing preferences are determined by the information available in the market for each financing type to enable investors to analyze and conceptualize a cheaper source of finance (Myers & Majluf, 1984). This means that firms must adhere to a preference order to finance their operations by starting with a cheaper source of debt to improve their cash flows. Harelimana (2017) adds that firms must follow a certain order of the source of capital when financing their activities.

Myers and Majluf (1984) assert that firms with quantifiable returns can largely support cash flow requirements, thus minimizing the need to acquire risky funds. This use of leverage reveals a firm's performance (Githaiga & Kabiru, 2015). This theory also stresses that outsiders usually monitor a firm's performance by evaluating its financing decisions. Liziwe (2017), Mwangangi (2013), Katiwa (2017) and Tang (2014) support this view. It is assumed that Kenyan universities apply the pecking order theory by prioritizing on choosing the less risky debt option to support finance their operations when there are insufficient funds from other sources. Therefore, this study seeks to assess the effects of trade credit, as well as long-term and short-term loans on the financial sustainability of universities in Kenya.

#### **The trade-off theory**

This theory was developed by Modigliani and Miller in 1958. The theory assumes that the cost of equity is higher than the cost of debt. In addition, firms target an optimal debt ratio by allocating their resources in comparison to the tax benefits of debt with the bankruptcy costs. Hashemi (2013) adds that trade-off theory strikes a balance between expected outcomes and the cost of finance. Therefore, a firm may choose debt financing option because of tax benefits. Theoretically, interest from debt is treated as an expense in the income statement, and it is deductible from income before computing the tax, which allows some tax savings, leading to an increase in profits (Myers, 2001). Therefore, firms should seek debt financing options that weigh tax gains and related costs.

Additionally, the trade-off theory advocates that a firm borrows up to its best level as the firm's productivity may decline due to the commitments of settling its debts (Kimathi, 2019). That is, a firm that chooses to use debt finance may experience financial difficulties in the event of failure to honor the debt holders' requirements. If the firm lacks a trade-off, insolvency ensues. Empirical evidence has elucidated the pros and cons of the trade-off theory (Makanga, 2015; Fama & French, 2002; Graham, 2000; Zingales, 1995). Notwithstanding that Kenyan universities use debt to

finance their operations, there are some drawbacks associated with insolvency costs. Miller's (1977) study affirms that corporate tax gains are insignificant compared with the magnitude of financial distress costs. Despite that universities in Kenya are financing their operations through borrowed funds, these institutions are still experiencing financial difficulties. Thus, this study aims to assess the effect of debt financing on Kenyan universities' financial sustainability.

## **2.2 Empirical literature and hypotheses development**

### **Long-term debt**

Long-term debt is debt that is borrowed by firms for a five-year period and above, and it is attached to permanent assets (Kimathi, 2019). The trade-off theory assumes that a firm generates sufficient returns to cover finance costs. Furthermore, the theory argues that long-term debt supports long-term investments that generate sufficient returns to repay loans, cover all expenses, and retain surpluses (Hashemi, 2013). Studies that support this theory on long-term debts suggest that long-term borrowings increase the returns on assets and profitability and improves the firm's financial performance (Obuya, 2017; Kimathi, 2019; Ng'anga'a, 2017; Koskei, 2017; Lambe, 2014; Dube, 2014).

In contrast, some studies have found negative effects of long-term debt on firm outcome (Kijirwa, 2015; Saad, Ghani, Ahmed & Salim, 2015; Gabrijelcici, Herman & Lenarcici, 2016; Githaiga & Kabiru, 2015; Muchugia, 2013; Ebaid, 2013). Some studies on financing of firms using long-term debt have supported this view, while others have contradicted it. This raises the concern on how long-term debt can fully support the operations in Kenyan universities to be financially sustainable. Based on the trade-off theory that firms need to choose a financing option that maximizes profit and covers the costs of finance, we hypothesize that:

H<sub>01</sub>: Long-term debt has no effect on the financial sustainability of Kenyan universities.

### **Short-term debt**

Short-term loans are advanced to a firm by financial institutions, usually for a period of four years or less (Kimathi, 2019). The pecking order theory assumes that a firm has a preferred manner in which capital is raised, while considering use of the less risky approach. Firms focus on short-term loans, as they do not need to be secured by virtue of the firm's good performance (Obuya, 2017). Myers and Majluf (1984) argue that firms with high profits need not acquire risky financing because they can support their cash flow. Empirical studies on short-term debts (Makanga, 2015; Ochang'a, Muturi & Atambo, 2016; Kajirwa, 2015; Ebaid, 2013) contend that they negatively impact firms' returns.

However, Lambe (2014), Dube (2014), Kimathi (2019), Ng'ang'a (2017) and Ebaid (2013) report a positive association between short-term debt and firm performance. The pecking order theory argues that firms need to support their operations in the preferred order of internal funds seconded by debt by choosing the less risky source. Based on this theory, we develop the following hypothesis:

H<sub>02</sub>: Short-term debt has no effect on the financial sustainability of universities in Kenya.

### **Trade credit**

Trade credit is a short-lived debt that is provided by suppliers to customers after purchasing goods and services for sale. Trade credit is a debt finance option used by firms because the security and credit rating of the customer is not required (Vicente & Emilia, 2012). The pecking order theory argues that firms utilize available internal financing sources before opting for external funding. Trade credit is preferred to bank loans when firms encounter unforeseeable cash flow problems (Obuya 2017). Trade credit is highly advantageous because firms do not pay upfront upon the delivery of goods, allowing them to use the funds over time and pay later (Metto & Ombaba, 2021). Consequently, trade credit is said to have liquidation costs, which may force firms to seek other financing options (Vicente & Emilia, 2012).

Several empirical studies have supported that debt from trade credit positively influence firm outcomes (Metto & Ombaba, 2021; Kimathi, 2019; Ng'ang'a, 2017; Karuma, Ndambiri & Oluoch 2018; Kapkiyai & Mugo, 2015; Katiwa, 2017; Tang, 2014; Sola, Teruel & Salano, 2012). In contrast, some studies have indicated a negative association between trade credit and firm returns (Mwangangi, 2013; Hashemi, 2013; Cunit & Garcia, 2012; Harash, Al-Timimi & Alsaadi, 2014; Badi & Ishengoma, 2021; Cecchet, Mohanty & Zampolly, 2011). Based on the studies reviewed, we hypothesize that;

H<sub>02</sub>: There is no association between trade credit and the financial sustainability of universities in Kenya.

## **3. Methodology**

### **Data collection**

The data was obtained from the annual financial statements of universities in Kenya. The target population for the study was 74 universities in Kenya, as registered by the Commission for University Education, as at December 2020. The data was obtained from audited financial reports for a six-year period from 2015 to 2020. Universities that had not attained five continuous years of operational existence were excluded. The final sample used in this study comprised of 55 universities that had data from year 2015 to 2020. The data considered met the requirements for panel data analysis.

### **Measurement of variables**

Regression analysis was used to examine the effect of the debt financing options on financial sustainability. The debt financing options considered were long-term debt (LTD), short-term debt (STD) and trade credit (TC). The study also included control variables of university age (AGE), university size (SIZE) and number of academic programmes (AP). Table 1 presents a summary of the operationalization and measurement of the variables.

**Table 1: Operationalization of the variables**

Variable	Indicators	Measurements
Dependent	Debt ratio	Total liabilities to total assets
Independent	Long term debt	Long term debt to total liabilities
	Short term debt	Short term debt to total liabilities
	Trade credit	Trade credit to total liabilities
Control	University age	Log number of years in existence
	University size	Log of total assets
	Number of academic programmes	Log number of academic programmes

**Estimation model**

The study used the regression model in equation 1:

$$DR_{it} = \beta_0 + \beta_1 LTD_{it} + \beta_2 STD_{it} + \beta_3 TC_{it} + \beta_4 AGE_{it} + \beta_5 SIZE_{it} + \beta_6 AP_{it} + \epsilon \dots \dots \dots 1$$

Where **DR** represented the debt ratio;  $I = 1, \dots, 55$  represented universities;  $t = 1, \dots, 6$  represented the years;  $\beta_0$  was the regression constant;  $\beta_1 \dots \beta_6$  were estimated coefficients; while **LTD**, **STD**, **TC**, **AGE**, **SIZE** and **AP** represented long-term debt, short-term debt, trade credit, university age, university size and number of academic programmes respectively; and  $\epsilon$  represented the error term.

**4. Empirical results and discussion**

**Descriptive analysis**

Table 2 represents the descriptive statistics. The results indicate that the debt ratio was between 0.17 and 0.26 with a mean of 0.22 and std. dev 0.039. This implied that most universities did not finance their assets using external funds. Long-term debt was between 0.52 and 0.54, with a mean of 0.53 and std. dev of 0.147. This means that universities fairly utilized borrowed funds to finance their investments, as the debt exceeded 50%. Short-term debt was between 0.06 and 0.07, with a mean of 0.07 and std. dev of 0.016. The results showed that most universities borrowed less from short-term loans, as the percentage was too low compared to long-term debt. Trade credit was between 0.49 and 0.56, with a mean of 53 and std. dev of 0.015. This implied that universities spent more of suppliers’ money to support their daily activities. Age of university was between 11 years and 50 years, with a mean of 30 and std. dev of 0.011. Size of university was between 5.08 and 9.89, with a mean of 8.54 and std. dev. of 4. Similarly, number of academic programmes were between 5 and 55 with a mean of 19 and std. dev of 6.

**Table 2: Descriptive Data**

Variable	Indicators	N	Mean	Maximum	Minimum	Std. dev.
Dependent	Debt ratio	330	0.22	0.26	0.17	0.039
Independent	Long-term debt	330	0.53	0.54	0.52	0.147
Independent	Short-term debt	330	0.07	0.07	0.06	0.016
Independent	Trade credit	330	0.53	0.56	0.49	0.015
Control	University age	330	30.00	50.00	11.00	0.011
Control	University size	330	8.54	9.89	5.08	4.00
Control	Number of academic programmes	330	19	33.00	5.00	6.00

**Correlation matrix and diagnostic tests**

Table 3 presents the correlation results. The correlation between the debt ratio and long-term debt was positive and significant ( $r = 0.277$ ,  $p < 0.00$ ). The results indicated that increasing the long-term debt results in an increase in financial sustainability. The relationship between short-term debt and debt ratio was negative and insignificant ( $r = -0.296$ ,  $p < 0.173$ ). The results also indicate that the correlation between trade credit and financial sustainability was negative and insignificant ( $r = -0.094$ ,  $p < 0.201$ ). The correlation between financial sustainability and university age was negative and insignificant ( $r = -0.119$ ,  $p < 0.105$ ), while the correlation between university size and financial sustainability was positive and significant ( $r = 0.144$ ,  $p > 0.032$ ). The results indicate that an increase in university size results in an increase in financial sustainability. Similarly, the correlation between the number of academic programmes and financial sustainability was positive and significant ( $r = 0.291$ ,  $p > 0.023$ ). This implied that an increase in the number of academic programmes leads to an increase in financial sustainability.

**Table 3: Correlation matrix**

Indicator	DR	LTD	STD	TC	AGE	SIZE	AP
Debt ratio (DR)	1.0000						
	-----						
Long-term debt (LTD)	0.2765	1.0000					
	0.0001	-----					
Short-term debt (STD)	-0.2956	-0.2406	1.0000				
	0.17300	0.3009	-----				



Trade credit (TC)	-0.0942	-0.1117	0.1795	1.0000				
	0.2010	0.1289	0.0142	-----				
Age of university (AGE)	-0.1193	-0.3371	-0.0338	-0.2246	1.0000			
	0.1049	0.000	0.6472	0.0021	-----			
Size of university (SIZE)	0.1440	-0.0974	0.1431	-0.0288	0.0119	1.0000		
	0.0320	0.1862	0.0514	0.6969	0.8723	-----		
Number of academic programmes	0.2911	0.1457	0.3612	0.1853	0.1142	-0.0278	1.0000	
	0.0225	0.4234	0.0261	0.03824	0.6831	0.9653	-----	

To check for the multicollinearity problem, the variance inflation factor (VIF) was generated. The results shown in Table 4 indicate that the VIF values are below 10, implying the absence of multicollinearity problem.

**Table 4: Variation Inflation Factor**

Variable	Indicators	VIF	I/VIF
Independent	Long-term debt	1.0777	0.002
Independent	Short-term debt	1.0705	0.002
Independent	Trade credit	1.0586	0.004
Control	University age	1.1024	0.854
Control	University size	1.0953	0.521
	Mean VIF	1.0809	

Normality tests were also performed to determine whether the data was normally distributed. The results are presented in Table 5. The results revealed that the Jarque–Bera statistic was 5.142 with a p-value of 0.0764, which was more than 0.05. This implied that the data had a normal distribution. The Breusch–Pagan Lagrangian multiplier test and Hausman test was performed to assess a suitable model for the study and the results are presented in Table 5. The Breusch–Pagan Lagrangian multiplier results revealed a p-value of 0.004, which was less than 0.05, indicating that the pooled ordinary least squares (OLS) model was inappropriate for the study.

In addition, the Hausman test was performed to investigate whether the fixed or random effects model was appropriate. The findings showed a p-value of 0.29, which was greater than 0.05. The conclusion was that the appropriate panel regression model was a random effects model. This model was superior to the two other models because it had random variations across the error term that considers specific entities as independent variables (Green, 2012). Thus, the random effects model was considered to be appropriate to explain the relationship between debt financing options and financial sustainability.

**Table 5: Jarque-Bera statistics and Panel model test**

Test summary	Chi. sq. statistics	Prob.
Jarque-Bera test	5.142	0.0764
Breusch-Pagan LM test	8.408	0.004
Hausman test	6.143	0.292

**Regression results and discussion**

The regression results are presented on Table 6.

**Table 6: Random effects regression results**

Variable	Indicators	Coefficient	Std. Error	t-statistics	Prob.
	C	0.383832	0.031436	12.20986	0.0000
Independent	Long-term debt	0.266930	0.058327	4.576439	0.0088
Independent	Short-term debt	-0.129344	0.063374	2.040956	0.7427
Independent	Trade credit	-0.240120	0.090710	2.647124	0.8238
Control	University age	-0.031646	0.061456	-0.514930	0.6072
Control	University size	0.230174	0.057339	4.014257	0.0423
Control	Number of academic programmes	0.27331	0.083300	5.375431	0.0184
	R-Squared	0.185			
	R-adjusted	0.163			
	F-statistics	8.193			
	Prob. (F-stat.)	0.000			
	Durbin –Watson	2.00			

The coefficient of determination ( $R^2$ ) was 0.185. This means that 18.5% of variations in financial sustainability were explained by debt financing options. The results indicated that the relationship between the independent variables and the dependent variable was significant, since  $F = 8.193$  ( $p < .05$ ). This revealed that the debt financing options variables significantly affected the financial sustainability of Kenyan universities. The study model was fitted as follows;

$$FS = 0.383832 + 0.266930(LTD) - 0.129344(STD) - 0.240120(TC) - 0.031646(AGE) + 0.230174(SIZE) + 0.27331(AP) + \epsilon_{it} \dots \dots \dots 2$$

The results presented in Table 6 showed that long-term debt had a positive statistically significant effect on financial sustainability ( $\beta = 0.2669$ ,  $p = 0.008$ ), which was less than 0.05. This implied that increasing long-term debt led to an increase in long-term investments, which contributes to the financial health of universities. The findings led to the rejection of the null hypothesis and acceptance of the alternative hypothesis that long-term debt affects financial sustainability. This

finding confirms the work of Koskei (2017), who reports that long-term debt has a significant influence on the financial performance of privately owned sugar manufacturing firms in Kenya.

The results also confirm the work of Kimathi (2019), who established that long-term financing had a significant influence on public universities in Kenya. The finding of the present study also confirms the work of Ng'ang'a (2017), Lambe (2014) and Dube (2014), who found a positive and significant association between long-term debt and firm outcomes. However, these finding contradicts the work of Kijirwa (2015), Saad, Ghani, Ahmed and Salim (2015), Gabrijelcici, Herman and Lenarcici (2016), Githaiga and Kabiru (2015), Muchugia (2013) and Ebaid (2013), who found a negative effect of long-term debt on firm outcomes.

The coefficient of short-term debt was -0.1293 and statistically insignificant. The study failed to reject the null hypothesis. The study findings confirm the work of Makanga (2015), Ochang'a, Muturi and Atambo (2016), Kajirwa (2015) and Ebaid (2013), who found that short-term debt was not significant to firm returns. In addition, the study finding contradicts the work of Lambe (2014), Dube (2014), Kimathi (2019), Ng'anga (2017) and Ebaid (2013), who affirm that short-term debt positively and significantly influence firm performance.

The results also indicated that coefficient of trade credit was -0.2401 and insignificant. This study failed to reject the null hypothesis that trade credit has no effect on financial sustainability of universities in Kenya. The study finding confirms the works of Mwangangi (2013), Hashemi (2013), Cunat and Garcia (2012), Al-Timimi and Alsaadi (2014) and Cecchet, Mohanty and Zampolly (2011), who found negative and insignificant association between trade credit and firm return. The findings contradict some studies that indicated that trade credit had a positive and significant influence on firm returns (Metto & Ombaba, 2021; Kimathi, 2019; Ng'ang'a, 2017; Karuma, Ndambiri & Oluoch, 2018; Kapkiyai & Mugo, 2015; Katiwa, 2017; Tang, 2014; Sola, Teruel & Salano, 2012).

The results for university age indicated a coefficient of -0.0316 and insignificant. The results also showed that university size had a statistically significant influence. This signified that the amount of assets held by the universities determined the generation of revenue through investments which support the institutions operations thereby ensuring financial sustainability. The study confirms the work of Mandala (2018), who found a positive correlation between size and financial performance of financial institutions in Kenya. The study findings also agree with the work of Kaguri (2013), who found a positive and significant effect of size and financial performance of life insurance companies in Kenya. Similarly, the coefficient for the number of academic programmes had positive and significant results. This indicated that the number of academic programmes attract more client who in return bring more income to support the smooth running of the universities. The study confirms the work of Migin, Falah, Yasid and Khatibi (2015), who found a positive relationship between the number of academic programmes and financial performance of private higher education institutions in Malaysia.

## 5. Summary and conclusion

This study examined the effect of debt financing options and the financial sustainability of universities in Kenya. The debt financing options variables were long-term debt, short-term debt and trade credit. Financial sustainability was measured by the debt ratio. The random effects model was used to examine the relationships between the variables. The results indicated that long-term debt had a positive and significant impact on financial sustainability. The outcomes suggest that an increase in long-term borrowings results in an increase in the financial resources that determine the financial sustainability of universities in Kenya.

The findings also showed that short-term debt was not significant to financial sustainability. This implied that short-term debt had no effect on financial sustainability of universities in Kenya. Further, it means that most Kenyan universities did not prefer borrowing short-term loans to finance their operations, especially as short-term loans are known to be expensive and risky. These results also indicated that trade credit was insignificant to financial sustainability. This study demonstrates that trade credit is meant to support the day to day activities but does not contribute to the long term survival of Kenyan universities since it is deemed to be short term. The study advises university management to employ optimal long-term debt levels because the cost of finance can adversely affect the institution's financial abilities. Thus, there is a need for university management to develop strategies that will foster income creation and enable them to support their activities via internal funding.

This study expands the literature on debt financing and the survival of higher learning institutions in Kenya and other developing countries. This study also adds to the empirical evidence of the various debt options applied by universities. We suggest that future studies should concentrate on other sectors of the economy, such as health, security, and financial institutions, to contrast the effect of debt financing options on financial sustainability.

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