DETERMINANTS OF SUSTAINABLE FINANCIAL PRUDENCE IN PUBLIC UNIVERSITIES IN KENYA

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A THESIS SUBMITTED TO THE SCHOOL OF BUSINESS IN THE COLLEGE OF HUMAN RESOURCE DEVELOPMENT IN PARTIAL FULFILLMENT FOR THE AWARD OF DOCTOR OF PHILOSOPHY IN BUSINESS ADMINISTRATION (FINANCE OPTION) OF JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

Esther Chepkorir Rono **…………………………..** **…………………**

Reg. No. HD433-C007-2646/2013 **Signature** **Date**

This thesis has been submitted for examination with our approval as the University Supervisors

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DEDICATION

I dedicate this work to my children who have availed themselves to take care of other family commitments as I undertook my studies and for their unrelenting encouragement at times when the journey seemed to be tough.

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LIST OF ABBREVIATIONS AND ACRONYMS

AICPA:	American Institute of Certified Public Accountants
AMFI:	Association of Microfinance Institutions
ASB:	Auditing Standards Board
CHE:	Commission for Higher Education
CIPFA:	Chartered Institute of Public Finance and Accountancy
COSO:	Committee of Sponsoring Organizations
CPA:	Certified Public Accountant
CSR:	Corporate Social Responsibility
CUE:	Commission for University Education
DSS:	Decision Support System
FASB:	Financial Accounting Standards Board
GAAPs:	Generally Accepted Accounting Principles
GNP:	Gross National Product
HR:	Human Resource
ICAEW:	Institute of Chartered Accountants of England and Wales
ICT:	Information and Communication Technology
IEA:	Institute of Economic Affairs
IGA:	Income Generating Activities
INTOSAI:	International Organization of Supreme Audit Institutions

KESSP: Kenya Education Sector Support Programme

KMS: Knowledge Management System

MFIs: Microfinance Institutions

MTEF: Medium Term Expenditure Frame Work

NACOSTI: National Council of Science, Technology and Innovation

NPV: Net Present Value

PAF: Principal Axis Factoring

PFM: Public Financial Management

RDT: Research Dependency Theory

SAS: Statement of Auditing Standards

SPSS: Statistical Package for Social Sciences

SRI: Sustainable Responsible Investing

UASU: Universities' Academic Staff Union

UNES: University of Nairobi Enterprises Services Limited

UNTESU: Universities' Non-Teaching Staff Union

VIF: Variance Inflated Factors

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DEFINITION OF TERMS

Credit controls: These are controls put in place by a firm by, for example, analyzing debtors' financial track record with the aim to mitigate credit risk (Sitorus, 2013).

External borrowing: Borrowing from parties outside of an organization. This may include borrowing from either local or foreign lenders such as financial institutions (Barro & Lee, 2000).

Financial prudence: The effective, efficient and proper use of financial resources with the aim of enhancing financial performance of a firm (Prabhakara & Begum, 2013).

Internal control systems: Systems purposed to put a certain component of an organization in check so that the organizational performance could be enhanced. Such systems include accountability systems, HRM control system, management control system and financial control system (Dumitru, Dumitrana, Jinga & Radu, 2010).

Management support: Support given to the management or by the management. For instance, there may be management support to employees or stakeholders' support to the management (Ozlen, Handzic & Durmic, 2014).

Public universities: These are the highest public institutions of education in a country mandated to spearhead academic activities and research (CUE, 2014).

Sustainable financial prudence: A concept that arises when a firm is able to effectively, efficiently and properly employ financial resources (Wallstedt, Gross & Almqvist, 2014).

ABSTRACT

The study assessed the factors that affect the nature and outcome of sustainable financial prudence in public universities in Kenya. The general theory of finance, agency cost theory, pecking-order theory, financial management model, resource dependency theory and the African Political Economy model further guided the study. The study adopted descriptive survey research design and targeted 31 public universities and their constituent colleges in Kenya. A census of the universities was carried out and from these the 101 management and staffs from the accounts and finance departments and from the administration were randomly selected for interviews. The study employed semi-structured questionnaires to collect data. The research instrument was pilot tested in order to determine its reliability and validity before it was used to collect data for the final study. The data collected were analyzed by the aid of the Statistical Package for Social Sciences Version 24. Data analysis was both descriptive and inferential. Descriptive analysis constituted finding the percentages, means and standard deviations for data touching on the study variables. On the other hand, inferential analysis was in form of both Spearman rank correlation co-efficient and multiple regression analysis. The findings of the study were presented in form of figures, and descriptive and inferential statistical tables. The study indicated that the more the public universities enhanced their Income Generating Activities, the greater the likelihood of moderately increasing their sustainable financial prudence (r_s= 0.575; p< 0.05). It was intimated that strengthening the internal control system in public universities was likely to result in enhanced sustainable financial prudence (r_s= 0.554; p< 0.05). The study also indicated that strengthening management support in the foregoing institutions was bound to enhance sustainable financial prudence (r_s= 0.557; p< 0.05). The relationship between credit controls and sustainable financial prudence in local public universities was found to be positive, strong and significant (r_s= 0.603; p< 0.05). In addition, the study found that external borrowings were likely to marginally affect sustainable financial prudence in the aforesaid institutions (r_s= 0.358; p< 0.05). Moreover, the study indicated that 62.4% of sustainable financial prudence in local public universities could be explained by income generating activities, internal control system, management support, credit controls, and external borrowing. Income generating activities, internal control system, management support, and credit controls were concluded to be essential in enhancing sustainable financial prudence in local public universities. However, external borrowing was inferred to have marginal effect on the sustainable financial prudence in local public universities. It is recommended that public universities in Kenya should ensure that they have sound management reporting and financial systems in the income generating activities and a strong internal control system. It is further recommended that public universities utilize their computerized systems for effective financial reporting and for these institutions to have strong credit policies. Lastly, public universities in Kenya should formulate a policy that can effectively guide them when borrowing particularly externally.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Prudence concept is one of the generally accepted accounting principles (GAAPs). GAAPs are a set of accounting principles, standards and procedures that companies use in recording financial transactions and compiling their financial statements. They are a combination of authoritative standards set by policy boards and are simply the commonly accepted ways of recording and reporting accounting information. Prudence ensures that assets and income are not overstated and liabilities and expenses are not understated in recording the financial transactions and preparing financial reports (Financial Accounting Standards Board (FASB), 1973).

Prudence is generally a guiding principle setting out good accounting practices. Ultimately, the firm will use the best judgment in determining how and when to record an accounting transaction. Prudence concept is also referred to as the conservatism principle. Conservatism principle recognizes expenses and liabilities when there is uncertainty about the outcome but only recognizes revenues and assets when they are assured of being received.

Financial Accounting Standards Board founded in 1973, is a seven-member independent board of professional accountants that determines standards for financial accounting and reporting. It operates under the principle that organizations operate smoothly when credible, concise and clear financial information is available. It has published a variety of rules and clarifications on how accounting ought to be carried out.

The rules and clarifications published by FASB are meant to ensure that corporations fully account for different kinds of income, properly categorize and fully record income and expenditure in the year they occur. Financial prudence is a theme that is synonymous in all organizations; private or public. It involves ensuring that the finances at the disposal of the firm are employed in tandem with their intended use. Financial prudence encapsulates the sourcing of funds and how those funds are utilized. A study by Prabhakara and Begum (2013) tested the aspect of financial prudence. They noted that financial prudence is linked to financial portfolio.

Other scholars, Clark, Feiner, and Viehs (2004) further examined how sustainability can drive financial outperformance. The authors acknowledge that sustainability is one of the most significant trends in every organization over the years. It is further stated that, the content, focusing on financial sustainability is the same regardless of investor's desire for sustainable responsible investing (SRI). The top management of leading firms in different sectors view sustainability as an avenue of gaining competitive advantage relative to competitors (Ashbaugh-Skaife, Collins & LaFond 2006).

According to Prabhakara et al (2013), 90 per cent of the studies on the cost of capital indicate that prudent sustainability standards lower the cost of capital of firms. They note that incorporating sustainability considerations into the decision making processes of both investors and corporate managers is in their best interest. It is emphasized that there exists a relationship between longevity of firms and their performance. However, the relationship between sustainability and performance is debatable and is a subject of many empirical studies that seek to confirm the positivity of that link (Sahut, Boulerne, Mili, & Teulon 2012).

They are of the opinion that SRI could explain the link between sustainability and performance. In other words, sustainable development policies can create a strong wall that protects firms against crisis through its three crucial pillars namely environmental, social and economic. The scholars, Sahut, Boulerne, Mili, & Teulon (2012), note that environmental, social and economic pillars mitigate the firms from going bankrupt. Wallstedt, Gross and Almqvist (2014) observe that the solutions for financial sustainability are subject to the size and organizational structure of the organization. Management also plays a leading role in achieving financial sustainability.

1.1.1 Global Perspective of Sustainable Financial Prudence

It is asserted that attitude on spending and financial literacy plays a vital role in sustainability perspectives of finance and is a significant variable in financial prudence (Pillai, Carlo, & D'Souza 2010). According to Chen and Volpe (1998) in Shaari, Hasa, Mohamed and Sabri (2013) financial decisions are highly dependent on financial knowledge and financial literacy. Financial literacy is of fundamental essence in making prudent financial decisions (Mason & Wilson 2000) and prevents engagement in extensive borrowing (Shaari et al 2013).

Other scholars, Pillai et al (2010) observed that financial prudence could enlighten university students to avoid debt and wasteful spending which could consequently lead to financial soundness. They explain that financial prudence entails making well informed financial decisions and ensuring that the expenditure is within the budget allocated. Prudent financial management largely determines the performance of learning institutions. Competence in financial management enables competent preparation of books of accounts and financial statements as well as financial reporting and auditing.

A research done by New Zealand Council for Education in 1994 revealed that efficient financial management in American schools was a basis for encouraging accountability and proper school administration which consequently led to good school performance. A study by Chan (2003) emphasizes on the need for sound financial management in government units. This is in order to discharge the core duties of public accountability and safeguarding public treasury, preventing and detecting fraud and corruption. It is worth appreciating that today's multifaceted financial services industry presents consumers with a wide array of financial products that assist in planning for the future and making informed financial decisions.

The author highlights the importance of financial inclusion in encouraging financial prudence among financial institutions in India. The author maintained that customers and prospects could make sound financial decisions and choices through the sensitization and creating awareness on financial products and advisory services on money management by financial institutions. According to Hannig and Jansen (2010) financial education is an avenue into making prudent financial decisions which will not only enhance institutional development, alleviate poverty but also accelerate growth in an economy.

Another scholar, Allis (2004) argues that financial resource is regarded as one of the fundamental resources to many institutions. The author maintained that the financial resource needs to be effectively and efficiently managed to translate into the much needed sustainability in improvements of infrastructural and economic factors. It is however worth noting that the financial resource is mismanaged and channelled to unintended purposes by those charged with the noble duty of ensuring its prudent management (Rosen & Gayer2010).

The researcher, Prowle (2010) brings out distinctly the essence of prudent financial management in running the financial affairs of public sector organizations since they deal with huge chunks of public funds and mainly operate in a political environment. The author further asserts that there is dire need for a high degree of confidence in matters relating to financial decisions in such public sector organizations. Hayles (2005) also notes that to mitigate exposure to financial risks which is arguably a consequence of financial imprudence, financial controls and other internal controls must be instituted in organizations to ensure accountability and safeguarding of sensitive information.

1.1.2 Regional Perspective of Sustainable Financial Prudence

The sustained and inclusive growth is the fundamental goal of all national governments, countries, learning institutions and enterprises. Sustainability ensures continued growth while inclusive growth relates to growth in all the sectors of the economy. To achieve this key goal, the concerned entities must be internationally competitive in order to sustain the growth. Internationality ensures sustainability in the sense that nations experience economic upheavals and downturns at different times (Chiemeka & Nwagwu 2015).

The authors assert that public universities in Nigeria have been facing financial management challenges. Financial prudence in the Nigerian public university system has decayed in that the institutions can no longer meet the expected obligations nor discharge their duties (Akpanuko 2012). This is ascribed to the fact that the demand for public university education far outweighs the supply of funds from the government and therefore there is pressure for university management to be innovative or financially prudent.

The comprehensive report on Nigerian public universities (2012) advocated for better financial management in these institutions of higher learning which will unearth the decay and enforce revitalisation of the university system. The government funding to the public universities in Nigeria accounts for the highest annual public spending (Needs Assessment Report of Nigerian Public Universities (2012)). Other sources of funding include capital allocation, internally generated revenue, research grants and donations. Government funds are provided to the institutions in Nigeria using such methods as performance based funding, strategic funding, historical funding and formula funding.

The report notes that despite the provision of the funds, there has been mediocre financial management systems translated into channelling such funds to unimportant projects rather than equipping the institutions with the necessary infrastructure for enhanced performance. It continues to state that Nigeria's public university financial management system has been branded a mediocre due to the flawed policies in management of such public universities. Kpolovie and Obilo (2013) add that the flawed financial management policies has resulted to poor quality university education.

In light of the above, Chiemeka and Nwagwu (2015) emphasize the need for a fund allocation system that enhances innovation and financial prudence in the public universities in Nigeria. It is common in developing countries that public financial management professionals in the public sector aim to improve financial management and budgeting in order to address the changes in the financial reporting, strengthen institutions and at the same time improve management, governance and auditing. They also aim at improving methods for prevention, detection and careful handling and disposal of activities revolving around fraud and corruption.

As noted by Eli-Nafbi (2008), the deficiency in the financial control systems in Sudan and other developing countries has facilitated the improper use of public funds and fuelled financial corruption. The author continues to state that in Zambia, there have been no specific financial improvements in the public sector. An acute shortage of professionals with requisite skills and knowledge on financial management has been reported in Zimbabwe and Botswana. This illustrates that most developing countries in Africa lack an efficient and effective financial management system and this has facilitated malpractices in such countries.

As advised by Mestry (2004), the governing body in public learning institutions in South Africa should ensure that there are procedures and policies put in place for the effective management of the institutions' finances. The author adds that the university governing body should monitor and evaluate the implementation of such policies and procedures and report on the deviances. The same view is shared by Clarke (2008) who was of the opinion that financial policy is the most fundamental in running financial affairs of any learning institution. As such, the author argues, it is important for such institutions to put in place checks and balances to ensure that the learning institutions' finances are safeguarded and prudently managed.

1.1.3 Kenyan Perspective of Sustainable Financial Prudence

With the onset of devolved government, the environment for budget formulation and prudent financial management has been set following the passing of the requisite legislation and the Public Finance Management Act of 2016 (Institute of Economic Affairs (IEA) 2013). The acts will set the framework for financial management across all the sectors in Kenya thus facilitating sustainable financial prudence.

In Kenya, the passing of requisite legislations that encompassed amongst others, the Public Finance Management (PFM) Act, 2016 and the inception of the second strategy for PFM reforms in 2013 paved way for prudent financial management in both national and county government levels. The Public Finance Management Act of 2016 is an Act of Parliament established to provide for the effective management of public finances by the national and county governments; the oversight responsibility of parliament and county assemblies; the different responsibilities of government entities and other bodies; and for connected purposes.

According to IEA (2014) the national government has prioritized, over the past few years, an effective management of budget deficit and ensured that there is prudent borrowing in order to ensure debt sustainability. In their combined report, Mittulah and Nguri (2012) examined Intergovernmental Relations Act of 2012 and PFM Act of 2016. Intergovernmental Relations Act of 2012 is an Act of Parliament establishing a framework for consultation and cooperation between the national and the county governments and amongst county governments; to establish mechanisms for the resolution of intergovernmental disputes pursuant to Articles 6 and 189 of the Constitution of Kenya, (2010); and for connected purposes.

One of the key objectives of the report by Mittulah and Nguri, (2012) was to establish the ability of the PFM Act of 2016 to ensure prudent management of financial resources by both national and county governments for the best interest of Kenyan populace. This would then ensure sustainability of the government financial policy both at the national and county government level. The essence of the acts is to delineate the functions, and thereby establish responsibility, of the two levels of government.

The objects of the act are stated as, to ensure that public finances are managed both at the national and the county levels of government in accordance with the principles set out in the Constitution; and that the public officers who are given responsibility for managing the finances are accountable to the public for management of those finances through Parliament and County Assemblies. The principles of financial prudence in the public sector are enshrined under Chapter Twelve of the Constitution of Kenya (2010). They include the need to use public money in a prudent and responsible way. It also requires financial management to be responsible and fiscal reporting to be clear and revenue collected to be shared equitably among national government and county governments.

Further, the constitution explains that equitable sharing of the revenue collected will consider the national interest, provisions towards public debt, other national obligations and other financial needs of the national government. The theme of financial prudence is highlighted in the budgeting process. Mittulah and Nguri (2012) contend that it is prudent for the cabinet secretary in charge of the national treasury to manage the budgeting process of the national government and the county executive for finance to manage the budgeting process of the county. The Act emphasizes prudent debt management.

1.1.4 Public Universities in Kenya

The history of public universities in Kenya dates back to 1922. According to an article by Mwiria et al (2007) published in association with Partnership for Higher Education in Africa, Higher education in Kenya can be traced back to Makerere University in Uganda which was founded in 1922 during the British colonial rule. The researchers state that Makerere University was established as a technical college for African students from the then East African countries of Uganda, Kenya and Tanganyika (currently Tanzania).

Makerere University was given its legal status in 1949 which established it as the University of East Africa and it offered degrees of the University of London. The Royal Technical College of East Africa was later established in Nairobi in 1956. Royal Technical College of East Africa became the first Kenyan institution of higher education. The article continues to state that the Royal Technical College of East Africa was established to offer courses leading to higher national certificate offered in Britain and to prepare matriculated students through full-time study for university degrees in engineering and commercial courses not offered by Makerere (Mwiria et al 2007).

A report by Ngome (2003) as quoted by Mwiria et al (2007) states that the need for expert advice on the pattern of higher education in East Africa led to the transformation of the Royal Technical College into an international college in East Africa. In later developments in the education sector in the East African Region, the Royal Technical College was renamed Royal College of Nairobi in 1961 and turned into a university college offering Bachelor of Arts and Bachelor of Science degrees in engineering of the University of London.

When Kenya attained its independence in 1963, Royal College of Nairobi became the University College of Nairobi. University College of Nairobi then joined Makerere and Dar es Salaam Colleges to form the Federal University of East Africa. In the continuing reforms in the education sector and the political arena, this university was later dissolved in 1970 (Mwiria et al 2007). The dissolution of the Federal University of East Africa give way for establishment of national universities by each country (Kenya, Uganda, and Tanzania) under their respective Acts of Parliament.

It was then that the University College of Nairobi was renamed University of Nairobi. University education in Kenya is regulated by the Commission for University Education (CUE) which was established under the Universities Act, No. 42 of 2016 as the successor to the Commission for Higher Education (CHE). Among the functions of the commission are to promote the objectives of university education; to monitor and evaluate the state of university education system in relation to national development goals; to accredit universities in Kenya; to regulate university education in Kenya.

According to the Kenya Education Sector Report 2016-2019 MTEF, Budget Report, (2016), there are thirty-one chartered public universities in Kenya (Appendix III), six Public University Colleges, eighteen private chartered universities and fourteen universities operating with Letters of Interim Authority (LIA), five Private University Constituent Colleges. The universities operating with letters of interim authority from the commission receive guidance and direction to continue developing resources and facilities in preparation for full university accreditation.

Registered private universities are similar to those operating with letters of interim authority but came into existence before the establishment of the commission for university education. The universities have enrolled many students from certificate level, diploma, first degree, masters' degree, post-graduate degree up to the level of Doctor of Philosophy. The universities have employed staff on various categories ranging from support staff to professors. The many students pose a challenge to the universities in form of need for quality teaching and research, provision of adequate teaching materials and secure accommodation both within and from the community (Kiamba 2003).

On the other hand, employees working with the universities require supervision and sustenance of staff emoluments as well as supporting staff welfare activities. Further, these institutions manage vast amounts of money put into the institutions by interested stakeholders, among them the government which funds the bulk of the universities expenditures. Other stakeholders include the public and managers of income generation activities. As such, financial management concept is a central theme in these institutions. Individual universities acts include a section on financial provisions under Part IV (Universities Act, 2016).

The acts empower the councils to invest any of the funds of the universities in specified securities or place such money on deposit with banks and require the universities to prepare annual estimates of revenue and expenditure, for that year, before the beginning of the year. The estimates prepared should take into account every activity that should be carried out in every unit or department of the institution. It should incorporate inputs from the respective heads of the units that form the integral parts of the institutions.

The acts require individual unit's estimates to be consolidated into the institution's estimates. In consolidating the estimates, consideration should be given to the overall contribution of each unit in order to harmonize the allocation of resources to these units. The estimates provide for the payment of staff emoluments, maintenance, repair and replacement of buildings, grounds, equipment and other movable property of the university. They also provide for the funding of the cost of the teaching and research activities of and in the universities. The universities should create reserve funds to meet future or contingent liabilities in respect of retiring benefits, insurance or replacements.

Further, according to Part IV of the Universities Act, 2016, the annual estimates are required to be approved by the university council before the commencement of the financial year to which they relate and submitted to the Cabinet Secretary for approval. The councils are prohibited from altering the estimates without the approval of the cabinet secretary. All expenditures will be paid in accordance with the approved estimates. On accounts and audit, the acts require the universities to keep proper books and records of accounts of the income, expenditure and assets of the university.

Within a period of three months after the end of the financial year, the universities are required to prepare the accounts of the university, together with a statement of income and expenditure for the year and a statement of assets and liabilities of the university on the last day of the year. These reports are to be submitted to the Auditor-General (Corporations). The accounts can be submitted to an independent auditor appointed by the university council, with the approval of the Minister, in concurrence with the Auditor-General (Corporations).

The auditor then audits the accounts and reports on the audit of the accounts of the university to the council and the cabinet secretary within six months after the end of the financial year. The Auditor-General (Corporations) may transmit to the Minister a special report on any matters incidental to his powers under the universities acts and under the Exchequer and Audit Act (Cap. 412). The Minister will lay the auditor's report before the National Assembly as soon as practicable after the report has been submitted to him. Public universities are finding themselves having to admit more students, provide more programs, acquire new facilities, equipment and hire more staff.

This is so even as policies meant to improve access to higher education continue to take effect. Consequently, the universities have been empowered by the Universities Act 2016 which gives them more latitude in managing their own internal affairs. However, for the universities to thrive under these new developments, there is need for sustainable financial prudence. One of the key developments following the reforms in the Universities Act 2016 is granting universities to design, develop and operate entrepreneurial income generating units (IGUs) profitably.

Ideally, such units are meant to improve the revenue streams of the universities and enable them to have the much needed operating cash for running their programs which are currently experiencing funding shortfalls. According to Kiamba (2005) and the World Bank (2010), there been a successively declining state funding largely attributed to the expansion of higher education as a result of the growing demand for higher education coupled with the increasing needs of the economy driven by increased knowledge and the mounting costs of teaching and research activities. Further, universities are finding their traditional funding models unsustainable and are inclining towards IGUs.

Studies demonstrate a declining state funding through the National Treasury (Mbirithi, 2013). A comparison of state funding between 2014 and 2015 indicates that government funding declined by 6% where the higher education spending was adjusted downwards from US$ 627.2 million (Ksh. 54,930. 127 million), at the exchange rate of Ksh.87.58 to the US dollar on 30th June, 2014) in 2014 to US$ 588 million (Ksh. 58,241.4 million) at the exchange rate of Ksh.99.05 to the US dollar on 30th June, 2015) in 2015.

Ultimately, the country will suffer from inadequacy of educated and skilled manpower if this resource gap is not mitigated. However, as Kwiek (2015) argues, there should be a limitation to this in the public universities and cautions that the management should not proceed on its own in transforming universities to become more entrepreneurial. The entrepreneurial activities should be grounded on sustainable models with good returns on investment and universities should make prudent decisions when going into such ventures so as not to divert substantial university resources to non-yielding entrepreneurial projects, then control and rightly invest the revenues from the projects.

Evidently, cash flow within an organization and its enterprises need to be monitored and controlled for sustainability. A robust internal control system is, therefore, a necessity. The Institute of Chartered Accountants of England and Wales (ICAEW) (2000) defines internal control as the whole system of controls established by management in order to carry on the business of the organization in an orderly and efficient manner, ensure adherence to management policies, safeguarding of assets and secure, as far as possible, the completeness and accuracy of financial records.

From these it is evident that the internal control system is an important tool for policy implementation and one that can be leveraged on especially at this point in time when public universities are diversifying their income streams. A sound internal control system can greatly reduce the agency problem in organizations (Jensen & Meckling, 2001) especially when the organizations managers are tempted by the prospects of increasing revenue flows and profits from the organizations ventures. The internal control system is a sustainable prudential finance system. The effect of its applications in the current operating regime in public universities was yet to be fully documented empirically.

Sustainable financial prudence in an organization depends largely on the top management support, the key decision makers of the organization. The top management reserves the right to veto, rescind or approve any decision in the organization, touching on finances. Aagaard and Andersen (2014) noted management might reduce resources when it feels threatened and this can have adverse implications on existing or prospective programs. Management support might also be lacking if management fails to implement the recommendations such as those of the audit; such indifference could greatly reduce the sustainability of financial operations (Van Gansberghe, 2005).

Of interest to the present study, therefore, was the extent to which top management support influences sustainable financial prudence in public universities as this is one area that has not been determined in literature on sustainable financial prudence in universities. Like in the private sector, public sector needs to borrow from time to time to manage its operations (Sitorus, 2013). However, unlike the private sector, the borrowing models are significantly different in model and instrumentation. While the private sector usually develops borrowing instruments like bonds to finance its activities, the public sector borrowing options are limited to direct loans.

Further, in the private sector, borrowing reflects on the firm's capital structure and is sometimes a salutary requirement for its leveraging its financing model (Brav & Mathews, 2011). For the public sector organizations, debt is static and requires prudential debt management strategies for financial sustainability. Already the auditor general's office in Kenya is citing public universities for their debt and this is affecting their operations. However, the concept of external borrowing has not been well explored in relation to public university financing and its effects on sustainable financial prudence.

1.2 Statement of the Problem

University education is fundamental to the socio-economic development of any nation. As a result, the Kenyan Government highly regards university education and has committed considerable resources and a policy framework to ensure its citizens access university education locally. However, of late the demand for university education in the country has been soaring and mostly as a result of the high competition in the labour market and reforms in the higher education sector. Consequently, student enrolment in public universities in Kenya has risen from 17% (361,338) in 2013 to 421,152 in 2014 and by 12% to 470,152 in 2015 and to 769,550 in the 2015/2016 academic year (Kenya Education Sector Report, 2016). This has had serious implications on the financing and infrastructural demands of the universities which have to provide high quality education at the same time. Evidently, sustainable financial prudence is a necessity if the public universities have to absorb the growing number of students and provide high standards of training, research and development. Consequently, there has been a growing shift from the traditional funding model for public universities, which were mainly funded by the government through the national treasury and other donors, towards a funding system that uses an enterpreneurial model that raises revenue from income generating activities. This is consistent with the general theory of finance which advances blended-value investing, financial innovation for enhancing sustainability while minimizing systematic risk, and also building infrastructure for sustainable finance. Among these are the possibility of financial upheavals and large macroeconomic downturns. However, the theory overlooks the microeconomic risks which occur internally and are usually an agency problem. The Education Commission Report (Republic of Kenya 1988) and Koech (2000) report (Republic of Kenya, 1999) which was cited in Kalungu (2015) found a backlog in auditing coupled with mismanagement and misappropriation of funds in higher learning institutions as impediments to achieving adequate control. The auditor general's office in Kenya also indicted public universities for their growing debts and the impact of these debts in their operations (Office of the Auditor General, 2018). Yego (2016) also identified unclear university policy for privately sponsored student programmes (PSSP) administration, poor management shrouded by corruption and, inadequate and unqualified teaching staff among others as some of the challenges affecting public universities. Further, in some public universities, funds have been channeled to non-strategic projects rather than equipping the institutions with the necessary infrastructure for enhanced performance. Clearly, there is need for prudential measures in the public universities to mitigate both the macroeconomic challenges and the internal agency problem such as those stipulated by the financial management model that emphasizes stewardship, control, meeting regulatory requirements and accountability. However, the concept of sustainable financial prudence which brings together all these theoretical approaches to financial management of an institution has not been investigated for effect in the management of public universities in Kenya. Both local and international studies among them Prowle (2010), Chiemeka and Nwagwu (2015) and Mittulah and Nguri (2012), have attempted to examine the financial prudence problem in public universities in various contexts. However, the studies failed to effectively address the subject of sustainability in financial prudence which brings a new enterprise management dimension in the context of public universities. It is against this backdrop that the present study was conducted with the aim of assessing the determinants of sustainable financial prudence in public universities in Kenya.

1.3 Objectives of the Study

The study was guided by the general objective and a set of five specific objectives.

1.3.1 General Objective

To evaluate the factors that determine sustainable financial prudence in public universities in Kenya.

1.3.2 Specific Objectives

The study was guided by the following specific objectives.

i. To assess the contribution of income generating activities towards sustainable financial prudence in public universities in Kenya

ii. To examine how the internal control system influences sustainable financial prudence in public universities in Kenya

iii. To analyze the influence of management support on sustainable financial prudence in public universities in Kenya

iv. To assess the effect of credit controls on sustainable financial prudence in public universities in Kenya

v. To assess the effect of external borrowings on sustainable financial prudence in public universities in Kenya

1.4 Research Hypotheses

H_{01}: Income generating activities have no significant contribution towards sustainable financial prudence in public universities in Kenya.

H_{02}: Internal control system has no significant influence on sustainable financial prudence in public universities in Kenya.

H_{03}: Management support has no significant influence on sustainable financial prudence in public universities in Kenya.

H_{04}: Credit controls have no significant effect on sustainable financial prudence in public universities in Kenya.

H_{05}: External borrowing has no significant effect on sustainable financial prudence in public universities in Kenya.

1.5 Significance of the Study

The study is anticipated to be of importance to different stakeholders in both education and financial sectors in Kenya. These stakeholders include policy makers, managers, and scholars. Policy makers in the education sector will likely find the findings of this study essential when formulating strategies of arresting wayward financial management. The study will suggest recommendations which, if and when embraced and implemented, will enable public universities and other institutions of higher education to have prudent management of their finances.

On the other hand, managers in the field of finance, procurement, human resource information communication technology, among others, will find the findings of the study crucial in ensuring that financial prudence is upheld in their respective organizations. The study will further be an important source of reference materials for scholars, researchers, authors and academicians in the field of finance.

1.6 Scope of the Study

The study was conducted in 31 public universities in Kenya (Appendix IV). A census of all public universities was undertaken (Kothari, 2012). From these universities, certain persons occupying the offices of accounts, finance, and management staff of the institutions and who could authoritatively give the views on the status of the variables of interest to the study on behalf of their universities were randomly selected. In general, the study sought to evaluate the factors that determine sustainable financial prudence in public universities in Kenya. The study was guided by a set of two variables: independent and dependent variables. The independent variables constituted income generating activities, internal control system, management support, credit controls, and external borrowing. On the other hand, the dependent variable was sustainable financial prudence in public universities in Kenya. The study was conducted over a period of about twelve (12) months with a budget of approximately KShs. 200,000.

1.7 Limitations of the Study

Although this research was carefully prepared, the researcher was aware of its limitations and shortcomings. First of all, the research was conducted among public universities at their main campuses and their satellite campuses. Some of the IGUs of the universities were not included in the study. So this study may have overlooked another crucial population of the study. However, consideration here was that the satellite campuses largely operate under the auspices of the public universities main campuses and do not make fully autonomous decisions on financial matters. Also, that the study focused on public universities may mean that the results are not necessarily generalizable to private universities of the country or other higher education institutions in the country or beyond.

Second, the population of the survey group was small, and did not include the IGU managers, and such, the findings can be interpreted only from the perspective of the universities administration. Third, since the questionnaire was self-designed to measure the universities' actors' points of view and was structured, the accuracy of the findings may not be very high like in the case where standard instruments are used. In addition, there is always an inherent degree of subjectivity when using questionnaires and respondents at times fail to be congruent in their answers especially when carrying out surveys.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers the various concepts, theories, and empirical studies relative to determinants of sustainable financial prudence particularly in public universities. The chapter also outlines how the study variables are perceived to relate to each other as illustrated in a conceptual framework. A summary of the conceptual review is then outlined. This is followed by a presentation of identified research gaps.

2.2 Theoretical Review

The study reviews theories that touch on sustainable financial prudence. These include general theory of finance, agency cost theory, pecking-order theory, financial management model, resource dependency theory and the African Political Economy (APE) model.

2.2.1 General Theory of Finance

The general theory of finance is an advanced version of the traditional theory of finance (Scott, 2015). The traditional theory of finance is driven by a set of values which are rather narrow in focus, that is, it concentrates only on financial risk and financial return. This focus is highly skewed given the argument that investments, such as enterprises, produce a much broader set of outcomes beyond financial risk and financial return. The general theory of finance, however, advocates for sustainable finance. It is largely practitioner-driven and expounds on financial sustainability factors.

The theory pinpoints four vital trends that contribute to the growth of sustainable finance in business enterprises. These include blended-value investing, financial innovation that enhances sustainability, recognition that sustainability factors can be linked to systematic risk, and also building infrastructure for sustainable finance. The general theory of finance explains that sustainable finance, unlike in the case of traditional theory, considers a wider range of potential values such as financial return, financial risk aversion, altruism for current and future generations, and concern for ecological resilience. It also factors in a larger set of returns or losses which may be either financial or non-financial.

This theory further acknowledges the possibility of financial upheavals and large macroeconomic downturns which reinforces its importance in the current dynamisms such as the 2007-2008 global economic and financial crunch (Yunus 2008). The general theory of finance can be employed in public universities to address the issue of financial prudence. For instance, the theory emphasizes financial sustainability amongst practitioners, a step that public universities ought to take. In addition, in tandem with the general theory of finance, public universities are supposed to embark on those projects that have positive financial returns having put into consideration all risk factors.

2.2.2 Agency Cost Theory

The proponents of agency cost theory were Jensen and Meckling (1796). The theory examines the conflict between shareholders and managers. Shareholders are owners of the enterprise. Managers are composed of agents or stewards appointed by the shareholders.

Conflict between the shareholders and managers is said to stem from the fact that shareholders are entitled to payouts for their investments thus minimizing the internal resources under the control of managers. On the other hand, managers are incentivized to manipulate information. Managers are also motivated to favour projects with poor net present value (NPV) if they provide immediate profits due to the reasoning that they are compensated on the premise of accounting profits (Jensen 1986; Dogan & Smyth 2002). In the event that managers insubordinate the firm's interest while prioritizing their personal interests, the firm they work for is likely to lose its value.

The theory further indicates that the managers' strong desire for high rewards encourages them to manipulate, overestimate or underestimate indicators in order to make them appear more achievable to the detriment of the firms (Jensen & Meckling 1796). To this effect, the authors advised that the agency costs of separating ownership from control should not be excessive as long as factors such as competition and incentive plans are designed to reduce the self-interest of managers. However, conflict may arise when either of the parties feels the other is not doing what is required.

The authors opine that managers may feel that their compensation is not commensurate to their efforts. On the other hand, the stakeholders may feel that the managers are not prioritizing the institution's interests. The foregoing disharmony is a recipe for conflict. In the context of public universities in Kenya, the owners, made up of the government and other stakeholders of these institutions, mandate the managers (University Council, Senate and other management staff) they have recruited to ensure that universities realize maximum output in terms of both quality and quantity of students graduating each year.

On the other hand, the management team expects the university and other stakeholders to compensate them for their efforts. The theory is therefore relevant in the current study to the extent that there exists an owner-steward relationship whereby the university council, through the university administration, is entrusted with the running of the public universities in Kenya.

2.2.3 Pecking-Order Theory

The pecking-order theory was proposed by Myers and Mailuf (1984). The theory is founded on the proposition that financing follows a hierarchy and also that firms opt for internal rather than external financing and debt over equity. It is further asserted that the bottom line relative to this theory is information asymmetry. In other words, the more the information asymmetry, the higher the costs of the sources of finance (Brounen, De Jong & Koedijk 2004). The theory is employed to determine the sources of capital for various firms. According to them, financial flexibility was the underlying factor in determination of capital structure.

The authors identify two major typical issues that are factored in the application of the pecking-order theory. The issues are in form of questions. First, is debt encouraged when a firm experiences inadequate capital? Second, is debt encouraged when equity is undervalued? Affirmative responses to the foregoing questions justify the application of the theory (Myers & Mailuf 1984). Brounen et al (2004) disputed this hypothesis. In the context of the determinants of sustainable financial prudence, the pecking-order theory could be applied to determine the rationale in the choice of external borrowing and the implication of the same in the sustainable financial prudence in public universities.

The pecking order theory can be employed to determine how and the extent to which public universities should borrow from external sources. The more the external borrowings, the higher the leverage rate but the more indebted these institutions are bound to be. It is crucial, relative to the pecking order theory, for public universities to first examine their internal resources before embarking on any external borrowings.

2.2.4 Financial Management Model (CIPFA Model)

The financial management model was developed by the Chartered Institute of Public Finance and Accountancy (CIPFA 2004). Since its development, the model has been tailored for the challenging financial climate in which public organizations must operate. Finance has been dubbed as the lifeblood of any public institution and how it is used and managed has to be a fundamental concern of management and concerned leaders. Finance managers and professionals need to be financially literate in order to provide the much needed support. The CIPFA model of financial management revolves around stewardship, supporting performance and enabling transformation.

The model is also useful in securing stewardship, laying emphasizes on control, meeting regulatory requirements and accountability. Supporting performance encompasses being responsive to customers in an efficient and effective manner with the aim of improving performance (CIPFA 2010). The model is designed for application by the organization leaders, finance staff and service managers as an improvement tool for bodies to measure themselves against an external framework of good practice and for aligning financial management with the organizations own development path and priorities.

The model is based on statements of best practice and standards ranging from self-assessment to testing known problems in a given organization (CIPFA 2012). In other words, the self- assessment of the organization aids such an organization to profile the strengths and weaknesses of financial management, the financial management style used in the organization and the extent to which it is aligned with the goals and objectives of the organization. The model further helps an organization to examine the aspects of financial management such as financial planning, capacity to drive down costs and accountability for spending, build a team-based approach to improvement in financial management.

It also helps organizations to compare where financial management is currently and where it ought to be for maximization of organizational effectiveness and identify strengths and areas for improvements (CIPFA 2010). The model can be applied in public universities to develop a robust financial management fit for their business goals. The model provides for profiling strengths and weaknesses for efficient financial management. With the help of the model public universities can capitalize on their strengths and improve on weaknesses.

Such uses include professionalized procurement, risk controls, planning or even governance. The model could be employed to explain the aspect of sustainable financial prudence in public universities. The model holds that finance is the lifeblood of public institutions, and these include public universities. As such, these institutions are supposed to always have sufficient financial resources to run their programmes and projects. As the theory argues, public universities should have effective financial planning, capacity to drive down costs and accountability for spending.

In addition, the model argues that universities should build a team-based approach to improvement in financial management, compare where financial management is currently and where it ought to be for maximization of universities' effectiveness. The relevance of this model to this study emanates from the responsibility vested on public universities in Kenya to display good stewardship in financial management.

2.2.5 Resource Dependence Theory

The resource dependency theory (RDT) was developed by the American business theorist Jeffrey Pfeffer and the American organizational theorist Gerald R. Salancik in 1978 at the Stanford University. They established the theory in their work which aimed at presenting a guide on how to design and manage organizations that are externally constrained. Other scholars have since developed dependence theories on respective areas of operation, for instance, Delke (2015) did a research linking the RDT to supply management practices. The theory was applied by Lay (2007) in an analysis of Sources of Funding in Taiwan's National Higher Education Institutions.

The author drew out resource dependency when he noted that Taiwan public higher education is facing a financial revolution in form of reorganizing academic and administrative units, increasing fund-generating activities and collaborating with business and industry. Onuoha (2013) quotes Pfeffer & Salancik (2003) who stated that the RDT postulates that for organizations to survive, managers have a role to allocate resources to innovative activities that are required of the firm by external customers and investors. He explains that the way managers compete and win external resources and how they deploy the resources to productive undertakings have great consequences on the sustainability of the funding sources and the cooperation of the benefactors of the organization.

As indicated by Odundo and Rambo (2013), Resource Dependency Theory (RDT) in Kenya is applied to describe the behavior of education institutions to engage in entrepreneurship to ensure their survival. The characteristics of the RDT are that organizations depend on the external sources of resources to obtain financial, physical or information resources from the environment. This has sustainable financial prudence indications in as much as the universities have to deviate from their traditional financial model of strict adherence to budgetary allocations of government funding to a more flexible system that gives them a leeway to work out an optimal allocation of the income from the income generating activities (IGAs) to innovative activities that are required of them by external customers and investors.

2.2.6 The African Political Economy Model

The African Political Economy (APE) Model partly explains the behavior of universities in times financial needs (Wangenge-Ouma & Cloete, 2008). The key assumptions of the model revolve around the governments' reaction to declining economic conditions and how such reactions affect the government's allocation to education. It focuses on the effect of political and economic forces on the environments within which universities carry out their core functions of teaching and research within the context of inadequate funding by the major economic financiers.

The scholars allude that the model helps to highlight the particular political, economic and social environments the country faces which include the debt burden, political instability, inadequate infrastructure. These factors lead to consistent reduction in government funding with the education sector being the worst hit by such reductions.

The model explains the specific political, economic and social state in Kenya in which economic decline, political turbulences and reduction in government spending affect the university system. Universities are then forced to embrace sustainable prudence in financial management in order to ensure their survival.

2.3 Empirical Review

This section reviews empirical studies that have hitherto been carried out globally, regionally and locally particularly in respect of determinants of sustainable financial prudence.

2.3.1 Income Generating Activities and Sustainable Financial Prudence

Income Generating Activities (IGAs) are those activities organizations engage in as a means of increasing their income. Such activities are aimed at supplementing the funds availed by government and other stakeholders towards teaching and research in public institutions, in this context, public universities. Public universities have engaged in various income generating activities to top up the dwindling government financial funding to the public universities (Kiamba, 2005). The report by World Bank (2010) echoes the statement by Kiamba (2005) that there been a successively declining state funding. The decline in state funding is attributed to the expansion of higher education as a result of the growing demand for higher education coupled with the increasing needs of the economy driven by increased knowledge and the mounting costs of teaching and research activities. This declining in state funding has given rise to a change in the traditional university model of state funding.

The report by Kenya Education Sector Support Programme (KESSP) 2005-2010 concurs that the rapid increase in universities has exerted a strain on the existing facilities and adversely affected the quality of teaching and learning, the morale of staff, research productivity and the intellectual climate of public universities as a whole. This has introduced entrepreneurship in the universities in their effort to source funds from other activities. The newly adopted entrepreneurial university has brought in different financial management practices.

In the analysis on Entrepreneurial Universities in Europe, Kwiek (2015) points out that there is a shift in financing of European universities towards more self-reliance and its secure and sustainable development in competitive environments. The study concluded that academic entrepreneurialism rarely occurs where funding is provided at adequate levels. The research identified two parallel factors that are conducive to academic entrepreneurialism, namely, financial shortfalls and financial opportunities that institutions and individuals can benefit from on a competitive basis; and slight underfunding of universities but not large underfunding from basic public sources.

The scholar cited Clark (2004) who concluded that the Entrepreneurial Universities showed five elements which make them different from others. These elements are a strengthened steering core, an expanded developmental periphery, a diversified funding base, the stimulated academic heartland and an integrated entrepreneurial culture. While quoting Shattock (2009), Kwiek (2015) states that changes in funding of higher education in British institutions dates back to 1994 when the universities operated in a marketized system generating substantial non-core income.

Citing an example of Nottingham University's management structure, the author states that the changes in funding and governance and management flow together. Nottingham's management structure is comprised of a strong management board accompanied by strategic committees (Kwiek, 2015). The committees deal with specific issues while day to day management operations are done by the management board. In this setup of Nottingham University, the university council operates through consultations with committees.

Arising from the findings, the author advises that management should not proceed on its own in transforming universities to become more entrepreneurial. Instead, management should give consideration to the pace with which individual departments embrace the change. It is expected that some departments will move faster than others to understand the benefits and embrace entrepreneurial actions. It is argued that generally, science and technology departments adopt the entrepreneurial change fast. This is because sources of support are directly available to them in addition to their experience in administering costly projects, laboratories and equipment (Kwiek, 2015).

According to the author, most social science and humanities departments will be less enthusiastic in adopting the income generation activities. They will criticize entrepreneurialism on grounds of the running costs. This change in the traditional model of funding, in which the universities were mainly funded by the state, brings in additional requirements relating to accounting for other income generated from income generation activities. The methods adopted in accounting for other sources bring in the content of sustainable financial prudence in the need to adopt commercial reporting at the income generating units without deviating from the government financial regulations.

A study was carried out by Siswanto, Djumahir, Sonhadji and Idrus (2013) to obtain management opinions of the three universities under the Public Service Board (PSB) in Indonesia dealing with good university income generating governance. The study concluded that a good income generating governance of the university is that which meets the principles of legal compliance, is academic-oriented, transparent, independent and professional.

The authors explain that income generating that is law-abiding means that the formation of the business unit, sources of income and the process of sourcing the income are in accordance with the respective laws. Academic orientation relates to generating income through provision of education and teaching services. Accountability in income generating relates to emphasis on the role and function of universities in improving the quality of human resource element. Transparency requires reporting of all forms of income relating to the government. University autonomy enables individual universities to manage the funds, using professionals, to optimize cooperation and develop business units to reduce dependence on fees income. This, in effect requires sustainable financial prudence.

Another research by Ogbogu (2011) examined the modes of funding Nigerian universities with the view to assess their adequacy and effectiveness. The study used the African Political Economy Model to explain the financial state of Nigerian Universities. The theory of human capital was used to support the argument in favour of multiple forms of cost-sharing. The study concluded that the diminishing funding in Nigerian universities can be solved through development of proactive mechanisms that facilitate the identification of multiple sources of funding and the optimal utilization of finances.

According to the author, the modes of funding of Nigerian universities include Government Subvention/Allocation which accounts for 90 percent of total income disbursed through the Nigerian Universities Commission; Education Trust Fund (ETF), composed of a 2 percent education tax on the assessable profit of all registered companies in Nigeria (Ogbogu, 2011), Internally Generated Revenue (IGR) which include student fees/levies, grants, private sector contributions like endowments, gifts, donations, commercial activities/ consultancy and other initiatives; Student fees/levies made up of fees for services such as accommodation in the halls of residence, sports, medical registration, departmental registration, library, examination, non-refundable admission deposits.

The author gives other forms of IGR as Foreign Grants to support post-graduate study programs and staff development and development of information communication technology (ICT) infrastructure; Private Sector contributions mainly limited to the endowments of prizes, gifts and voluntary donations and Commercial ventures in form of consultancies, petrol stations, bookshops, publishing houses, schools, hotels, distant learning programs etc. The study recommended the adoption of The Resource-Based Model for sustaining financing of universities.

An empirical study by Bamiro and Adedeji (2010), concurred that teaching and research in Nigerian universities has deteriorated as a result of lack of adequate teaching and research materials and the overcrowded and unconducive learning environment. The scholars argue that underfunding of research has implications on Nigeria’s economic development.

At the same time, physical facilities are in disrepair, several projects have stalled, laboratories and libraries are ill-equipped, manpower development has declined, and there is a reduction in the carrying capacity of the universities among others. Another study by Tsuma and Mugambi (2014) sought to establish factors that influence performance in income generating activities in public universities in Kenya. The study analyzed responses from 48 respondents on the influences of economic factors; budget fund; fund allocation; internal control; management capacity; manager and decision making; and culture on performance of income generating activities.

The study concluded that public universities face the crisis of resource allocation whereby the limited funds are not necessarily ploughed back into the income generating activities. The authors identified accountability by employees as one factor that determines performance of the units and that internal controls ensure reliability of financial reporting. The study recommended that income generating activities should put in place proper human resource placements; carry out continuous human capital training and development; use modern ICT; as well adopt a participative approach to leadership; carry out performance evaluation; and embrace a cost-benefit approach in determining the viability of the ventures and apply budgetary controls in their financial transactions.

These strategies will ensure sustainable financial prudence in income generating activities. A study by Rodrigues Wainaina and Mwangi (2005) on Income Generation at Public Universities, specifically the University of Nairobi (UON) concurred that the university was put under the strain of outstanding debts amidst increased competition from other public and private universities and diminishing capitation from the treasury.

The continue to state that financial strain led the UON to innovate in order to remain afloat which resulted in setting up the University of Nairobi Enterprises Services Ltd (UNES), a wholly owned limited company. As stated by Kiamba (2003), the UON was slowly able to revive its financial position towards partial solvency through UNES Ltd. The study concludes that it is through diversification of income generating activities and embracing other good customer service relationships and financial controls that the universities and the income generating activities will achieve sustainable development.

Another analysis was carried out by Murage & Onyuma (2015) on financial performance of income generating activities in public higher learning institutions with a specific reference to Egerton University. The scholars pointed out that the financial statements did not incorporate emoluments for staff working in the income generating activities and as such may lead to wrong decision making. Therefore, to achieve sustainable financial prudence, the financial statements ought to reflect an accurate financial performance through observing the principles of revenue recognition.

The Universities Act No. 42 of 2016 includes a section on financial provisions under Part IV which require the universities to create reserve funds to meet future or contingent liabilities in respect of retiring benefits, insurance or replacement of buildings or equipment or other matters as appropriate. A reserve fund is a saving of income that is not spent or, put in other words, saving is deferred consumption. In addition individual universities acts empower the councils to invest any of the funds of the universities in specified securities or place such money on deposit with banks. Investment is the practice of allocating money, or any other resource like time, for a purpose or in expectation to reap some benefit in the future.

In summary, there is abundant literature on income generating activities to supplement government financial funding; identification of factors conducive to academic entrepreneurialism; discussion on good governance of income generating; suggestion of ways of solving the diminishing funding; ways of achieving accountability by employees and accurate financial reporting. Though the studies contain some financial elements, these studies have not delved into contribution of income generating activities towards sustainability of financial prudence in public universities in Kenya.

2.3.2 Internal Control System and Sustainable Financial Prudence

The Institute of Chartered Accountants of England and Wales (ICAEW) (2000) defines internal control as the whole system of controls established by management in order to carry on the business of the organization in an orderly and efficient manner, ensure adherence to management policies, safeguarding of assets and secure, as far as possible, the completeness and accuracy of financial records. According to the Committee of Sponsoring Organizations (COSO) (1992), an efficient internal control system aims at achieving three objectives namely, effectiveness and efficiency of operations, reliability of financial reporting, and compliance with applicable laws and regulations.

In 1986, prompted by growing concerns on fraudulent financial reporting, the National Commission on Fraudulent Financial Reporting (the Treadway Commission) commissioned an extensive study and evaluation of the system of financial reporting. Arising from the study, in 1992 COSO published the Internal Control–Integrated Framework which established 17 principles of an effective internal control system which was revised in 2003 to explicitly explain the 17 principles of an effective internal control.

The Auditing Standards Board (ASB) tailored the resulting Internal Control-Integrated framework to practitioners. This led to the adoption of Statement on Auditing Standards No. 78 (SAS No. 78) issued by the American Institute of Certified Public Accountants (AICPA) in 1995. The framework links the internal control objectives to five interrelated components considered necessary for achievement of internal control objectives. The components are the control environment, risk assessment, control activities, information and communication and monitoring.

As contained in SAS No. 78, the control environment includes seven related internal control factors, namely, integrity and ethical values, commitment to competence, board of directors/audit committees participation, management philosophy and operating style, organizational structure, assignment of authority and responsibility, and human resource policies and practice. Thus, the control environment sets the tone of the organization by influencing the control consciousness of the entity's employees and establishing the foundation for the remaining components. Beinish, Billings and Hodder (2008) concur that the control environment is basically the tone at the top of an organization which exerts influence on the control consciousness of employees.

The second component of internal control under SAS No. 78, risk assessment, involves the identification, analysis and management of risks inherent in the reporting process. The International Organization of Supreme Audit Institutions (INTOSAI) issued guidelines in 2004 for internal control for the public sector in Austria. The guidelines define risk assessment as the process of identifying and analyzing relevant risks to the achievement of the entity's objectives and determining the appropriate response.

The Committee of Sponsoring Organizations requires risk assessment to be an ongoing process to match the constantly changing governmental, economic, industry, regulatory and operating conditions. Messier, (2003) adds by describing risk assessment as the process of setting up procedures to identify, analyse and manage risks that pose a threat to achievement of organizational objectives. The third component of internal control as per SAS 78 is the control activities. They include policies and procedures designed to ensure that management directives are effectively implemented.

The policies and procedures are basically those related to performance reviews of actual and budgeted financial information; general application controls incorporated in both manual and/or automated information processing systems, physical controls over safeguarding of assets, and segregation of duties across critical functions. The Sarbanes Oxley Act of 2002 (SOX) describes control activities as policies and procedures that aid in ensuring that management directives are successfully implemented.

The Sarbanes Oxley Act of 2002 is an act passed by the US Congress to protect investors and the general public from the possibility of accounting errors and fraudulent accounting activities by corporation. It was enacted in response to the accounting scandals in the early 2000's which shook investor confidence in financial statements. One of the scandals involved ENRON Company in 2001 in which the executives embezzled the funds and reported fraudulent earnings while keeping huge debts off balance sheet. The fraud was unearthed through a whistle-blower, Sherron Watkins. The auditors, Arthur Anderson, were found guilty of misreporting the financial statements of ENRON Company.

Another fraud in 2002 involved Tyco Company in which the chief executive officer and the chief finance officer embezzled money and overstated company income. A regulatory review by the Securities Exchange Commission flushed out irregular financial transactions and huge loans to the chief executive officer and questionable stock sales. Money was paid out of the company in form of executive bonuses or benefits. Another fraud, the Worldcom Scandal of 2002 involved MCI Incorporated. The fraud, which was discovered by internal audit, was committed by capitalizing expenses which resulted in inflating the value of assets.

The information and communication, the fourth component of SAS 78, has two separate yet integrated factors. The entity's accounting system which consists of the methods and records established to properly account for the organization's transactions and to maintain accountability for assets and liabilities. Communication should provide clear guidance of the roles and responsibilities of the organization's personnel. Lastly, according to SAS 78, monitoring is concerned with management oversight of the organization's systems of internal control.

Information systems guide operation processes and are used to produce reports on operations, compliance and related information used to run and control an organization. The guidelines issued by the International Organization of Supreme Audit Institutions (INTOSAI) (2001) advocate for an ongoing monitoring of internal control systems to assess the quality of the system's performance over time. It includes regular management supervisory and other staff activities on each of the internal control components and requires corrective action on audit findings on any noted internal control systems weaknesses.

Scholars Boyle, Cooper and Geiger (2004) carried out a study on internal control reports of 32 Rhodes Islands State agencies seeking to provide feedback on the practical application of internal control currently adopted by the accounting profession. The study concluded that the integrated internal control framework was able to effectively classify the 213 reported control weaknesses. The classification showed that control activities had the highest proportion of identified weaknesses and monitoring had the lowest proportion of weaknesses.

Another study by Lemi (2015) on Ethiopian universities sought to inform management of universities how a strong internal control can be used to detect and at least minimize the misuse, theft of resources and in attaining institutional objectives. Knowing the areas of deficiencies enables the universities to design strategies to seal the loopholes. Thus, strong internal controls safeguard an organization's resources enabling it to achieve its objectives. This is a recipe for sustainable financial prudence.

There are various types of control systems as evidenced in different studies which revolve around similar objectives. An empirical study was carried out by Dumitru, Dumitrana Jinga and Radu (2010) on the need to implement the human resources (HR) management control system amongst Romanian entities. The scholars observed that a feasible HR control system ought to have one key attribute, namely, flexibility to the current HR needs. The authors observe that there are many multinational firms that have experimented on a number of accountability systems while considering sustainable development.

The authors indicated that a control system strives to ensure that the organization is run smoothly, for instance, by ensuring that employees are placed on the suitable positions in tandem with their skills and competences. Davila, Foster and Li (2005) opine that there are different ways of designing management control systems. The authors used two sequential empirical studies. The first examined the adoption of management control systems while the second aimed to generalize the findings in regard to the influence of external parties on the adoption of the management control system.

They acknowledged that even though management control systems could limit innovation, they could also enhance the same in an organization. It was also indicated that managers adopt the management control systems in order to address specific needs they face. The needs include external contracting, legitimizing the process with external parties, internal drivers like managers' background, need to focus on how managers react to problems. The analysis by Lovstal (2008) on management control systems in entrepreneurial organizations as a balancing challenge focused on medium-sized firms which, he argued, were an interesting situation of overall tensional requirements.

The scholar suggested that due to the persistent use of formal management control systems which include budgeting and reporting systems, performance measurement systems, and project costing systems, the firms face a challenging task of handling the delicate issue for medium-sized enterprises and their managers. The study involved two firms namely Soft Tel and Family Tech which were both medium-sized and growing. The scholar interviewed the managers of these companies on their use of management control systems and what drives them to adopt or fail to adopt the systems.

The study findings revealed that, an effective management control system ought to balance between opposing elements, for instance, between formality and informality. The study further established that different managers differed in how they employed the management control system and reasoned relative to the said system. Managers therefore need to focus on striking a balance between opposing forces in order to reap the benefits of the management controls systems.

Another study by Fosu, Krah and Obeng (2013) underlines the importance of financial controls in ensuring that the metropolitan, municipal and district assemblies in Ghana are always solvent and able to provide the necessary services to the local population. The authors maintain that the financial controls ensure that the spending officers in these assemblies authorize the commitment of funds within the limits of the authorized budget and in line with the rules and procedures. The authors further maintained that, as a control measure, the expenditure must be authorized. They found that control of the expenditure is exercised by the district chief executives, finance officers and the internal auditor.

Notably, other control measures include, banking collected revenue within 48 hours, use of appropriate books of accounts for proper recording of the transactions and, preparation and analysis of financial statements to account for public financial resources. Essentially, this responsibility is the basic purpose of establishing accounting units in the universities and the assurance units like internal audit. The Education Commission Report (Republic of Kenya 1988) and Koech (2000) report (Republic of Kenya, 1999) cited in Kalungu (2015) found a backlog in auditing coupled with mismanagement and misappropriation of funds in learning institutions as impediments to achieving adequate control.

In another study, Mestry (2004) in Kalungu (2015) observed that the schools have a finance policy to be used as a control measure. They opine that the finance policy should include cash management which entails proper accounting records, financial transactions supported by source documents, reconciliation statements and banking transactions. Importantly, the internal controls include internal checks, segregation of duties, internal audits, establishing audit committees and audit trails that cross check every transaction.

According to Simiyu (2011), technical training institutions face a number of challenges relating to the impact of internal controls on the institution's performance. Such challenges in internal controls arise as a result of liquidity problems, financial reports that are not prepared on time, problems in the accountability of financial resources and misappropriation of institution resources. In yet another study on the effects of internal controls on financial performance of technical training institutions in Kenya, Munene (2013) observed that indeed the technical institutions were committed to the control systems and actively participated in the monitoring and supervision of the activities of the institutions.

Notably, the authors found inefficiency in the internal audit department in the duties of conducting regular audits and reporting on the same. The study recommended competence profiling of the staff in the internal audit department. This is in context that character plays an important role in shaping the quality of output from an internal audit department owing to its reporting relationship. Thus, an efficient and effective internal control system that has an empowered internal audit serves as the foundation of sustainable financial prudence.

In summary, the scholars on internal control system sought to provide feedback on the practical application of internal control; how a strong internal control can be used effectively and efficiently; the need to implement the human resources (HR) management control system; the effect of management control systems on innovation, and on the need to strike a balance between opposing forces. These analysts have tackled a large number of factors relating to control of finances, however, they have not linked their studies to the role played by the internal control system towards sustainable financial prudence in public universities in Kenya.

2.3.3 Management Support and Sustainable Financial Prudence

Management support encompasses management efforts to establish structures that facilitate achievement of the institution's objectives through provision of adequate infrastructure and effective managerial direction and support. This is mainly seen in the light of investment in information and communication technology (ICT) infrastructure and ensuring success in their operation (Wanyembi 2002).

Management support is further experienced especially in provision of technical training and application of ICT in its management information systems. As postulated by the author, there has been a rapid infusion and diffusion of ICT into public universities in Kenya (Wanyembi 2002). This has raised crucial management issues for top management and the technical staff partly due to the establishment of many computer centres without clear aims, objectives and control. Lack of clear strategies on the operations of computer centres has led to an alienation of these units from their organizations causing them to operate independently of the organizations they are supposed to serve.

According to the author, by the year 2000, each public university had over 1000 PCs of various makes, types and capacities spread over several campuses, and various locations within the universities. Most of the computers were in disrepair for lack of management, control and maintenance and vital replacement parts. Problems relating to ICT were compounded by limited knowledge found at the level of top management especially relating to technical issues and investments in ICT making them ill equipped to provide adequate and effective managerial direction and support.

In addition, there is lack of trained and experienced technical personnel to manage, control and maintain the increasingly large numbers of these resources. While quoting Looijen (1998), Wanyembi (2002) suggests that top management officials had little control over acquisitions of ICT as agreements were made bilaterally between external donors and the respective faculties. He adds that there is lack of recognition by the university management of the importance of ICT in their organizations and there exist few budgets for the development and management of ICT in faculties, often there are no policy frameworks to guide the adoption of ICT.

This uncoordinated use of ICT has implications on generation of reports from the information management systems which, in the long run, undermine achievement of sustainable financial prudence. Various studies emphasize the importance of management decision support systems (De Souza & Redmiles 2008; Ozlen, Handzic, & Durmic 2014). An empirical study by Ozlen et al 2014 on knowledge management system (KMS) investigated how ICT-based KMS of varying sophistication impacted on decision support in different decision contexts. The study revealed that KMS sophistication impacted positively only on simple decision contexts.

In this context, it was observed that the availability of such KMS resulted in intensive balanced use of the available functions and features which in turn occasioned enhanced decision quality in complex contexts. The study, however, failed to examine the actual management support particularly from financial perspective. Stubner, Wulf and Hongenberg (2007) were more candid in their research work. They empirically investigated the theme of management support and the performance of start-up businesses.

The scope of their empirical analysis was newly founded companies in Germany. In particular, they examined how management support offered by venture capital firms influences the performance of the enterprises. The study involved a sample of 106 German start-up firms. It was indicated that the quality of the management support that venture capital firms offer impacted on the financial performance of the start-up companies. The study found that the South Africa school Act of 1996 was enacted to create the school governing bodies mandated to run the management of the schools.

A study by Nombasa (2004) on the challenges and opportunities for the school based managers revealed that most of the school governing bodies lacked the requisite skills in budget formulation, drafting financial and policy statements, control of funds and accountability in the schools and therefore could not support prudent financial management in the schools. The above findings were echoed by Madikela (2006) who suggested financial education and training to such governing bodies to enhance prudent financial management in the schools.

According to Okumbe (2008), the role of school boards of management includes financial management, management of curriculum and instructional programmes, school community relationship and the provision of physical and material resources with the aim of meeting educational objectives. However, Mobegi, Ondigi and Simatwa (2012) noted that such boards usually lack the requisite technical skills to comprehend and interpret financial reports and offer the much needed guidance and advisory fundamental in making prudent financial decisions. This explains the current move to require top managements in these organizations to possess professional qualifications in their respective areas of expertise, particularly finance and auditing.

This requirement is informed by the fact that finances are the lifeline of any organization, be it commercial, educational, non-profit making among others, and their proper management and control is of utmost importance. The foregoing studies underscore the importance of management support in providing appropriate infrastructure, setting the performance framework and providing the requisite technical training in all spheres of the organization. However, the studies have not linked management support to sustainable financial prudence in public universities in Kenya.

2.3.4 Credit Controls and Sustainable Financial Prudence

A paper by Sitorus (2013) examined the subject of quality credit control based on asset information and forensic credit amongst Indonesian banks. Credit control relates to regulation of either the price of credit interest rates or the quantity of credit extended for various purposes.

Credit control is employed by organizations to promote credit to creditworthy customers and to accelerate collections from credit customers while ensuring reduced or no resultant bad debts. Credit control includes strategies of reducing credit risk. A credit risk is the risk of default on a debt due to the borrower's inability to make the installment payments on schedule or failure to pay the total debt which leads to loss of the principle amount of the debt and interest and disruption to cash flows and increased collection costs (Sitorus, 2013). In particular, the study investigated the impact of quality credit control on credit performance. In line with the study findings, it was recommended that the banks ought to build an adequate credit control based on asset information with strict procedures.

Banks were also advised to implement a forensic audit on debtors' behavior through, for instance, analysis of debtors' financial track record. The study further recommended that banks should have strict credit procedures. According to Kiplimo and Kalio (2014), organizations rate their prospective customers using what is referred to as the 6Cs of credit appraisal. As cited by authors, the concept of 6Cs of credit appraisal was pioneered by Edward, (1977) in his analysis of successful microfinance institutions. As explained, 6Cs are credit history, capacity, collateral, character, capital and condition.

Credit history of the borrower refers to the track record the individual has established in the course of managing credit and making loan repayments over time. The authors further explain that capacity of the borrower refers to the ability of the borrower to manage loan repayments. Past income and employment history are used as indicators of the ability. Collateral refers to the type of security the borrower provides to cover the loan. Capital represents the savings, investments and other assets that can help the borrower repay the loan.

Condition refers to the purpose of the loan including the environment and economic environment. An empirical study was carried out by Chen and Pan (2012) on credit risk efficiency with a special interest in Taiwanese banking industry. The study employed financial ratios to assess credit risk of 34 Taiwanese commercial banks between 2005 and 2008. The performance was analyzed using credit risk parameters. They found that only a single bank enjoyed efficiency in all types of efficiencies that were evaluated. Most of the banks that suffered from global financial crunch in 2008 were found to have many bad debts, overdue loans and/or loss of profitability.

An empirical study was conducted by Moti, Masinde, Mugenda and Sindani (2012) on effectiveness of credit management system on loan performance in the Kenya's microfinance sector. The study was necessitated by the high levels of non-performing loans in many microfinance institutions (MFIs) which had threatened the viability and sustainability of MFIs. The study specifically analyzed the effect of components of credit management system on loan performance. They identified the components of credit management system as credit terms, client appraisal, credit risk control measures, and credit collection policies.

They established that the credit control policies had the most significant effect on loan performance amongst MFIs. Another analysis was carried out by Gatuhu (2013) on the effect of credit management on the financial performance of MFIs in Kenya. The study involved 59 firms that are members of the Association of Microfinance Institutions (AMFI). The study revealed that there exists a strong relationship between financial performance of MFIs and client appraisal, credit risk control, and collection policy.

The study established that the collection policy had a greater effect on financial performance than the other parameters. Subsequently, firms were advised to improve their debt collection policy by employing a stringent credit management policy. A study by Kimutai and Ambrose (2013) established that the major factors that contribute to credit rationing by commercial banks in Kenya are the loan characteristics and the firm characteristics. Loan amount was determined by the interest rate, the collateral provided and the loan maturity.

The firm characteristics included the risk profile and the earnings of the firm. They held that weak policies on control of credit lead to delay or non-collection of debts and unpredictable cash levels. This hampers achievement of sustainable financial prudence. In summary, the studies on credit control identified factors that affect loan performance in relation to financial performance without relating it to sustainable financial prudence in public universities in Kenya.

2.3.5 External Borrowing and Sustainable Financial Prudence

Scholars Barro and Lee (2000) in their study, which focused on the determinants of external borrowing for a set of low and middle-income countries, concluded that imperfections in international credit relationships limit the access of developing countries to external credit. They found that there exists repudiation risk through which a given country may prefer to borrow credit with the aim of converging faster to its steady state, yet it would also prefer not to adhere to its debt obligations. They further noted that the repudiation risk is greater at international credit transactions level where cross-border repayment enforcement of defaulted credit may be too costly.

The authors argued that in order for international borrowing and lending to be effected, repudiation risk notwithstanding, it is advisable that lenders ought to have some leeway of punishing defaulting countries. Another author, Lane, (2003) examined long-term external debt from an empirical perspective. It was found that external debt strongly increased the level of initial output. An empirical study by Checherita and Rother (2010) assessed the impact of high and growing government debt on economic growth in the Euro Area. When citing Clements et al (2003), the authors noted that the relationship between foreign borrowing and investment could be extended to reflect growth.

They argued that the accumulation of foreign debt can enhance investment to a certain point, beyond which the debt overhang was likely to start instilling negative pressure on investors' willingness to provide further capital. In Nigeria, Ishola, Olalaye, Ajayi and Giwa (2013) conducted an empirical analysis of how external debt affects the country's economy. The authors particularly examined the impact of external borrowing on sustainable economic growth between 1980 and 2010. The study revealed that 12.3 per cent changes in the country's economic growth resulted from external debt and prime lending rate.

Effectively, the study suggested that the Nigerian government ought to come up with sound policies to address the crucial causes of external debt. They intimate that borrowed funds should be put in the intended use and be employed accountably. In addition, the study recommended that the government should have an effective debt repayment plan which should be fully implemented. A study by Ogunmuyiwa (2011) corroborated Ishola et al findings. The former had sought to establish the implication of external debt on economic growth in developing countries such as Nigeria.

The study relied on data that spanned between 1970 and 2007. It was conducted on the factors that influence real exchange rate and export sector performance in Kenya (Bunde, Korir & Mundaki 2013). It acknowledged that the surges in external aid inflows result in increment in real exchange rate problems especially in the context of the macroeconomic management of the developing economies. The authors further noted that the rapid growth of external debts could be attributed to lack of dynamism in exports. Being a net importer drains a country's much needed foreign exchange reserves which affects its balance of payments account and has a ripple effect on the country's economy.

The authors conclude that the relatively huge foreign assistance that Kenya gets has contributed to negating the rate of its economic growth. However, the study did not address the aspect of external borrowing particularly in the context of sustainable financial prudence. These studies looked at factors influencing credit rationing by commercial banks in Kenya; the possibility that imperfections in international credit relationships limit access of developing countries to external credit; effect of external debt on level of initial output economic growth. These studies have not analysed external borrowing in view of sustainable financial prudence in public universities in Kenya.

2.3.6 Sustainable Financial Prudence

A study by Prabhakara, & Begum (2013) on financial prudence argued that financial prudence is linked to financial portfolio which aims at placing its funds available for investment in assets whose returns are affected differently by economic conditions for sustainable expected income. They concluded that 90 per cent of studies on the cost of capital indicate that prudent sustainability standards lower the cost of capital.

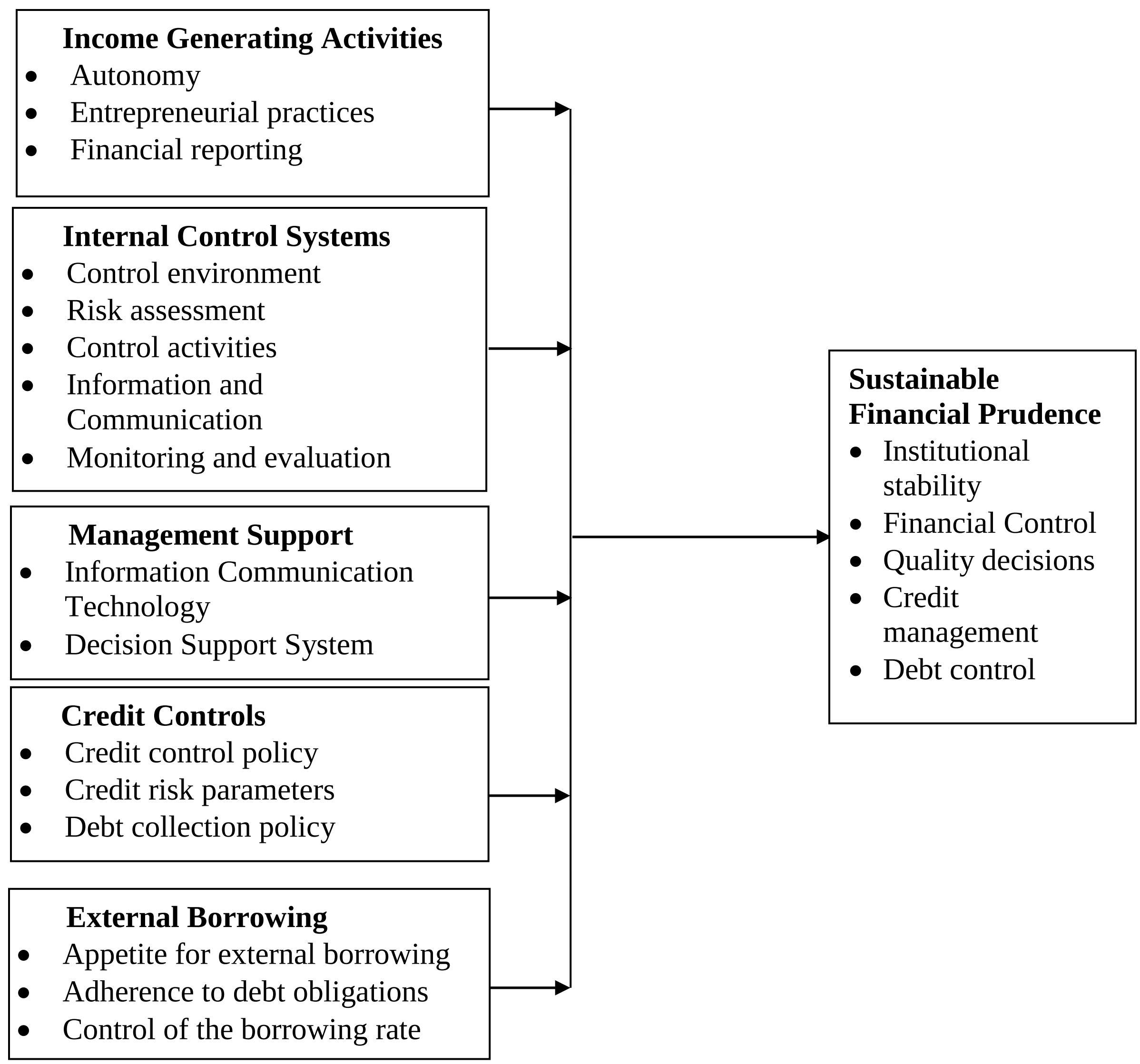
Most of the studies illustrate that stock price performance of firms is positively affected by good sustainability practices. They note that it is beneficial to investors and corporate managers to incorporate sustainability considerations into the decision making processes. The authors emphasize that there is a relation between longevity and performance of firms. Essentially, high performing firms have a high likelihood of operating long into the future. Similarly, Clark, Feiner and Viehs (2004) acknowledged that sustainability is one of the most significant trends in financial markets over the years. The authors concur that, the content, focusing on financial sustainability is the same regardless of investor's desire for sustainable responsible investing (SRI). Management perceive sustainability as an avenue of gaining competitive advantage relative to competitors (Ashbaugh-Skaife Collins & LaFond 2006).

The relationship between sustainability and performance is debatable and is a subject of many empirical studies that seek to confirm the positivity of that link (Sahut et al 2012). The authors concluded that sustainable development policies can create a strong wall that protects firms against crisis through its three crucial pillars namely environmental, social and economic. Wallstedt et al (2014) observe that the solutions for financial sustainability are subject to the size and organizational structure. Sustainable financial prudence is therefore a pillar for long term good performance of the firm.

This is largely determined by finding from a multitude of sources, effective and efficient internal controls, sufficient management support, comprehensive credit controls and prudent external borrowing. There is a scarcity of local empirical studies into the theme of financial prudence. This partly persuades the present study to be carried out with a view of bridging the existing research and knowledge gaps.

2.4 Conceptual Framework

A conceptual framework is a diagrammatic representation of the hypothesized relationship between study variables as outlined in Figure 2.1.



As shown in Figure 2.1, there are two sets of variables, independent and dependent variables. Independent variables are five and include income generating activities (IGAs), internal control system, management support, credit controls, and external borrowing.

Sustainable financial prudence is the dependent variable. The framework outlines the hypothesized relationship between the independent and dependent variables. It is presumed that each of the independent variables affects sustainable financial prudence in public universities in Kenya. The variable of IGAs is operationalized by three distinct indicators namely, autonomy, entrepreneurial practices and financial reporting. Internal control system is depicted by five crucial parameters as stated in the Statement of Auditing Standards Number 78. These include the control environment, risk assessment, control activities, information and communication, monitoring and evaluation.

It is hypothesized that these internal control measures can be used to explain how the internal control system influences sustainable financial prudence in public universities. Management support indicators include Information Communication Technology (ICT) and decision support system (DSS). Universities ought to embrace sound decision making practices to ensure smooth flow of operations towards sustainable financial prudence. Credit control has three parameters relative to the sustainable financial prudence that ensure good debt management. These include credit control policy, credit risk parameters and debt collection policy.

The study explains external borrowing by their level of appetite for external borrowing, adherence to debt obligations and careful assessment of the borrowing rate. In other words, public universities have to assess the need for external debt in the light of the borrowing rate the need to adhere to their debt obligation. Sustainable financial prudence has a number of indicators. These include institutional stability, financial control, quality decisions, credit management, and debt control.

This indicates how sustainable financial prudence in public universities can be reflected by the institutional stability; and how prudently the institutions institute financial control measures through policies and quality decisions facilitated by proper management information systems. In addition, how the institutions relate with outsiders such as suppliers, creditors, financiers, donors, and other related stakeholders reflects their ability to have sustainable financial prudence. Their adherence to the terms of external borrowing and careful consideration of the borrowing cost is another measure of their financial prudence

2.5 Summary of Reviewed Literature

Income Generating Activities (IGAs) are those activities aimed at supplementing the funds availed by government and other stakeholders towards teaching and research in public institutions. Kiamba (2005) analysed the experience of privately sponsored students and other income generating activities at the University of Nairobi and confirmed that public universities have engaged in various income generating activities to top up the dwindling government financial funding to the public universities.

This statement was echoed by the report by World Bank (2010) on its analysis on financing higher education in Africa. The report by Kenya Education Sector Support Programme (KESSP) 2005-2010 analysed enrolment in public universities and concurs that the rapid increase in universities has exerted a strain on the existing facilities and adversely affected the quality of teaching and learning. In his study on academic entrepreneurialism and changing governance in universities in Europe, Kwiek (2015) identified two parallel factors that are conducive to academic entrepreneurialism, namely, financial shortfalls and financial opportunities.

The scholar cited Clark (2004) who concluded that the Entrepreneurial Universities showed five elements which distinguish them. Citing an example of Nottingham University's management structure, the author states that the changes in funding, governance and management flow together. Siswanto, Djumahir, Sonhadji and Idrus (2013) sought to obtain management opinions concluded that a good income generating governance of the university is that which meets the principles of legal compliance, is academic-oriented, transparent, independent and professional. Ogbogu (2011) examined the modes of funding Nigerian universities to assess their adequacy and effectiveness.

The study concluded that the diminishing funding in universities can be solved through development of mechanisms that facilitate the identification of sources of funding and optimal utilization of finances. Bamiro and Adedeji (2010) studied sustainable financing of higher education in Nigeria and argue that underfunding of research affects Nigeria's economic development. Tsuma and Mugambi (2014) sought to establish factors that influence performance in income generating activities in public universities in Kenya. The authors identified accountability by employees as one factor that determines performance of the units and internal controls ensure reliability of financial reporting.

The study by Murage & Onyuma (2015) on financial performance of income generating activities in public higher learning institutions added that the financial statements ought to reflect an accurate financial performance through observing the principles of revenue recognition. As concluded by Kiamba (2003), it is through diversification of income generating activities and embracing other good customer service relationships and financial controls that the universities and the income generating activities will achieve sustainable development.

The Institute of Chartered Accountants of England and Wales (ICAEW) (2000) defines internal control as the whole system of controls established by management in order to carry on the business of the organization in an orderly and efficient manner, ensure adherence to management policies, safeguarding of assets and secure, as far as possible, the completeness and accuracy of financial records. The Committee of Sponsoring Organizations (COSO) (1992) published the Internal Control–Integrated Framework which established 17 principles of an effective internal control system.

The Auditing Standards Board (ASB) tailored the resulting Internal Control-Integrated framework to practitioners leading to the adoption of Statement on Auditing Standards No. 78 (SAS No. 78) issued by the American Institute of Certified Public Accountants (AICPA) in 1995. The framework links the internal control objectives to five interrelated components considered necessary for achievement of internal control objectives, namely, the control environment, risk assessment, control activities, information and communication and monitoring.

Scholars Boyle, Cooper and Geiger (2004) carried out a study on internal control reports seeking to provide feedback on the practical application of internal control currently adopted by the accounting profession. The study concluded that control activities had the highest proportion of identified weaknesses and monitoring had the lowest proportion of weaknesses. Lemi (2015) sought to inform management of universities how a strong internal control can be used to detect and at least minimize the misuse, theft of resources and in attaining institutional objectives.

An empirical study by Dumitru, Dumitrana Jinga and Radu (2010) on the need to implement the human resources (HR) management control system concluded that a feasible HR control system ought to be flexible to the current HR needs. Davila, Foster and Li (2005) analysed the management control system acknowledged that even though management control systems could limit innovation, they could also enhance the same in an organization. Lovstal (2008) on management control systems in entrepreneurial organizations concluded that managers need to focus on striking a balance between opposing forces.

Another study by Fosu, Krah and Obeng (2013) sought to establish compliance of financial management regime and concluded that the financial controls ensure that spending officers authorize the commitment of funds within the limits of the authorized budget. Mestry (2004) in Kalungu (2015) concurred with these findings. The Education Commission Report (Republic of Kenya 1988) and Koech (2000) report (Republic of Kenya, 1999) cited in Kalungu (2015) found a backlog in auditing coupled with mismanagement and misappropriation of funds in learning institutions as impediments to achieving adequate control.

A study by Simiyu (2011) on effectiveness of internal control system in higher institutions of learning concurred with Munene (2013) on effects of internal controls on financial that there are a number of challenges on the impact of internal controls on the institution’s performance such as liquidity problems, delayed financial reports. An internal control system therefore ensures reliability of financial reporting and compliance with applicable laws and regulations which facilitate sustainable financial prudence.

Management support comprises management efforts to establish structures for achievement of the institution's objectives by providing adequate infrastructure and managerial direction and support. Wanyembi (2002) found that the rapid infusion and diffusion of ICT into public universities in Kenya is impeded by lack of clear strategies on the operations of computer centres and alienation of these units from the units they are supposed to serve. Ozlen et al 2014 investigated how ICT-based KMS of varying sophistication impacted on decision support.

The study observed that the availability of such KMS resulted in a balanced use of the available functions and features which led to enhanced decision quality. The study, however, failed to examine the actual management support particularly from financial perspective. Stubner, Wulf and Hongenberg (2007) investigated the theme of management support and the performance of start-up businesses. A researcher, Nombasa (2004) analysed the challenges and opportunities for the school based managers which revealed that most of the school governing bodies lacked the requisite skills in accountability and therefore could not support prudent financial management.

The above findings were echoed by Madikela (2006); Mobegi, Ondigi and Simatwa (2012) and Okumbe (2008). Management support therefore contributes to sustainable financial prudence through provision of appropriate infrastructure, setting the performance framework and providing the requisite technical training in all spheres of the organization. Credit control relates to regulation of either the price of credit interest rates or the quantity of credit extended for various purposes. Kiplimo and Kalio (2014) posited that organizations rate their prospective customers using the 6Cs of credit appraisal, which include, credit history, capacity, collateral, character, capital and condition.

Other scholars, Chen and Pan (2012) who studied credit risk efficiency found that only a single bank enjoyed efficiency in all types of efficiencies that were evaluated. Moti, Masinde, Mugenda and Sindani (2012) studied effectiveness of credit management system on loan performance in the Kenya's microfinance sector. The study established that the credit control policies had the most significant effect on loan performance amongst MFIs. Gatuhu (2013) on effects of credit management on the financial performance of MFIs in Kenya revealed a strong relationship between financial performance of MFIs and client appraisal, credit risk control, and collection policy.

In summary, studies on credit control established that the credit control policies had the most significant effect on loan performance and a strong relationship between financial performance and client appraisal, credit risk control, and collection policy. Hence, public universities require good credit policies that lead to sustainable financial prudence. A study by Kimutai and Ambrose (2013) on factors influencing credit rationing by commercial banks in Kenya established that the major factors that contribute to credit rationing by commercial banks are the loan and the firm characteristics.

Loan amount was determined by the interest rate, the collateral provided and the loan maturity. Barro and Lee (2000) in their study on the determinants of external borrowing concluded that imperfections in international credit relationships limit the access of developing countries to external credit. It was found that external debt strongly increased the level of initial output. Checherita and Rother (2010) assessed the impact of high and growing government debt on economic growth in the Euro Area. When citing Clements et al (2003), the authors noted that the relationship between foreign borrowing and investment could be extended to reflect growth.

Scholars Ishola, Olalaye, Ajayi and Giwa (2013) who conducted an empirical analysis of how external debt affects the country's economy revealed that 12.3 per cent changes in the country's economic growth resulted from external debt and prime lending rate. A study by Ogunmuyiwa (2011) corroborated Ishola et al findings. A study on the factors that influence real exchange rate and export sector performance in Kenya Bunde, Korir & Mundaki (2013) acknowledged that the surges in external aid inflows result in increment in real exchange rate problems especially in the context of the macroeconomic management of the developing economies. Hence, for universities to achieve sustainable financial prudence using external debt they need to assess carefully the interest rate, the collateral required and the loan maturity.

A study by Prabhakara, & Begum (2013) on financial prudence linked financial prudence to financial portfolio and emphasized there is a relation between longevity and performance of firms. Clark, Feiner and Viehs (2004) acknowledged sustainability as one of the most significant trends in financial markets. Ashbaugh-Skaife Collins & LaFond (2006) add that management perceive sustainability as an avenue of gaining competitive advantage. Sahut et al (2012) arguing the relationship between sustainability and performance is debatable, concluded that sustainable development policies protect firms against crisis through its three crucial pillars namely environmental, social and economic.

2.6 Research Gaps

Income Generating Activities (IGAs) are aimed at supplementing the funds availed by government towards teaching and research in public institutions. Kiamba (2005) analysed the experience of privately sponsored student and other income generating activities at the University of Nairobi.

The World Bank (2010) report analysed enrolment in universities in Africa. Kwiek (2015) identified two parallel factors that are conducive to academic entrepreneurialism, namely, financial shortfalls and financial opportunities. Other scholars, Siswanto, Djumahir, Sonhadji and Idrus (2013) addressed variables on good university income generating governance. Ogbogu (2011) assed adequacy and effectiveness of the modes of funding Nigerian universities. Bamiro and Adedeji (2010) studied the implication of underfunding of research on sustainable financing of higher education in Nigeria. Tsuma and Mugambi (2014) emphasized on the effect of accountability by employees and internal controls on performance of the units.

The empirical study by Murage & Onyuma (2015) dwelt on the need to observe the principles of revenue recognition so as to report accurate financial performance. As evidenced by this summary, there is literature on income generating activities to supplement government financial funding; identification of factors conducive to academic entrepreneurialism; discussion on good governance of income generating; suggestion of ways of solving the diminishing funding; ways of achieving accountability by employees; accurate financial reporting. The studies contain some financial elements, but have not delved into contribution of income generating units towards sustainability of financial prudence in public universities in Kenya, which this study seeks to achieve.

The Internal Control-Integrated framework links the internal control objectives to five interrelated components considered necessary for achievement of internal control objectives, namely, the control environment, risk assessment, control activities, information and communication and monitoring.

Scholars Boyle, Cooper and Geiger (2004) analysed internal control reports to ascertain the practical application of internal control currently adopted by the accounting profession. The study by Lemi (2015) sought to inform management of universities how a strong internal control system can be used to detect and at least minimize the misuse, theft of resources and in attaining institutional objectives. Dumitru, Dumitrana Jinga and Radu (2010) studied the need to implement the human resources (HR) management control system. Davila, Foster and Li (2005) analysed the management control system Lovstal (2008) studied management control systems in entrepreneurial organizations

Another study by Fosu, Krah and Obeng (2013) sought to establish compliance in financial management. Simiyu (2011) and Munene (2013) studied on effectiveness of internal control system in higher institutions of learning. In conclusion, the scholars on internal control system sought to provide feedback on the practical application of internal control; how a strong internal control can be used effectively and efficiently; the need to implement the human resources (HR) management control system; the effect of management control systems on innovation, and on the need to strike a balance between opposing forces.

Analysts have tackled many factors relating to control of finances. They have not linked their studies to the role played by the internal control system towards sustainable financial prudence in public universities in Kenya, which is the subject of this study. Management support is seen in the light of investment in information and communication technology (ICT) infrastructure and ensuring success in their operation. Wanyembi (2002) examined the infusion and diffusion of ICT into public universities in Kenya and efforts to solve crucial management issues for top management and the technical staff.

Investigation by Stubner, Wulf and Hongenberg (2007) dwelt on the theme of management support and the performance of start-up businesses. Another scholar, Nombasa (2004) analysed the challenges and opportunities for the school based managers who lacked the requisite skills in accountability and therefore could not support prudent financial management. The foregoing studies underscore the importance of management support in providing appropriate infrastructure, setting the performance framework and providing the requisite technical training in all spheres of the organization. However, the studies have not linked management support to sustainable financial prudence in public universities in Kenya, which is the focus of this study.

Credit control relates to regulation of the price of credit interest rates or the quantity of credit extended for various purposes. Kiplimo and Kalio (2014) studied 6Cs of credit appraisal. Chen and Pan (2012) studied credit risk efficiency. Moti, Masinde, Mugenda and Sindani (2012) analysed effectiveness of credit management system on loan performance in the Kenya's microfinance sector. Gatuhu (2013) analysed effects of credit management on the financial performance of MFIs in Kenya. These studies identified factors that affect loan performance in relation to financial performance. This study seeks to relate credit control to sustainable financial prudence in public universities in Kenya.

A study by Kimutai and Ambrose (2013) analysed factors influencing credit rationing by commercial banks in Kenya. Barro and Lee (2000) analysed the determinants of external borrowing. Checherita and Rother (2010) assessed the impact of high and growing government debt on economic growth in the Euro Area. Ishola, Olalaye, Ajayi and Giwa (2013) analysed how external debt affects the country's economy.

Other schlars, Bunde, Korir & Mundaki (2013) analysed the factors that influence real exchange rate and export sector performance in Kenya. These studies looked at factors influencing credit rationing by commercial banks in Kenya; the possibility that imperfections in international credit relationships limit the access of developing countries to external credit; the effect of external debt on the level of initial output economic growth. These studies have not analysed external borrowing in view of sustainable financial prudence in public universities in Kenya.

Financial prudence is the effective, efficient and proper use of financial resources with the aim of enhancing financial performance of a firm (Prabhakara & Begum, 2013). A study by Prabhakara, & Begum (2013) on financial prudence emphasized on the relation between longevity and performance of firms. Clark, Feiner and Viehs (2004) identified sustainability is one of the most significant trends in financial markets over the years. Ashbaugh-Skaife Collins and LaFond (2006) studied financial prudence in the light of competitive advantage relative to competitors. Wallstedt et al (2014) related financial sustainability to the size and organizational structure. There is a scarcity of local empirical studies into the theme of financial prudence. This partly persuades the present study to be carried out with a view of bridging the existing research and knowledge gaps

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology outlines the modalities that should be followed to undertake a research project (Howell, 2013). It is a way used to solve research problems systematically. It explains the various steps used by a researcher in analyzing the research problem and the logic that go with those steps (Kothari, 2004). This chapter, therefore, covers the research design, target population, sample size and sampling technique that guided this research study. In addition, the research instrument used in data collection, pilot testing of the same and how the collected data were analyzed are outlined in this chapter. Lastly, the chapter explains how the study findings were presented.

3.2 Research Design

A research design constitutes decisions regarding what, where, when, how much, and by what means concerning a research study. In other words, it is the blueprint of the entire study (Howell, 2013). Research design is a conceptual structure that guides the conduct of research and stipulates the outline of the researcher's activities from formulation of the hypothesis to eventual data analysis (Kothari, 2004). Research design includes the sampling design which depicts the method of selecting items to be studied; observational design which analyses the conditions for making the observations; statistical design setting the number of times the items are to be observed and analyzed; and operational design which operationalizes performance of statistical and observational designs.

This study aimed to find factors affecting the sustainable financial prudence in public universities in Kenya. The study adopted descriptive survey research design where the respondents' views regarding the study themes were analyzed to fulfill the objectives of the study. Descriptive designs are used to portray an accurate profile of persons, events or situations (Saunders et al., 2009). In this kind of study, the aim is to obtain accurate and complete results hence the researcher must define clearly what is to be measured, the methods to be used and the exact population to be studied (Kothari, 2004).

The method of survey allowed collection of data from a sizeable population in a highly economical way. Experience survey uses the people who have had practical experience with the problem being studied (Kothari, 2004). Data was obtained through administration of questionnaires to sampled respondents. The choice of this research design was based on the premise that a total of 31 public universities in Kenya were targeted. The study also took place over a specific period of time, an element that characterizes survey research.

Moreover, the study involved literature survey. According to Rajasekar, Philominathan and Chinnathambi (2006) literature survey involves a collection of research publications, reports and other published documents pertinent to the defined problem. Survey of concerning literature is simple and fruitful in formulating the research problem or developing the hypothesis (Kothari, 2004). Descriptive survey provided more control over the research process since it is possible to generate findings that are representative of the whole population at a lower cost than collecting the data for the whole population. To this effect, the study analyzed documents relative to sustainable financial prudence particularly in the context of public universities in Kenya.

3.3 Target Population

The study was grounded on a positivist philosophy which is also referred to as the scientific paradigm. The French philosopher Auguste Comte first coined the term positivism as he believed that reality can be observed and verified through scientific means. Cohen, Manion, and Morrison (2007) claim that "Comte's position was to lead to a general doctrine of positivism which held that all genuine knowledge is based on sense experience and can be advanced only by means of observation and experiment" (p. 9). Positivism maintains that the scientist/researcher is the observer of an objective reality. From this understanding of ontology, the methodology for observation in natural science was adopted for social science research.

The purpose of research in this paradigm is to prove or disprove a hypothesis. This was important to the study since it sought to test the applicability of certain constructs, that is, its study variables using hypothesis. Positivist research also emphasises the scientific approach to investigations and use of statistical analysis to interpret the findings and generalize them. Since the study was not a case study, but one that necessarily involved all public universities in the country it was important that the outcome be generalizable.

A population is the total of the items in the field of study from which information is to be obtained. The aggregate of individuals sharing similar objectives describes the target population (Kothari, 2004). The target population further refers to the population to which the study findings are generalized. The target population for this study was the 31 public universities in Kenya and their constituent colleges established since 2013. According to the Commission for Higher Education, there are 22 fully accredited public universities as of 30th June 2013 and 9 constituent colleges established by a Legal Order.

Constituent colleges are established upon satisfying set minimum standards by the Commission for University Education. Constituent colleges were included in the target population due to their semi-autonomous status and could, therefore, be independently investigated. From the target population, the accounts, finance, and management staff were interviewed to provide primary information for the study.

These individuals were believed to be the most conversant with issues touching on financial prudence in public universities and their opinions could be taken as representative of their respective universities. This belief is premised on the fact that this cadre of staff is responsible for formulating ways for sourcing of the institutions' finances, recording of financial transactions, approval and authorization of financial transactions in compliance with the laid down rules and regulations and production, interpretation and distribution of financial reports.

3.4 Sample Size and Sampling Technique

This section outlines the size of the sample and how it was obtained. The method of deriving the sampled subjects from the target population is further outlined.

3.4.1 Determination of Sample Size

Sampling is the selection of a few items or parts of an aggregate to be used to make an inference about the aggregate population. It is used to obtain information about the aggregate population by examining only a few items out of it (Kothari, 2004). However, since the number of the public universities was small, there was no need for sampling them, hence, the census technique was used.

The census technique was adopted to ensure all the public universities and their constituent colleges – all of which have increased levels of autonomy in financial decisions – were included. However, since the number of staff to be interviewed for the purposes of this study was sufficiently large, it necessitated probability sampling so as to introduce maximum variation in the data obtained. Nassiuma's (2009) formula was employed to determine the sample size of the interviewees in the universities. The calculation using the formula is as outlined here below.

$$n = \frac{NC^2}{C^2 + (N-1)e^2}$$

Where,

n = Sample size

N = population size

C = Coefficient of variation (21% ≤ C ≤ 30%)

e = Precision level (2% ≤ *e* ≤ 5%)

Substituting these values in the equation, estimated sample size (n) was:

$$n = \frac{289\,(0.3)^2}{0.3^2 + (289 - 1)0.02^2}$$

$$= 126.75$$

$$n = 127 \text{ respondents}$$

Therefore, the appropriate sample size of the universities management and staff in charge of finance, accounts and administration was 127 respondents drawn from all the 31 public universities in Kenya and their constituent colleges.

3.4.2 Sampling Technique

The study adopted stratified random sampling method to obtain the sampled respondents from the target population. Stratified sampling divides the population into sub-populations that are more homogeneous as compared to the total population. This makes it possible to make more accurate inferences concerning the sub-population or stratum by selecting samples for study from that stratum. The strata are purposively formed based on the researcher's past experience and personal judgment. Data is then selected from each stratum using simple random sampling (Kothari, 2004).

Since all public universities were involved in the study and being the unit of analysis, there was no need for sampling them since their population was small - 22 public universities and 9 constituent colleges. However, as it was important that the study collect data from specific persons in the universities, there was need to introduce simple random sampling techniques so as to ensure maximum variation of the responses from the university employees. As such, given the determined sample size, four persons were expected to respond to the instruments in every public university.

To arrive at this number per university, the researcher applied the simple random technique in the universities departments where staff in the departments were randomly selected and given the questionnaires. This method was chosen so as to eliminate bias in the sampling and give everybody in the departments an equal chance of participating in the study. Random sampling is a probability sampling method in which every item in the population has an equal chance of being selected for the sample.

3.5 Research Instrument

The study employed a semi-structured questionnaire to collect primary data from the sampled respondents. This type of questionnaire provides the general guide on the type of information to be obtained allowing the respondent to formulate the responses in their own words as much as possible (Kothari, 2004). According to Mugenda and Mugenda (2009), a questionnaire is the most appropriate tool of collecting primary data from sampled respondents in survey research as was the case with the current study.

The questionnaire was structured in such a way that it captured demographic information of the respondents, and data pertinent to the study variables (income generating activities, internal control system, management support, credit controls, external borrowing, and sustainable financial prudence in public universities in Kenya). Factors touching on the study constructs were on a 5-point Likert scale where integers 1 to 5 representing the levels of agreement from strongly disagree, to strongly agree. On the other hand, the secondary data was obtained through the analysis of financial reports of respective universities being studied.

3.6 Pilot Testing

Pilot testing is carried out as a means of testing sound measurement of the research instrument, that is, the research questionnaire. The research instrument (questionnaire) was subjected to a pilot test in order to determine its reliability and validity before it was used to collect data for the final study. The pilot test involved administering a set of the questionnaires to 12 universities staffs drawn from three public universities in Kenya, that is; Masinde Muliro University of Science and Technology (MMUST), Kibabii University and Jaramogi Oginga Odinga University of Science and Technology.

The pilot group represented 10% of both the target population and the accessible population as recommended by (Kothari, 2004). The respondents were not involved in the actual study as they were drawn from departments that were not targeted for the study.

3.6.1 Reliability Testing

Reliability describes the consistency of the research instrument, that is, its ability to return similar results when administered on different respondents. The study adopted the split-half method of reliability and the use of Cronbach alpha to determine the coefficient of reliability. Split-half reliability method is calculated by administering one test once and then calculating the reliability index. This method was used due to the argument that it is the most widely used and recommended test of reliability and it also yields reliable internal consistency results (Kimberlin & Winterstein, 2008). The instrument was deemed reliable after attaining the alpha threshold of 0.77; that is $\alpha \geq 0.77$ as shown in Table 3.1.

Table 3.1: Reliability Test Results

Study Construct	Test Items	Cronbach Alpha Coefficient
Income generating activities	8	0.801
Internal control system	11	0.781
Management support	7	0.820
Credit controls	5	0.784
External borrowings	4	0.837
Sustainable financial prudence	6	0.800

The results in Table 3.1 shows that the questionnaire was highly reliable for the study as indicated by the alpha value that is way above the recommended value of 0.7 (Marshall & Rossman, 2014). As the Cronbach Alpha coefficient was very high, there was no need to substantially revise the instrument; hence, it was administered after being scrutinized for any omission or punctuation errors.

3.6.2 Validity Testing

The study further assessed the content validity of the instrument. Validity is asserted to be the extent to which the interpretations of the results of a given test are warranted (Kombo and Tromp, 2010). This depends on the specific use the test is purposed to serve. A valid instrument is one that measures what it is intended to measure. Content validity examines how well the items developed to operationalize a variable provide a sufficient representative sample of all the items that probably measure the construct of interest. It was assessed by involving the assigned supervisors. According to Kimberlin and Winterstein (2008), this type of validity cannot statistically be determined. After consulting the assigned University supervisors, the instrument was amended in accordance with the suggestions made before it was employed in collection of the requisite data.

3.7 Data Collection Procedure

After determination of both validity and reliability of the research instrument, the next step involved collection of requisite data from the sampled respondents. Data collection is the first stage in a statistical analysis. Data is available from existing literature, published or unpublished. Firsthand data collection or primary data may also be obtained by the researcher.

Primary data collection is one of the most difficult and important tasks faced by the researcher and thus requires utmost care to facilitate reliable conclusions (Gupta, & Gupta, 2008). Necessary authorization was sought prior to embarking on data collection. The researcher sought both a research permit and authorization letter from the National Council of Science, Technology and Innovation (NACOSTI). This was followed by seeking the authority from the respective County Director of Education where the universities of study are situated. The researcher also sought the consent of the top administration of the public universities whose staff were to participate in the study. The researcher then distributed the questionnaires in person to individual respondents. The respective departmental heads in the respective public universities were the first to be visited in most cases. The aim was to distribute the questionnaire to each of them and in the process notify them that data was being collected from the staff in their departments.

3.8 Data Analysis and Presentation

The data collected was analyzed with the aid of the Statistical Package for Social Sciences (SPSS) Version 24 software. Data analysis was both descriptive and inferential. Descriptive analysis constituted finding the percentages, means and standard deviations of the scores on items in the study variables in order to obtain the basic trends of the data. On the other hand, inferential analysis was in form of both Spearman rank correlation co-efficient and multiple regression analysis (Kothari 2004). The correlation analysis facilitated the researcher to establish the strength and significance of relationships between the independent variables and the dependent variable. In statistics, four types of correlation are measured, namely, Pearson correlation, Kendall rank correlation, Spearman correlation and Point-Biserail correlation.

Pearson r correlation is most widely used correlation statistic to measure the degree of the relationship between linearly related variables. Pearson r correlation assumes both variables are normally distributed and are linearly related; linearity means a straight line relationship between each of the variables in the analysis. It assumes homoscedasticity, that data is normally distributed about the regression line. Kendall rank correlation is a non-parametric test to measure the strength of dependence between two variables.

Spearman correlation is a non-parametric test to measure the degree of association between two variables. It makes no assumptions about the distribution of data and is appropriate when the variables are measured on a scale that is least ordinal. The independent variables were income generating activities, internal control system, management support, credit controls, and external borrowing. The dependent variable was sustainable financial prudence in public universities in Kenya. The regression model below was further employed to guide multiple regression analysis of the collected data.

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon}$$

Where:

Y	represents	Sustainable Financial Prudence
β_0	represents	Constant
X_1	represents	income Generating Activities
X_2	represents	Internal Control Systems
X_3	represents	Management Support
X_4	represents	Credit Controls
X_5	represents	External Borrowing
ε	represents	Error Margin
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$	represent	Regression Coefficients

The research hypotheses were tested at 0.05 level of significance (95% confidence level). The findings were presented in form of descriptive and inferential statistical tables.

CHAPTER FOUR

RESEARCH FINDINGS, DISCUSSIONS AND ANALYSIS

4.1 Introduction

This chapter presents the data analysis and results in four sections. The first section deals with response rate. The second section deals with descriptive statistics in regard to the study variables and the third section deals with inferential statistics in respect of determinants of sustainable financial prudence in public universities in Kenya. Finally, the fourth section deals with regression analysis on the effect of income generating activities, internal control system, management support, credit controls and external borrowing on sustainable financial prudence in public universities in Kenya. All quantitative data analyses were performed using the Statistical Package for Social Sciences (SPSS) Version 24 software package. The foregoing preliminary results are followed by findings and interpretations of study objectives. The latter are presented in form of both descriptive and inferential statistics respectively.

4.2 Response Rate

Response rate, which also refers to questionnaires return rate, is described as the number of questionnaires that were returned to the researcher having been correctly filled. In the context of this study, a total of 127 questionnaires were administered to the sampled respondents drawn from all the 31 public universities in Kenya; 22 full universities and 9 constituent colleges of the public universities. The respondents were drawn from the finance, accounts and management staff in the universities in Kenya. The distribution was made through the drop and pick method.

A list of contacts of the respondents was maintained for use in follow up and for record purposes. The response rate is summarized in Table 4.1

Table 4.1: Response Rate

Target	Population	Response rate
No of Universities Targeted	31	
Number Responded	31	100%
Universities staff issued with questionnaires	127	
Number of questionnaires returned	101	79.53%

The response data in Table 4.1 indicates that all the public universities targeted responded to the survey (100%). However, not all members issued with questionnaires responded to them and, therefore, their results could not be included in the study. The number of questionnaires that were sufficiently filled totaled 101. Therefore, the return rate, as outlined in Table 4.1, equaled 79.53%. The stated response rate was established to be sufficient in a survey study (Nulty, 2008) as it was the case with the present research study.

The researcher distributed questionnaires to each of the 31 public universities on a drop and pick basis. Cumulatively, a total of 127 questionnaires were distributed. The number of the ones appropriately filled and duly returned was 101. The high response rate could be attributed to the fact that the researcher administered the questionnaires to respondents in person through which the essence of the sampled respondents participating in the study was explained and emphasized. The personal visit was also used to create rapport with the respondents which served to enhance the response rate.

The vigorous data collection exercise made use of contact persons, frequent visitations and constant reminders through phone calls and emails. Specifically, follow up telephone calls and personal visits to the respondents improved the response rate. At least two visits were made to most of the respondents. The first visit was used to drop the questionnaires and to clarify any issues raised thereon. Subsequent visits were used to collect the filled questionnaires. Some of the respondents completed the questionnaire during the first visit.

It was observed that the older members of staff who had worked in their current positions for many years were reluctant to accept the questionnaire and only accepted through persistent persuasion. These were the group who required as many as five visits before returning the filled questionnaires. Even after the many visits some of the older staff did not fill the questionnaires at all, others filled them half-way while others left their places of work purportedly to attend to duty on seeing the researcher enter the offices. Those who responded quickly were the younger ones who appeared to be still excited about their jobs.

Those who had recently completed or were going on with their research also gave good response. These were the group who filled the questionnaire the same day it was presented to them. Of this group, those who did not complete immediately made a call to the researcher as soon as they had filled the questionnaire and made it accessible to their colleagues to hand over should they be away during the researcher’s next visit.

4.3 Descriptive Analysis, Interpretations and Discussions

This section covers results of analysis, interpretations and discussions that address the objectives of the study on public universities in Kenya. The study sought to establish the influence of income generating activities, internal control system, management support, credit controls and external borrowing on sustainable financial prudence in public universities in Kenya. The key data collected in respect to the study constructs were in a 5-point Liker scale.

‘Mean’ is one of the measures of dispersion which measures the average difference of the values of items from the average of the series. When used together with its coefficient of mean deviation, it gives more precision to the study of central tendency in judging the variability. Standard deviation is another measure of dispersion of a series. When used together with the means they give an idea about the scatter of the values of items of a variable in the series around the true value of the average (Kothari 2004). In a scale of 5 points, when the standard deviation is less than 1.0, it is said to be small. Interpretatively, this implies that the respondents are deemed to hold close or similar views in respect of the given proposition.

On the other hand, when the standard deviation is greater than 1.0 in a scale of 5 points, it is considered to be large. Impliedly, the respondents are said to have diverse opinions in respect of the given proposition. The means and standard deviations were used in making interpretations and discussions.

4.3.1 Income Generating Activities and Sustainable Financial Prudence

The study put into perspective the views of the sampled accounts, finance and management staff regarding income generating activities (IGAs) and in the context of sustainable financial prudence. A set of eight variables that were identified as appropriate indicators of IGAs contribution towards sustainable financial prudence in public universities in Kenya were used to assess this variable. The results presented in this section (Table 4.2) were on a 5-point Likert scale where integers 1 to 5 represented 'strongly disagree (SD)', 'disagree (D)', 'neutral (N)', 'agree (A)', and 'strongly agree (SA)' respectively.

Table 4.2: Descriptive Statistics for Income Generating Activities

Indicators	**SA**	**A**	**N**	**D**	**SD**	**Mean**	**Std. Dev**
IGAs contribute towards University's objectives	14.9	37.6	21.8	19.8	5.9	3.36	1.137
An autonomous unit manages IGAs	20.8	35.6	13.9	18.8	10.9	3.37	1.302
Autonomous units are managed by professionals	13.9	33.7	15.8	23.8	12.9	3.12	1.283
Autonomous units use entrepreneurial practices	9.9	26.7	23.8	24.8	14.9	2.92	1.23
Departments participate in decisions on IGAs	12.9	40.6	16.8	20.8	8.9	3.28	1.193
All IGAs expenses are in the financial statements	26.7	44.6	12.9	8.9	6.9	3.75	1.152
Funds from autonomous units are audited	21.8	42.6	14.9	12.9	7.9	3.57	1.195
Financial report of the IGAs are displayed scrutiny	9.9	30.7	18.8	22.8	17.8	2.92	1.286
Aggregate score						**3.286**	**1.222**

The grand mean for the study variables, as indicated in Table 4.2, on income generating activities is 3.286 and standard deviation 1.222 indicates that there was high variation on the contribution of income generating activities towards sustainable financial prudence in public universities in Kenya.

The mean falls roughly on the integer 3 on the 5-point Likert scale which indicates that, cumulatively, the universities were divided on the contribution of income generating activities towards sustainable financial prudence in public universities in Kenya. IGAs contributed towards the objectives of majority public universities surveyed (mean = 3.36; std dev = 1.137); most universities had instituted autonomous units for managing IGAs (mean = 3.37; std dev = 1.302), and; further, the autonomous units were being managed by competitively sourced professionals (mean = 3.12; std dev = 1.283).

However, there was uncertainty on whether the autonomous units embraced entrepreneurial practices in their operations (mean = 2.92; std dev 1.230). The findings of this study were contrary to the findings by Kenya Education Sector Support Programme (KESSP) (2005-2010) that local universities have taken an entrepreneurial approach in their management. The findings of the study were also contrary to the observations on the study by Kwiek (2015) that the State underfunding of public universities had inculcated the spirit of entrepreneurism in them.

The current study further found that in most universities, respective departments were playing an important role in decision making on the IGAs relating to their departments (mean = 3.28; std dev = 1.193). However, it emerged that the financial reports of the IGAs were not displayed for public scrutiny in the universities (mean = 2.92; std dev = 1.286). Nevertheless, it was generally found to be true that all income and expenses relating to IGAs were incorporated into the financial statements of the units (mean = 3.75; std dev = 1.152). It was also found that funds raised from autonomous units were strictly audited for financial prudence (mean = 3.57; std dev = 1.195).

The study showed that IGAs contributed substantially towards the objectives of majority (52.5%) of the public universities. Such IGAs included; self-sponsored academic programmes, commercial ventures and research and consultancies. This study further revealed that these IGAs were managed using autonomous units in most universities (56.4%) though it was not certain that they were managed by competitively sourced professionals (47.6%).

There was also uncertainty on whether the autonomous units embraced entrepreneurial practices in their operations in public universities (39.7%), therefore, the assertion of total entrepreneurialism in the public universities in Kenya could not be upheld. Entrepreneurialism is manifested in a shift in financing of these institutions of higher education where universities have taken advantage of available financial opportunities reflected by income generating projects. Further, according to Kwiek (2015) the public universities management should not proceed on its own in transforming universities to become more entrepreneurial.

While the current study found that public universities partly adopt entrepreneurial practices, the Shattock's and Kwiek's studies indicated that humanities and social sciences departments were less enthusiastic in embracing income generating activities. This is despite the fact that a majority of courses offered by public universities in Kenya, and hence the departments of these institutions that host the courses, are mainly social sciences and humanities. The present study further revealed that 40.6% of the respondents believed that respective departments played an important role in decision making on IGAs relating to their departments.

The study found that in majority (71.3%) of the universities, all income and expenses relating to IGAs were incorporated in the financial statements of the units. It can be deduced, therefore, that there has been an improvement from the previous study findings by Murage and Onyuma (2015) who found that financial statements of the IGAs did not incorporate staff emoluments paid to staff in the IGAs. The study further established that in most universities (64.4%), funds raised from autonomous units were strictly audited for financial prudence.

In addition, the present study noted that 40.6% of the respondents stated that it was at least true that the financial reports of the autonomous units were displayed for public scrutiny. It is to be noted that the financial statements of public universities are public documents and that display of public documents for public scrutiny is allowed within the laws of Kenya, on payment of the prescribed fee. Further, the financial statements may be presented to financial institutions for loans processing. This practice is in contrast to the views of Siswanto et al (2013) who concluded that both transparency and accountability are observed in income generating activities in public universities in Indonesia.

Though IGAs are operated as autonomous units, they fall under the parent university and public scrutiny of their financial statements is thus subject to the respective laws governing public universities in Kenya. Further, as outlined in Table 4.3, the study evaluated the proportion of funds generated from income generating activities that is put to capital projects. As indicated, it is clear that in majority (79.2%) of the universities less than 30% of income generated from IGAs was channeled to capital projects in public universities in Kenya.

Table 4.3: Percentage of Funds from IGAs Put to Capital Projects

Range in %	0 – 30	30 – 60	More than 60
Response proportion in %	79.2	14.9	5.9

It can also be observed in Table 4.3 that very few, a paltry 5.9% of the universities channeled more than 60% of the funds generated from IGAs into their capital projects. This confirms that a high percentage of the funds generated from the IGAs were utilized for recurrent purposes and concurs with the findings by Tsuma and Mugambi (2014) who concluded that the limited funds raised by IGAs in the public universities in Kenya were not necessarily ploughed back into the IGAs. The foregoing findings could partly inform the relatively low infrastructural growth in local public universities.

As postulated by Bamiro and Adedeji (2010), underfunding public universities has affected teaching and research as well as led to deterioration and disrepair of physical facilities. Further, as concluded by Rodrigues Wainaina and Mwangi (2005) and Kiamba (2003) on the University of Nairobi Enterprises Services Ltd, ideally IGAs were established to ease the financial burden on public universities as opposed to improving the infrastructure. This fact informs their minimal contribution to infrastructural growth.

4.3.2 Internal Control Systems and Sustainable Financial Prudence

The study also sought to determine the effect of internal control systems and sustainable financial prudence in the universities. The descriptive results emanated from analysis of data on a 5-point Likert scale where integers 1 to 5 represented ‘strongly disagree (SD)’, ‘disagree (D)’, ‘neutral (N)’, ‘agree (A)’, and ‘strongly agree (SA)’ respectively.

The pertinent descriptive results which are presented in form of percentages, means, and standard deviations are as shown in Table 4.4.

Table 4.4: Descriptive Statistics for Internal Control Systems

Items	SA	A	N	D	SD	Mean	Std. Dev
Top management is committed to integrity, ethics	26.7	49.5	11.9	8.9	3	3.88	1.003
There is clear assignment of authority	22.8	61.4	5.9	8.9	1	3.96	0.859
There is effective authorization and approval	26.7	55.4	8.9	6.9	2	3.98	0.905
Reconciliations are done on schedule and checked	17.8	56.4	10.9	13.9	1	3.76	0.94
Risks identified, analyzed and evaluated regularly	10.9	43.6	25.7	13.9	5.9	3.4	1.05
Prompt payments for supplies and capital projects	14.9	49.5	10.9	14.9	9.9	3.45	1.204
No threats of interruptions because of debts.	11.9	34.7	17.8	23.8	11.9	3.11	1.24
Capital projects are completed on schedule	7.9	36.6	18.8	25.7	10.9	3.05	1.178
No major audit issues raised by the auditor general	8.9	33.7	21.8	27.7	7.9	3.08	1.137
Departments are involved in budgetary preparation	19.8	52.5	10.9	11.9	5	3.7	1.073
Departments are required to explain any variances	18.8	38.6	19.8	13.9	8.9	3.45	1.204
Aggregate Score						**3.529**	**1.072**

The aggregate mean for the study variables on internal control systems is 3.529 and standard deviation 1.072. This falls roughly on the agreement scores on the 5-point Likert scale. This is an indication that, cumulatively, there was a general agreement with the study items on internal control systems contribute to sustainable financial prudence in public universities in Kenya. The contribution of each item is discussed below with reference to previous studies.

The results in Table 4.4 suggest that the top management in public universities was committed to integrity and ethical values (mean = 3.88; std dev = 1.003). There was also a clear assignment of authority and responsibility in most of the public universities (mean = 3.96; std dev = 0.859); in addition, most public universities had an effective authorization and approval system (mean = 3.98; std dev = 0.905).

Further, reconciliations were done on schedule and checked by a respective officer in charge of the units in the universities (mean = 3.76; std dev = 0.940) and that all departments were involved in budgetary preparation process for their departments (mean 3.70; std dev = 1.073). The findings of the current study complements the study by Fosu, Krah and Obeng (2013) who maintained that financial controls ensure that the respective spending officers should authorize the commitment of funds within the budgetary limits in adherence to the laid down procedures.

Further, risk identification, analysis and evaluation in the public universities were done on a continuous basis (mean = 3.40; std dev = 1.050). The payments for supply of goods and services, including capital projects, were also made as per the terms of payments (3.45; std dev = 1.204); additionally, the findings suggest that public universities were not facing any threats of interruption in the provision of goods and services or in construction of capital projects as a result of pending debts (mean 3.11; std dev = 1.240). The findings also indicate that the universities were evenly divided on whether capital projects were completed on schedule and whether variations arising in the costs were usually within the allowable limits (mean 3.05; std dev=1.178). The universities were further divided on whether the auditor general (corporations) usually raised no major audit issues on the audited financial statements (mean =3.08; std dev = 1.137).

The findings indicate that all departments were required to explain any variation arising from budgeted income and expenditure (mean = 3.45; std dev = 1.204). According to the study findings, it can be deduced that the top management majority (76.2%) of the universities were committed to integrity and ethical values. This was in concurrence with observations made in a previous study by Lemi (2015) which affirmed the importance of universities to formulate strategies for sealing loopholes through which resources were lost. Further, the Statement of Auditing Standards No. 78 (SAS 78), under the control environment gives integrity and ethical values and commitment to competence, as good practices in ensuring sustainable financial prudence. Control is subject to the commitment of top management who formulate strategies in their role as policy makers.

Further in most (84.2%) of the public universities there was a clear assignment of authority and responsibility and there was an effective authorization and approval system (82.1%). Reconciliations were done on schedule and checked by the respective officer (74.2%). These indicate that public universities have adopted the control activities prescribed under SAS No. 78 which envisages use of policies and procedures that ensure implementation of management directives.

It was affirmed that risk department carried out risk identification, analysis and evaluation on a continuous basis in majority (54.5%) of the universities. Risk assessment is the process of setting up procedures to identify, analyze and manage risks that pose a threat to achievement of organizational objectives (Messier, 2003). Payments for supply of goods and services, including capital projects, were made as per the terms of payments in majority (64.4%) of the universities. In addition, majority (72.3%) of the public universities ensured that all departments were involved in budgetary preparation process.

There was a general consensus that departments were required to explain any variation from budgeted income and expenditure (57.4%). This is in compliance to the provisions in Part IV the Universities Act, 2012 which requires involvement of respective users in the budgeting process and prohibits expenditure outside the approved estimates. As seen from the analysis on Table 4.5, it is further established that 60.4% of the public universities in Kenya had their 2013/2014 audited financial reports tabled by the Minister in charge of finance before the National Assembly. In the preceding three years, that is, 2012/2013, 2011/2012, and 2010/2011, 62.4%, 64.4%, and 68.3% respectively of the audited financial reports of the public universities had been tabled before the National Parliament by the Minister.

It is indicated that more than a third of the respondents were not aware whether financial statements of the public universities had been tabled by the Minister in charge of finance before the Parliament. In this connection, Part IV of the Universities Act, 2012 requires the Auditor-General (Corporations) to audit the financial statements and report to the university councils and the Cabinet Secretary within six months after the end of the financial year, and the minister to table the same before the National Assembly as soon as practicable.

Table 4.5: Aware the Financial Reports were tabled before the National Assembly

Financial Year	Tabled before NA (%)	Not tabled before NA (%)
2013/2014	60.4	39.6
2012/2013	62.4	37.6
2011/2012	64.4	35.6
2010/2011	68.3	31.7

4.3.3 Management Support and Sustainable Financial Prudence

The study further evaluated the effect of management support on sustainable financial prudence in the public universities. This variable considers management efforts to establish structures that facilitate achievement of the institution's objectives through provision of adequate infrastructure and effective managerial direction and support. The responses were on a 5-point Likert scale where integers 1 to 5 represented 'strongly disagree (SD)', 'disagree (D)', 'neutral (N)', 'agree (A)', and 'strongly agree (SA)' respectively. The descriptive results which were in form of percentages, means and standard deviations are as shown in Table 4.6.

Table 4.6: Descriptive Statistics for Management Support

	SA	A	N	D	SD	Mean	Std. Dev
There is management DSS in our university	19.8	51.5	10.9	13.9	4	3.69	1.065
Our ICT infrastructure supports all departments	25.7	46.5	10.9	12.9	4	3.77	1.094
ICT department is in charge of all the computers	22.8	57.4	7.9	7.9	4	3.87	0.987
There are no old/obsolete computer in our store	8.9	15.8	25.7	35.6	13.9	2.7	1.162
There are no idle computer hardware in offices	14.9	28.7	13.9	29.7	12.9	3.03	1.307
Personnel go through continuous ICT training	7.9	36.6	13.9	29.7	11.9	2.99	1.212
We have an efficient internet system	22.8	62.4	5	6.9	3	3.95	0.91
Aggregate Score						**3.428**	**1.105**

The grand mean for the study variables on management support is 3.428 and standard deviation 1.105, roughly on the integer 4, agree on the 5-point Likert scale. This indicates that, cumulatively, there was general agreement with the study variables on management support contribute to sustainable financial prudence in public universities in Kenya. Each of the study variables are discussed below with reference to previous studies.

On average, there was concurrence that most public universities in Kenya had management decision support systems (DSS) in (mean = 3.69; std dev = 1.065). Most universities also had information and communication technology (ICT)infrastructure that supported all departments at the universities (mean = 3.77; std dev = 1.094); In addition, the ICT department was in charge of all the computer hardware and software in most universities (mean = 3.87; std dev = 0.987). Moreover, it was inferred (mean = 3.95; std dev = 0.910) that public universities had efficient internet systems. These findings supported emphasis made in earlier studies by De Souza and Redmiles (2008) and Ozlen et al (2014). These studies emphasized the importance of management decision support systems.

However, there was uncertainty on whether there were old/obsolete/damaged computer hardware in stores of public universities (mean = 2.70; std dev = 1.162); there was also uncertainty on whether there were idle/unused computer hardware in offices of the said institutions (mean = 3,03; std dev = 1.307); and also whether personnel in all departments went through continuous ICT technical training and/or awareness (mean = 2.99; std dev = 1.212).

In respect to management DSS in public universities in Kenya, it was evident that majority (51.5%) had adopted the system. ICT was used to support the operations of all departments in majority of the public universities (72.2%). A high proportion of the universities (49.5%) reportedly had old/obsolete/damaged computer hardware in their stores, while there was uncertainty on whether there were idle/unused computer hardware in offices in the public universities in Kenya. The universities were also divided on whether their personnel often went through continuous ICT training.

This concurs with the findings by Wanyembi (2002) that there has been a rapid infusion of ICT into public universities in Kenya and limited knowledge at the top level relating to technical issues and investments in ICT. This study further suggests that majority (85.2%) of the public universities in the country had efficient internet systems. Still on the issue of management support, the study examined the extent to which various functions and related activities were computerized in public universities in Kenya and the results are presented as shown in Table 4.7.

Table 4.7: Computerized Records in Public Universities in Kenya

Records	Computerized	Not Computerized
Financial reports	87.1	12.9
Human resources reports	77.2	22.8
Procurement reports	77.2	22.8
Stores reports	66.3	33.7
Fixed assets reports	65.3	34.7
Academic reports	79.2	20.8
IGAs reports	61.4	38.6

The study as shown in Table 4.7 revealed that most of the public universities Kenya had embraced ICT through computerization of their crucial reports. Financial reports were the most computerized reports (at 87.1%) whereas IGAs reports at 61.4% were comparatively the least computerized. It was further established that 77.2% of public universities in Kenya had computerized their human resource (HR) and procurement reports. In addition, 66.3% and 65.3% of the said institutions had computerized their stores reports and fixed assets reports respectively. Besides financial reports, academic reports (79.2%) were the most computerized reports in public universities in Kenya.

4.3.4 Credit Controls and Sustainable Financial Prudence

The study analyzed the effect of credit controls in the context of sustainable financial prudence in public universities in Kenya. Credit controls relate to regulations or strategies employed by organizations to promote credit to creditworthy customers, aging of debtors as well as accelerate collections from credit customers. The data collected and subsequently analyzed were on a 5-point Likert scale where integers 1 (SD), 2 (D), 3 (N), 4 (A), and 5 (SA) represented 'strongly disagree', 'disagree', 'neutral, 'agree', and 'strongly agree' respectively. The pertinent descriptive results in form of percentages, means and standard deviations are as outlined in Table 4.8.

Table 4.8: Descriptive Statistics for Credit Controls

	SA	A	N	D	SD	Mean	Std. Dev
There is a credit control policy	18.8	48.5	14.9	14.9	3	3.65	1.043
Credit customers are assessed on a criteria	11.9	46.5	24.8	15.8	1	3.52	0.934
There are clear terms of credit	10.9	57.4	18.8	10.9	2	3.64	0.89
Ageing of debtors schedule is analyzed	9.9	57.4	21.8	9.9	1	3.65	0.83
Student finance prepares timely reconciliation	15.8	55.4	8.9	15.8	4	3.63	1.056
Aggregate Score						**3.618**	**0.9504**

The aggregate mean for the study variables on credit controls is 3.618 and standard deviation 0.9504. This falls roughly on the integer 4 which represents agree on the 5-point Likert scale. This is an indication that, cumulatively, there was a general agreement that the study variables on credit controls contribute to sustainable financial prudence in public universities in Kenya. Each of the study variables are discussed below with reference to previous studies.

As shown in Table 4.8, there was a credit control policy outlining the procedure for customer assessment, credit terms and debt collection in public universities in Kenya (mean = 3.65; std dev = 1.043). The analysis further showed that prospective credit customers were assessed using established criteria (mean = 3.52; std dev = 0.934); and there were clear terms of credit specifying payment due dates and penalties for default (mean = 3.64; std dev = 0.890). In most of the universities ageing of debtors schedule was analyzed in order to assess the risk of non-collection of existing debt (mean = 3.65; std dev = 0.830). Further, there was a general consensus that the student finance section prepared timely reconciliations and follow-ups to ensure students paid fees on time (mean = 3.63; std dev = 1.056).

It was evident that there was a credit control policy outlining the procedure for customer assessment, credit terms and debt collection in public universities (67.3%). Also, in majority of the universities prospective credit customers were assessed using established criteria (58.4%). In addition, in most of the universities there were clear terms of credit specifying payment due dates and penalties for default (68.3%). In most of the universities, ageing of debtors schedule was analyzed in order to assess the risk of non-collection of existing debt (67.3%). Lastly, there was concurrence that the student finance section prepared timely reconciliation and follow-ups to ensure timely fees payments in most of the universities (71.2%). This complements the study by Kiplimo and Kalio (2014) who found that organizations rate their customers using what is referred to as the 6Cs of credit appraisal (credit history, capacity, collateral, capital, character, condition).

4.3.5 External Borrowing and Sustainable Financial Prudence

External borrowing includes borrowing from either local or foreign lenders such as financial institutions (Barno & Lee, 2000). This study sought to establish whether external borrowing and sustainable financial prudence in their institutions. The data collected and analyzed were on a 5-point Likert scale where integers 1 to 5 represented 'strongly disagree', 'disagree', 'neutral, 'agree', and 'strongly agree' respectively as shown in Table 4.9.

Table 4.9: Descriptive Statistics for External Borrowings

	SA	A	N	D	SD	Mean	Std. Dev
Our university borrows from foreign banks	7.9	11.9	29.7	15.8	34.7	2.43	1.291
Local lenders charge lower rates	6.9	15.8	54.5	13.9	8.9	2.98	0.969
Our university pays loans as per the terms	15.8	28.7	36.6	13.9	5	3.37	1.065
Borrowing is used to finance specific projects	16.8	34.7	26.7	14.9	6.9	3.4	1.141
Aggregate Score						**3.045**	**1.117**

The aggregate mean score and standard deviation for the study variables on external borrowing is 3.05 and 1.117 respectively. This falls roughly on the integer 3 which represents neutrality on the 5-point Likert scale. This is an indication that, cumulatively, there was no consensus on whether the study variables on external borrowing significantly contribute to sustainable financial prudence in public universities in Kenya. Each of the study variables are discussed below with reference to previous studies. In particular, the results in Table 4.9 indicate that it was generally disputed (mean = 2.43; std dev = 1.291) that public universities in Kenya borrowed money from banking and financial institutions outside the country.

There was uncertainty on whether or not local lenders charged lower interest rates than external lenders (mean = 2.98; std dev = 0.969). The findings, nevertheless, suggest that most public universities repaid loans in adherence to the loan repayment terms (mean = 3.37; std dev = 1.065). Further, the universities borrowed in order to finance specific projects (mean = 3.40; std dev = 1.141).

The study results indicated that majority (50.5%) of the public universities in Kenya did not borrow money from banking and financial institutions outside the country while 19.8% borrowed from these foreign banks and institutions. However, it was unclear whether this was because of the perceived low interest regimes in the local banks and financial institutions (54.5%). In addition, most of the public universities reportedly serviced their loans in adherence to the loan repayment terms (44.5%). Moreover, the study indicated that borrowing by the public universities was done in order to finance specific projects and that such funds were put into the intended use (51.5%). This supplements the empirical analysis by Ishola, Olalaye and Giwa (2013) on the need to put the borrowed funds into the intended use and to have an effective repayment plan.

4.3.6 Sustainable Financial Prudence

Finally, the study sought to determine status of sustainable financial prudence in public universities in Kenya. The data was analyzed using a 5-point Likert scale where 1 (SD), 2 (D), 3 (N), 4 (A), and 5 (SA) represented ‘strongly disagree’, ‘disagree’, ‘neutral, ‘agree’, and ‘strongly agree’ respectively. The results to this effect are as illustrated in Table 4.10.

Table 4.10: Descriptive Statistics for Sustainable Financial Prudence

	SA	A	N	D	SD	Mean	Std. Dev
IGAs and investments ensure sustainable stability	10.9	48.5	11.9	22.8	59	3.36	1.128
Compliance with internal control ensures prudence	13.9	61.4	8.9	14.9	1	3.72	0.918
There is modern ICT system in our university	21.8	58.4	7.9	8.9	3	3.87	0.956
Timely, accurate reports enable decision making	14.9	59.4	13.9	9.9	2	3.75	0.899
Credit controls ensure timely debt collection	14.9	41.6	20.8	19.8	3	3.46	1.063
Debt control ensures low interest and collection	10.9	40.6	28.7	16.8	3	3.4	0.991
Aggregate Score						**3.64**	**0.993**

The grand mean for the study variables on to sustainable financial prudence in public universities in Kenya is 3.66. This falls roughly on the integer 4 which represents agree on the 5-point Likert scale. Cumulatively, there was agreement that the study variables wholly contribute to sustainable financial prudence in public universities in Kenya. Each of the study variables are discussed below with reference to previous studies.

The study indicated that, in general, there was compliance with internal controls in public universities, a factor which ensured financial prudence (mean = 3.72; std dev = 0.918); that there was modern ICT system in public universities (mean = 3.87; std dev = 0.956); and also that timely and accurate reports were produced which enabled proper decision making (mean = 3.75; std dev 0.899). The various IGAs and investments undertaken in public universities also ensured sustainable financial stability (mean = 3.36; std dev = 1.128). Credit control processes in these institutions ensured timely debt collection from students and credit customers and reduced default rate (mean 3.46; std dev = 1.063); proper debt management policies also ensured fair borrowing rate and adherence to debt obligation (mean = 3.40; std dev = 0.991).

The study observed that various IGAs and investments undertaken in most public universities ensured sustainable financial stability 59.4%. Further, there was compliance with internal controls in majority of the public universities (75.3%). Majority (80.2%) of the public universities in the country had also invested in modern ICT systems. Other findings indicate that timely and accurate reports were produced which enabled proper decision making (74.3%). It was noted that credit control processes in local public universities ensured timely debt collection from students and credit customers (56.5%,) a fact which reduced default rate. Lastly, proper debt management policies ensured fair borrowing rate and enabled the universities to adhere to their debt obligation terms (51.5%).

Cumulatively, it is evident that the study variables contribute to sustainable financial prudence which concurs with the study by Prabhakara, & Begum (2013) who proposed that it is beneficial to investors and corporate managers to embrace sustainability considerations into the decision making process. The study examined the various types of projects that public universities in Kenya had invested in. The results are as shown in Table 4.11.

Table 4.11: Types of Invested Projects in Public Universities

Venture	**Invested**	**Not Invested**
Business ventures (bookshops, hotels, cyber cafes and others)	80.2	19.8
Farming	80.2	19.8
Real estate (rental buildings)	38.6	61.4
Securities (shares, government bonds, Euro bonds)	27.7	72.3

As shown in Table 4.11, 80.2% of the public universities in Kenya had invested in business ventures such as bookshops, hotels, cyber cafes, among other ventures. A similar percentage of the universities had investments in farming activities. However, a small percentage (38.6%) of the universities had investments in real estate, and in securities in the financial markets such as shares and bonds (27.7%). The findings implied that local public universities were more inclined to investing in projects with quick returns.

The desirable projects included business ventures and farming, and were reluctant to engage in investments that required relatively huge capital such as real estate. In addition, the study suggests public universities avoid those investments whose returns took relatively long to be realized like long term bonds. Moreover, the study put into perspective the proportion of the revenue generated from the aforesaid investments in relation to the overall revenue generated by local public universities. The results in relation to the foregoing are as presented in Table 4.12.

Table 4.12: Revenue Generated from Investments as a Proportion of Overall University Revenue

Range in %	0 – 30	30 – 60	More than 60
Proportion in %	57.4	18.8	5.9

The results suggest that in most of the public universities (57.4%), revenue generated from investments amounted to less than 30% of the overall revenue collected by these institutions. Only 5.9% of the revenue generated from investment ventures of the universities accounts for more than 60% of their entire revenue collection.

The findings implied that public universities in Kenya were yet to undertake large scale revenue-generating investments and instead concentrated on conventional sources of revenue such as tuition fees, government funding and donations from sponsors and well-wishers consistent with Kwiek (2015).

4.4 Inferential Analysis, Interpretations and Discussions

The study evaluated the relationship between the determinants, that is, predictor variables (income generating activities, internal control system, management support, credit controls, external borrowing) and the dependent variable (sustainable financial prudence). In order for the foregoing relationship to be determined, the study employed Spearman rank correlation analysis. The study further examined the extent to which the stated determinants contributed toward sustainable financial prudence in public universities in Kenya. This was achieved through determination of coefficient of determination (R^2). Moreover, the study analyzed the extent to which each of the aforesaid determinants influenced sustainable financial prudence in public universities in Kenya. The analysis was achieved through determination of regression coefficients (β_n).

The coefficient of determination, denoted as R^2 or r^2 is the proportion of the variance in the dependent variable that is predictable from the independent variable(s). It makes inferences using a sample or samples from the population to make inferences about the entire population. The main purpose is either the prediction of future outcomes or the testing of hypothesis, on the basis of other related information (Gupta & Gupta, 2008). R^2 gives information about the goodness of fit of a model which shows how well the regression line approximates the real data points.

A coefficient of determination, $R^2 = 1$ indicates that the regression line perfectly fits the data. $R^2 = 0$ indicates no linear relationship. Values of R^2 outside the range 0 to 1 can occur where the ‘modeled’ values are not obtained by linear regression. The regression coefficient is the constant ‘β_n’ in the regression equation that tells about the change in the value of the dependent variable corresponding to the unit change in the independent variable (Kothari, 2004). The t-statistic is the ratio of the departure of the estimated value of a parameter from its hypothesized value to its standard error. It is used in hypothesis testing.

The term ‘null hypothesis’ is a general statement that there is no relationship between two measured phenomena. Rejecting a null hypothesis leads to the conclusion that there are grounds for believing that there is a relationship between the two phenomena. The null hypothesis is generally assumed to be true until evidence indicates otherwise. A regression diagnostic is one of a set of procedures available for regression analysis that seek to assess the validity of a model in any of a number of different ways.

The regression diagnostic may take the form of a graphical result, informal quantitative results or a formal statistical hypothesis test, each of which provides guidance for further stages of regression analysis. Multicollinearity is a phenomenon in which one predictor variable in a multiple regression model can be linearly predicted from the others with a substantial degree of accuracy. In this situation the coefficient estimates of the multiple regression may change erratically in response to small changes in the model or the data (Gupta & Gupta, 2008).

Inferential statistics makes inferences about populations using data drawn from the population. Instead of using the entire population to gather the data, the statistician will collect a sample or samples from the millions of residents and make inferences about the entire population using the sample. Lastly, the results of the inferential analysis, specifically, t-statistics facilitated testing of null hypotheses. Notably, the suitability of the regression model was determined through diagnostic statistics that sought to establish the extent of multicollinearity problems in the model.

4.4.1 Correlation Analysis, Interpretations and Discussions

The study employed the Spearman rank correlation to analyze the relationship between each of the afore-stated predictor variables and sustainable financial prudence. The results of the correlation analysis are illustrated in the correlation matrix shown in Table 4.13. In the illustration the study constructs have been abbreviated whereby IGAs, ICS, MS, CC, EB, and SFP represent income generating activities, internal control system, management support, credit controls, external borrowing, and sustainable financial prudence respectively.

The choice of significance level, referred to as probability (p) value, at which to reject the null hypothesis is arbitrary. The value of $P < 0.05$ is referred to as statistically significant. The level of significance in this study was 0.05 (Kothari, 2004). This implies that the relationship that returned p-value less than 0.05 ($p < 0.05$) was deemed to be statistically significant whereas any results in which p-value was greater than 0.05 ($p > 0.05$) were considered not to be statistically significant.

Table 4.13: Spearman Rank Correlation Matrix

			CC	IGAs	MS	ICS	EB	SFP
Spearman's rho	**CC**	Correlation Coefficient	1.000					
		Sig. (2-tailed)	.					
	IGAs	Correlation Coefficient	.452**	1.000				
		Sig. (2-tailed)	.000	.				
	MS	Correlation Coefficient	.696**	.404**	1.000			
		Sig. (2-tailed)	.000	.000	.			
	ICS	Correlation Coefficient	.555**	.561**	.572**	1.000		
		Sig. (2-tailed)	.000	.000	.000	.		
	EB	Correlation Coefficient	.422	.138*	.409**	.240**	1.000	
		Sig. (2-tailed)	.000	.169	.000	.015	.	
	SFP	Correlation Coefficient	.603**	.575**	.557**	.554**	.358**	1.000
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.
		N	101	101	101	101	101	101

****. Correlation is significant at the 0.01 level (2-tailed)**
***. Correlation is significant at the 0.05 level (2-tailed)**

As indicated in Table 4.13, the relationship between income generating activities and sustainable financial prudence in public universities in Kenya was found to be positive, moderately strong and statistically significant ($r_s = 0.575$; $p < 0.05$). The results implied that when public universities enhanced their IGAs, there was a greater the likelihood of moderately increasing their sustainable financial prudence. Conversely, reducing the IGAs was likely to moderately minimize the sustainable financial prudence in public universities in Kenya.

It was also revealed that there existed a positive, moderately strong, and significant relationship between internal control systems and sustainable financial prudence in public universities in Kenya ($r_s = 0.554$; $p < 0.05$). Interpretatively, strengthening internal control systems in public universities was likely to result in enhanced sustainable financial prudence. This implies that these institutions of higher learning should ensure that they have strong and reliable internal control systems in order to improve the sustainability of their financial prudence. This will be achieved through incorporating all the five components of an effective internal control in their operating systems.

The components of an effective internal control have been identified to include the control environment, risk assessment, control activities, information and communication and monitoring. The study further observed that the relationship between management support and sustainable financial prudence in the afore-stated universities was positive, moderately strong and significant ($r_s = 0.557$; $p < 0.05$). The results meant strengthening management support in these institutions was bound to enhance sustainable financial prudence; and weakening the same would reduce the sustainability of financial prudence.

The findings underpinned the importance of management support in enhancing sustainable financial prudence in local public universities. Such management support manifest in their efforts to provide adequate infrastructure and effective managerial direction and support that facilitate achievement of organizational objectives. It was further established that there existed a positive, strong and significant relationship ($r_s = 0.603$; $p < 0.05$) between credit controls and sustainable financial prudence. In other words, the stronger the controls, the better the sustainable financial prudence, and the reverse was also true.

Therefore, it was imperative to ensure that public universities had strong and sound credit controls in place. This is achieved through use of parameters that have been referred to as 6Cs of an efficient credit control system which require careful consideration of the prospective customer's credit history, capacity, collateral, capital, character and condition. The study further observed that the relationship between external borrowings and sustainable financial prudence was positive, weak and significant (r_s= 0.358; $p<$ 0.05). Interpretatively, even though enhancing external borrowings was likely to improve sustainable financial prudence, the likelihood was relatively marginal.

4.4.2 Contribution of the Selected Determinants towards Sustainable Financial Prudence

The study put into perspective the extent to which the selected determinants, that is, income generating activities, internal control system, management support, credit controls, and external borrowing explained sustainable financial prudence in public universities in Kenya. The results to this effect are as presented in Table 4.14.

Table 4.14: Regression Weights for Overall Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.790[a]	.624	.604	.50343

a. Predictors: (Constant), Income Generating Activities, Internal Control Systems, Management Support, Credit Controls, External Borrowing

The results of the general correlation as indicated in Table 4.14 shows that there existed a positive and strong relationship between all the determinants combined, and sustainable financial prudence (R = 0.790). The positive and strong relationship implied that enhancing or strengthening the five selected determinants was likely to substantially improve sustainable financial prudence in public universities in Kenya.

The five selected determinants include income generating activities, internal control system, management support, credit controls, and external borrowing Moreover, the results of the coefficient of determination ($R^2 = 0.624$) indicated that 62.4% of sustainable financial prudence in public universities in Kenya could be explained by the studied determinants (income generating activities, internal control system, management support, credit controls, and external borrowing). The remaining part (37.6%) could be attributed to other factors that were not part of the present study. The relatively high coefficient of determination underscores the importance of the foregoing determinants in respect of sustainable financial prudence in public universities in Kenya.

4.4.3 Analysis of Variance

The study further tested the effectiveness of the selected determinants in influencing sustainable financial prudence in public universities in Kenya. This was realized through analysis of variance (ANOVA). ANOVA is a collection of statistical models used to analyse the differences among group means and their associated procedures. In the ANOVA setting, the observed variance in a particular variable is partitioned into components attributable to different sources of variation. ANOVAs are useful for comparing three or more groups of variables for statistical significance. The analysis of variance (ANOVA) is shown in Table 4.15.

Table 4.15: Significant Test Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	39.894	5	7.979	31.482	.000[a]
	Residual	24.077	95	.253		
	Total	63.971	100			

a. Predictors: (Constant), IGAs, Internal Control Systems, Management Support, Credit Controls, External Borrowing

b. Dependent Variable: Sustainable Financial Prudence

As indicated in Table 4.15, the significant level of ANOVA was found to be $p < 0.05$. Given that the results indicated are less than the critical value of $\alpha = 0.05$. In statistical hypothesis testing, the critical values of a statistical test are the boundaries of the acceptance region of the test, that is, the set of values of the test statistic for which the null hypothesis is not rejected. In a one-tailed z-test, the research hypothesis tested predicts that the sample mean will be different from the population mean in a specific direction (acceptance region), either left-sided or right-sided.

The findings implied that the influence of the selected determinants (income generating activities, internal control system, management support, credit controls, and external borrowing) on sustainable financial prudence was statistically significant. The results further meant that the foregoing determinants were not equally effective in reference to sustainable financial prudence.

4.4.4 Regression Analysis

In this section, the study first put into perspective the suitability of the following regression model.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where

Y	represents	Sustainable Financial Prudence
β_0	represents	Constant
X_1	represents	Income Generating Activities
X_2	represents	Internal Control System
X_3	represents	Management Support
X_4	represents	Credit Controls
X_5	represents	External Borrowings
ε	represents	Error Margin
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$	represent	Regression Coefficients for Predictor Variables

The suitability of the above model was determined by use of diagnostic statistics in order to analyze the presence of probable multicollinearity problems. The foregoing problems arise from overdependence of individual predictor variables on other variables in their influence on the dependent variable.

The collinearity statistics are expressed in form of variance inflated factors (VIF) and tolerance levels as shown in Table 4.16. The acceptable threshold is VIF < than 10 or tolerance > 0.1 given that VIF is a reciprocal of tolerance. According to Freund and Littell (2000), VIF or tolerance levels within the foregoing acceptable threshold imply that there are no serious multicollinearity problems warranting further analysis. Each of the five predictor variables (income generating activities, internal control system, management support, credit controls, and external borrowing) as illustrated in Table 4.16 returned VIF less than 10 and tolerance levels greater than 0.1.

The foregoing collinearity statistical results implied that multicollinearity among the predictor variables did not increase the instability of the regression coefficient estimates. Therefore, the initial regression model was suitable and did not warrant any adjustment.

Table 4.16: Significant Test Results for Overall Model and Collinearity Statistics

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	**Beta**	**Std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
1 (Constant)	-.024	.309		-.079	.937		
IGAs	.295	.070	.333	4.211	.000	.633	1.580
Internal Control System	.166	.100	.148	1.666	.099	.505	1.981
Management Support	.111	.097	.104	1.145	.255	.481	2.078
Credit Controls	.348	.102	.312	3.405	.001	.472	2.120
External Borrowing	.139	.072	.136	1.939	.056	.809	1.236

a. Dependent Variable: Sustainable Financial Prudence

In addition, the results indicated in Table 4.16 were employed to interpret the following regression model;

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon}$$

$$\mathbf{Y = -0.024 + 0.295X_1 + 0.166X_2 + 0.111X_3 + 0.348X_4 + 0.139X_5}$$

Consequently, the above illustration of the interpreted regression model, it is evident that in order for sustainable financial prudence in public universities in Kenya to be enhanced by a single unit, it was required to effect 0.295 unit changes on income generating activities, 0.166 unit changes on internal control system, 0.111 unit changes on management support, 0.348 unit changes on credit control, and 0.139 unit changes on external borrowing while holding other factors (-0.024) constant. The results further indicated that credit controls which returned the highest coefficient ($\beta = 0.348$) had the greatest effect on sustainable financial prudence in local public universities.

On the other hand, management support with a coefficient of (β = 0.111) had the least effect on the stated sustainable financial prudence. The results underpinned the importance of having sound credit controls in public universities as one of the most crucial means of enhancing sustainable financial prudence. This is particularly significant considering the control of credit (tuition fees) from the high number of students in these public universities.

4.4.5 Hypotheses Testing

The null hypotheses were tested at 95% level of confidence which was equivalent to 5% (0.05) significance level/probability level/p-value/margin of error. The t-test statistics as shown in Table 4.16 were employed to test the null hypotheses. Given the stated threshold, any results of t-test statistics that were less than 0.05 implied that the relationship between the specific predictor variable (determinant) and the dependent variable (sustainable financial prudence) was statistically significant. As such the null hypothesis is rejected. Alternative results would lead to failure to reject the null hypotheses. In regard to the foregoing the null hypotheses were tested as follows.

Testing First Null Hypothesis (H_{01})

i. **H_0**: Income generating activities have no significant contribution towards sustainable financial prudence in public universities in Kenya.

ii. **H_A**: Income generating activities have significant contribution towards sustainable financial prudence in public universities in Kenya.

iii. Results of t-test statistics ($t = 4.211$; $p < 0.05$)

iv. Therefore, the p-value was found to be less than the acceptable threshold of 0.05

v. Verdict: The null hypothesis (**H_0**) was rejected.

Testing Second Null Hypothesis (H_{02})

i. **H_0:** Internal control system has no significant influence on sustainable financial prudence in public universities in Kenya.

ii. **H_A**: Internal control system has significant influence on sustainable financial prudence in public universities in Kenya.

iii. Results of t-test statistics (t = 1.666; $p > 0.05$)

iv. As such, the p-value was found to be greater than the acceptable threshold of 0.05

v. Verdict: The null hypothesis (**H_0**) failed to be rejected.

Testing Third Null Hypothesis (H_{03})

i. **H_0:** Management support has no significant influence on sustainable financial prudence in public universities in Kenya.

ii. **H_A:** Management support has significant influence on sustainable financial prudence in public universities in Kenya.

iii. Results of t-test statistics (t = 1.145; $p > 0.05$)

iv. Therefore, the p-value was found to be greater than the acceptable threshold of 0.05

v. Verdict: The null hypothesis (**H_0**) failed to be rejected.

Testing Fourth Null Hypothesis (H_{04})

i. **H_0:** Credit controls have no significant effect on sustainable financial prudence in public universities in Kenya.

ii. **H_A**: Credit controls have significant effect on sustainable financial prudence in public universities in Kenya.

iii. Results of t-test statistics (t = 3.405; $p < 0.05$)

iv. The p-value was found to be less than the acceptable threshold of 0.05

v. Verdict: The null hypothesis (**H_0**) was rejected.

Testing Fifth Null Hypothesis (H_{05})

i. **H_0:** External borrowing has no significant effect on sustainable financial prudence in public universities in Kenya.

ii. **H_A**: External borrowing has significant effect on sustainable financial prudence in public universities in Kenya.

iii. Results of t-test statistics ($t = 1.939$; $p > 0.05$)

iv. Therefore, the p-value was found to be greater than the acceptable threshold of 0.05

v. Verdict: The null hypothesis (**H_0**) failed to be rejected.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter, the most important findings of the study are captured. They are also linked to past studies in order to identity their point of concurrence or departure. This is followed by an outline of conclusions emanating from important study findings. Similar to the summary of findings, the conclusions drawn emanate from the study objectives. The chapter then illustrates and explains the suggested recommendations. The recommendations are in line with the significance of the study in relation to the contribution of the study findings to the body of knowledge and how informative the said findings are to respective policy makers and practitioners. The last part of the chapter outlines the areas suggested for further research which are informed by the findings of the study.

5.2 Summary of the Study Findings

In this section, the important findings of the study are summarized. The summary hereunder is drawn from the objectives of the study. Therefore, the findings have been summarized according to income generating activities, internal control system, management support, credit controls, external borrowing, and sustainable financial prudence respectively.

5.2.1 Income Generating Activities and Sustainable Financial Prudence

In relation to income generating activities (IGAs), the study found that all income and expenses relating to IGAs were recorded in the IGAs financial systems and hence reflected in the financial statements of the IGAs in public universities in Kenya.

It was also found that funds raised from autonomous units are strictly audited for financial prudence. In addition, it was revealed that in most of the public universities in Kenya less than 30% of income generated from IGAs is channeled to capital projects. From the foregoing, it can be deduced that the utilization of funds generated from IGAs could partly explain the relatively low infrastructural growth in local public universities. In addition, it was indicated that when public universities enhanced their IGAs, there was a greater likelihood of moderately increasing their sustainable financial prudence.

5.2.2 Internal Control Systems and Sustainable Financial Prudence

According to the study findings, the top management in public universities in Kenya was committed to integrity and ethical values where assignment of authority and responsibility was very clear. It was further noted that there was an effective authorization and approval system in the said institutions of higher education. Moreover, the study found that reconciliations were done on schedule and checked by a respective officer in charge of the concerned unit.

In the same vein, it is true to state that the respective departments in public universities in Kenya are involved in budgetary preparation process and are required to explain any variation from their allocated budgets. The study further established that, though the financial statements were submitted and audited within the schedule by the Auditor-General, (Corporations) the discussion thereon by the National Assembly has been declining over the recent years. However, usually no major audit issues are raised on the audits by the Auditor-General (Corporations). In the final analysis, the study demonstrated that strengthening internal control systems in public universities in Kenya was likely to result in enhanced sustainable financial prudence.

Importantly, strengthening internal control systems can be achieved through the use of the five components of internal control namely the control environment, risk assessment, control activities, information and communication and monitoring which are considered necessary for achievement of internal control objectives.

5.2.3 Management Support and Sustainable Financial Prudence

The study observed that there was management decision support system in public universities in Kenya, and that the ICT infrastructure supported all departments in these institutions. In the Kenyan public universities, the ICT department was in charge of all the computer hardware and software. It has also been established that the public universities had efficient internet systems. The study further observed that all important reports in local public universities are largely computerized. Almost all Kenyan public universities have computerized all their financial reports.

Among the reports surveyed, reports on income generating activities were found to be the least computerized in public universities. Management support is deemed to encompass management efforts to establish structures that facilitate achievement of the institution's objectives through provision of adequate infrastructure and effective managerial direction and support. The study concluded that strengthening management support in the foregoing institutions was bound to enhance sustainable financial prudence.

5.2.4 Credit Controls and Sustainable Financial Prudence

The study revealed that public universities in Kenya have a credit control policy outlining the procedure for customer assessment, credit terms and debt collection.

It was also indicated that ageing of debtors schedule was analyzed in order to assess the risk of non-collection of existing debt in public universities. The study further revealed that student finance section prepared timely reconciliation and follow-ups to ensure students paid fees on time. It was concluded that it is in the interest of the public universities in Kenya to put in place strong and sound credit controls in order to ensure sustainable financial prudence.

Such credit controls include rating prospective customers using what is referred to as the 6Cs of credit appraisal, namely, credit history showing the prospective credit customer's track in managing credit; capacity of the borrower to manage loan repayments; collateral, that is, the type of security the borrower provides to cover the loan; capital that can help the borrower repay the loan; character of the borrower to honour pledges; lastly condition determined through the purpose of the loan the environment and economic environment.

5.2.5 External Borrowing and Sustainable Financial Prudence

The study noted that public universities in Kenya did not borrow money from banking and financial institutions outside the country. It was also affirmed that public universities in Kenya borrowed money in order to finance specific projects. In addition, the study found that even though enhancing external borrowings was likely to improve sustainable financial prudence in public universities, the likelihood was relatively marginal.

5.2.6 Sustainable Financial Prudence

Public universities in Kenya were found to comply with internal controls. This subsequently resulted in financial prudence. The foregoing institutions were also found to have modern Information Communication Technology system.

Moreover, it was noted that the public universities produced timely and accurate reports which enabled them to make timely and appropriate decisions efficiently and effectively. More so, the study established that credit control processes in Kenyan public universities ensured timely debt collection from students and other credit customers thereby reducing the default rate and delinquent debts. The study further revealed that most of the public universities invested in business ventures such as hotels, bookshops, cyber cafes among other projects and in various forms of farming. Still in respect of sustainable financial prudence, the study observed that most of the revenue generated from investments by public universities was less than 30% of the overall revenue collected by these institutions.

Moreover, the study indicated that 62.4% of sustainable financial prudence in Kenyan public universities could be explained by income generating activities, internal control system, management support, credit controls, and external borrowing. The foregoing determinants collectively were found to have a statistically significant effect on sustainable financial prudence in public universities in Kenya. Credit controls were found to have the greatest effect on sustainable financial prudence in the public universities. Management support was, however, established to have the least effect on sustainable financial prudence in public universities in Kenya.

5.3 Conclusions

The study drew conclusions in respect of determinants of sustainable financial prudence in public universities in Kenya. The conclusions particularly touched on income generating activities, internal control systems, management support, credit controls, and external borrowing.

5.3.1 Income Generating Activities and Sustainable Financial Prudence

The study inferred that the cash flow depicting the income and expenses in relation to income generating activities were incorporated in the financial statements of the public universities. It was also concluded that the revenue generated from the afore-stated activities were either too little to be channeled to capital projects, or the management of public universities in Kenya prioritized it for other purposes such as addressing recurrent expenditure. It was further deduced that the stagnating infrastructural expansion in the public universities in Kenya could partly result from decision affecting allocation of the funds generated from IGAs. In the final analysis, income generating activities were confirmed to be essential in enhancing sustainable financial prudence in Kenyan public universities.

5.3.2 Internal Control System and Sustainable Financial Prudence

It was concluded that there is an effective authorization and approval system coupled with a clear assignment of duty. It is also factual that the top leadership in public universities in Kenya was committed to ensuring that integrity and ethics are integrated in these institutions of higher education. The study also concluded that reconciliations are carried out and completed on schedule and that they are checked by the relevant heads in the respective departments and that all departments within each university participated in making decisions. This could have been partly due to the fact that the departments were viewed as being resourceful in providing pertinent inputs for the decision making process as well as in operationalization of the resultant policies.

It is further concluded that although the public universities submitted their financial reports which were audited by the Auditor General there was a delay in their subsequent tabling before the national assembly. Lastly, the study concluded that formulation of internal control systems were imperative in relation to sustainable financial prudence in public universities in Kenya.

5.3.3 Management Support and Sustainable Financial Prudence

The study inferred that public universities in Kenya had put in place decision management system. This was crucial in the quality and therefore the effectiveness of the decisions made by these institutions. It was further deduced that public universities had advanced internet connectivity. The level of computerization was equally advanced in terms of both hardware and software. Indeed some leading public universities have the capacity to develop computer software.

A case of advancement of ICT in these public universities is the recent award of tenders to both Moi University and Jomo Kenyatta University of Agriculture and Technology (JKUAT) to develop and supply computer tablets to the Ministry of Education for use in public Primary Schools in Kenya. The study further concluded that majority of reports in public universities are computerized. Similarly, it is inferred that management support is crucial in enhancing sustainable financial prudence in these public universities.

5.3.4 Credit Controls and Sustainable Financial Prudence

According to the findings of the study, it was evident that public universities in Kenya have a credit policy.

The study concluded that the essence of the credit policy is to facilitate assessment of customers that include students and entities that procure goods and services from these institutions of higher education. In order to ensure that there is sustainable financial prudence in public universities, the study concluded that it is expedient for these institutions to have strong, effective and efficient credit controls. Such credit controls include rating prospective customers using what is referred to as the 6Cs of credit rating which include credit history, capacity, collateral, capital, character lastly condition.

5.3.5 External Borrowing and Sustainable Financial Prudence

The study concluded that public universities in Kenya rarely borrowed funds from financial institutions outside the country. In the light of the foregoing, it is logical to conclude that, where necessary, the public universities in Kenya preferred to borrow funds from local financial institutions as opposed to borrowing from foreign banks. This could have been as a result of bureaucracies involved in accessing funding from foreign lenders. The subject of interest rates charged by foregoing lenders remained uncertain. This could have been attributed to unavailability of historical data from previous funds borrowed as a result of lack of interest among Kenyan public universities to seek funds from lending institutions outside Kenya. It was concluded that even though enhancing external borrowing was likely to enhance sustainable financial prudence in public universities in Kenya it would be by a small margin.

5.4 Recommendations

The study suggests various recommendations emanating from the objectives of the study and are also aligned with the conclusions drawn by the study.

5.4.1 Recommendations on Income Generating Activities and Sustainable Financial Prudence

In relation to income generating activities, the study recommends that public universities should ensure complete automation of its management information and the financial systems. These will facilitate timely and accurate preparation and presentation of the financial statements and other management reports. The foregoing steps would possibly ensure that the contribution of income generating activities (IGAs) to the sustainable financial prudence is adequately documented.

It is further advisable that the policy makers in these institutions should enhance the various sources for generation of the revenue by the IGAs and allocate more funds towards the capital projects and development in general. The study further recommends that the persons entrusted with the management and utilization of funds obtained from income generating activities in local public universities should minimize the expenditure on short term recurrent activities. They should prioritize spending more of the generated funds in development projects. Projects such as construction of lecture halls, laboratories, libraries, hostels, among others should be given priority in allocation of IGA funds.

5.4.2 Recommendations on Internal Control System and Sustainable Financial Prudence

With respect to internal control systems, the study suggests that policy makers in public universities in Kenya should put in place sound internal control systems that advocate for ethical values and integrity within institutions of higher learning. There is overreliance by public universities on the exchequer for funding of both their recurrent and development expenditures against the backdrop of the fees paid by students and money from IGAs.

This suggests a probability of misdirection and/or misallocation of funds in these institutions. In addition, there is a possibility that some of these institutions have other external powers controlling finances. This underscores the need for a sound internal control system. It is important to have a comprehensive and strong internal control system in order to mitigate these challenges. The finance managers in these universities are advised to objectively implement policies on internal control system in order to ultimately ensure sustainable financial prudence in these institutions of higher learning.

Managers, both in the finance and ICT departments, should ensure complete automation of financial transactions and reliability of the information systems which ensure confidentiality, security, integrity, privacy and availability of processed financial information.

5.4.3 Recommendations on Management Support and Sustainable Financial Prudence

On management support, the study recommends that the universities formulate strategies that embrace the use of automation in decision making, particularly in the IGAs. It should be a sign of good practice that public universities devise policies to make ICT part and parcel of their decision making strategies. This will aid the management particularly when making crucial decisions. It is further recommended that the individuals entrusted with finances in public universities in the country, should consult very closely with their immediate supervisors to ensure sustainable financial prudence in their institutions. Consultation with the university's management is important particularly in clarifying certain financial aspects touching on external sourcing of funds and strategic development.

This would ultimately ensure that the execution and implementation of financial aspects and financial principles in line with Part IV of the Universities Act 2016 as well as enabling universities to realize sustainable financial prudence.

5.4.4 Recommendations on Credit Controls and Sustainable Financial Prudence

Local public universities, similar to other parastatals, are involved in, not only procurement of goods and services, but also supplying them on credit. In light of this, it is important for these institutions to have strong credit policies. The credit policy should ensure high quality in management of accounts receivable. The credit policy should define the requirements for establishing and maintaining credit lines. The policy should specify the procedure of conditions for credit acceptance, credit line value, and also payment terms and methods. In this era of automation, the credit transactions should be part of the computerized system.

The foregoing initiative is bound to ensure reliability of information specifically in light of finances and financial transactions. It is also important to establish close contacts with the credit bureau to establish the integrity of the accounts receivable portfolio in the financial statements, particularly relating to external customers. Further, review of the credit approval process should be an ongoing activity. This is in order to reduce the exposure to delinquent debts in the light of the overall institutional operational and financial objectives.

5.4.5 Recommendations on External Borrowing and Sustainable Financial Prudence

It is further recommended that public universities in Kenya formulate a policy that can effectively guide them when borrowing, particularly externally.

The policy should outline the procedure that ought to be followed by the university when borrowing both internally and externally. The procedure should specify the conditions that warrant borrowing from each of the jurisdictions, the method for selecting the lending institutions, the limits of acceptable interest rates, and the horizon for repayment of the borrowed funds. Given the probable bureaucracy of engaging external or foreign lenders, including the regulations attached thereto, the policy should place greater emphasis on local lending institutions.

5.5 Suggestions for Further Studies

Arising from the findings of this study, there are crucial areas that are recommended for further research. Studies on the areas will complement the results of this study.

5.5.1 Suggestions for Further Studies on Income Generating Activities

i. A comparative study on various income generating activities in both local public and private universities and how they individually impact on sustainable financial prudence.

ii. An analysis of the actual sources of funds for the IGAs in Kenyan public universities and the proportion of the same in relation to the overall funds available to these institutions of higher learning each financial year.

5.5.2 Suggestions for Further Studies on Internal Controls

i. Further research on various internal controls put in place by Kenyan public universities. Specifically, the study recommends an empirical investigation into the effectiveness of internal audit in enhancing financial prudence in public universities in Kenya.

ii. A comparative empirical study on the extent of integration of information and communication technologies in decision making in public universities in Kenya.

iii. A study on the effectiveness of computerization of financial records in public universities in ensuring sustainable financial prudence.

5.5.3 Suggestions for Further Studies on Management Support

A study on the extent to which the Internet has influenced decision making in public universities particularly by involving various stakeholders online in the process of decision making in these institutions.

5.5.4 Suggestions for Further Studies on Credit Controls

i. A study on various credit policies enacted by local public universities and how each of them impacts on sustainable financial prudence. The foregoing would enable the management of these institutions to adopt the most effective credit policies.

ii. Analysis of the debtors that pose the greatest credit risk to the public universities. This is founded on the premise that the primary debtors are students..

5.5.5 Suggestions for Further Studies on External Borrowing

According to the findings of this study, local public universities preferred local lending institutions to foreign lenders. However, the reasons to the foregoing stand were not very clear. In this respect, therefore, the study suggests further examination on the credit terms offered by both local and foreign lending institutions.

It is further recommended to carry out a study on the factors that influence both internal and external borrowings by public universities in the country.

5.5.6 Suggestions for Further Studies on Sustainable Financial Prudence

i. This study can be extended to public universities of other African countries. Ideally multiple studies using constructs from this study can help in identifying similarities and difference in the region. These differences can help in developing contingency-based models for sustainable financial prudence.

ii. A study can be carried out in the private sector. Comparison of results with the existing study can help in understanding the influence of nature of the universities and private sector management practices on the relationship and relative importance of independent factors.

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APPENDICES

APPENDIX 1
LETTER OF INTRODUCTION

Dear respondent,

I am a PhD (Business Administration) student at Jomo Kenyatta University of Agriculture and Technology, currently conducting a research study on “The determinants of sustainable financial prudence in public universities in Kenya”.

You are humbly requested to provide the required information to the best of your knowledge by filling in the questionnaire attached herewith. The data obtained will be treated confidentially and will be employed for academic purposes only.

Thank you in advance.

Yours faithfully

Esther Chepkorir Rono

Student

APPENDIX II

RESEARCH QUESTIONNAIRE

This questionnaire is integral to a study titled "The determinants of sustainable financial prudence in public universities in Kenya". Kindly answer the questions herein in the best way possible.

Section B: Income Generation Activities and Saving Culture

State the extent to which you agree or disagree with the following statements towards income generating activities where 1 = strongly disagree; 2 = disagree; 3= Indifferent; 4 = Agree; and 5 = Strongly Agree.

	5	4	3	2	1
1. The income-generating activities in our university contribute substantially towards the university's objectives.					
2. There is an autonomous unit that manages income generating activities.					
3. Management of the autonomous unit is run by competitively sourced professionals.					
4. The autonomous unit embraces entrepreneurial practices in its operations.					
5. Respective departments play an important role in decision making on IGAs relating to their departments					
6. All income and expenses relating to each IGA are incorporated in the financial statements of the unit.					
7. Funds raised from the autonomous units are strictly audited for financial prudence.					

8. The financial reports of the autonomous units are displayed for public scrutiny.					

9. State the name of the autonomous unit that manages IGAs in your university.

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10. List the types of IGAs that are managed through the autonomous unit.

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11. Indicate the percentage of funds generated from IGAs that are put into capital projects
    i) 0 – 30% ( )
    ii) 30 – 60% ( )
    iii) More than 60% ( )

Section C: Internal Control System

State the extent to which you agree or disagree with the following statements towards internal control systems where 1 = strongly disagree; 2 = disagree; 3= Indifferent; 4 = Agree; and 5 = Strongly Agree.

	5	4	3	2	1
12. The top management is committed to integrity and ethical values					
13. There is a clear assignment of authority and responsibility					
14. There is an effective authorization and approval system.					
15. Reconciliations are done on schedule and checked by a respective officer in charge of the unit					
16. The risk department carries out identification, risk analysis and risk evaluation on a continuous basis					

17. Payments for supply of goods and services, including capital projects are made as per the terms of payment.					
18. Our university is not facing any threat of interruption in the provision of goods and services or in construction of capital projects as a result of pending debts.					
19. Capital projects are completed on schedule and any variation in the cost is usually within the allowable limit.					
20. There are usually no major audit issues raised by the Auditor-General, (Corporations)					
21. All departments are involved in the budgetary preparation process					
22. All departments are required to explain any variations from budgeted income and expenditure					

23. Tick in the space provided to indicate whether the Auditor-General (Corporations) has tabled the following reports of your institution before the national assembly.

i) Audited financial statements for the 2010/2011 financial year ( )

ii) Audited financial statements for the 2011/2012 financial year ( )

iii) Audited financial statements for the 2012/2013 financial year ( )

iv) Audited financial statements for the 2013/2014 financial year ( )

Section D: Management Support

State the extent to which you agree or disagree with the following statements towards management support where 1 = strongly disagree; 2 = disagree; 3= Indifferent; 4 = Agree; and 5 = Strongly Agree.

	5	4	3	2	1
24. There is a management decision support system in our institution.					
25. Our ICT infrastructure supports all departments.					
26. ICT department is in charge of all the computer hardware and software.					

27. There are no old/obsolete/damaged computer hardware in our stores.					
28. There are no idle/unused computer hardware in our offices.					
29. Personnel in all departments go through continuous ICT technical training and/or awareness.					
30. We have an efficient internet system.					

31. Tick in the space provided to indicate whether the following records are computerized in your institution

i) Financial ( )

ii) Human Resources ( )

iii) Procurement ( )

iv) Stores ( )

v) Fixed Assets ( )

vi) Academic ( )

vii) Income Generating Activities ( )

viii) Other (list them below)

Section E: Credit Controls

State the extent to which you agree or disagree with the following statements towards credit control where 1 = strongly disagree; 2 = disagree; 3= Indifferent; 4 = Agree; and 5 = Strongly Agree.

	5	4	3	2	1
32. There is a credit control policy outlining the procedure for customer assessment, credit terms and debt collection.					
33. The prospective credit customers are assessed using established criteria.					

34. There are clear terms of credit specifying payment-due dates and penalties for default					
35. Ageing of debtors schedule is analyzed to assess the risk of non-collection of existing debt.					
36. The student finance section prepare timely reconciliations and follows up to ensure that students pay fees on time.					

Section F: External Borrowings

State the extent to which you agree or disagree with the following statements towards external borrowings where 1 = strongly disagree; 2 = disagree; 3= Indifferent; 4 = Agree; and 5 = Strongly Agree.

	5	4	3	2	1
37. Our university borrows money from banking and financial institutions outside Kenya.					
38. Local lenders charge lower rates than external lenders.					
39. Our university pays loans in adherence to the loan repayment terms.					
40. Borrowing is obtained to finance specific projects and such funds are put into the intended use.					

Section G: Sustainable Financial Prudence

State the extent to which you agree or disagree with the following statements towards sustainable financial prudence where 1 = strongly disagree; 2 = disagree; 3= Indifferent; 4 = Agree; and 5 = Strongly Agree.

	5	4	3	2	1
41. The various income generating activities and investments undertaken in our institution ensure sustainable financial prudence					
42. There is compliance with internal controls in our institution which ensures financial prudence.					

43. There is modern information communication technology system in our university.					
44. Timely and accurate reports are produced which enable proper decision making.					
45. Our credit control processes ensure timely debt collection from students and credit customers and reduced default rate.					
46. Proper debt management policies ensure fair borrowing rate and adherence to debt obligations.					

47. Tick in the space provided to indicate the types of projects in which your university has invested.

i) Business ventures (bookshops, hotel, cyber café' and others) ( )

ii) Farming ( )

iii) Real estate (rental buildings) ( )

iv) Investment in securities (shares, government bonds, euro bonds) ( )

48. Tick in the space provided to indicate the percentage of revenue generated from the investments in proportion to the overall university revenue

i) 0 – 30% ( )

ii) 30 – 60% ( )

iii) More than 60% ( )

Thank you.

APPENDIX III

LIST OF PUBLIC UNIVERSITIES IN KENYA

1. Chuka University (CU)
2. Co-operative University of Kenya
3. Dedan Kimathi University of Technology (DKUT)
4. Egerton University (EU)
5. Garissa University
6. Jaramogi Oginga Odinga University of Science and Technology (JOOUST)
7. Jomo Kenyatta University of Agriculture and Technology (JKUAT)
8. Karatina University (KRU)
9. Kenyatta University (KU
10. Kibabii University
11. Kisii University (KSU)
12. Laikipia University (LU)
13. Maasai Mara University (MMU)
14. Machakos University
15. Maseno University (MSU)
16. Masinde Muliro University of Science and Technology (MMUST)
17. Meru University of Science and Technology (MUST)
18. Moi University (MU)
19. Multimedia University of Kenya (MUK)
20. Muranga University of Technology
21. Pwani University (PU)
22. Rongo University

23. South Eastern Kenya University

24. TaitaTaveta University

25. Technical University of Kenya (TUK)

26. Technical University of Mombasa (TUM)

27. Embu University College

28. University of Eldoret (UE)

29. University of Embu

30. University of Kabianga (KBU)

31. University of Nairobi (UoN)

Source: Commission for University Education, 2017.