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ACCOUNTING INFORMATION SYSTEM AND PERFORMANCE OF SMALL BUSINESSES: THE MEDIATING ROLE OF INTERNAL CONTROL

VICTOR KWAME ADASE

2021

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ACCOUNTING INFORMATION SYSTEM AND PERFORMANCE OF SMALL BUSINESSES: THE MEDIATING ROLE OF INTERNAL CONTROL

BY

VICTOR KWAME ADASE

Dissertation submitted to the Department of Accounting, College of Humanities and Legal Studies, University of Cape Coast, in partial fulfilment of the requirements for the award of Master of Business Administration degree in Accounting.

MARCH 2021

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DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature……. Date……..

Name: Victor Adase

Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation was supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

Supervisor's Signature……. Date…….

Name: Mr. Joshua Addo

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ABSTRACT

This study sought to examine the mediating role of internal control systems on the relationship between accounting information systems and the performance of a small businesses. The researcher developed two hypotheses to guide the study. The study adopted the explanatory design to research. Data for the study was sourced from a sample of 327 small firms in Sunyani. The sample size was determined using Krejcie and Morgan (1970) table. Data were obtained from respondents using a questionnaire designed based on research objectives. The dependent variable was small business performance while AIS effectiveness and ICS effectiveness were independent and hypothesized mediating variables respectively. The data was analysed using descriptive statistics and inferential statistics. Multiple regression analysis and the Sobel test was performed to test the significance of the mediating variable. The study found that the effectiveness of the internal control systems affects significantly the effectiveness of the accounting information system of small businesses in Sunyani. Moreover, findings from the study indicated no statistically significant direct effect of AIS effectiveness on firm performance. However, The Sobel test showed a significant indirect effect of AIS effectiveness on small business performance through the internal control system. The study recommended that small firms have in place a robust system of internal controls that is effective since it is through the internal control systems that accounting information system affects their performance.

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KEYWORDS

Internal Control Systems

Accounting Information Systems

Small Firm Performance

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DEDICATION

To the memory of Mr. Joseph Harrison Adase, my late father.

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CHAPTER ONE

INTRODUCTION

Businesses cannot make decisions without information. Information is considered as the life blood of every organization. Therefore, a business without accounting information cannot assess the performance of its operations. The quality of accounting information is essential hence the function of internal control systems. This is study investigate the accounting information system and performance of small businesses; the mediating role of internal control.

Background to the Study

It is said that the 21st century is an information era. This is not a misstatement. After all, this is the age that the world has experienced massive impetus of information technology. All forms and sizes of business organizations need information as the basis for decision making and growth. Information availability, accuracy, and speed have not only changed the way things are done in today's world. It has also created a basis for competition for businesses. In small businesses, where the risk of survival and demise rate is high, information is now seen as a strategic asset, even ahead of lands and buildings (Levy & Powell, 2000). The information available in the right form, quality, and time creates a huge competitive advantage for small businesses. When small businesses create solid accounting information systems, they also create the platform for oiling their machinery for business success.

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This comes in the form of improved business processes, enhanced internal control, and risk management systems, quality decision making, and ultimately superior overall performance (Trigo et al., 2016). If small firms have good accounting information systems, this will offer the right to use at the right period and in the right quantity, thereby reducing the effect of uncertainty on the achievement of their objective and hence enhanced performance (Medina-Quintero, Mora & Abrego, 2015).

Many studies seeking to understand the influence of AIS on firm performance perceive a direct linkage between the two constructs (Harash, 2017; Nouir & Samim, 2013; Odero, 2014). However, the influence of AIS on business performance may not be that direct. Accounting information systems may, first of all, affect business systems in the firm, and through improved systems and decision-making, improved firm performance is achieved (Dehgani & Jafari, 2019; Nouir & Samim, 2013; Rahman, 2016). This research is approached with the perspective that there is an influence on the performance of AIS through business processes (internal control, and risk management systems, which in turn affects firm performance.

The study is conducted on the premise that the AIS directly affects the internal control systems of the firm, through which the firm performance is enhanced. For the AIS to be robust to help the firm to gain a competitive advantage, it should be embedded with controls that seek to ensure the achievement of business objectives, through the safeguarding of the firm's assets, ensuring compliance with laws and regulations, and achieve quality financial reporting, among others (Al-

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Dmour, 2018; Cheng, 2018; Luo, 2017; Teru et al., 2017). The renowned internal control framework by the Committee of Sponsoring Organizations (COSO) of the Treadway Commission recognizes the influence of the AIS on the internal control system by embedding information and communications as part of the core component of a sound internal control system (COSO, 2009). An internal control system's risk management aspect includes the generation of knowledge about the company's internal and external environments. The AIS promotes the generation and exchange of information in the business and is also the basis on which an efficient environmental audit can be conducted by the company.

Measuring the performance of small businesses can be done from multiple approaches. Most of the measurement approaches focus on the financial perspectives of performance. Measurement approaches such as the triple bottom line and the balanced scorecard are alternative approaches that inculcate dimensions like people, planet, internal business process, and learning and innovation perspectives. The financial performance approach is limited in scope as it ignores other performance perspectives, such as customer, internal business process perspectives. The balanced scorecard approach to performance measurement takes into account multiple perspectives of business performance. It uses four perspectives of business performance - financial perspective, customer perspective, internal business process perspective, and innovation and learning perspective.

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Statement of the Problem

There is little research on how small businesses should use the accounting information system to tackle the issues presented by quickly evolving technologies and rising international competition. Hla and Teru (2015) and Harash (2017) previous empirical studies provide compelling evidence that the association between the accounting information system and the performance of businesses has centred predominantly on large corporations. These researches offer clear evidence that shows that accounting information systems are related to large corporations' accounting performance. Because of variability in the results of previous studies that may impact accounting efficiency on the accounting information system. Generally, a substantial number of researches have been published on accounting information systems.

However, in small businesses in developing economies, accounting information systems, internal control systems and firm performance have been under-researched. The population of developed countries has been the focus of much of the research on accounting information systems in modest and small businesses. In contrast, there are few studies of accounting information systems in small businesses in wealthy countries (Fagbemi & Olaoye, 2016; Harash, 2015).

In Ghana, Nang (2017) in his research found that in crucial areas such as expense, investment, and cash flow, AIS can help SMEs handle short-term problems. Saah (2015) also researched the accounting information system management and profitability of SMEs in the Tamale Metropolitan Assembly and

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concluded that in 2014, SMEs in the Metropolis had a profitability of 37.39% due to the implementation of accounting information systems.

Following his studies, he discovered small businesses are unable to embrace Computer Accounting Information Systems due to a lack of experience and a lack of knowledge of the potential benefits of doing so. The key focus of these studies was on the effect of accounting information systems on the performance metrics or service delivery of the surveyed small businesses. This study introduces the mediating role that internal controls play in the effectiveness of the accounting information system of small businesses in ensuring they perform better.

Purpose of the Study

The central aim of this study is to assess the mediating role of internal controls on the association between accounting information systems and the performance of small businesses.

Research Objectives

The specific objectives of the study are as follows:

1. To determine the effectiveness of internal control systems of small firms affects their AIS effectiveness.
2. To examine the AIS effectiveness of small businesses on their performance.

Research Hypothesis

AIS influences the performance of the firm through the internal control system of the firm. This leads to the formulation of hypotheses H1 and H2 as follows:

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H1: Effectiveness of internal control systems of small firms affects their AIS effectiveness.

H2: AIS effectiveness of small businesses affects their performance.

Significance of the Study

Supporting effective management is assisted by effective accounting information systems conducted in companies. It ensures that the consistency of decisions made by them is controlled and that these decisions are in line with the priorities that need to be accomplished. This study will raise awareness among small firms of the value of adequate and accurate accounting information systems for purposes such as decision-making, efficient planning and management of their companies that have a direct impact on their results.

The findings of this study will be of help to policymakers when formulating policies relating to ways small businesses in Ghana can adopt and use accounting information systems as a strategic resource taking into consideration the internal control effects that work in unison to promote business desired performance. Finally, this dissertation adds details on the subject field to the current body and can serve as reference material for academics who may wish to research similar or related topics.

Delimitation

The research focused on the effects of AIS on the financial results of small businesses in Ghana taking into account the moderating role of internal controls. The study focused on small businesses in Ghana. Small businesses from across all

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the sixteen regions of the country were surveyed. In this study, the AIS effectiveness was measured by assessing three dimensions of AIS effectiveness namely: information technology dimension of AIS Effectiveness, the managerial dimension of AIS effectiveness, and the user participation dimension of AIS effectiveness. The effectiveness of internal controls was measured by evaluating the effectiveness of the internal control systems components. Using the balanced scorecard approach, the financial results of small businesses was measured.

Limitations

Several factors limited the study. Time was a restricting factor that posed a challenge to the study's success. The academic pressure from combining normal academic work with the writing of this dissertation was hectic for the researcher. The researcher was unable to thoroughly analyze the research subject, which restricted the scope of the study, because of the lack of time. Another limiting factor was financial discipline. Financial problems posed another challenge to the successful completion of this study. The impact of this on the study is that it enormously limited the number of visits to the respondents and the quality of materials for carrying out the study. Some managers of small businesses were reluctant to supply data for the study. While the researcher explained to them the intent of the report, they declined to serve as respondents for reasons best known to them. Finally, the COVID-19 outbreak disrupted the method of data collection, which led to delays in questionnaire administration and retrieval.

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Organization of the Study

The study work is structured into five chapters. The introduction is Chapter One. The Introduction presented the context of the research, the problem statement, study goals, delimitation and limitation. Chapter Two addresses a review of literature, which included the theoretical review, conceptual review, and empirical review. Chapter Three looks at the techniques followed to complete this research. The chapter covered sample architecture, population and sampling processes, data collection techniques, and interpretation. The focus of Chapter Four was on the findings and discussion of data analysis. Chapter Five presents an overview of the study, conclusion, and recommendations based on the findings, and suggestions for future research.

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CHAPTER TWO

LITERATURE REVIEW

Introduction

Literature on the subject is presented in this section. This chapter presents existing research related to AIS and the performance of small businesses with internal control as a mediating factor. The literature review is broken into three parts: theoretical, conceptual, and empirical reviews. The theoretical review presents the relevant theories of the study. The conceptual review evaluates the concepts of the study and draws a link to the literature. Finally, the empirical review provides empirical evidence on the objectives of the study.

Theoretical Review

This section discusses theories that underpin the variables discussed in this study. Four theories are discussed.

Information theory

The basic function performed by the accounting information system is to provide information through financial statements and other reports for decision making. Accounting information systems offer information on the financial aspects of corporate organizations to administrators, business owners and external stakeholders. Freeman (2008) posits that financial information forms the foundation for formal economic decisions as to accounting systems essentially serve as data systems. Data collected by the accounting information system becomes accounting information only when it can be quantitatively evaluated and satisfy the criteria of relevance, verifiability and freedom from bias.

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The terms, relevance, verifiability, freedom from bias and quantifiability may be seen as the characteristics that provide an internal frontier of accounting information. According to this theory, data is viewed as a resource, which has some expenses as a result of its collection, processing and transmission. There is a related rise in costs as the amount of information grows. Therefore, it is necessary to equate the information generation process with the expenses associated with it, which is the biggest barrier to the maintenance of reliable accounting information systems for smaller firms. Only this benchmark can help to calculate the desired level of information supply by comparing the expense of the acquisition of information in relation to its gains for users.

Contingency theory

In 1964, Fiedler originally suggested the contingency hypothesis as a theory of managerial leadership. The theory implies, according to Fiedler (1964), that there is no best way to lead and that a management way of leading in one circumstance might not be good in others. However, Gordon and Miller (1976) set out the fundamental context for analyzing AIS through the eye of the contingency theory, where AIS must also respond to relevant resolutions taken within such a framework. The theory of contingency indicates that the AIS must be planned, designed and implemented in a way that recognizes a corporate entity's environment and organizational make-up (Dandago & Rufai, 2014).

By way of inference, the principle of contingency implies that business organizations must pay explicit devotion to their use of the accounting information system in order to make the most of it, taking care to follow the frameworks ideally

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tailored to their distinctive situations. There are some critiques of Fiedler's theory. A lack of versatility is one of the main critiques of the contingency principle that best applies to the current research. Fiedler (1964) concluded that replacing the leader is the most effective way to deal with circumstances because the natural form of leading is fixed. The philosophy does not allow for versatility in leaders. In conjunction with this study, it shows that managers would suffer more costs to fine-tune the AIS that does not tend to their needs rather than carry out modification.

Various types of AIS combined with other variables such as technology, structure, and environment have been investigated by existing literature. The AIS must also respond to the particular decisions that are being made. In other words, within an adaptive system, AIS needs to be built. No uniformly suitable management accounting method applicable to all organisations in all situations was found in other early contingency studies. Intrinsically, the techniques or methods depend on particular situations. The general inference from this is that higher organizational interdependence, decentralization and perceived environmental instability are variables correlated with either a higher perceived need for more advanced AIS or higher output of the business with more advanced AIS. By analyzing AIS within the context of small companies, the present study adds to this body of literature.

Resource-based view

Barney posited the resource-based perspective in 1991. According to Barney (1991), the resource-based view is that the essence of the sustainable advantage comes from doing things more smartly; by developing superior

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capabilities and knowledge. The resource-based perspective offers a way of deciding possible factors that can be deployed to give a competitive advantage to business organizations. The central idea behind the resource-based view is that not all assets are of equivalent worth, nor do they have the ability to become a key success factor that is durable.

The resource-based theory has three levels; capability, competence and skills (Caldeira & Ward, 2016). Capability refers to how organizations handle their resources; competence refers to how well those resources are handled while capabilities are correlated with skill levels, such as technological, administrative and general management skills. Accounting information systems are also part of the resources open to businesses. Inclining the resource-based view principle with accounting information systems and efficiency would mean that organizations handle accounting information systems correctly and effectively to leverage their capacity abilities and skillsets to enhance operational performance.

Agency theory

The agency theory was championed by Jensen and Meckling in 1976. The agency theory determines the passed on the authority of the owners (principals) to the manager (the agent) to operate the company on his or her behalf with the welfare of the owners depending on the manager accordingly (Jensen & Meckling, 1976). The theory of the agency aims to resolve the inherent clash of interests between owners and management, when managers' interests may exploit firm capital opportunistically to fulfil their interests (Brammer & Millington, 2015).

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Fundamentally, Companies seek to increase shareholder equity which, might be different from the personal interest of managers.

Compared to owners, the agent (managers) would have more valuable knowledge, the asymmetry of information exists, and this will improve the chances that agents may function in ways to fulfil their interests. The influence of the accounting information system on the financial results of businesses is discussed in this report. A company's primary aim is to increase shareholders (principals) capital which without any doubt exclusively rests on the shoulders of managers (agents). Therefore, the implementation by administrators of the accounting information system for better results fulfils the agency responsibility of managers to business shareholders.

Conceptual Review

Accounting information system

The Accounting Information System (AIS) is a system for the gathering, analysis and distribution of financial and accounting data used by decision-makers, directors or other users externally, including clienteles, creditors and tax authorities (Manaye, 2016). According to Lallo and Selamat (2014), The AIS is a framework that manages information and transactions to deliver information to users. AIS is regarded here as a framework that allows management to organize and monitor processes by supplying appropriate and accurate decision-making information. It implies that the functions of the AIS are not strictly meant to generate financial reports. This position goes beyond this conventional viewpoint. To include organizing and conducting company operations, AIS should be included. As a

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monitoring tool such as budgeting, it may also be used. Complete implementation of the system is also crucial in order to truly achieve the advantages of the system.

AIS is important for generating reliable and timely records of quality accounting information and for presenting the information to decision-makers. (Harash, 2015). For all organisations, AIS is important, structured to assist in the management and collection of information, raw data or and turn them into financial data in order to report them to decision-makers and monitor organizational matters. (Dandago & Rufai, 2014). AIS is a mechanism used by both internal and external users to gather and record data and knowledge about incidents that have an economic effect on organisations and to maintain, store and distribute that information. AIS is mostly used to provide internal and external monitoring statistics, financial statements and pattern analysis capabilities to impact the performance of an entity (Fagbemi & Olaoye, 2016).

AIS is mainly a computer-based system that enhances efficiency and strengthens organizational cohesion. AIS is one of the main success factors in successfully facilitating the accomplishment of accounting and financial goals, strengthening small businesses strategic efforts, and improving the exchange and transparency of results. AIS thus offers an impetus for practices to be revised and matched with perceived best practice cases (Fagbemi & Olaoye, 2016; Harash, 2014). For all corporations and organisations, AIS is of considerable value in helping to promote decision-making, since sufficient accounting information is necessary for any successful decision-making process. Improving their market

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effectiveness and rising productivity are the key priorities for many organizations (Hla & Teru, 2015).

Functions of accounting information system

The Accounting Information System is a program used by an organization to collect, store and manage financial information that is used for decision-making. In combination with information management tools, it is a computer-based tool to track accounting activities. In order to simplify, the Accounting Information System provides management with detailed information before making any crucial decisions that would significantly impact their business. Detailed below are the essential roles of an accounting information system. First, accounting information systems collect and process data relating to business transactions. This is the stage in which accounting professionals obtain details from transactions of cash, receivables, payables, payroll, etc. The AIS program processes all the debits and credits into an accurate ledger thus creating an accurate accounting database.

Second, accounting information systems provide important reports to owners or managers. Management uses AIS reports to assess the current activities and financial state of the organization and prepare for the future by making preparations and developing strategies. Third, precision and security are provided by accounting information systems. By restricting the number of persons who can control your device, protection can be strengthened. It will ensure that the data stays safe and safe when doing this. Plus, digital signatures should be monitored if something goes wrong. Since we are in a modern environment, it offers small firms the productivity they need in business by providing a computer-based accounting

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information system. The benefit of using AIS is that it simplifies and optimizes reporting, making it all only a few clicks away if it needs reports and other system information.

Elements of AIS

Skilled accounting professionals or SME owners or managers work in-depth with AIS to attain the best degree of consistency in the business transactions and record-keeping of SMEs, as well as to make accounting information readily accessible to those who are genuinely in need of it, even while keeping data safe and safe. In general, accounting information systems consist of six primary elements: people, procedures and instructions, data, software, information technology infrastructure, and internal controls (Elsharif, 2019).

People represent the human aspect of IAS. The people in AIS are users of the program. Accountants, advisers, market managers, directors, chief financial officers and auditors are specialists who will need to use the AIS of a company (Elsharif, 2019). AIS lets the various teams collaborate within an organization. For instance, sales staff can submit consumer requests as sales are made, the accounting department can then invoice customers, the warehouse can assemble the order, the shipping department can submit it out, and a fresh receivable is notified to the finance department. The department of customer support will then monitor customer orders and the system can generate management revenue reports. If an organisation has a well-built AIS, anyone who is allowed to do so within an entity can use the same framework and collect the same information. The AIS can be

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designed to serve the needs of the persons who will use it. The system should also be simple to use and should boost, not impede, performance (Elsharif, 2019).

The procedure and instructions of an AIS are the techniques used to obtain, save and archive, retrieve and process information. Both manual and automatic are these techniques. Data can come from both internal sources (e.g., staff) and external sources (e.g., electronic orders of clients) (Elsharif, 2019). Procedures and instructions that have been coded into AIS software should also be "coded" into employees through documentation and training. Procedures and instructions must be implemented regularly to be successful.

The details stored in an AIS is all the financial documents related to the corporate activities of the companies. Any business data which affects the finances of the corporation should go through an AIS. The data used in the AIS should be focused on an enterprise's nature. Such knowledge will then be used to prepare reports. The presence of all this material in one place in the accounting information system facilitates the practices of record keeping, filing, review, auditing and decision making. Sales orders, consumer billing records, sales requisitions, inventory details, payroll records, timekeeping, tax information, etc. make up an entities data. It should be comprehensive, accurate, and appropriate for the data to be useful (Elsharif, 2019).

The software programs being used to record, access, process, and interpret the financial data of the organization are the software part of an AIS. The AIS was a manual, paper-based procedure before there were computers, but now, most organizations use electronic applications as the framework for the AIS. Small

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businesses might use Quickbooks, Sage 50 Accounting, SAP's Business One, Microsoft's Dynamics GP, Oracle's PeopleSoft or Epicor Financial Management. The core components of productive AIS software are consistency, reliability and security. Managers depend on the data it generates to make choices for the organisation, and they require high-quality data to make reasonable judgments. In order to satisfy the specific demands of various kinds of organizations, AIS development applications can be tailored.

The security mechanisms it includes to secure confidential data are the internal control feature of the AIS (Elsharif, 2019). In order to protect against unauthorized device access and to restrict access to approved users, AIS must have internal controls, including certain users within the organization. It must also protect users who are licensed to access only select sections of the system from unwanted file access. An AIS includes proprietary information that belongs not only to the corporation but also to its personnel and clients. It is important to encrypt all the data in an AIS, and log and survey access to the device. System operation should also be traceable. An AIS also requires internal safeguards to shield it from viruses, malicious software, hackers and other internal and external threats. The AIS should also be shielded from natural hazards and power spikes that may cause data loss.

Finally, the IT infrastructure portion of the AIS is a term for the hardware used to run the accounting information system. A corporation will also need to provide several of these hardware goods, including laptops, handheld devices, servers, printers, surge protectors, routers, storage media, and probably a backup

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power supply. In addition to costs, speed, storage space and whether it can be extended and upgraded are considerations to consider in choosing hardware (Elsharif, 2019). Most critically, maybe, the hardware chosen for an AIS must be consistent with the intended software. A successful AIS may also provide a schedule for repairing, updating, replacing and upgrading hardware system parts, as well as a plan for the removal of damaged and redundant hardware to eliminate confidential information (Elsharif, 2019).

Internal control system

Internal control systems refer to the consolidated processes, plans and practices that protect a firm's assets, boost financial and organizational efficiency, and encourage compliance with prescribed policies (Hopkin, 2012). Havesi (2005) Internal control was described as combining an organization's people's actions, strategies, actions, policies and attempts to work together and provide fair confidence that the organization will accomplish its goals and task. From a different point of view, Ndungu (2013) describes internal control systems as a set of operational processes and policies to guarantee that all transactions are duly processed to deter fraud, waste and abuse of the resources of an entity.

Similarly, quite a few others, such as the International Organization of Supreme Audit Institutions INTOSAI (2004), Kaplan (2018) and COSO (2013), assume that internal control systems are mechanisms enforced by an entity's management, board of directors and other employees to provide fair certainty as to the achievement of organizational targets. These priorities include organizational quality and efficacy, the trustworthiness of management and financial statements,

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compliance with relevant laws and regulations, as well as safeguarding the integrity of an organization. COSO's Integrated Framework for Internal Control (2013) focused on a risk-based strategy to internal controls through the adoption of controls spanning the whole spectrum of operations of the organization, not just those specifically relevant to financial reporting (Moeller, 2011).

From these concepts, it is clear that internal controls influence all aspects of a company and are thus considered the duty of administrators, board of directors and other staff in an entity (Adams, Grose, Leeson, & Hamilton, 2014). The processes must be incorporated into the day-to-day operations of business organisations for internal control systems to track, deter and fix content errors or to fulfil their purpose of ensuring fair confidence that organizational or targets can be reached. (COSO, 2013). However, in the sense of this research, internal control is interpreted as suggested by the Treadway Commission Committee of Sponsoring Organisations (COSO).

Types of internal controls

Various scholars have come up with various kinds of internal management schemes. Milichamp (2002) puts the types of internal controls as asset security, task separation, monitoring, verification, consent and permission, documentation, and reporting however, several other writers, such as Lousteau (2013) and DiNapoli (2011), have accepted that directive controls, preventive controls, detective controls, and compensatory controls are included among the categories of internal controls. These duties are meant to eliminate material defects, omissions, fraud,

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malicious actions and theft, which in turn undermine company performance. (Singleton & Singleton, 2010) The types of controls have been discussed.

Directive controls

Directive controls apply to policies that are set up by top management to encourage compliance with the principles of independence. A simple, coherent communication from management that policies and procedures are critical must reach the company to ensure conformity with guideline controls. They offer confirmation that a loss has happened but may not preclude the existence of a loss. Reviews, analyses, deviation analyses, reconciliation, actual inventories, and evaluations are examples of detective monitors (DiNapoli, 2011).

Preventive controls

Preventive controls are linked to actions taken by an organization to prevent non-compliance with rules and regulations. They are constructive tests that help stop a failure. Separation of responsibilities, proper approval, sufficient records and physical supervision over facilities are examples of preventive controls (Lousteau, 2013).

Compensating controls

Compensating controls were intended to mitigate a shortage of controls elsewhere in the system. To begin with, companies with an electronic archive can keep a hard copy of the customer list in the organization. In an electronic environment, such a list will compensate for automatic computer downtime and issues with identifying client names. Since the list would have to be reprinted to

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add new buyers from time to time, some of the obsolescence of hard copies will be mitigated (Lousteau, 2013).

Detective controls

The object of detective controls is to discover issues after they have occurred. While necessary in a good internal control scheme, in the first place, the recognition of a breach of autonomy after the fact is less desirable than avoidance. In the lack of substantial punishments, detective checks seldom perform well as a deterrent (Lousteau, 2013).

Components of internal controls

The internal control architecture of COSO divides the internal control mechanisms into five (5) elements, namely: control environment, control activities, risk assessment, information and communication, and monitoring activities (Arwinge, 2013; COSO, 2013). This is for effective and efficient entity activities, accurate financial statements and regulation enforcement. The efficiency of any internal control system relies on the capacity of the internal control system to work efficiently and effectively.

Control environment (CE)

Ramos (2014) argues that the control environment is the core of the internal control mechanisms and establishes the standard at the centre, shaping the control awareness of all an entity's employees. Whittington and Pany (2016) refer to the control environment as the element that provides the framework and discipline for the realization of the key goals of internal control systems, influencing the entire

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quality of internal control systems. The above-mentioned stresses that the control environment are affected by the corporate culture and have a way of influencing the structure of the operations of an organisation (Ndungu, 2013). Therefore, managers, the board of directors and other key staff should maintain strong ethical values and honesty in order for a company to accomplish its objectives (Kaplan, 2013).

Gyasi (2013) characterizes the control environment and restricts it to three components, including the philosophy and working style of directors and management, the organizational structure and methods of allocation of authority and accountability of the entity, as well as the methods of imposition of control by directors, including the internal audit role. On the other hand, COSO (2013) asserts that the aspects of the control environment include management supervision, competence and ethical principles, structure, authorities and duties, policies and procedures on human resources, and transparency.

Management oversight Refers to the composition of the executive board to illustrate board separation from management and oversight exercises for internal control growth and efficiency (COSO, 2013) as cited by Amissah (2017)

According to Trainor (2017), honesty and ethical principles include a board policy to set examples of ethical conduct to act as the benchmark of measure within the whole company. Hayes, Dassen Schilder and Wallage (2015) suggests that this component tests the professional behaviour requirements that exist and procedures that are in place to enable workers to perform their roles with honesty. These

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dimensions of the control environment are compatible with the revised 2013 COSO paradigm for internal control systems (COSO 2013).

The structure, authorities and roles of the control environment dimension intersect around responsibilities, task delegation and policy formulation to support organizational goals (Omani-Antwi, 2009). In addition, according to Kaplan (2013), the factor of human resource policies and practices tests the strategies and processes designed and adopted by an organization to recruit, grow and maintain expertise in pursuit of the priorities of the organization, including performance improvement policies and practices. Consequently, Gyasi (2013) points out that the company achieves favourable efficiency when the control climate is good and the dedication to development is strengthened

Risk Assessment (RA)

Theofanis, Drogalas, and Giovanis (2011) believe that risk management is the way of experimentation and risk assessment for the fulfilment of the targets of an organisation. Kaplan (2013) asserts that risk management must be comprehensive and integrated into an entity's processes and practices. For business entities to recognize and quantify controllable and non-controllable risks that impact activities, risk management must be performed on an ongoing basis, according to Woolf (2013), as cited in Amissah (2017). Controllable risks are those risks that can be minimized or removed by internal process processes, whereas uncontrollable risks are those arising from the environment the company finds itself in that cannot be minimized (Amissah, 2017).

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COSO (2013) and WHO (2013) also divide the method of risk management into four dimensions, including determining priorities, assessing and prioritizing risks, handling change and reacting to risks. This structure remains the concepts of internal management which have been repeatedly applied (Ndungu, 2013), as quoted in Amissah (2017). Specifying targets means specifying operational goals with adequate consistency to define and quantify risks relevant to objectives (COSO, 2013).

A successful design and execution of the risk evaluation process will boost organizational results, according to Kaplan (2008). Siayor (2010) adds that the impact on results of an appropriate risk assessment process is evident as risk assessment forms the basis for evaluating where internal management practices are required. Risk management helps an enterprise to concentrate on certain risks that would have an impact on the company's overall performance, according to Siayor (2010). This suggests that a successful risk evaluation process in the insurance sector can assist industrial actors in defining and evaluating their risks in order to respond to the risks of meeting the success goal by developing and executing a risk management strategy. This would eliminate complexity and eventually increase production efficiency.

Control Activities (CA)

The Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS) as cited Amissah (2017) describes control practices as interventions that serve to ensure that appropriate measures are in place to tackle the risks of achieving the business' goals. These activities according to CEIOPS,

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include rules regulating the subscription policy, solvency condition fulfilment, and information infrastructure. Kaplan (2008) states that monitoring operations consist of processes, regulations and structures that ensure that financial reporting is carried out through management guidelines and controls. Based on the aforementioned descriptions, it can be understood that control operations are made up of strategies and processes.

As quoted by Amissah (2017), COSO (2013) distinguishes the aspects of control activities like the collection and advancement of control activities, general technology control activities, and policies and procedures. The selection and implementation relate to the creation and configuration of business risk management operations, taking into account the operating environment (COSO, 2013). General technology management practices represent the implementation of controls in order to protect the security of information systems and access to information.

Information and Communication (IC)

Communication systems refer to approaches and platforms implemented by organisations to transmit vital information, strategies and directives (Shim, 2011). Noel (2010) maintains that information and communication processes covering the activities of the control environment helps the organization's personnel to gather and share the information needed to control, handle and carry out their operations. It must provide accurate, credible records, both financial and non-financial, relating to external as well as internal incidents, for an entity to function and manage its activities.

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The information should be documented and transmitted to managers and those who need it within the organization and in a manner and within a time frame that helps them to carry out their internal monitoring and organizational duties. Details regarding the plans, control, activity and results of risk control of an enterprise must be shared up, down and through an organization. Reliable and accurate information must be identified, recorded, interpreted and transmitted to the citizens who need it, both from external and internal media.

In order to accomplish the aims of the organisation, information and communication are important because they facilitate the operation of the other ICS elements. However, information and coordination deficiencies can make the other components inefficient and can cause resource loss and consumer frustration. (COSO, 2011).

Monitoring of Controls (MC)

Monitoring is the measurement of the efficiency of internal management over time; it is carried out by continuous monitoring practices and by separate internal control evaluations, such as self-assessments, peer reviews and internal audits. Daily testing of the effectiveness of internal controls is a vital feature of any complete structure of internal controls to figure out whether they are meticulously operating (Treba, 2013). Monitoring is keenly observing an entity's behaviours and transactions to assess the degree of outcomes over time and determine whether controls are effective (DiNapoli, 2011). Constructs used in assessing monitoring, as Shim (2011) pointed out, include ongoing surveillance and internal auditors' separate reviews.

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COSO (2011) evaluates the control aspects from a particular viewpoint, such as continuous and separate reviews, notification of defects and introducing corrective measures. According to Arwinge (2013) and Johnstone, Gramling, and Rittenberg (2013), ongoing surveillance and separate reviews are typically integrated into an organization's normal, ongoing tasks and provide regular controls and management audits to evaluate the efficacy of control procedures. The reporting of violations and the execution of corrective actions represent the communication of anomalies to those responsible for taking corrective steps in order to function at sufficient levels on those findings (Moeller, 2013) as cited in Amissah (2017).

Small business performance

Financial success is a blend of the financial stability of an entity, its capacity and ability to satisfy its long-term financial commitments and its determination to deliver services in the near future (Ganyam & Ivungu, 2019). Financial success is an indicator of the financial stability of a company over a period of time, according to Farah (2016). It is a financial action that is used by the management of its current and non-current properties, borrowing, equity, profits and expenditures to produce higher income, profitability and valuation of a corporate company for its shareholders. Its key aim is to provide shareholders and stakeholders with financial details in order to encourage them to make well-informed investment decisions. It may be used to analyze competing firms from the same field or to compare the aggregation of sectors.

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Performance indicators can be divided into two results-related measures outputs and determinants of the results. This implies that systems for success assessment can be developed around the principles of outcomes and determinants. On the other hand, Zuriekat, Salameh and Alrawashdeh (2011) argued that performance assessment systems are called information systems that are used to determine the performance of both people and organisations. Measuring the company's success is carried out using multiple measures.

Ratios are typically one of the indicators used to assess the productivity of a company (Lin &Liu, 2012). Typically, the financial details of a company's operations will be reported in the annual financial report, and a financial ratio merely constitutes one item compared to another in the financial statement. Traditionally, the calculation of the performance of an organization typically uses the financial ratio approach since, relative to previous years, it gives a straightforward explanation of the financial performance of the company and aims to enhance the management performance. ROA, ROE, Tobins Q, etc. are commonly used ratios. A downside connected with the use of rations as financial success metrics is that they are rife with drawbacks in that they are cost-based and produced from historical records.

Another recent concept that comprehensively measures corporate performance is the balanced scorecard. The balanced scorecard comprises different performance indicators of a business, according to Manzoni and Islam (2009). A balanced scorecard usually provides success metrics for client services, creativity and learning, and organizational procedures, in addition to financial performance.

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For example, customer care efficiency metrics consist of the number of customer complaints addressed, the number of return customers, service delivery effectiveness and customer experience efficiency, as well as changes/improvements in the level of job skills. As opposed to rivals, consumer surveys may often be used to gather indicators of customer satisfaction with the business, but this is not widely used. As in service-based organisations, efficiency metrics of internal operations take into account the amount of time it takes to create a product or process a service, and they require more time to monitor and review. In this study, the performance of smalls businesses was measured using the balanced scorecard approach.

Empirical Review

Several scholars have reviewed detailed literature on the accounting information system and internal controls and how they impact company financial results using various empirical approaches. In the context of stringent internal controls on the financial performance of selected small real estate firms in Jordan, Al-Dalaien and Khan (2018) examine the effect of AIS. For the gathering of data from workers employed in the businesses, a well-crafted questionnaire was used. 250 questionnaires were circulated by the researchers, where 75 questionnaires were declined and 175 were accepted for study. In order to analyze the obtained data, the analysis employed linear regression statistics. The results suggest that while good internal controls were in place, Jordanian real estate firms benefited the most from AIS.

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Kashif (2018) assesses the effect of the accounting information framework on India's chosen small businesses' financial results. A survey analysis design with a sample size of 400 participants was implemented by the study and information was collected from 177 returned and correct questionnaires. Using basic linear regression analysis, the study evaluated the collected data and tested theories at a confidence level of 95 percent. Study results indicate that the accounting information system has a substantial effect on the profitability of the chosen businesses. Rehab (2018) explores the corporate efficiency effect of accounting information systems. via 137 questionnaires from small firms in Saudi Arabia, the data was collected and used smart partial least squares to evaluate the data and to test the hypotheses of the study. Findings have demonstrated that AIS has a huge effect on organizational efficiency.

The effect of the accounting information system for efficient internal management on business results was reviewed by Teru, Idoku, and Ndeyati (2017). With separate relevant previous literature being reviewed, the research adopted a descriptive method of data collection. The report also used supplementary evidence to be able to draw reliable conclusions based on the empirical results. Study results showed that there would be increased efficiency, greater accounting information reliability and better decision-making for both internal and external stakeholders where controls are managed well

Akanbi and Adewoye (2018) analyze the impact of the implementation of the accounting information system on the performance of banks in Nigeria, taking into account the efficiency of their internal management mechanisms or otherwise.

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A descriptive survey analysis template was used in the report, which collected data from surveys randomly distributed to 120 participants from 16 commercial banks. The analysis also utilized secondary information from the sampled banks' financial reports. Data on return on capital equity (ROCE), return on total asset (ROTA), net operating profit (NOP) and gross profit margin (GPM) have been obtained during the last 10 years since the implementation of the AIS (2007-2017). To assess the meaningful impact of AIS adoption on bank results, Linear Regression was used. Findings have shown that commercial banks in Nigeria have embraced and are using AIS to provide their clients with their services and the extent of usage is comparatively high. The study concluded that like all success metrics, AIS acceptance has a good significance.

Alnajjar (2017) explores the effect on performance evaluation and corporate performance of accounting information systems. A survey test design was used in the analysis and data obtained from 74 SMEs was analyzed. Regression processing was used to analyze data collected for the research. Study results found that the expertise of accounting managers and top management contributes greatly to an organization's accounting information systems and that AIS also have a substantial effect on the organisation's operational results. Esmeray (2016) explores the impact on business results in Kenya of AIS. A descriptive survey research style was followed by the researchers. Study-related data was gathered from interviews with 60 businesses. Using generalized least squares to evaluate results. The results show that the use of AIS, internal controls and firm performance have a favourable and statistically relevant association.

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In Ghana, Nang (2017) in his research found that in crucial areas such as expense, investment, and cash flow, AIS can help SMEs handle short-term problems. Saah (2015) also researched the accounting information system management and profitability of SMEs in the Tamale Metropolitan Assembly and concluded that in 2014, SMEs in the Metropolis had a profitability of 37.39% due to the implementation of accounting information systems.

Research on AIS adoption among SMEs in Ghana was conducted by Abdulai (2018). He observed that lack of expertise and inadequate understanding of the possible advantages of adopting AIS discouraged the adoption of AIS by small firms. The primary focus of this research was on the effect of accounting information systems on the efficiency metrics or service delivery of the surveyed small businesses. This current research presents the role that internal controls play in the relationship between AIS and small firms performance in ensuring that they operate well.

Chapter Summary

This chapter reviewed an existing literature related to accounting information system and performance of small businesses the mediating role of internal control. The analysis revealed that accounting information systems influence the performance of small businesses. In addition, internal control systems also have an influence in performance of small businesses because it helps to ensure quality accounting information. This implies that internal control systems play a vital role in business operations.

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CHAPTER THREE

RESEARCH METHODS

Introduction

The methods followed by the researcher in completing this study are discussed in this chapter. This section is organized as research design, study area, population, sampling procedure, data collection instrument, data collection procedure, definition of variables, and data processing and analysis.

Research Design

The research design is the framework that has been created to find answers to research questions. Saunders, Lewis, and Thornhill (2016) identify three research designs namely descriptive research, explanatory research, and exploratory research. Each research design has the unique characteristics that make it applicable to a study taking into consideration the study objectives. Taking into consideration the purpose of this research, which is to assess the mediating role of internal controls on the relationship between accounting information systems and small firms performance, the study adopted the explanatory research design. The research will be explanatory research. The explanatory research design is appropriate for this study because using this research design, the researcher will be able to identify the extent and nature of the cause-and-effect relationship between the mediating role of internal controls on the relationship between AIS and small business performance.

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Study Area

The Sunyani Municipal is one of Ghana's 260 Metropolitan, Municipal and District Assemblies (MMDAs), and is part of the Bono Region's 12 Municipalities and Districts, with Sunyani as its capital. A legislative instrument (LI) 1473 formed the Municipality on March 10, 1989. This was the time when Ghana introduced the concept of a District Assembly. The main purpose is to hasten the municipality's growth and development. In November 2007, the Sunyani West District was created from this Municipality. The Sunyani Municipal Assembly is situated in the middle of the Bono Region, between latitudes 70 20'N and 70 05'N, and longitudes 20 30'W and 20 10'W, with a total land area of 506.7 km2. Sunyani West District borders the municipality on the north, Dormaa East District on the west, Asutifi South District on the south, and Tano North Municipal on the east. According to the 2010 Population Housing Census, the Municipality's population is 123,224, with 61,610 males and 61,614 females.

Moreover, the selection of the Municipality was based the familiarity of the location. Therefore, the study aimed at investigating the accounting information system and performance of small businesses with internal control systems as a mediating role.

Population

The population definition is central to survey research and is characterized as any set of individuals or items with at least one common characteristic. (Bhattacherjee, 2012). The study will be conducted in Sunyani in the Bono Region of Ghana. There are five market centres in Sunyani populated with small businesses

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with high economic activities associated with them. These markets are Rex, Area 2, Sunyani Zongo, Magazine, and Nana Bosoma Market (Wednesday Market). Moreover, other factors considered include convenience and access for the collection of data, as well as, cost reduction.

An enquiry at the Sunyani Municipal Office indicated that over 3000 small businesses are operational in Sunyani. However, over the years, some have either collapsed or have relocated. For the current year, during the time of the study, the Sunyani Municipal Office officials estimated that only about 2300 registered small businesses were still operational. These 2300 small businesses formed the population size for this study.

Sampling Procedure

Sampling is the mathematical method of choosing a subset of a population of interest to draw assumptions and statistical inferences about that population (Bhattacherjee, 2012). Using the Krejcie and Morgan (1970) table for sample size estimation, the sample size for the analysis was determined. From the table, a sample size of 327 will be appropriate for a population size of 2300.

Using the mechanism of purposive sampling, which is a non-probability sampling tool, the 327 respondents for this study were chosen. Purposive sampling allows you to apply your judgment to choose cases that will help you answer your research question(s) and achieve your goals. When working with relatively small samples, such as in case study research, or when you want to choose highly instructive examples, this type of sample is frequently used (Neuman, 2000).

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Data Collection Instrument

Some devices are used to gather data for research purposes. Saunders, Lewis, and Thornhill (2016) propose that the essence of the data needed for the research and the study goals decide the selection of a relevant study instrument. To obtain the necessary information from respondents, questionnaires were included in the data collection depending on the particular goals of this report.

The ability to use questionnaires evokes truthful answers and also creates a true indirect measure of the actions of an individual. Sekaran and Bougie (2010) say in consensus that the merits of using questionnaires outweigh their demerits, including the lack of interviewer impacts, high degree of confidentiality, cheaper and faster distribution. It is also beneficial for participants to reply in a truthful way to issues.

The questionnaire used for the study was in three sections with each section addressing AIS effectiveness, internal control system effectiveness and firm performance respectively. Each section and subsection had assertions to which respondents responded using a seven-point Likert Scale. The first section, AIS effectiveness has three subsections measuring various aspects of AIS effectiveness namely the information technology dimension of AIS effectiveness, managerial dimension of AIS effectiveness, and user participation dimension of AIS effectiveness.

The second section internal control system effectiveness has five subsections measuring the effectiveness of the components of a system of internal controls. The subsections are control environment effectiveness, risk assessment

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effectiveness, control activities effectiveness, information and communication effectiveness, and monitoring activities effectiveness. The third section of the questionnaire looked at the firm performance measured using the balanced scorecard approach. This section had four sub-sections covering the components of the balanced scorecard subsections are the financial performance perspective, customer performance perspective, internal business performance perspective, and innovation and learning performance perspective. A sample of the questionnaire has been included as an appendix.

Data Collection Procedure

At their business premises, the questionnaire forms were distributed to the respondents. The owners and or managers were contacted before administering the questionnaires to arrange a period that would be most suitable. This was undertaken to raise the degree of their support and readiness to engage in the research. The questionnaire structure was discussed with them by the researcher. The researcher gave time for any questions about the survey questions that the participants had. The researcher helped them do so in cases where participants had problems or were unable to fill out the questionnaire. The researcher, nevertheless, was cautious not to alter their answers. This helped to clear up any questions and created a better understanding of how to fill out the questionnaires.

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Definition of Variables

AIS effectiveness and internal control system effectiveness were independent variables with internal control system effectiveness acting as the mediating variable. The dependent variable was firm performance which was measured using the balanced scorecard approach. Table 1 variables, sub-constructs and their measurement items.

Table 1: Latent constructs, sub-constructs and their measurement items

Item code	Measurement item
AIS EFFECTIVENESS	
1. Information Technology Dimension of AIS Effectiveness	
aise_itd1	Usage of general ledger software.
aise_itd2	Usage of accounts receivable software.
aise_itd3	Usage of accounts payable software.
aise_itd4	Use of sales processing software.
aise_itd5	Use purchases processing software.
aise_itd6	Use of inventory management software.
aise_itd7	Use of production/service planning and control software.
aise_itd8	Use of cost and management accounting software.
aise_itd9	Use of financial and reporting software.
aise_itd10	Use of budgeting and budgetary control software.
aise_itd11	Use of payroll software.
2. Managerial Dimension of AIS Effectiveness	
a. Managerial Support	
aise_mspd	Management's support and participation in the design, acquisition and implementation of the firm's AIS.
b. Manager's knowledge and use of AIS	
aise_mkud1	Knowledge in word-processing software.

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aise_mkud2 Knowledge in spreadsheet packages.

aise_mkud3 Knowledge in database applications.

aise_mkud4 Knowledge in accounting software.

aise_mkud5 Knowledge in computer-assisted production management.

aise_mkud6 knowledge in collaboration software.

aise_mkud7 knowledge in the use of the Internet.

3. User Participation Dimension of AIS Effectiveness

aise_upd1 User participation in assessment of AIS needs.

aise_upd2 User involvement in the determination of the AIS dimensions.

aise_upd3 User involvement in the determination of information need from the AIS.

aise_upd4 AIS modification or updating involving users' feedback on system failures.

aise_upd5 User friendliness of AIS design.

INTERNAL CONTROL SYSTEM EFFECTIVENESS

1. Control Environment Effectiveness

ice_ce1 Leadership by example on commitment to integrity and ethical behavior

ice_ce2 Orientation for new comers on ethical standards.

ice_ce3 Establishment and communication of code of conduct.

ice_ce4 Establishment of culture of honesty and fairness.

ice_ce5 Comprehensive recruitment policy, based on talent acquisition.

ice_ce6 Democratic leadership

ice_ce7 Commitment to competence.

2. Risk Assessment Effectiveness

ice_ra1 Continuous tracking of events in the internal environment.

ice_ra2 Continuous tracking of events in the external environment.

ice_ra3 Decisions taken after careful analysis of risks and potential benefits.

ice_ra4 Maintenance of regularly updated risk register.

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ice_ra5 Identification and reaction to risks from within the firm.

ice_ra6 Identification and reaction to risks presented by the external environment.

3. Control Activities Effectiveness

ice_ca1 Adequate physical facilities for safeguarding cash and other important assets.

ice_ca2 Regular backs-up and save computer files.

ice_ca3 Existence of proper security systems such as locks and passwords.

ice_ca4 Use of proper segregation of duties.

ice_ca5 Use of proper authorization procedures.

ice_ca6 Adequate and proper safety measure to prevent, and treat accidents and injuries.

4. Information and Communications Effectiveness

ice_ic1 Information system provides management with necessary reports on the performance of the firm.

ice_ic2 Procedures implemented to verify the accuracy of information in management and all other important reports.

ice_ic3 Commitment of the appropriate human and financial resources to the development of the necessary information systems.

ice_ic4 Process for the development, approval, implementation and communication of policy updates.

ice_ic5 Whistleblower policy for people to report suspected improprieties.

ice_ic6 Information system of the firm provides management with necessary reports on the firm's performance relative to established objectives.

ice_ic7 Provision and communication of information in sufficient detail, and at the appropriate time to all parts of the firm

ice_ic8 Internal communicates of information necessary to support the functioning of the firm.

ice_ic9 Communication and collaboration with external parties

5. Monitoring Activities Effectiveness

ice_ma1 Reviews of key performance indicators.

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ice_ma2 Performance of reviews and analysis to identify unusual fluctuations in account balances.

ice_ma3 Periodic review of compliance with laws and regulations governing the operations of the firm.

ice_ma4 Establishment of a unit or an appointment of key official responsible for appraising and reporting on the functioning of the internal controls

ice_ma5 Performance of ongoing and or separate evaluations to ascertain whether the components of internal control are present and functioning

ice_ma6 Evaluation and communication of internal control deficiencies in a timely manner.

FIRM PERFORMANCE (BALANCED SCORECARD APPROACH)

1. **Financial Performance Perspective**

fpp1 Consistent growth in sales.

fpp2 Consistent growth in operating profit.

fpp3 Steady growth in market share.

fpp4 There is always cash to meet short term obligations to suppliers and other creditors.

2. **Customer Performance Perspective**

cpp1 Proper management of demand forecast and customer demands to achieve proper balance.

cpp2 Maintenance of good communication with customers for successful order fulfilment and complaints handling.

cpp3 Customer complaints managed to an acceptably low level.

cpp4 Customer order delivery timely, and according to specification.

cpp5 Insignificant rate of return of goods or complaints about services by customers.

3. **Internal Business Performance Perspective**

ibpp1 Existence of employee development system which aims to upgrade employees' skills.

ibpp2 Investments in technologies which enhance the efficiency and effectiveness of firm's internal businesses.

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ibpp3	Shorter customer order processing time.
ibpp4	Number of product/service defects quite insignificant.
ibpp5	Operation of remuneration system which attracts, maintains and motivates talented employees.

4. Innovation and Learning Performance Perspective

ilpp1	Creation of staff training and high-performance culture.
ilpp2	Success in creating new products/services.
ilpp3	Support and training systems to enhance the competitiveness of employees.
ilpp4	Investment in the necessary technology needed to compete.

Source: Author's construct

Data Processing and Analysis

To detect errors, search for non-responses, consistency and correct responses, the questionnaires were scrutinized. To simplify data entry and thorough review, coding was carried out. The SPSS V.25 was the program used. Analyses of descriptive data included mean and standard deviation. Frequency tables and percentages were used to display the details from the study. A correlation analysis was also conducted. To evaluate the relationship and effect assess the mediating role of internal controls on the relationship between accounting information systems and small business performance, a regression analysis was conducted. The general linear regression model adopted is the form

$$Y_{it} = \beta_0 + \beta_1 x_{it} + \beta_2 x_{2it} + \varepsilon_{it} \qquad \text{Equation 1}$$

Where;

Y_{it} = Performance

β_0 = Constant

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β_1= Co-efficient of AIS effectiveness

x_1 = AIS effectiveness

β_2= Co-efficient of internal control system effectiveness

x_2 = internal control system effectiveness

ε= error term

To properly determine the effect of the supposed mediating variable, the regression analysis was done in four steps. In step 1, a simple bivariate regression analysis was run between AIS effectiveness (predictor variable) and the firm performance (outcome variable) to determine the statistical significance of the total effect of the predictor variable on the outcome variable. The regression model used was in the form: $Y_{it} = \beta_0 + \beta_1 x_{it} + \varepsilon_{it}$ Equation 1

Where;

Y_{it} = Performance

β_0 = Constant

β_1= Co-efficient of AIS effectiveness

x_1 = AIS effectiveness

ε= error term

In step 2, a simple bivariate regression analysis was run between AIS effectiveness (predictor variable) and the hypothesized mediator (Internal control system effectiveness) as the dependent variable to determine the statistical significance of the predictor variable (AIS effectiveness) on the hypothesized mediator (Internal control system effectiveness). The regression model used was in the form: $Y_{it} = \beta_0 + \beta_1 x_{it} + \varepsilon_{it}$ Equation 2

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Where;

Y_{it} = Internal control system effectiveness

β_0 = Constant

β_1= Co-efficient of AIS effectiveness

x_1 = AIS effectiveness

ε= error term

In step 3, a multiple regression was performed using the independent variable (AIS effectiveness) and the hypothesized mediating variable (internal control system effectiveness) to determine their effect on the dependent variable (firm performance). The regression model used was in the form:

$$Y_{it} = \beta_0 + \beta_1 x_{it} + \beta_2 x_{2it} + \varepsilon_{it} \qquad \text{Equation 3}$$

Where;

Y_{it} = Performance

β_0 = Constant

β_1= Co-efficient of AIS effectiveness

x_1 = AIS effectiveness

β_2= Co-efficient of internal control system effectiveness

x_2 = internal control system effectiveness

ε= error term

Step 4 depends on the outcome of step 3. If the coefficient of the dependent variable from the multiple regression is insignificant, then step 4 would be performed to determine the significance of the indirect effect of the dependent variable through the mediator using the Sobel Test. To perform the Sobel test, the

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unstandardized coefficients (Beta and Standard Error) of the variables from the coefficients in steps 2 and 3 is used in an online webpage calculator for the Sobel test. It must be noted that for all the regression analyses, emphasis will be placed on the coefficients.

Chapter Summary

The chapter discussed the research methods followed for this study. The discussion included the research design, population and sample size determination, data collection instrument, the definition of variables, and data processing and analysis.

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CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter discussed the results from the analyses of data. This chapter presents descriptive analyses and inferential analyses. The descriptive analyses will describe the demographics and economic characteristics of the participants, central tendencies and measures of dispersion of the constructs. The inferential analyses included correlation and regression analyses.

Correlation Analysis

The association between the explanatory variable (AIS effectiveness), mediating variable (Internal Control System effectiveness) and the dependent variable (Firm Performance) was calculated by the correlation tests. To illustrate the direction, intensity and significance of the relationship, Pearson's correlation coefficient was used. According to Saunders, Lewis, and Thornhill (2016), the value that reflects the Correlation coefficient is called the R-value. The R-value spans from -1.00 to +1.00. A +1.00 R-value means that the variables have a perfect positive linear relationship and a -1.00 R-value indicates that the variables have a perfect inverse linear relationship. An R-value of 0 indicates no association. Taking into account the objective of the study, which is to assess the mediating role of internal control on the relationship between accounting information systems and small business performance, one of the key aspects of mediation is that all the variables should correlate pairwise. The correlation matrix is shown in Table 3.

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Table2: Correlation Matrix

		AIS Effectiveness	ICS Effectiveness	Firm Performance
AIS Effectiveness	Pearson Correlation	1	.824**	.654**
	Sig. (2-tailed)		.000	.000
	N	327	327	327
ICS Effectiveness	Pearson Correlation	.824**	1	.749**
	Sig. (2-tailed)	.000		.000
	N	327	327	327
Firm Performance	Pearson Correlation	.654**	.749**	1
	Sig. (2-tailed)	.000	.000	
	N	327	327	327

Source: Field survey (2021)

As shown in Table 3, all the variables are indeed significantly correlated. The correlation matrix shows a strong positive correlation between AIS effectiveness and ICS effectiveness and firm performance respectively. The correlation coefficients are 0.824 and 0.654 respectively. Likewise, there was a positive association between ICS effectiveness and firm performance with a correlation coefficient of 0.749. Since all the variables are significantly correlated, the regression analysis was performed.

Regression Analysis

The regression analysis was performed to evaluate the relationship and assess the effect of the mediating role of internal controls on the relationship between accounting information systems and small business performance. As described in the data processing and analysis subsection of chapter three, the regression analysis was done in four steps. It must be noted that emphasis is laid on

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the coefficients of the variables from the regression analysis. All tests of significance are conducted at a threshold of .05.

Step 1.

A simple bivariate regression analysis was run between AIS effectiveness (predictor variable) and the firm performance (outcome variable) to determine the statistical significance of the total effect of the predictor variable on the outcome variable.

Table3: Total Effect of AIS effectiveness on Firm Performance

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	37.668	3.166		11.897	.000
	AIS effectiveness	.454	.029	.654	15.603	.000

a. Dependent Variable: Firm performance
Source: Field survey (2021)

From Table 4, the unstandardized beta weight of 0.454 of AIS effectiveness is statistically significant with $p < .05$. With the total effect being significant, step 2 is conducted.

Step 2.

A simple bivariate regression analysis was run between AIS effectiveness (predictor variable) and the hypothesized mediator (Internal control system effectiveness) as the dependent variable to determine the statistical significance of the predictor variable (AIS effectiveness) on the hypothesized mediator (Internal control system effectiveness).

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Table4: Direct Effect of AIS effectiveness on ICS Effectiveness

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
2	(Constant)	32.930	4.897		6.725	.000
	AIS Effectiveness	1.180	.045	.824	26.213	.000

a. Dependent Variable: Internal control system effectiveness
Source: Field survey (2021)

From Table 5, the unstandardized beta weight of 1.180 for AIS effectiveness on the mediating variable (ICS effectiveness) is also statistically significant with $p < .05$. The direct effect is not of primary importance. It must be noted that an unstandardized beta weight of 1.180 and standard error of .045 are what we are interested in as they would be used in estimating the indirect effect of AIS effectiveness on firm performance through the mediating variable.

Step 3.

Here a multiple regression was performed using the independent variable (AIS effectiveness) and the hypothesized mediating variable (internal control system effectiveness) to determine their effect on the dependent variable (firm performance).

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Table5: Effect of AIS effectiveness and ICS Effectiveness on Firm Performance

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
3	(Constant)	27.237	2.951		9.231	.000
	AIS Effectiveness	.080	.045	.116	1.793	.074
	Internal control system effectiveness	.317	.031	.654	10.115	.000

a. Dependent Variable: Firm performance
Source: Field survey (2021)

Table 6 shows the significance of the coefficients of the independent variable (AIS effectiveness) and the mediator variable (internal control system effectiveness) on the dependent variable (firm performance). It is observed from the Table that the coefficient of AIS effectiveness is not statistically significant because the unstandardized coefficient of .080 has a $p > .05$. Therefore there is no statistically significant direct effect between AIS effectiveness and firm performance. The presumption is that the indirect effect of AIS effectiveness through ICS effectiveness would be significant. This test of significance for the indirect effect is done using the Sobel test in Step 4.

Step 4.

To perform the Sobel test the unstandardized coefficients (Beta and Standard Error) of the variables from steps 2 and 3 would be used in an online webpage calculator for the Sobel test by Preacher and Hayes (2004). From step 2 (Table 5), unstandardized beta weight and standard error are 1.180 and .045

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respectively. From Step 3 (Table 6) the ICS effectiveness had an unstandardized beta of .317 and a standard error of .031 is used.

Table 6: Sobel test for Significance

Input:			Test statistic:	Std. Error:	*p*-value:
a	1.180	Sobel test:	9.527	0.039	0
b	.317	Aroian test:	9.521	0.039	0
s_a	.045	Goodman test:	9.533	0.039	0
s_b	.031	Reset all			

From Table 7, it can be observed from the Sobel test row that the $p < .05$ which is an indication of statistical significance. The conclusion of this is that the indirect effect between the independent variable (AIS effectiveness) and the dependent variable (Firm performance) through the mediating variable of internal control effectiveness is statistically significant.

Discussion

Hypothesis 1: Effectiveness of internal control systems of small firms affects their AIS effectiveness.

This hypothesis was tested using the results shown in Table 5. From the Table, the unstandardized beta weight of 1.180 for AIS effectiveness on the mediating variable (ICS effectiveness) is statistically significant with $p < .05$. The direct effect is not of primary importance. However, it is an indication that the effectiveness of the internal control systems affects significantly the effectiveness of the accounting information system of small businesses. This finding supports those of Teru, Idoku and Ndeyati (2017). For there to be an effective accounting information system in small businesses, the system of internal controls has to be effective as well. Based on the results in Table 5, the researcher rejects the null

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hypothesis which states that the effectiveness of internal control systems of small firms does not affect their AIS effectiveness.

Hypothesis 2: AIS effectiveness of small businesses directly affects their performance.

This hypothesis was tested using the results in Table 6 and Table 7. Table 6 displays the multiple regression results of the coefficients of the independent variable (AIS effectiveness) and the mediator variable (internal control system effectiveness) on the dependent variable (firm performance). It is observed from Table 6 that the coefficient of AIS effectiveness is not statistically significant since the unstandardized coefficient of .080 has a $p > .05$. Therefore, there is no statistically significant direct effect of AIS effectiveness on firm performance.

The results contained in Table 7 shows the Sobel Test results which tested the significance of the indirect effect of AIS effectiveness on the performance of small businesses through the hypothesized mediating factor. The Sobel test was significant with $p < .05$. The conclusion of this is that the indirect effect of the independent variable (AIS effectiveness) on the dependent variable (Firm performance) through the mediating variable of internal control effectiveness is statistically significant. This means that AIS effectiveness on its own has no direct effect on small business performance. AIS effectiveness only affects small business performance only when there is an effective system of internal controls which is the mediating variable. Based on this finding, the researcher accepts the null hypothesis which states that the AIS effectiveness of small businesses does not directly affect their performance.

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Chapter Summary

This chapter conducted a detailed discussion of the results from the analysis of data collected. The analysis was done using both descriptive and inferential statistics. A Key finding from the results is that for there to be an effective accounting information system in small businesses, the system of internal controls has to be effective as well. The study also found that there is no statistically significant direct effect between AIS effectiveness and firm performance of small businesses in Sunyani.

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CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The overview of the results, conclusions are taken based on the findings, and recommendations are discussed in this chapter.

The central aim of this study is to assess the mediating role of internal controls on the association between accounting information systems and the performance of small businesses. The explanatory research design was appropriate for this study because using this research design, the researcher was able to identify the extent and nature of the cause-and-effect relationship between the mediating role of internal controls on the association between AIS and small business performance. The population for the study was made up of 2300 small businesses in the Sunyani based on estimates provided by officials of the Sunyani Municipal Assembly.

An appropriate sample size of 327 was determined using the using Krejcie and Morgan (1970) table. Using the mechanism of simple random sampling, which is a probability sampling tool, the 327 respondents for this study were chosen. The dependent variable was small business performance while AIS effectiveness and ICS effectiveness were independent and hypothesized mediating variables respectively. Data were obtained from respondents using a questionnaire designed taking into consideration the objective of the study. Data collected were analysed using descriptive statistics and inferential statistical methods.

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Summary of Key Findings

The first hypothesis stated that the effectiveness of internal control systems of small businesses affects their AIS effectiveness. The study found that the effectiveness of the internal control systems affects significantly the effectiveness of the accounting information system of small businesses. This was consistent with the findings of Teru, Idoku and Ndeyati (2017). The researcher thus rejected the null hypothesis which states that the effectiveness of internal control systems of small firms does not affect their AIS effectiveness.

The second hypothesis stated that the AIS effectiveness of small businesses directly affects their performance. Findings from this study indicated no statistically significant direct effect of AIS effectiveness on firm performance. The Sobel test was conducted to test the significance of the indirect effect of AIS effectiveness on the performance of small businesses through the hypothesized mediating factor, ICS effectiveness. The Sobel test was significant with $p < .05$. This means that the indirect effect of the independent variable (AIS effectiveness) on the dependent variable (Firm performance) through the mediating variable of internal control effectiveness is statistically significant.

Conclusions

The study has provided an understanding of the mediating role of the internal control system relationship between accounting information systems and small business performance. Based on the key findings the study makes the following conclusions. An effective internal control system directly affects the effectiveness of the accounting information system of small firms in Sunyani. The

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implication of this is that for there to be an effective accounting information system in small businesses, the system of internal controls within which the AIS operates has to be effective as well. The study found no direct effect of AIS effectiveness on the performance of small firms. The implication of this is that AIS effectiveness on its own has no direct effect on the performance of small firms. AIS effectiveness only affects the performance of small businesses performance only when there is an effective system of internal controls which is the mediating variable.

Recommendations

The researcher makes the following recommendations. It is recommended that small firms have in place a robust system of internal controls that is effective as an effective internal control system directly affects the effectiveness of the AIS. Procedures are often important to accomplish such goals, such as the effective and orderly execution of accounting activities, the safeguarding of funds following management policies, the avoidance of errors and the identification of errors, the prevention of fraud and the detection of fraud, and the precision, completeness, transparency and timely preparation of accounting records. The internal control system policies and processes should be reviewed regularly to determine if they are still effective since, through the internal control systems, the accounting information system has an indirect effect on the performance of small firms.

Suggestions for Future Research

The study suggests that additional related studies be carried out on the role of the internal control system in mediating the relationship between the accounting management system and the results of large companies, notably ones listed on the

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Ghana Stock Exchange. Related research on the role of the internal control system in mediating the interaction between the accounting information system and the success of small companies in other parts of the nation may also be carried out using other performance assessment indicators that are distinct from the methodology used in this report.

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APPENDIX

Questionnaire

The Mediating role of Internal Control on the Relationship between Accounting Information System and Small Business Performance

Dear Respondent,

The items in this questionnaire are being used purposely for research work on the topic above.

Please be assured that any information you will provide is purely for academic purposes and it will be treated with utmost confidentiality.

Welcome and thank you for taking part in this survey. The information you share with us will contribute to a scientific study, so kindly answer as truthfully as possible.

Thank you.

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Section A

MEASURING AIS EFFECTIVENESS

For each of the following AIS applications, please indicate the extent to which the applications are presently implemented and used in your firm, using the following scale (1=completely unused to 7=highly used).

	1	2	3	4	5	6	7
AIS EFFECTIVENESS							
1. Information Technology Dimension of AIS Effectiveness							
Usage of general ledger software.							
Usage of accounts receivable software.							
Usage of accounts payable software.							
Use of sales processing software.							
Use purchases processing software.							
Use of inventory management software.							
Use of production/service planning and control software.							
Use of cost and management accounting software.							
Use of financial and reporting software.							
Use of budgeting and budgetary control software.							
Use of payroll software.							

2. Managerial Dimension of AIS Effectiveness

Indicate the extent of management's support and participation in the design, acquisition and implementation of your firm's AIS using the following scale (1=completely no support and participation to 7=Extensive support and participation).

	1	2	3	4	5	6	7
a. Managerial Support							
Management's support and participation in the design, acquisition and implementation of firm's AIS.							

Indicate the extent of knowledge of the following technologies exhibited by management and employees of your firm, using a scale of 1=no knowledge to 7=extensive knowledge.

	1	2	3	4	5	6	7
b. Manager's knowledge and use of AIS							
Knowledge in word-processing software.							

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Knowledge in spreadsheet packages.							
Knowledge in database applications.							
Knowledge in accounting software.							
Knowledge in computer-assisted production management.							
Knowledge in collaboration software.							
Knowledge in the use of the Internet.							

Indicate the extent to which your firm allow users to be involved in the design and implementation of the AIS, using a scale of 1=completely no involvement to 7= extensive involvement.

	1	2	3	4	5	6	7
3. User Participation Dimension of AIS Effectiveness							
User participation in assessment of AIS needs.							
User involvement in the determination of the AIS dimensions.							
User involvement in the determination of information need from the AIS.							
AIS modification or updating involving users' feedback on system failures.							
User friendliness of AIS design.							

Section B

INTERNAL CONTROL SYSTEM EFFECTIVENESS

Please indicate the level of your firm's adherence to the following, using a scale from 1=completely no adherence to 7=strict adherence.

	1	2	3	4	5	6	7
1. Control Environment Effectiveness							
Leadership by example on commitment to integrity and ethical behavior							
Orientation for new comers on ethical standards.							
Establishment and communication of code of conduct.							
Establishment of culture of honesty and fairness.							
Comprehensive recruitment policy, based on talent acquisition.							

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Democratic leadership							
Commitment to competence.							

Please indicate the level of your firm's adherence to the following, using a scale from 1=completely no adherence to 7=strict adherence.

	1	2	3	4	5	6	7
2. Risk Assessment Effectiveness							
Continuous tracking of events in the internal environment.							
Continuous tracking of events in the external environment.							
Decisions taken after careful analysis of risks and potential benefits.							
Maintenance of regularly updated risk register.							
Identification and reaction to risks from within the firm.							
Identification and reaction to risks presented by the external environment.							

Please indicate the level of your firm's adherence to the following, using a scale from 1=completely no adherence to 7=strict adherence.

	1	2	3	4	5	6	7
3. Control Activities Effectiveness							
Adequate physical facilities for safeguarding cash and other important assets.							
Regular backs-up and save computer files.							
Existence of proper security systems such as locks and passwords.							
Use of proper segregation of duties.							
Use of proper authorization procedures.							
Adequate and proper safety measure to prevent, and treat accidents and injuries.							

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Please indicate the level of your firm's adherence to the following, using a scale from 1=completely no adherence to 7=strict adherence.

	1	2	3	4	5	6	7
4. Information and Communications Effectiveness							
Information system provides management with necessary reports on the performance of the firm.							
Procedures implemented to verify the accuracy of information in management and all other important reports.							
Commitment of the appropriate human and financial resources to the development of the necessary information systems.							
Process for the development, approval, implementation and communication of policy updates.							
Whistleblower policy for people to report suspected improprieties.							
Information system of the firm provides management with necessary reports on the firm's performance relative to established objectives.							
Provision and communication of information in sufficient detail, and at the appropriate time to all parts of the firm							
Internal communicates of information necessary to support the functioning of the firm.							
Communication and collaboration with external parties							

	1	2	3	4	5	6	7
5. Monitoring Activities Effectiveness							
Reviews of key performance indicators.							
Performance of reviews and analysis to identify unusual fluctuations in account balances.							
Periodic review of compliance with laws and regulations governing the operations of the firm.							
Establishment of a unit or an appointment of key official responsible for appraising and reporting on the functioning of the internal controls							
Performance of ongoing and or separate evaluations to ascertain whether the components of internal control are present and functioning							

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Evaluation and communication of internal control deficiencies in a timely manner.							

Section C

FIRM PERFORMANCE (BALANCE SCORE CARD APPROACH)

Indicate the extent to which your firm consistently achieves the following financial results, using a scale of 1=completely not achieved to 7=completely achieved.

	1	2	3	4	5	6	7
1. Financial Performance Perspective							
Consistent growth in sales.							
Consistent growth in operating profit.							
Steady growth in market share.							
There is always cash to meet short term obligations to suppliers and other creditors.							

Indicate the extent to which your firm successfully achieves the following service quality and customer satisfaction, using a scale of 1=completely not achieved to 7=completely achieved.

	1	2	3	4	5	6	7
2. Customer Performance Perspective							
Proper management of demand forecast and customer demands to achieve proper balance.							
Maintenance of good communication with customers for successful order fulfilment and complaints handling.							
Customer complaints managed to an acceptably low level.							
Customer order delivery timely, and according to specification.							
Insignificant rate of return of goods or complaints about services by customers.							

Indicate the extent to which your firm successfully achieves the following efficient and effective internal business processes, using a scale of 1=completely not achieved to 7=completely achieved.

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	1	2	3	4	5	6	7
3. Internal Business Performance Perspective							
Existence of employee development system which aims to upgrade employees' skills.							
Investments in technologies which enhance the efficiency and effectiveness of firm's internal businesses.							
Shorter customer order processing time.							
Number of product/service defects quite insignificant.							
Operation of remuneration system which attracts, maintains and motivates talented employees.							

Indicate the extent to which the following innovation, and learning situations are achieved in your firm, using a scale of 1=completely not achieved to 7=completely achieved.

	1	2	3	4	5	6	7
4. Innovation and Learning Performance Perspective							
Creation of staff training and high-performance culture.							
Success in creating new products/services.							
Support and training systems to enhance competitiveness of employees.							
Investment in the necessary technology needed to compete.							

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