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(OCTOBER 2014)
APPROVAL FORM

The undersigned certify that they have supervised the student Kindness Tsitsi Damiso dissertation entitled: An evaluation of supply chain risk management strategies in the dairy industry: A case of Dairiboard Zimbabwe Private Limited (2013 – 2014) submitted in partial fulfilment of the requirements of the Bachelor of Commerce (Honours) Degree in Purchasing and Supply at Bindura University of Science Education.

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Signed: .................................................................

Date:.................................................................
DEDICATIONS

This piece of work is dedicated to my dearest brothers, Zorodzai and Tawanda (jnr). I wish you a successful and bright future.
ACKNOWLEDGEMENTS.

Firstly I would like to thank JEHOVAH, the ALMIGHTY for guiding me through all these trying years until now and for future.

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- To all these and all those who have not been mentioned, I wish you continued success in the years to come.

God bless

Kindness

October 2014
LIST OF ACRONYMS

CAATs..........................Computer Assisted Audit Techniques
IT..............................Information Technology
IIA..............................Institute of Internal Auditors
ACFE..........................Association of Certified Fraud Examiners
ACCA..........................Association of Chartered Certified Accountants
SOX.............................Sarbanes-Oxley
IPPF...........................International Professional Practices Framework
GAAS.........................General Accepted Auditing Standards
CA..............................Continuous Auditing
UTAUT........................Unified Theory for Acceptance and Use of Technology
et al...........................and many others
ABSTRACT

No business organization is out of purview of risk and uncertainties and hence the dairy industry is no deviation. This study ought to evaluate strategies used by Dairiboard Zimbabwe Private Limited to curb supply chain risks. Dairy industry plays a crucial role in an agro-based economy of the country. The research objectives were to identify supply chain risks in the dairy industry and identify the strategies being implemented to curb supply chain risks. A review of relevant literature was undertaken to identify risks and strategies being implemented in the supply chain. The researcher employed a case study approach as it was no practical. The case of Dairiboard Zimbabwe was conducted employing a quantitative technique of research. The instruments used in the collection of data were formal questionnaire, survey and interviews. A population of 135 people was drawn on the basis of stratified random sampling. Questionnaires were administered to 30 respondents using simple random sampling method. The data collected was presented in form of tables, columngraphs and pie charts using Excel. The findings were that shortages of raw materials and financial risks are the main major risks in the Dairy supply chain and improved supplier relations and increased supplier base are the major strategies being employed to curb risks. The recommendations of this research are to improve their sourcing strategies and improve their information systems.
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CHAPTER I

INTRODUCTION

Introduction

This chapter provided some background information to the study, the statement of the problem that led the researcher to focus on the study, objectives and importance of the study and the possible limitations encountered by the researcher. Key terms that are most frequently used are defined as a precondition for correct interpretation and a fuller understanding.

1.1 Background of the study

Auditing for many years had been done only by accountants who verified the controls on finances for organizations. The Big four Auditing companies started primarily as accounting consultancy firms but had grown to provide many services. Likewise, the process of auditing has also evolved (ACFE, 2012). However, several scandals in the last few decades had increased the need of internal auditors in the detection of fraud. In recent years, fraud had emerged as one of the biggest areas of not just financial loss for most companies, resulting in billions of dollars worldwide, but also of data loss and reputation or brand image (McAlearney, 2008). It can be confirmed that, the concept of fraud had long been in existence. Okafor (2008) observed that since the advent of commercialization, fraud had been in existence. This view was supported by Wright (2000), who stated that “Fraud is as old as trade and this considerably older than money”. Thus, fraud is a million dollar business and it’s increasing every year in the accounting and financial context.

The discernible increase in corporate collapses due to fraudulent financial reporting over the last few years had drawn substantially attention to the auditor’s responsibility to detect fraud. Suggestions were made for every organization to have certain controls
and measures in place to secure their information and also detect fraudulent activities. The new technologies which were currently placed for controls by organizations were already adapted by the fraudsters. Hence, to gain an edge over fraudsters, it was important that detection software was also kept evolving. The necessity to tackle fraudsters was one of the reasons why audit specific software was needed and this led to the development and innovations of Computer Assisted Audit Techniques (CAATs).

Due to increased fraudulent cases, audit standards encouraged the use of CAATs for auditing (AICPA, 2006). According to a survey in ACFE’s 2012 report to the Nations, “typical organizational lost five percent (5%) of its revenue to fraud each year”. Applied to the estimated 2011 Gross World Product, this figure translated to a potential projected global fraud loss of more than $3.5 billion. The survey highlighted the essence of applying CAATs in order to improve the effectiveness of the audit profession on fraud detection.

Although Omni Africa had been a leading IT company in Southern Africa through providing advanced information technologies, increased fraud cases were reported in the firm which the internal audit department failed to detect and uncover. This was emanating from the continued reliance on manual system on detecting fraudulent acts, of which the fraudsters were familiar with in covering up the footprints. This triggered a spark in the internal audit department to adopt CAATs in the audit profession.

1.2 Statement of the problem
The benefit of organizations that had been relying on manual fraud detection had remained low with many loopholes in detecting fraud. Even with the current strict manual controls placed by internal auditors, manual fraud detection was characterized by more paper work which had been more prone to human manipulation. As a result, continuous losses were reported in the financial statements of Omni Africa owed to ineffective manual fraud detection. Thus, the deficiencies and ineffectiveness in the audit process mounted pressure on Omni Africa to automate fraud detection. Therefore, the current study seeks to analyze the effectiveness of systemized internal auditing for CAATs in detecting fraud.
Objectives of the study

- To analyze the importance of CAATs effectiveness on fraud detection.
- To identify determinant factors influencing internal auditor acceptance of CAATs.
- To determine whether internal auditors were responsible on fraud detection and performance of operational duties.

1.4 Research questions

- What was the importance of CAATs effectiveness on detection of fraud?
- What was the determinant factors influencing internal auditor acceptance of CAATs?
- Were the internal auditors responsible in detecting fraud and performance of operational duties?

1.5 Assumptions

- The researcher assumed that the respondents will respond in good faith and at high response rate.
- The sample chosen will be a representative of the whole population.
- The researcher also assumed that all necessary information will be accessible

1.6 Significance of the study

1.6.1 To the Researcher

The researcher gained experience of carrying out a detailed research hence served as a good foundation for future work. Academically the study was useful in obtaining and improving the researcher’s understanding of the Internal Auditing involving CAATs subject in detecting and preventing fraud. The research project is done in partial fulfillment of the Bachelor of Accountancy (Honors) Degree (BACC).

1.6.2 To the Company
This study analyzed the effectiveness of CAATs on fraud detection. It shaded more light on what Systemized Internal Auditing was all about and its significance in sustaining the lives of several companies both in the private and public sector by enhancing operational effectiveness on fraud detection.

1.6.3 To Bindura University
This study created a reference to Bindura University on its competence and integrity on molding academic professional experts to the industry, nation and the world at whole in the field of Accountancy.

1.7 Delimitations of the study
The study was confined to one organization, Omni Africa in Harare where its headquarters was situated, in Zimbabwe. The study covered the period 2012 to 2013. The year 2012 had been taken as the starting point as it was a year just after Omni Africa had implemented a new system of systemized internal auditing. This research primarily focused on the systemized internal auditing activities of Omni Africa. The study was directed to the internal auditing department which used the CAAT tools and techniques in detecting fraud. The study, therefore, covered the analysis of the effectiveness of systemized internal auditing for CAATs in preventing and detecting fraud.

1.8 Limitations of the study
Some participants seemed to provide biased answers due to fear of releasing confidential information. However, this was minimized by consistent assurance to respondents that their views shall be treated with confidentiality and anonymity. Furthermore, other participants seemed to have no understanding of some of the questions the questionnaire. However the researcher gave clarification and this positively on the study’s quality improvement.
1.9 Definitions of terms

**Internal Auditing:** The Institute of Internal Auditors (2011), Internal Auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization’s operations.

**Computer Assisted Audit Techniques (CAATs):** CAATs refer to various tools, technologies, and software that help auditors to conduct control and confirmation tests, analysis and verification of financial statement data, and continuous monitoring and auditing (Lin and Wang 2011) is the practice of using computers to automate the audit processes.

**Fraud:** As per Alison (2004), fraud is intentional deception to make a lost one party with no consciousness and give an advantage to deception party.

**Financial statement fraud:** The term is defined by the Association of Certified Fraud Examiners (ACFE, 2012) as ‘the deliberate misrepresentation of the financial condition of an enterprise, by intentionally misstating or omitting amounts or disclosures in the financial statements so as to deceive their users’ (ACFE, 2007).

1.10 Structure of the research

The study was organized into five chapters. Chapter One highlighted the problem that the research tried to unfold and setting the arena upon which the study was based. It explored the background to the study, stated the problem, objectives of the study, assumptions, among other sub headings. Chapter Two covered literature review, which included purposes of literature review, theoretical framework, empirical evidence and identifying the gap in the research that was filled by the research. Chapter Three covered on the research methodology, which were procedures used in collecting information as well as the research design. Chapter Four was on data presentation, analysis and discussion. Chapter Five covered on summary, conclusions and recommendations.

1.11 Summary

The chapter focused on introducing what has given rise to this study in the background to the study, leading the researcher to define research objectives that
formulated the appropriate literature to be reviewed in the next chapter. Chapter two will be more aligned to the theory from which the research topic is derived; stated research questions and the stated problem. It will review literature for the relevant theoretical and empirical work on the analysis of the effectiveness of systemized internal auditing for CAATs on fraud detection.
CHAPTER II

LITERATURE REVIEW

2.0 Introduction
Literature review is an evaluative report of studies found in the literature to the selected area of study. The review describes, summarize, evaluate and clarify the area of study. According to Cooper (1998), the literature review provided the readers with a background of understanding the current knowledge on a topic and highlights the significance of the study. In this regard, this literature review gave a theoretical basis on the effectiveness of systemized internal auditing for CAATs in detecting fraud.

2.1 THEORETICAL FRAMEWORK

2.1.1 The need for auditing
The origin of auditing goes way back to times scarcely less remote than that of accounting… Whenever the advance of civilization brought about the necessity of one man being entrusted to some extent with the property of another the advisability of some kind of check upon the fidelity of the former would become apparent (Brown, 2005). Hence, an audit was provided as an independent check on the work of agents and of the information provided by an agent, which helped maintain confidence and integrity.

Research by Ziadat, Abdalmanam and Mahd Ali Al-jabali dan Khalifeh (2011) attested that, the main reason why companies carried out auditing was to check whether the information provided in the financial report gave a true and accurate reflection of the statements at a given date. However, it had been argued that, the nature of auditing differed according to the subject under examination (Zeleke 2005). But in general audits had been defined as examinations performed to assess and evaluate an activity or subject such as whether internal controls implemented into the
accounting information systems (AIS) are working as prescribed by management or whether the information processing function needs improvement (Porter et. al 2000).

Although auditing procedures had been relied upon for many years, the formal practice of auditing had been in existence for a relative short period. An investigation by Lala et al. (2014), attested that, environmental changes considerably affect the audit profession and the attitudes of the users of financial information towards auditing. On the other hand, the author confined that, the existence of multiple layers of entities related to each other had significantly contributed to too many changes in the audit profession. However, audit environment had continually evolved due to the advancement of Information technology, thus had great impact in the changes of the audit process.

In light of its increasing importance to the stability of financial markets, significant efforts had been made in recent years to improve the effectiveness of the auditing profession (Stuart, Sean and Michael 2001). It is confirmed that, both internal and external auditing professions were continually striving to improve and expand auditing techniques and be able to cope with the developments in information technology and increasing demands by users of accounting information.

Given that developments and technologies facilitated a movement away from the historical paradigm and toward a more proactive approach, it had been essential that auditors understood what the future audit entails and how they might begin to envision a logical progression to such a state. As the methods for processing of accounting information had changed and developed, auditors had been forced to change their approach of auditing since accounting and auditing were closely related professions. However, research by Zammit (1999) protested that, the overall objective and scope of an audit remained the same whether an audit was carried out in a Computer Information System (CIS) environment or not.

It can be confirmed that the new strategic and emerging technologies had enabled the auditing profession to take into account the more advanced and improved ways of auditing. Moreover, remained witness from the ongoing global demand for improvement in the audit quality had indicated that audits performed within a typical firm were deemed as operational, compliance, system development, and internal controls; however, in this regard the fraud audits were analyzed.
2.2 The origin of Internal Auditing

Matyjewicz and Blackburn (2003) analyzed that the rise of corporate scandals in entities such as Enron and other U.K high profile companies in the 1990’s led to the increase in the need for internal auditing. The Internal Auditing profession evolved steadily with the progress of management science after World War II. While some of the audit technique underlying internal auditing was derived from management consulting and public accounting professions, the theory of internal auditing was conceived primarily by Sawyer (1911-2002), often referred to as "the father of modern internal auditing.

In the Zimbabwean Business Press of March 2004, it was highlighted that, the Zimbabwe Stock Exchange (ZSE) had not yet called upon local companies listed on the stock exchange market to have an internal audit department. However, due to the Zimbabwean 2004 Banking Crisis, only the Reserve Bank of Zimbabwe raised a requirement for all the banks to have an internal audit department in response to the crisis.

Significantly, that prerequisite aroused other sectors to take note of the importance of the need for internal auditing department in guarding against the risks of fraud. In a bid to reduce financial losses from fraud, Omni Africa’s management was awakened to set up an internal audit department.

Research by Institute of internal Auditors (2011) highlighted the importance of internal auditing that it helped organizations accomplish its objectives by improving the effectiveness of risk management, control and governance processes. In other words, internal auditing was deemed as a catalyst for improving an organization's governance, risk management and management controls by providing insight and recommendations based on analyses and assessments of data and business processes.

Anderson (2004) viewed that, prior to 1941, internal auditing was essentially a clerical function with no organization and no standards of conduct. Therefore, auditors were needed to check the records after they were created for accuracy and errors in postings or footings. This was because of the nature of the accounting records kept at the time (that is, manual). Auditors were also concerned with the possibility of fraud. Thus, the internal auditing was a verifier or a “cop” to protect organizational assets. Research by Frigo and Mark (2002) observed that, internal auditing involved conducting proactive
fraud audits to identify potential fraudulent acts; of unexpected and unexplained patterns indicating fraud.

Due to increased fraudulent cases, accounting became mechanized and computerized, and records became subject to automatic checking procedures. During the 1940s internal auditors began to expand their audits to encompass more than the traditional financial audit. Thus, today, internal auditors are an integral link in the management process and are just concerned with waste inefficiency as with fraud (Salehi and Husini, 2010).

The advancement to systemized internal auditing also gave rise to more advanced fraud detection tools. This was issued by Martin (1998) who claimed that, fraud became more sophisticated each year; therefore it was paramount for fraud detection methods to be sophisticated. Thus, gave rise to the systemized internal auditing which had more advanced methods of detecting fraud.

2.3 The development of Information Technology (IT) and Computer Assisted Audit Techniques (CAATs)

The technology revolution in accounting and auditing began due to the need of guarding companies from risks of fraud, which manual detection methods had failed to unearth. Continuous losses of billions of dollars and company image damages led to many companies to develop interests to advanced tools and techniques in detecting fraud.

For the first time that electronically processing of data came into existence, auditors worried about the likely basic changes in relation to the new technology in the nature of auditing (Salehi et. al 2011). A study by Salehi et. al (2011) clearly specified that such things did not exist. However, as contradicted by Tucker (2001), the only difference had been that, because of favor grounds for some menaces in IT environment in comparison to manual environment, in order to decrease the potential damages resulting from inherent risks, more emphasis was put on internal control.

Furthermore, IT appeared to have an effect on the reporting aspect of internal auditing. In other words, it improved the quality of reporting toward the appeal of the illustration of report, decreased internal auditing mistakes, improved report
presentation time and updated it (Tucker, 2001). Research by Salehi and Alipour (2010) agreed with Tucker’s postulating that, IT changed the way accounting data was stored, retrieved and handled. These systems led to radically different audit trails (Salehi et al, 2010). In addition to the introduction of computers to the business world, other IT-related events had profound effect on the way audits were to be conducted. Hence, it became necessary to add new standards, affecting the body of auditing standards. The audit process itself became different from traditional audits prior to 1954 due to the introduction of CAATs, (the audit tools and techniques).

Since, then CAATs improved the effectiveness of the internal audit work as fraudulent acts were now being unearthed. Increasingly, internal auditors started to rely on CAATs in detecting fraud, as they permitted auditors to obtain a quick overview of the company, developing understanding of relationships between various data elements and easily drill down into the details of specific areas of interest, (Brazina and Leauby, 2004).

The audit standards specified that CAATs increased audit effectiveness by allowing internal auditors to directly inspect evidence stored in electronic form (AICPA 2006). These audit standards further reviewed that, improving audit effectiveness is particularly important in today’s audit environment where auditors had enhanced responsibilities for detecting fraud.

While the use of information technology (IT) in the business world had grown exponentially in the past two decades, the extent to which auditors had adopted IT such as CAATs to meet this growth remains an empirical question (Arnold and Sutton, 1998; Curtis and Payne, 2008; Janvrin et al, 2009). Moreover, recent research by Liang et al. (2001); Debreceny et al. (2005); Curtis and Payne (2008) suggested that CAATs acceptance was fairly low and varied among firms.

It was seen that despite the effectiveness brought about with the adoption of CAATs, some companies failed to enjoy the good fruits of using CAATs due to limited resources to acquire CAATs tools. On the other verge it can be as a result of lack of skills in acquiring the tools and techniques. In respect to fraud, Banks (2004) postulated that, auditors who continued to master the technology used by thieves was likely win the battle. Furthermore, fraud detection cannot be learned by auditors who rely on their professional experience alone (Krambia-Kapardis 2002). Thus, the use of
CAATs was of great value addition to the effectiveness of systemized internal auditing. Therefore, this implied that auditors’ skills and their use of CAATs provided unique opportunities for companies to uncover gaps in existing traditional fraud detection methods.

2.4 Effectiveness of CAATs in the audit process

According to Zhao et al. (2004), CAATs permitted auditors to increase their productivity as well as that of the audit function. Thus, in general, adoption of CAATs for audit process had potential benefits of enhancing work effectiveness by reducing the time for working paper preparation and improving decision making quality by providing groupware facilitated for collaborative decision making (Banker et al, 2002).

Moreover, automation of audit tasks and use of specialized audit software substituted IT for labor and changed the structure of audit teams (Gogan et al. 1995) and since an audit team is composed of professionals at different ranks (such as managers, seniors, and juniors) with different job responsibilities (Carmichael and Willingham 1989), CAATs adoption benefited audit professionals at different ranks in different ways (Banker et al, 2002).

2.4.1 CAATs Impact on Junior Internal Auditor

The primary tasks that junior auditors performed were assigned audit procedures and preparation of working papers. Most of these tasks were relatively repetitive and involved substantial calculations and referencing across different accounts. CAATs automated such structured tasks and substantially reduced the processing time (Abbe and King 1988). In addition, the reduction in monotone work allowed individuals to concentrate on more complex tasks and enhanced their individual performance (Millman and Hartwick 1987). The research result of Banker et al, (2002) also indicated that the principal benefits to a junior auditor from the IT changes were the savings in effort and the reduction in errors afforded by the electronic preparation of working papers.

2.4.2 CAATs Impact on Senior Internal Auditor

A senior auditor is assisted in audit plan development, organization of audit activities, and supervision and review of the work of junior auditors. This audit software
CAATs) organized all required audit procedures in a common list and cross-referenced them to items in the working papers. Since electronic presentation of information facilitated user's information acquisition (Jones et al. 1993), a senior auditor benefited from the convenient information gathering.

2.4.3 CAATs Impact at the Work Group Level
A study by Zarowin (1994), stipulated the importance of the tools in knowledge-sharing applications and network applications which enabled real-time information circulation. The use of CAATs facilitated communications efficiency in public accounting firms and the use of telecommunication applications reduced the operating costs of postage and travel expenses.

The researcher reviewed that, CAATs had attested to be effective in the audit process. A further analysis showed that, CAATs sped up internal auditors to make search of the irregularities from the given data. With the help of this tool, the internal accounting department of any firm had been able to provide more analytical results. Hence, more forensic accounting with more analysis was done due to the impact of CAATs to junior, and senior internal auditors, the business process level as well as the work group level.

2.5 Fraud
In recent years, fraud had emerged as one of the biggest areas of business losses. Fraud had presented a substantial cost to the economy worldwide. Fraud was deemed a million dollar business and it had continued to increase each and every year.

According to research by Lala, Gupta and Sharman (2014), fraud is one of the major issues that had been faced by any organization, because it not only caused financial losses but also damaged the brand of the company. According to a survey by ACFE, frauds last a median of eighteen months (18) before being reported (ACFE 2012). These statistics raised the importance of the need to have a thorough assessment of the controls needed to detect fraud in organizations.

According to the American Heritage Dictionary, (Second College Edition), fraud was defined as a deception deliberately practiced in order to secure unfair and unlawful gain. In a nutshell, fraud involved one or more persons who, with intent, act secretly to deprive another of something of value, for their own enrichment (Davia, Coggins,
Wideman and Kastantin 2000). The discernible increase in corporate collapses due to fraudulent financial reporting over the last years had drawn substantial attention to the auditor’s responsibility to detect fraud.

Prior researches by Lala et al. (2014) and Davia et al. (2000) highlighted the need of auditors to identify fraud as quickly as possible. Lala et al. (2014) emphasized that, the primary purpose of fraud detection is to identify fraud as quickly as possible and minimize the losses associated with it.

The researcher was not only confined on CAATs as good in preventing financial losses but also in improving shareholder confidence and market value. Bolton and Hand (2002) suggested that, fraud detection alarms were to be in place all the times to give a signal on the failure of fraud prevention controls.

2.5.1 Classification of Fraud

The delineation of fraud had been categorized to occupational fraud and abuse. Within the area of business fraud, many find it helpful to separate between internal and external fraud (Albrecht, et. al., 2008). This classification was applied to corporate fraud whether the perpetrator was based internally or external to the victim. As stated by the ACFE (2008) internal business fraud involved schemes against a company (i.e. to steal money from a company). On the other hand, external business fraud, or financial statement fraud, involved schemes on behalf of a company. This was most often done by misrepresentation of the financial statements to improve company image and mislead stockholders and other interested parties. Common external schemes involved revenue and inventory overstatements, liability understatements, inadequate disclosure of fraud, and other manipulations to the financial statements and company records (Wells, 2002). The Institute of Internal Auditors went in line with Wells findings stating that, fraud designed to benefit the organization generally produced benefit by exploiting an unfair or dishonest advantage that also deceived an outside party. Perpetrators of such frauds usually accrued indirect personal benefit.

Bologna and Lindquist (1995) further highlighted transaction and statement as other classifications. Statement fraud was defined by the above authors as the intentional misstatement of certain financial values to enhance the appearance of profitability and deceive shareholders or creditors, whereas, transaction fraud was intended in embezzling or stealing organizational assets. Thus, research by Davia et al. (2000)
distinguished the two related types of fraud as financial statement balance fraud and asset theft fraud.

However, what had been seen as internal fraud, following the above statements, was in fact occupational fraud and abuse, since one had to be internal to a company and abuse its occupation to commit internal fraud. The researcher thus, put internal and occupational fraud and abuse as equivalents. A further analysis indicated that, a combination of internal and external fraud can also occur, for instance, an employee could collaborate with the supplier to deprive the company. Classification of fraud is illustrated below in Figure 1.

**Internal fraud**

**Occupational fraud and abuse**

![Diagram of fraud classification](image)

**Figure 1**

*Source: Primary data*
2.5.2 Examples of Fraud

Susan, Battini Annette, Campbell and David (2005) highlighted that, historically companies faced challenges of incurring frauds such as

Inventory fraud which included theft of inventory, false sales, write-offs and other adjustment and inventory valuation schemes

Fixed Assets for instance theft of fixed assets, unauthorized changes in depreciable life, unsupported additional / deletions / modifications to fixed asset sub ledger

Payroll Fraud including duplicates (i.e. payees on same date, same or similar names, direct deposit account numbers), paychecks being created for employees that have no time and attendance, no expenses, no vacation, little or scarce personnel records, wages inconsistent with job classification, pay date precedes employment date, terminated employees continuing to be paid

Purchasing Fraud such as duplicate disbursement amounts, duplicate invoice numbers/dates, duplicate disbursements on same date, disbursement to vendor not in vendor database, vendor name/address/phone number same as employee name/address/phone number, invoice’s “pay to” address different from address in vendor or contract database

The researcher analyzed that, from the above description of the examples of fraud, previous researches showed that they were incurred due to the absence of viable internal controls, no segregation of duties, unlimited access to assets and confidential records, no physical check of existing assets with records, program overload, unrestricted access to computer disks and lack of expertise by supervisors. These were deemed as the key environmental factors that permitted fraud.

2.5.3 Internal Audit roles in detecting fraud

Lala et al. (2014) highlighted that, although, it had been management’s responsibility to design the proper controls, internal auditors were tasked to ensure that, those proper controls were in place to detect true nature of the fraud and report it also. Therefore, internal auditors were supposed to acquire necessary knowledge and expertise about the security controls in fraud detection, so as to ensure that, they were actively involved in the detection of fraud.
In other words, internal auditors were responsible for assisting in the detection of fraud by examining and evaluating the adequacy and the effectiveness of the system of internal control, proportionate with the extent of the potential exposure in the various segments of the organization’s operations. Although, internal audit function had been an arm or extension of management, management remained accountable for any failures.

2.5.4 Performance of operational duties
More emphasis was put by ACCA (2012) that, it was increasingly considered best practice in the world for internal auditors not to perform any other types of assignments whose financial statements they were auditing. This was because, internal auditor independence and objectivity was compromised.

On the other hand, internal auditors were forced to perform some of the operational duties due to inadequate skills by existing staff in executing work. However, IIA (2011) argued that, performance of operational duties by internal auditors jeopardized their independence (and subsequently objectivity).

The author realized that, internal auditors were not supposed to perform in the company’s day to day activities, since it increased high threat of self-review. Self-review threat was as a result of reviewing and reevaluating previous own work and judgements. Therefore, it was deemed as difficult and dangerous to spot own mistakes. In a nutshell, the duty of performing day to day operations was left to company management.

2.6 Fraud detection Models or approaches

2.6.1 Prediction model
Eining, Jones and Loebbecke (1997) designed a model which documented that most internal auditors had never (knowingly) encountered management fraud before and that this inflicted limits on an auditor’s ability to detect fraud of this nature. This position was supported and further implications were drawn by Bernadi (1994) who confined that an internal auditor’s fraud detection ability was a function of their prior experience and beliefs about fraud.
However, an early decision aid using parsimonious models to identify factors associated with fraudulent acts was developed by Persons (1995). When, tested, the stepwise logistics models produced superior predictive results in comparison to naïve strategy, which classified all entries as non-fraud firms. Therefore, this model was based on the experience and also knowledge of fraud types by internal auditors. Due to the inherent limitations of auditors themselves inspired the development of models that specifically aided auditors in the detection of fraud, or at least predicted the risk of fraud, thereby signaling to the auditor areas where increased audit attention was beneficial.

2.6.2 Expert system

This model was pioneered by Crowder (1997) and the system had been shown to enhance users’ performance of tasks requiring skills or judgement. The system mimicked the thought processes of a person who had become an expert in a certain area through study as well as personal experience. The expert system was based on reasoning rather than calculation.

Due to the low level of acceptance by internal auditors who were often reluctant to rely on the highly quantitative decisions aids gave rise to Eining et al. (1997) experiment in which they combined a logit model with constructive dialogue in an integrated expert system. This research resulted in the finding that there was a greater probability that internal auditors relied on the recommendations of this type of integrated model. The author’s findings indicated that the internal auditors who used the expert system were able to discriminate situations with varying levels of management fraud and selected more consistent subsequent decisions regarding appropriate audit actions than did users of a decision aid that provided only a suggested assessment (such as) a logit statistical model.

However, the 1997 experiment recognized that decision aids had been shown to outperform experts for multi-cue judgements which were considered problematic for unaided human judges, even those with high level of expertise in the matter being judged. Therefore, by using the expert system, internal auditors especially those with no prior experience of fraud increased their potential for detecting fraudulent acts (Eining et al. 1997).
2.6.3 Neural networks

This type of model was described by Crowder (1997) as a type of artificial intelligence which used case based reasoning and pattern recognition to simulate the way the human brain processed and stored information. This model had capabilities to learn the characteristics of potentially fraudulent schemes by comparing new information to stored data and detecting hidden patterns within large volume of data sets. A number of studies (Green and Choi 1997; Fanning and Cogger 1998 and Lin and Becker 2003) had shown the significant potential neural networks had, as a fraud detection tool. In line with the above authors, research conducted by Green et al. 1997 identified neural networks as being able to simultaneously examine the changes and relationship between multiple accounts or groups of accounting balances. Once the neural network learned the pattern of input data from sample fraud and non-fraud cases, it evaluated the individual data signals to create a distinct behaviour pattern to classify input data as either fraudulent or non-fraudulent. The pattern was then applied to predict the presence of fraud in financial statements (Green et al. 1997).

However, a different model was developed by Fanning and Cogger (1998) to investigate the usefulness of publicly available predictions in the detection of fraud acts. The study was different from the other previous model developed as it solely used information that was openly available to the public rather than information gained through auditor client interaction. The model’s test findings produced a probability of detecting fraud; the internal auditors suggested the artificial neural network offer superior ability to standard statistical methods in detecting fraud (Fanning et al 1998).

In contrary, a drawback of neural network model was their inherent weakness of failing to trace the process by which output was reached. Neural network was not quantified, thus, lacked a statistical confidence measure since the justification of results were difficult to obtain. This resulted in neural network lacking explanatory capabilities (Green et al. 1997). Nonetheless, for those firms which had internal capacity to develop or operate a neural network, the possibilities of detecting fraudulent reporting were increased.
2.6.4 Computer Assisted Audit Techniques (CAATs)

This model had been considered particularly suited to detecting fraud. This had been due to the ability of computers to extract, sort and analyze vast quantities of data in an effective manner (Paukowits and Paukowits 2000). CAATs were used since the 1960s in the audit and made extensive and intensive data interrogation possible. The capability to digitally analyze great volumes of data was complementary to the auditor’s responsibility to detect fraud. In large databases anomalies were easily going unnoticed by an internal auditor. However, technology in the form of digital analysis programmes was used to direct the auditors’ attention to possible misstatements. A systematic approach to fraud investing involved the identification of unusual activity with the aid of CAATs, helped to ensure that corrupt activity within the organization did not remain undetected (Coderre and Warner 1999).

A study by Brazina and Leauby (2004) emphasized CAATs as tools which permitted auditors to obtain a quick overview of the company developing an understanding of relationships between various data elements and easily drilled down into the details of specific areas of interest. This advanced audit software program provided with the platform for auditors to successfully interrogate financial data in search of fraud. This program became a cost effective way of increasing the fraud detection ability by internal auditors.

In 1998 Josh Martin described fraud-finding software (CAATs) as better than ever. The systemized internal auditing for CAATs proved to be effective since it was easy to check every transaction (100% sampling). When considering the presence of fraud the capacity of verifying one hundred percent (100%) of certain transactions instead of a small sample increased the likelihood of detecting fraudulent acts.

Moreover, the ability of computers to sort and analyze large volumes of data and the growth of network driven and database solutions to detect fraud, continued to ease the internal auditor’s job in this respect.

The above models presented some of the fraud detection techniques which were used by auditors. It was shown that from all the models explained, CAATs were considered especially well suited to the task of detecting fraud systematically. Although, limitations existed for any fraud detection tool, CAAT techniques in this paper showed significant potential for fraud detection.
2.7 Effective Fraud Detection Using CAATs

CAATs effectively assisted in the detection of fraud, but even more important had been the auditor's ability to recognize the quality of audit and fraud investigation results. CAATs interactively gave a lot of flexibility to the auditors to perform the desired operations. With the rise of CAATs, the auditors needed to move from the traditional approach. Figure 2.1 below illustrated the process of fraud detection after a fraud is reported. An auditor is assigned to the task.
The auditor created a formal fraud investigation plan. The fraud plan was supposed to clearly indicate why the fraud investigation was taking place, when it took place, where it was taking place and how it took place. The plan also contained details of the CAATs software to be used for the fraud detection. The auditor then needed to source the data.
To source the data, the auditor was supposed to meet the owner of the data, requested for the data and waited for approval. If the permission was granted, the auditor used CAATs to extract the data. The auditor was exposed in using several techniques to extract the data – obtaining logical access to the systems, running ad-hoc queries or gaining direct access to the client data. The next step was for internal auditors to understand the data, of which CAATs were essential at that level. Since client data was on various platforms, CAATs tools were helpful in converting the data in a common format that was understood by the internal auditors. While extracting data, auditors considered the right fields were extracted in the right manner so that the integrity of the data was not affected. The extracted data was then summarized and stratified to examine the possible range of fraud.

In detecting fraud, auditors extracted data from various sources and then merged it. Hence, joining the data from various sources was important. The auditor used the trend or pattern analysis in identifying the fraud occurred and the source of fraud. In many cases, the auditor utilized multiple ways of pattern analysis to detect a fraud and its source. In the end, the auditor drafted the results, verified it and forwarded it to the organization in a report format. The CAAT tools thus helped auditors detect fraud based on such created templates for patterns of fraud. This was deemed as a very useful initial scanning approach which was helpful in identifying fraud at early stages and also saved auditor’s time. The CAAT tool also used these patterns for continuous monitoring of systems, as they enabled internal auditors catch a fraudulent activity before it became critical.

According to Zhao, Yen and Cheng (2004) CAATs also provided auditors with the ability to effectively extract information from several databases with disparate database management systems, and identify underlying patterns or relationships in the data. Thus, from the above fraud detection process, CAATs had shown to be effective in selecting the specific information required in the process. Additionally, these tools had assisted the internal auditors in performing fraud detection effectively.
2.8 Empirical literature

The empirical literature provides evidence of past researches related to the topic under study. In this regard the following empirical works provide related evidence on the effectiveness of systemized internal auditing for CAATS on detection of fraud.

2.8.1 (Sachin Lala, Manish Gupta, and Raj Sharman, 2014) Fraud detection through routine use of Computer Assisted Audit Techniques (CAATs), USA.

The study was conducted by the school of Management, University at Buffalo, USA. The paper provided insights into the existing fraud detection techniques, identifying the gaps and proposing how auditors can leverage CAATs to fill the gaps, thereby improving overall posture against fraud in companies. The research used a postal survey questionnaire; the data was collected from 25 audit firms. A sample 86 internal auditors was used. The study proposed unique ways in which CAATs; an audit tool can be used to effectively fight against the problem of fraud. They believed that, the study would help auditors; fraud analysts and senior management understand how their organization can leverage existing and advancements in CAATs against fraud. The conclusion to the research was that, the use of CAATs effectively helped internal auditors in detecting fraudulent financial reporting. They further assisted in noticing irregular anomalies within large volumes of data, since 100% sampling was enabled by CAATs usage.

2.8.2 (R. AitNovatianiand EhaJulaeha, 2013), Internal Audit Influence to Fraud detection, Indonesia.

The research aimed at understanding how the implementation of internal audit influenced fraud detection. The research implemented on PT. PINDAD, Bandung, Indonesia. In this paper, the author implemented case study approach with analytics descriptive method. The populations in the research were ten (10) people from Internal Inspection Unit. A saturated sample technique was adopted, where all the populations were used. The study concluded that internal audit was adequate with 89%, fraud detection was adequate with 87% and coefficient of internal audit influence for fraud detection was 0.791, which meant that the relationship was in
strong category. The findings showed a positive relationship between internal audit influences to fraud detection. The research results showed the effectiveness of the internal audit in respect to fraud detection of PT PINDAD.

2.8.3 (Abdelfatah Tumi, 2013-14) An investigation study into the perceived factors precluding auditors from using CAATS and Continuous Auditing (CA), Libya.

The paper aimed at investigating the reasons why auditors in Libya underutilized CAATs and CA on a larger scale. This research was carried out by applying the Unified Theory for Acceptance and Use of Technology (UTAUT), developed by Venkatesh et al. (2003) and utilizing concurrent triangulation through questionnaires and interviews. 155 questionnaire sheets were distributed, 82 participants completed; 52 of them were auditors working in AFs while the other 26 were auditors working for the Libyan Audit Bureau. 21 interviews were conducted with a random sample of internal auditors of banks, oil and gas companies. In line with UTAUT, the results indicated that, although auditors believe that CAATs and CA have a positive impact on the audit function, CAATs are found to be underutilized. The lack of facilitating conditions and high costs involved was seen as major factors to preclude auditors from using CAATs.

2.8.4 (Bierstaker, Lowe and Janvrin, 2008), Auditor Acceptance of Computer Assisted Audit Techniques.

The study aimed at exploring the challenges of rapid advances in client information technology usage, and the auditor acceptance of CAATs. This paper employed the unified theory of acceptance and use of technology (UTAUT) model to identify factors influencing auditor acceptance of CAATs. Examination auditor acceptance of CAATs was important since researchers and practitioners argued that CAAT usage improved audit effectiveness. Data was obtained from 181 auditors from Big 4, national, regional, and local firms. Results indicated that performance expectancy and facilitating conditions such as organizational and technical infrastructure support influence the likelihood that auditors will use CAATs. These results suggested that to increase CAAT usage, audit firm management may want to develop training programs to increase auditors’ degree of ease associated with using CAATs. Furthermore, audit
firm management had to enhance their organizational and computer technical support for CAATs to encourage their usage.


The purposes of the study was to get an over all picture of the awareness of internal auditors for the adoption of CAATs and the current level of involvement of auditors in the application of CAATs in the audit process. Data was presented and analyzed using tools like SPSS, summated rating (Likert) scale and spread sheet which were mainly descriptive statistics. Respondents were selected from the Big Four Audit firms (Ernest & Young, KPMG, Deloitte & Touch and Price Water House Cooper) working in Karlskrona. From the 40 questionnaires distributed, 23 were properly completed and returned. Additional data was collected using interviews and qualitative method of analysis. The survey result indicated that, both management and employees believed that effective application of CAATs in the audit process had high potential for enhancing work efficiency and effectiveness. The author concluded that, audit firms seemed less constrained by the major hurdles for effective adoption of CAATs in their operational processes. However, he discovered the pace of change by audit firms in adopting the relevant CAATs for auditing and be abreast of technology seemed low.

2.9 Justification of the study
Lala et al. (2014), explored their research on Fraud Detection through Routine Use of CAATs. With regard to one of the objectives of this study, Abdelfatah Tumi found out that auditor acceptance of fraud was due to lack of computer expertise. He further explored that for the ease of use of CAATs management had to implement computer technical programmes. Tumi’s study was also supported by empirical work of, Bierstaker et al. (2008), in the context of auditor acceptance of CAATs. Their findings stated that, CAATs continue to be underutilized due to facilitating conditions and high cost involved in implementing the system. On the other hand, study by EhaJulaeha (2013) found that, there existed a positive relationship between internal auditing and fraud detection.
However unlike the researchers’ work, study by Lala et al. was more centered in fraud detection using CAATs only, it did not cover on the effectiveness of using CAATs. Moreover, the postal survey questionnaire conducted in the research at a university in USA was not more appropriate for a research of an exploratory in nature (Alreck and Settle 1985). The above researchers also focused their empirical work on the Banking Institution. Their main research ground was in Europe. Therefore, this research proposed to go beyond Lala et al. (2014) research work in the sense that it is going to be focused on the effectiveness of systemized internal auditing for CAATs, not in the banking institutions only, but in in the IT sector where CAATs can be effectively applied. From the above empirical studies, it can be noted that much research work has been done in the banking sectors. Moreover this research was investigated in Zimbabwe where other factors to be considered were hostile economic conditions unlike in Europe where auspicious economic environment prevailed.

2.10 Summary
This chapter had explored much of the previous researches done by other authors in the area of study. The following chapter will state the methodology used in gathering the research information analyzed in this chapter.
CHAPTER III

RESEARCH METHODOLOGY

3.0 Introduction
A clear description of how the study was carried out is given in this chapter, research design used, population used and how questionnaires were administered, and the justification of each of these. The author described how she sampled the population, the research instruments used, how data was collected and data presentation procedures. Validity and reliability of the study were further explored.

3.1 Research Design
Frankfort, Chava and Nachmias (1996) defined Research design as a detailed blueprint used to guide the implementation of a research study towards the realization of its objectives. Kinner and Taylor, (1995) further explored a research design as a master plan that specifies the methods and procedures for collecting and analyzing information data. A research design had to be created by the researcher, molded, rather than dictated, by the method and responsive to the context and participants. A descriptive research design was used in this study, and qualitative methodology was accommodated. This design enabled the researcher to describe the characteristics of the population under study through sources of existing data.

3.1.2 Descriptive Research Design
Bell (1998) asserted that descriptive research is typically concerned with determining the frequency with which something occurs or relationship between two variables. In other words, descriptive design is a scientific method which involves observing and describing the behaviour of a subject without influencing it in any other way, (Shuttleworth; 2008). Descriptive research design was more appropriate since the study was investigating relatively a new research area and it was more advantageous for understanding a new phenomenon in an in-depth manner. The researcher hence
used this type of research because of its ability to yield conclusive results, recommendations and findings which were definite.

3.2 Population
According to Best and Khan (1993), a population is referred to as “… any group of individuals that have one or more characteristics in common that are of interest to the researcher.” The researcher discovered two types of population, the target population and the accessible population. She further discovered that the target population cannot be accessed due to time and cost constraints. Whilst on the other hand, the accessible population referred to the actual population on which the research can be performed and to which the results of the research can be generalized. Thus, for time and cost effectiveness, in this study the author utilized the accessible population. The total accessible population included management, finance department and internal audit department with twenty (20) people, who were experts in the area of study. As Campell (2005) noted, knowledgeable individuals generate the highest quality data when answering questionnaires within their area of expertise, therefore population from the finance and internal audit department were the most effective for this study.

Table 3.0

<table>
<thead>
<tr>
<th>RESPONDENTS SELECTED</th>
<th>ACCESSED POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>9</td>
</tr>
<tr>
<td>Accountants</td>
<td>5</td>
</tr>
<tr>
<td>Internal auditors</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
</tr>
</tbody>
</table>

Source: Primary data

3.3 Sampling Design
A study sample was taken as a subset of the population, which the researcher deemed a representative of the total population. A population sample was selected to encounter the effects of costs and time limitations. A saturated sampling technique was adopted in this study.
3.3.1 Sample Size Used
Since, only a small population was selected of respondents who were readily available and accessible with minimum effort, the researcher utilized a saturated sampling technique, which was generally cost effective. Sugiono (2010) wrote: saturated sampling technique is determined if all of the population is used as sample. In this study all of the population used included 20 people. These respondents were therefore; grouped into three groups as shown in the above table, management, finance department and internal audit department. The researcher deliberately used the saturated sampling technique because it enabled her to make sure that each and every unit had equal representation in the samples questioned Pride and Ferrell (2010).

3.4 Data collection
Due to the choice of investigating a relatively new phenomenon of exploring the role of systemized internal auditing on fraud detection, qualitative data would give the in-depth knowledge needed as it had been relatively easy to interpret and understand. A case study was conducted at Omni Africa, where the author was attached, thus enabled her to obtain relevant information from the former workmates.

3.5 Data collection instruments
These referred to tools used for collecting data (Rees and Hamper, 1998). These instruments were hence used for collecting information and data needed to find solutions to a problem under study, that is; the analysis of the effectiveness of systemized internal auditing for CAATs on fraud detection. The researcher used secondary data as well as questionnaires.

3.5.1 Questionnaire design
To gather the relevant data for the analysis, a detailed questionnaire was designed and distributed to those selected respondents. As explained in chapter four the detailed questionnaire was structured in a way that helped the researcher to analyze the required empirical data previously gathered. A questionnaire as had been defined as a framework consisting of a set of questions and scales designed to generate primary data, Neuman (2012). Both open and closed questions were used to gather the needed information for this research. Open questions were those that gave not respondents
specific responses to choose, instead, the respondent answered on the text field on their opinion, experience or idea.

Open questions had the tendency to generate long answers and get the respondent’s answer in detail. This was deemed a good method enabling comparisons of respondents’ opinions at the same time as being flexible and allowing room for probing. On the other hand, closed questions provided options of choices for respondents. Usually these were straight forward questions with Yes or No. In this study, the researcher used more of closed ended so as to enable respondents to reply in a uniform manner and in a standard wording. These were also easier to administer and faster for data tabulation. According to Kinnear et al (1990), closed ended questions included possible answers and subjects allowing respondents to make choices among them.

Advantages of Questionnaires

- Questionnaires were very cost effective as compared to interviews. This reduced costs associated with involving large samples and wide geographical areas.
- Questionnaires were easy to analyze and data presentation in tables, charts and graphs was easily done with spreadsheet tool.
- Questionnaires were familiar to most people. Nearly every respondent had some experience completing questionnaires and thus, did not make people apprehensive.
- Questionnaires reduced bias. There was uniform question presentation and no middleman bias. The researcher’s own opinion did not influence the respondent to answer questions in a particular manner. There were no verbal or visual clues to influence the respondent.

Disadvantages of Questionnaires

- Nearly 99% of all communication is visual. Gestures, observable expressions and other visual clues were not conveyed with questionnaires.

Ultimately, on the data collection procedure used on questionnaires, the researcher first had a meeting with the CEO to seek permission. After permission was granted, the questionnaires were hand delivered and retrieved in person.
3.6 Data analysis and Presentation procedure

After gathering raw data in the field data processing followed. Wong (1990) said raw data needs to be converted into a form suitable for analysis and interpretation. Data presentation and analysis was done through a series of logical steps.

Marshall and Rossman (1999) explained that qualitative data analysis focuses on data in the form of words. They stated that qualitative data analysis was concerning of three flows of activity: data reduction, data display and conclusion drawing or verification. Data reduction activity involved the process of selecting, focusing, simplifying, abstracting and transforming the data. Data display involved the consideration of the reduced data and displaying it in an organised, compressed way so that conclusions were to be more easily drawn. The last activity is to decide what things mean, check the regularities, patterns, explanations, possible configurations, casual flows and positions.

In this study, based on the research problem and research questions, data had been presented separately in Chapter four. It was presented in the form of frequency tables, pie charts and bar graphs in line with the research objectives.

3.7 Validity and Reliability

According to Robson (2002) validity was concerned with whether the findings were really about what they appear to be about. As explained earlier, the empirical data was collected by using a well-developed questionnaire and by getting as many respondents as possible to answer it, and well organized interview was conducted. Consequently, the researcher believed that the data gathered showed her the representative picture of how certain examined variables affected each other in a chosen setting. The data collected was believed to be “the truth” at the time when the respondents answered the questionnaires and the interview. Accordingly, the researcher supposed that the findings reported were based on valid data and consistent analysis.

As defined by Frankfort-Nachmias & Nachmias (1996) reliability referred to the extents to which a measuring instrument contained variable errors, that is, errors, that appear inconsistently from observation to observation during any one measurement attempt or what they vary each time a given unit is measured by the same instrument. Unreliability of a given data or information had various causes among which
participant error and observer error were the major one which in turn depended on whether concepts in the questionnaire and during interview were clear to respondents. Such problems were minimized by putting much effort in avoiding ambiguous questions, since such questions damaged the reliability and validity of the research. Questionnaires were designed in a way that respondents understood easily with appropriate measuring scale. Moreover, before the questionnaire was distributed to respondents, it was critically reviewed by my supervisor and expressions that did not give sense and confusing terminologies were removed before hand. Reliability was also determined by how accurate the coded data was arranged and combined. As a result, all the data included for the analysis is valid and reliable to arrive on those findings.

3.8 Summary
This chapter had reflected on how the data regarding the effectiveness of the systemized internal auditing for CAATs was collected. The research methodology employed in view of the various constraints felt by the researcher as the best which could give the researcher good grounds for drawing up of reasonable conclusions. The next chapter will be on the analysis and presentation of research findings.
CHAPTER IV

DATA PRESENTATION AND ANALYSIS

4.0 Introduction
This chapter presented and analyzed data gathered through primary methods in the form of questionnaires. The ideas of the people asked on the effectiveness of systemized internal auditing for CAATs on fraud detection methods were analyzed and highlighted. The researcher’s ideas and findings were linked with the previous empirical studies highlighted in chapter two. All figures were rounded off to the nearest percentage.

4.1 Response rate analysis: Questionnaire
The questionnaire distribution and response rates were as follows:

Table 4.0

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Questionnaires distributed</th>
<th>Questionnaires returned</th>
<th>Questionnaires not returned</th>
<th>Response rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>9</td>
<td>7</td>
<td>2</td>
<td>78</td>
</tr>
<tr>
<td>Accountants</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>80</td>
</tr>
<tr>
<td>Internal auditors</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>83</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>16</td>
<td>4</td>
<td>80</td>
</tr>
</tbody>
</table>

Source: Primary data

The total number of respondents selected was twenty (20) internal auditors, accountants and management of Omni Africa. As a result, twenty (20) questionnaires were distributed. From the questionnaires 80% were completed properly and returned to the researcher. The rate of response indicated that the questionnaire was properly planned. The researcher agreed with Bell (1993) that, a well-designed questionnaire has a 70% and above positive impact on the response rate.
However, the question of what constitutes an acceptable response rate cannot be answered easily because many researchers do not agree on a standard for a minimum response rate (Frankfort-Nachmias and David, 1996). But researcher tried her best to maximize the response rate by sending e-mails and contacting them physically while they were filling the questionnaire.

Among those questions included in the questionnaire, question 7 of Section B was least answered by respondents as a result, the question was fully omitted from the analysis. Three carelessly completed questionnaires were received and the researcher realized that the respondents were novice for the profession. As a result, these were deliberately disregarded from the analysis, because including them was rather misleading. As indicated by the response rate, the researcher assumed data was collected from experienced respondents in using CAATs. Consequently, the researcher believed that the non-response rate had less effect on the reliability of the research.

4.2 PROFILE OF RESPONDENTS

4.2.1 Composition of respondents by gender

![Gender response rate graph]

Figure 3  
Source: Primary data
Figure 3 above indicated that 81% constituted of males whilst 19% were females. This indicated that in advanced technology firms men were more dominant as compared to women. Morris et al. (2000) agreed with my findings that, IT usage varied by gender and age. They further explained that, men tended to adopt IT more often when they perceived it to be useful to their jobs, whilst perception of ease and subjective norms were more likely to drive women’s IT adoption. The obtained information made the researcher to assume the respondents were likely to achieve a higher level of understanding of and familiarity with CAATs. Therefore, the researcher was able to draw appropriate conclusions and recommendations that men’s interest to learn on how to use CAATs increased CAATs effectiveness.

4.2.2 Level of education

Table 4.1

<table>
<thead>
<tr>
<th>QUALIFICATIONS</th>
<th>FREQUENCY</th>
<th>PERCENTAGE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary education</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Bachelor degree</td>
<td>10</td>
<td>63</td>
</tr>
<tr>
<td>Master degree</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: Primary data

The majority of the respondents held bachelor degree qualifications representing 63% of those who responded to the questionnaires. Both secondary level and master degree held 6% of the respondents. Lastly, 25% was for other qualifications, like certificates, professional courses. These statistics allowed the researcher to assume the respondents were knowledgeable about the subject of systemized internal auditing on fraud detection.
4.2.3 Respondents experience in using CAATs

Table 4.2

<table>
<thead>
<tr>
<th>Experience (years)</th>
<th>Response frequency</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5 years</td>
<td>2</td>
<td>13%</td>
</tr>
<tr>
<td>6-10 years</td>
<td>5</td>
<td>31%</td>
</tr>
<tr>
<td>Over 10 years</td>
<td>9</td>
<td>56%</td>
</tr>
</tbody>
</table>

Source: Primary data

From the data given in Table 4.2, 13% of the respondents had been experienced in using CAATs for a period of 0-5 years, 31% had been working with CAATs for a period of 6-10 years whereas 56% had dominated in using CAATs for over 10 years. Therefore, this attested that the respondents accessed were experts in using CAATs, since for a period above 5 years, 87% level of experience was obtained. Data validity was guaranteed since the researcher used the people who were familiar with CAATs. Hence, valid recommendations and conclusions were made.

4.3 DATA PRESENTATION AND INTERPRETATION OF FINDINGS

4.3.1 CAATs adoption increased effectiveness of internal audit on fraud detection

![CAATs effectiveness on fraud detection](image-url)
In order to determine whether CAATs increased the effectiveness on fraud detection, the researcher administered a question and the responses were as follows in figure 4.1 above. The highest percent (63%) of the respondents were of the view that, CAATs adoption was effective in detecting fraud as compared to other techniques. Though 19% of some of the respondents agreed that CAATs adoption was effective in detecting fraud, they viewed other systemized fraud detection techniques as more effective than CAATs. Over all, (82%) of the respondents who agreed on the effectiveness of CAATs on fraud detection were deemed as the actual users of the software. 0% of the respondents were judged as novice users, who had not yet gained much experience on CAATs. On the other verge, 12% disagreed whilst 6% of the respondents strongly disagreed on the effectiveness of CAATs in fraud detection.

From the results utilization of CAATs in IT firms increased auditors’ ability to detect sophisticated fraud which other automated techniques had failed to unearth. The results concurred with the study by Lala et al. (2014) stipulating that, the use of CAATs effectively helped internal auditors in detecting fraudulent financial reporting. Furthermore, study by Shling et al. (2010) corresponded with the above stated findings that, bank internal auditors usually used and perceived CAATs as interrogation tools to perform fraud investigations. Therefore, it can be confirmed that, the use of CAATs increased the effectiveness of systemized internal auditing in detecting fraud.

4.3.2 Identifying unexplained and unexpected patterns indicating fraud using CAATs

The researcher administered a question which sought to assess whether CAATs enabled internal auditors to identify unexpected and unexplained patterns in data that indicated fraud.
Figure 5  

Source: Primary data

From the Figure 5 above, 81% of the respondents strongly agreed that CAATs assisted internal auditors in identifying unexpected and unexplained patterns which indicated fraud. 13% of the respondents were neutral on the issue, whilst 6% disagreed that CAATs helped in identifying unexplained patterns of fraud.

Due to continued losses from fraud, Omni’s internal auditors were forced by the increase in unexpected and unexplained patterns which indicated fraud to adopt CAATs for an improvement, which ultimately proved to be effective. As discovered in this study, CAATs tools had been judged as helpful in detecting unexpected and unexplained patterns indicating fraud.

The findings conflicted with research of Frigo and Mark (2002) believed manual fraud detection methods were more effective in assisting auditors to identify unexpected and unexplained patterns which indicated fraud as compared to CAATs. On the other hand, both studies of PwC (2007) and ACFE (2006) argued with the discoveries as well as of Frigo and Mark (2002), stressing the importance of tips and chance in detecting unexpected and unexplained patterns of fraud.
To a lesser extent, studies by Frigo and Mark and PwC and ACFE disagreed in the effectiveness of CAATs in detecting unexpected and unexplained patterns indicating fraud. Whilst the findings were seen as more appropriate in drawing conclusions because majority of respondents strongly agreed that CAATs enabled internal auditors to identify unexpected and unexplained patterns which indicated fraud.

4.3.3 Determinant factors of CAATs

Level of CAATs acceptance using performance expectancy, effort expectancy, social influence and facilitating conditions

![Level of CAATs acceptance](image)

**Figure 6** Source: Primary data

As shown in fig 6, it can be concluded that the most influencing factors of auditor acceptance of CAATs were due to effort expectancy (44%) and facilitating conditions (38%). This study further discovered that auditor’s achievement of higher level of understanding of and familiarity with CAATs, organizational infrastructure and technical support increased user acceptance of CAATs.

In contrast with the research results under study, Venkatesh et al. (2003) regarded perceptions of ease of use, subjective norms and appropriate CAAT resources and computer support as the most drivers for effort expectancy and facilitating conditions. On the other hand, results from performance expectancy and social
influence were regarded as the least influencing factors of auditor acceptance of CAATs, which were 12% and 6% respectively.

However, this study’s results were contradicted by Tumi’s (2013-14) findings that, the lack of facilitating conditions and high costs involved were seen as major factors precluding auditors from using CAATs. In contrast with both findings, Janvrin et al (2008) employed UTAUT model which found that performance expectancy and facilitating conditions such as organizational and technical infrastructure support influenced the likelihood that auditors used CAATs.

In this study the researcher confirmed that the most influencing factors were effort expectancy and facilitating conditions. On the other verge, it was possible to say performance expectancy and social influence could have impact on the acceptance of CAATs by auditors, though it was deemed low.

a) Cost of acquisition

![Cost of acquisition](image)

**Figure 7**

*Source: Primary data*
Fig 4.4 above noted that, 31% of respondents believed that acquisition cost of the software could have impact on CAATs adoption by firms. The researcher assumed that most of these respondents were senior internal auditors and senior management, who were highly involved in the management of operation in the firm including resource planning which in turn had high awareness about the acquisition cost of audit software in the prevailing market. Besides, accountants were neutral that cost could have impact as indicated by the response rate of 13%. On the other hand, most respondents (56%) disagreed that cost of acquisition could be a major factor for CAATs adoption.

From the results cost of acquisition was not a major factor for CAATs adoption. These results conflicted with the empirical research by Janvrin et al. (2008) that auditor acceptance of CAATs was driven by firm resources. However, findings by Davis (1989) opposed research of Janvrin et al stating that, even if sufficient resources existed, users were not using and accepting the new IT due to individual user perceptions.

Hence, the effectiveness of systemized internal auditing for CAATs on fraud detection was not compromised by acquisition cost. Though, existence of some factors like size of the firm impacted the cost of acquisition on CAATs adoption.

b) Lack of training

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Variable</th>
<th>Response rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junior auditors+ accountants</td>
<td>Disagree</td>
<td>81</td>
</tr>
<tr>
<td>Senior internal auditors + management</td>
<td>Agree</td>
<td>19</td>
</tr>
</tbody>
</table>

Source: Primary data

A greater percentage of respondents of 81% disagreed that lack of training on how to use CAATs could be a major influencing factor on CAATs adoption. The major respondents were believed to be junior internal auditors and accountants. 19% of the respondents (management and senior internal auditors) pointed out that lack of training influenced CAATs adoption.
The results showed that CAATs adoption was not influenced by lack of training. The findings differed from the research of Zeleke (2005) who found lack of training as a major factor in CAATs adoption because users were affected when they lacked required skills if not trained. However, research of Zeleke differed with the research by Janvrin et al. which stated that, because of “lack of time”, most users were likely not to attend “enough training” related to the application of CAATs. Therefore, lack of training was disregarded as an influencing factor in the effectiveness of CAATs on fraud detection.

c) Low awareness to the usefulness of CAATs

From the results shown, low awareness as to the usefulness of CAATs reduced the number of users of the software with response rate (19%). (5%) remained neutral on the use of CAATs due low awareness as to the usefulness of CAATs. On the other hand, the majority of the respondents (75%) did not use CAATs at all due to their low awareness of its usefulness.

From the findings, the major influencing factor of CAATs adoption was judged as the low awareness as to the usefulness of CAATs. The results concurred with the empirical study of Debreceny et al. (2003) which discovered that, internal auditors

Figure 8

Source: Primary data

From the results shown, low awareness as to the usefulness of CAATs reduced the number of users of the software with response rate (19%). (5%) remained neutral on the use of CAATs due low awareness as to the usefulness of CAATs. On the other hand, the majority of the respondents (75%) did not use CAATs at all due to their low awareness of its usefulness.

From the findings, the major influencing factor of CAATs adoption was judged as the low awareness as to the usefulness of CAATs. The results concurred with the empirical study of Debreceny et al. (2003) which discovered that, internal auditors
perceived CAATs primarily as tools only for special investigation rather than as a foundation for their regular audit work. This was as a result of low awareness as to the usefulness of CAATs. On the other hand, research by Zeleke (2005) differed with that discovered by Debreceny et al. (2003) which observed lack of skills and size of the firm as the major factors for CAATs adoption.

As per these analyses, it is possible to deduce that, most respondents believed, adoption of CAATs as a tool for auditing was highly influenced by awareness of the auditor as to the usefulness of CAATs. On the other hand acquisition cost for audit software and other required resources, the required training towards CAATs could also have influencing factor to some extent.

4.4 Detection of fraud

In order to determine whether internal auditors and management together with the accountants knows who is responsible for the detection of fraud, the researcher administered a question and figure 9 presented the responses.

![Detection of fraud](source: Primary data)
50% of the respondents were of the view that it was the responsibility of both internal auditors and management to detect fraud. 19% said it was the internal auditors’ role. 31% notably found, it was management’s responsibility to detect fraud. The research found out that detecting fraud was assigned to management and internal auditors. However as the internal audit function had been an arm or extension of management it also aimed at detecting fraud, though management remained accountable for any failures.

The findings agreed with research conducted by Lala et al. (2014) which noted that, although, it had been management’s responsibility to design the controls, it is the internal auditor’s responsibility to ensure that proper controls are in place that can detect true nature of the fraud and report it also. In other words, from this research internal auditors and management had to work hand in hand in detecting fraud.

ACCA (2012) agreed with Lala et al (2014) saying, majority of management responses indicated that it is their responsibility although they further revealed that, internal auditors need to be actively involved in the detection of fraud. Thus, effectiveness of internal audit on fraud detection can be improved if all affected parties know their duties and responsibilities in aiding other functions in the organizations.

4.5 Performance of operational duties

Results obtained from the sample indicated that the IT auditors performed certain operational duties. The confirmation was obtained after 50% of the sample population indicated that internal auditors performed some of the day to day activities. 15% indicated that they did not take part and consisted mainly of the internal auditors while the remaining 35% came from a marginalized section, the novice personnel and accounts clerks who had no idea.

The Institute of Internal Auditors (2011) argued that once internal auditors perform day to day duties, their independence and objectivity is compromised and impaired. Thus, the researcher concluded that the effectiveness of systemized internal auditing is therefore impaired. In other words, involvement of internal
auditors in performance of operational duties created risks of temptation of internal auditors to cover up mistakes they may have made and risks of manipulation of accounts. Research by ACCA (2012) argued with the results saying, it is difficult and dangerous to try to spot your own mistakes. Therefore, such performance would make it difficult for the auditor to maintain objectivity. The responses were diagrammatically illustrated below:

**Table 4.4**

<table>
<thead>
<tr>
<th>SELECTED RESPONSE</th>
<th>NUMBER OF RESPONSES</th>
<th>RESPONSE PERCENTAGE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform</td>
<td>8</td>
<td>50</td>
</tr>
<tr>
<td>Do not perform</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>No idea</td>
<td>6</td>
<td>37</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>100</td>
</tr>
</tbody>
</table>

*Source: Primary data*

**4.6 Chapter summary**

This chapter was used to present and analyze field data collected by the methodologies in the previous chapter. The researcher considered the response rate to be indicative of the success of the study, as it was 80%. Data was presented in the form which was easy to understand and simple to analyze. In summing up the whole paper following is Chapter 5 which encompassed overriding conclusions and recommendations for future researches.
CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction
In this chapter the summary of the research findings, recommendations and conclusions were drawn from the rest of the study. This chapter focused on the analysis of the effectiveness of the systemized internal auditing for CAATs on fraud detection at Omni Africa, suggesting various recommendations to both internal auditors and to management of Omni Africa. The recommendations given in this chapter have been derived from the relevant literature that was reviewed, the information gathered from the field study and from the researcher’s judgments and understanding of the subject matter.

5.1 Summary of major findings
This section presents the findings of the research.

- Men were found to be appreciating advanced technology than women. This means CAATs usage varied by gender.
- It was discovered that, level of education had greater impact on the awareness of CAATs whereas untrained workers lacked skills in applying CAATs in their work.
- Results indicated that, respondents accessed were experts since they had five years and more experience in using CAATs.
- The research result indicated that major respondents believed that, effective applications of CAATs in the audit process had high potential for enhancing effective detection of sophisticated fraud which other techniques had failed to uncover.
- Most of the respondents judged CAATs as effective in detecting unexpected and unexplained patterns indicating fraud.
- Most respondents agreed that effort expectancy and facilitating conditions were the major influencing factors for auditor acceptance of CAATs.
Further findings showed auditor’s achievement of higher level of understanding of and familiarity with CAATs enabled internal auditors to increase their effectiveness for the adoption and application of more sophisticated auditing software and techniques.

Most respondents deemed cost of acquisition not a major factor for CAATs adoption.

Moreover, respondents also believed that, application and implementation of CAATs could be constrained by the size of the firm that determined in committing cost of the acquisition and trainings which they assumed on their perspective that it had less impact at Omni Africa.

Respondents believe that they do not lack training in their firm. Therefore, lack of training was disregarded as a major influencing factor in the effectiveness of CAATs on fraud detection.

Management, internal auditors and accountants were found to be lacking adequate knowledge and relevant practical experience to utilize the full potentials of the CAATs tools. In other words, low awareness as to the usefulness of CAATs was found as the major influencing factor for CAATs adoption.

The findings were management and internal auditors were responsible in the detection of fraud.

Further findings stated that, although internal auditors were actively involved on fraud detection management remained accountable for any failures in detecting fraud.

Part of the respondents agreed that, IT auditors performed much of the operational duties in detecting fraud.

The results attested that, performance of internal auditors in operational duties increased the risks of conflict of interests, compromised independence and self-review threat.

5.2 Conclusions

CAATs effectiveness on fraud detection
It appeared that, systemized internal auditing for CAATs was effective in detecting advanced fraud. 82% of the actual users believed that, CAATs were more useful in identifying fraud as quickly as possible. Various techniques which had been used were pretty advanced but they were no longer effective in unearthing sophisticated fraud which fraudsters had already designed using new technologies. Thus, the application of CAATs managed to cover the gap which other techniques had failed to cover. Moreover, CAATs adoption had also increased the ability of internal auditors to detect unexpected and unexplained patterns indicating fraud.

**Auditor acceptance of CAATs**

The major drive of internal auditor acceptance of CAATs had proved to be effort expectancy and facilitating conditions. The research findings showed that auditors’ achievement of higher level of understanding of and familiarity with CAATs, organizational infrastructure and technical support increased the use of CAATs in the audit profession.

**Determinant factors influencing CAATs application**

Results of the research showed that less use of CAATs in the audit profession was a result of low awareness as to the effectiveness of CAATs. This was deemed as the major influencing factor for the application of CAATs. Lacking of awareness reduced the effectiveness of systemized internal auditing for CAATs in detecting fraud since users lacked the knowledge of using the tools as foundation for their regular audit work.

On the other hand, cost of acquisition and lack of training were disregarded as influencing factors for CAATs application. Despite the availability of resources, some users feared for the application of CAATs since they believed they lacked required educational background and useful experience for operating and using of the new technologies.

**Detection of fraud**

The presented data showed that both management and internal auditors were responsible for the detection of fraud, although, management were to be held liable for any deficiencies. However, working hand in hand of Internal auditors
with management gave rise to the familiarity threat where internal auditors were likely to be influenced by management’s judgement.

**Performance of operational duties**

The findings showed that internal auditors dominated in performing operational duties. Although, the more internal auditors performed operational roles, the more threats to independence were affected. Therefore, effectiveness of systemized internal auditing affected the effective detection of fraud.

**5.3 Recommendations**

- The human resources department should recruit adequately qualified personnel. This will enhance the effectiveness of systemized internal audit in detecting fraud and avoid recruitment of under qualified personnel as it affects the quality of work done since the individuals will have a low level of professional proficiency.
- Management must provide appropriate CAAT resources and computer support to their staff members such as specialized instructions, support center and usage guidelines.
- To increase CAAT usage Omni Africa senior management must develop training programs to increase internal auditors’ degree of ease and awareness as to the usefulness of CAATs.
- The company must forgo other techniques of detecting fraud and adopt CAATs since they have proved to be more effective in detecting sophisticated fraud.
- The researcher recommended the company to enhance their organizational and computer technical support for CAATs to encourage their usage.
- The roles of management and internal auditors must be clearly defined by their job descriptions on the basis that internal audit is an extension of management, but does not perform management work.
- The Chief Executive Officer and management must, upon shortage of human resources recruit temporary workers like novices available on attachments and avoid assigning the internal auditors day to day duties. This will affect their independence and objective approach to tasks they audit as they may fail to
pick out errors since they would have executed them and assume that what they did was correct.

5.4 Future research

Although, systemized internal auditing for CAATs had proved to be effective in detecting fraud at Omni Africa, further studies must be conducted to see if these techniques actually work to other different companies effectively.
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APPENDIX A

QUESTIONNAIRE

The researcher, Primrose Mutserenga is a student at Bindura University of Science Education carrying out a research on the effectiveness of systemized internal auditing for CAATs on fraud detection. This research is carried out in partial fulfillment of Bachelor of Accountancy Honors Degree. This questionnaire is exclusively for research commitments. In this regard, no answer is appropriate or inappropriate. The researcher humbly requests for your assistance to respond as honest as possible and be assured that all your responses will be treated with confidentiality and anonymously. Your information will used for academic purposes only.

SECTION A: Respondent background (Tick inside the box that matches your answer)

1. Experience of work at Omni Africa
   □ 0-5 years   □ 6-10 years   □ over 10 years

2. Gender:   □ Male   □ Female

3. What is your rank or position at work?
   □ Senior Internal Auditor   □ Accounting technician and/ or Clerk
   □ Senior Manager   □ Finance Manager
   □ Other ___________________________________________

4. Which highest level of education have you already completed?
   □ Secondary education
   □ Bachelor degree
   □ Master degree
   □ Other ___________________________________________
SECTION B: *Effectiveness of CAATs on fraud detection*

<table>
<thead>
<tr>
<th>Tick the desired rate using the scales provided</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. CAATs adoption increased effectiveness of internal audit on fraud detection over other techniques</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. CAATs enabled internal auditors to identify unexpected and unexplained patterns in data that indicated fraud</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. The increase in many cases of fraud had strongly suggested need for CAATs use, since the tools had proven to be more effective</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION C: *Determinant factors of CAATs adoption*

8. From the given options, which option mostly influenced auditor acceptance of CAATs.

- [□] Performance expectancy
- [□] Facilitating conditions
- [□] Effort expectancy
- [□] Social influence

9. From the list below which factor was deemed as the major determinant for the adoption of CAATs?

- [□] Cost of acquisition
- [□] Lack of training
- [□] Awareness to the usefulness of CAATs
SECTION D: Responsibilities of Internal auditors

10. Who is responsible for the prevention and detection of fraud?
   □ Internal auditors □ Management □ External auditors □ Management and internal auditors

11. Are the internal Auditors involved in the performance of operational duties?
   □ Perform □ Do not perform □ No idea