

The Impact of Accounting Information System on Internal Audit Effectiveness in Companies
Listed in Muscat Securities Market

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Abstract: The influence of accounting information systems (AIS) on internal audit effectiveness in companies outlined on the Muscat Securities Market (MSM) is the focus of this study. The surveying, examining, comparing, and summarizing of all articles published in reputable journals in the last few years is part of the inductive technique utilized in this research. In the research reviewed, it was shown that Oman requires more deployment of accounting information systems than other developing countries. It also discovered that accounting information system is positively correlated to internal audit effectiveness than negatively linked to it. After defining the studies through a systematic review, the researchers deduced that majority of the studies on the two variables, accounting information system and internal audit effectiveness, had indicated a significant and positive impact between both. In addition, the researchers also revealed that no past researches acknowledged the mentioned correlation in the context of Oman in the companies listed in Muscat Securities Market (MSM).

Keywords: Accounting Information System, Institutional theory, Internal Audit Effectiveness, Muscat Securities Market (MSM).

1. Introduction

The framework of this paper identified four accounting information system components that are incorporated in this review. The said elements are relevance, reliability, integration, and flexibility. Accounting information systems (AIS), among the organization's most essential systems, have transformed how they acquire, process, store, and distribute data in general. When running an organization and employing internal control systems, AIS is a must-use tool (Sambasivan, Y., & Assefa, K. B. 2013). An accounting information system, according to Romney and Steinbart (2012) and Gel (2010), is a set of subsystems and parts that are connected to the outside world. They functioned as a single overlap relationship among each other and their combined system. Each component relies on the others to achieve the objectives set out by the comprehensive accounting system, which gives information and data to decision-makers. Accounting information systems, on the other hand, gather, record, store, and manage data to deliver information to decision-makers using modern technology, a basic system, or a hybrid of the two. AIS can be seen as equipment, and it is consolidated into the field of IT frameworks. The primary purpose is to help administer and control themes associated with the organization's economic-financial area (Ismail and King, 2014). AIS comprises the entire related segments that are assembled. The primary purpose is to collect raw or ordinary data, which is then changed into financial data to facilitate reporting by the decision-makers (Adenike and Michael, 2016).

As part of a contemporary governance structure in a different industry, it is necessary to possess an effective internal audit function/unit. Internal audit (IA) concerns have acquired significant attention in corporate governance in recent years for a variety of reasons. To name a few, internal

audit connections to the internal control-risk management system; enhances organizational effectiveness and efficiency by offering helpful suggestions and criticism on the organizations' condition; minimizes information imbalance throughout decision making; and is considered as an essential internal assurance in corporations' financial and business reporting process (Mihret and Yismaw, 2007; Cohen and Sayag, 2010; Soh and Bennie, 2011). Thus, internal audit is now regarded as an essential aspect of management and a key component of effective corporate governance. Recently, energetic modifications in the worldwide economy, the regulations' complexity, and technological developments have established new directions and tools for internal audit development. This assist management and bring value to the organization. These capabilities also culminated in a new perspective towards the internal auditor, who often possesses a broader range of skills and best practices suited to the environment's needs (Olga, 2017). Thus, internal auditing's evolving function is mirrored in its present definition. Hence, this research's goal is to investigate the impact of accounting information systems on internal audit effectiveness, specifically in companies listed in the Muscat Securities Market (MSM). This paper also presents the Muscat Securities Market (MSM), Accounting Information System in Oman, the definition of internal audit effectiveness, the theoretical structure and the overall conclusion.

2. Literature Review

2.1 Muscat Securities Market (MSM)

Oman is a developing market nation in the Arabian Peninsula's southeast corner. The Gulf Cooperation Council (GCC)'s members of all represented as worldwide oil exporters and producers. Oman has transitioned to an oil-based economy during the previous three decades. The intention is to broaden these activities into non-oil activities, for instance, the human resources and financial market. As a consequence, many economic changes have been adopted to increase the country's financial momentum. For example, on 21 June 1988, Royal Decree 53/88 was published to create a stock exchange named the Muscat Securities Market (MSM), since a robust financial sector depending on leading financial companies, as well as an appropriate environment, are critical components in keeping up with the significant global competitiveness of the international markets. On 9 November 1998, the Capital Market Authority (CMA) was formed, a critical step in strengthening this trend's contribution to the country's economy. This authority is in charge of creating capital market regulations and supervising the MSM. It is also in charge of overseeing and organizing the security's trading and issue, as well as overlooking all companies involved in the securities industry. One significant regulation published by this authority is corporate governance in 2002, the first code and the greatest Middle East corporate governance structure (Baydoun et al., 2013).

Regarding financial reporting forms, Oman Commercial Law 55/90 and its modifications mandate all commercial systems to preserve appropriate books of accounts. These comprise a stock register, a personal withdrawals' record, a ledger, and a sales book. Nevertheless, Oman lacks its financial reporting standards. Thus financial reports must be carried out in compliance with the International Financial Reporting Standards (Al-Shammari et al., 2008). In accordance with this legislation, Commercial Companies Law 4/74 and its modifications address further areas of financial reporting. All limited liability and joint-stock companies, for instance, should audit financial statements audited by a certified auditor once a year. It also outlined what sorts of reports and how regularly financial statements reports must be presented to shareholders and stakeholders. This highlights the necessity of

providing these reports in two months time frame after the end of the fiscal year.

2.2 Accounting Information System (AIS)

Accounting departments nowadays contribute significantly throughout all business sectors, particularly those listed on the MSM. Accounting is crucially significant in the operations of MSM-listed companies. Since companies registered on MSM have a large number of creditors (accounts payable) and debtors (accounts receivable), it is necessary to maintain books of accounts on an accrual basis. Consequently, information technology (IT) usage in accounting has grown popular and has become a regular practice.

As a result, it is extremely difficult to conduct the majority of accounting entries, financial statements, and financial operations without IT usage (Damasiotis, Trivellas, Santouridis, Nikolopoulos, & Tsifora, 2015). For the organization's success, the debtors' ages must be maintained up to date. Accounting software technologies are becoming increasingly necessary for MSM-listed companies to ensure the long-term success of their businesses (Putra, 2019). Accounting software and IT have decreased the time required for accountants to present and prepare financial statements to management (Teru, Idoko, & Bello, 2019; Ghasemi, Shafeiepour, Aslani, & Barvayeh, 2011). Accounting software enables firms to construct a variety of reports efficiently and conveniently for managements' decision making (Thottoli, Thomas & Ahmed, 2019a; Janvrin & Watson, 2017; Aduamoah 2017). Computerized accounting systems improve the precision, total functionality, and efficiency with which financial statements and other reporting are processed and generated (Tilahun, 2019; Mauch, Cannam, Bittner, Fazekas, Salamon, Dai & Dixon, 2015).

The cost of implementing a computerized accounting system is affected, and it necessitates the use of specially trained staff (Lee, & France, 2018). Other difficulties with computerized accounting include a shortage of accountants, insufficient security with print accessories and high-quality backup (Isa, 2017). The most severe issue is frequent power outages (Amanamah et al., 2016). IT infrastructure also comprises IT specialists who can develop, install, repair, and manage systems, as well as special IT personnel who can maximize the use of such systems and technologies and even teach others (Turner & Weickgenannt, 2020; Taiwo, 2016). Workers and staff and in the computerized environment must be qualified and trained to achieve new technologies effective usage (Do, Tran, Nguyen, Truong, & Pham, 2018). In addition, the accountant's adaptation of software accounting by the organization is a concern, where management may be unwilling to switch from a manual to a computerized setting (Heredos, Kim, & Vazzano, 2017). Nevertheless, the reviewed studies agree on the importance of an accounting information system and improving performance.

2.3 Internal Audit Effectiveness

An effective internal audit system aids in the profitability's achievement, performance, and the prevention of revenue loss, specifically in the public sector Vijayakumar & Nagaraja, (2012). Although Pilcher Gilchrist and Singh (2011) discovered that audit effectiveness and efficiency in the public sector is rather sophisticated compared to the private sector. Yet, the effectiveness of internal auditors, specifically in public sector's organizations, must be acknowledged. It's noteworthy to note that audit effectiveness leads is caused by auditors' obligations, professional practices, duties and

activities, as demonstrated by a greater commitment to audit procedures, policies, objectives, goals, and standards (Ussahawanitchakit & Intakhan, 2011). Similarly, Shoommuangpak and Ussahawanitchakit (2009) stated that audit effectiveness is expressed as "achieving the audit's goal via sufficient and appropriate audit evidence to form a sensible viewpoint about the financial statements' compliance with generally accepted accounting principles. Furthermore, the Institute of Internal Audit (2010) defined internal audit effectiveness as the extent to which certain goals are met (including quality).

Consequently, internal audit effectiveness resembles the extent to which an internal audit office achieves its objectives (Mihret & Yismaw, 2007). While Mizrahi and Ness-Weisman (2007) provide their interpretation, consistent with the internal auditor's ability to intervene in the correction and prevention of inadequacies, they eventually characterized internal audit effectiveness as "the scope and number of inadequacies fixed following the auditing process." As a result of the aforementioned description, this research identified audit effectiveness or internal audit effectiveness as the capacity of auditors, either external or internal, to fulfil established organizational goals.

Numerous organizations are demonstrating concern to their internal auditors to provide advice and direction at various management levels (Davies, 2001). This is due to the fact that internal audit presents an essential part in the organizational process. Thus, it is obligated to conduct usual assurance activities as a strategic companion of the organization as well as contribute positively to its activities aimed at enhancing organizational processes and assure their efficiency and effectiveness (Al-Twaijry et al., 2003; Mihret et al., 2010; Savcuk, 2007).

As per the IIA (2010), effectiveness may be viewed as the standard, comprising trait, to which specified goals are accomplished. Effectiveness is defined by Bank Negara Malaysia (2010) as the goal of ensuring an effective and robust internal control system for Shariah compliance. As per AAOIFI (2010), effectiveness is the ability to offer suggestions, amount of frequent reports, follow-up and assessment of the extent of Shariah compliance with Islamic Shariah rules as well as for instructions, guidelines, fatwas, regulations and principles by the IFI's SSB, and the capability to organize, employ, document details and Shariah audit outcomes (AAOIFI, 2010). In their study, Badara and Saidin (2013) identified several meanings of the word effectiveness. This defines that the effectiveness of internal audits may well be described as the standard to which specified goals are satisfied (Badara and Saidin, 2013). Most scholars concede that a business is successful if its performance matches its purpose (Ahmad et al., 2009; Ussahawanitchakit, 2012), Azam Abdelhakeem Khalid, Hasnah Haj Haron, Tajul Ariffin Masron (2017).

2.4 Correlation between Internal Audit Effectiveness and Accounting Information System

Many researchers are attempting to assess the influence of effective AIS on other organizational departments in terms of achieving, performance, and effectiveness of their objectives. In general, AIS and IT have a substantial impact on the effectiveness of control in organizations and internal audits (Moorthy et al., 2011). In the same vein, Neogy (2014) asserted that if an organization has an effective internal audit system, accounting information qualitative features may be maintained. In addition, a solid audit control helps an organization's management to utilize the information with more assurance in order to conduct their business actions appropriately and to measure the organization's success. Tan (2016) studied the effect of AIS on internal auditors in Turkey. He noted that the internal audit possessed an essential element in the transaction process of financial reports, and the AIS system assisted them in completing their task.

Internal auditors can use AISs to detect, evaluate, categorize, assemble, record, review, and report

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on occurrences, which helps them achieve their goals. According to Ciuhureanu (2016), the internal audit improves accounting information certification by checking records compliance and assessing the sufficiency and use of internal control in the accounting field. It also prevents accounting scams, certifies the accounting information's reliability, detects and diminishes the accounting error risk, increases the efficacy of accounting transactions recorded, creates SWOT analysis (strength, weakness, opportunity, and threats) of the accounting activities, and monitors the accounting activities the whole management system etc. Tackie et al. (2016) revealed that auditing is the appropriate maintenance of accounting and essential records, the protection of assets and the compliance with policies and procedures. Their research on IAE in local government administrative systems in Ghana revealed good audit quality because of conformity with international standards on auditing as well as local legislation of audit. Fülöp and Szekely (2017), on the other hand, revealed that internal auditing evolved as a unique sector of the extensive accounting field, the elementary accounting methods and techniques.

3. Theoretical Framework

As indicated in Figure 1, the suggested theoretical framework evaluates two variables in this research: accounting information system and internal audit effectiveness. It is based on the institutional theory, which manages how to set up structures, including rules, plans, guidelines and schedules, as strategies for normal conduct. It examines how those segments are created, spread, acknowledged, and adjusted after some time and space; and how they decrease and disregard (Scott, 2005). This conceptual framework shows the institutional theory, which is using for the first time as the leading theory for the influence of accounting information systems on internal audit effectiveness.

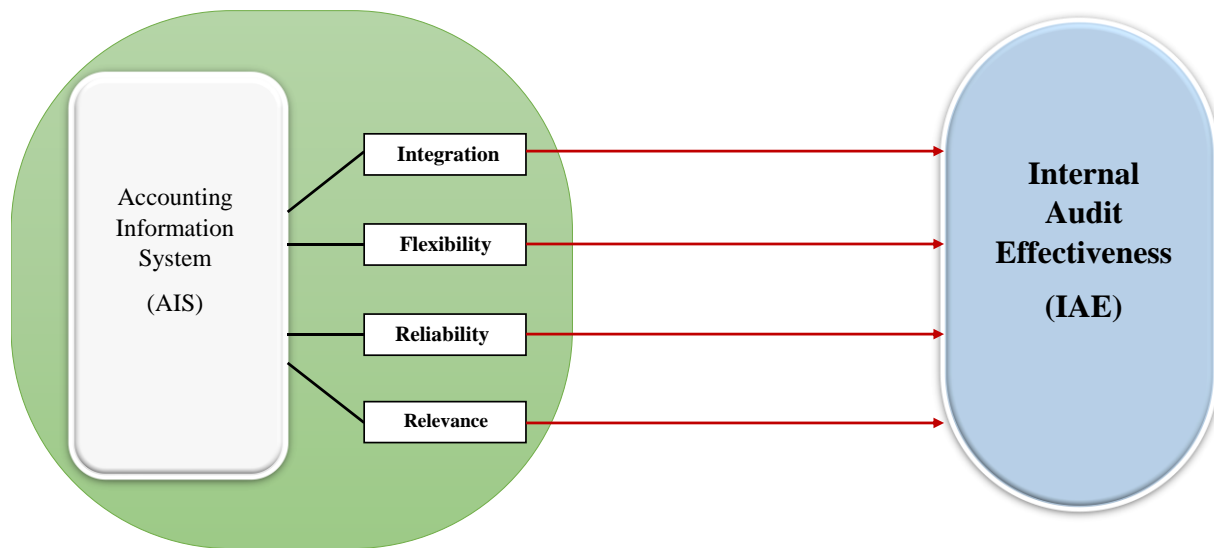


Figure 1: Conceptual Framework

3.1 Institutional Theory

Institutional theory is utilized in light of the fact that foundations are mind-boggling, solid, typical structures, comprising different agent components, cultural exercises, and significant assets. Practices and arrangements are changed towards isomorphism for monetary motivators and social, social, or political closures (Kim et al., 2009). Isomorphism is the tendency for associations in practically identical fields to acknowledge similar methods to accomplish proficiency. Isomorphism is significant in handling the connection between outside variables and authoritative practices such as risk and bookkeeping (Goddard et al., 2016).

This work is placed within the institutional theory because the theory makes the agreement and harmony of organizations with social, cultural and political systems a prerequisite for survival, which can be attained in critical circumstances, and it doesn't need a significant change in the organizations' institutions in normal circumstances (Jensen, 2010). Moreover, the institutional theory supports the influence of accounting information systems on internal audit effectiveness.

3.2 Research Gap and Systematic Review

Based on the table below, 20 studies were analyzed by the researchers to ascertain the accounting information system and internal audit effectiveness connection. Unfortunately, the studies in the following table failed to address the relationship between both the aforementioned variables. Therefore, this current paper examines the accounting information system used as an independent variable and the extent of its impact on the dependent variable, which is internal audit effectiveness. This aspect had been a glaring gap in the literature, particularly pertaining to the companies listed in Muscat Securities Market (MSM). A comparison with previous studies is summarized in table 1.

Table 1: Systematic Review of Literatures on the Connection between Internal Audit Effectiveness and Accounting Information System.

Author	Year	Independent	Dependent	Sample	Method	Finding
Zakaria, Ilias, Wahab	2017	AIS	users' tasks efficiency	AIS's users in selected Malaysian public sector agencies.	Quantitative, by distributing survey.	The findings indicate that the recent AIS utilized has importance effect on user's tasks efficiency particularly on the tasks related to financial controlling, auditing,

Tan	2016	AIS	Internal auditor work	106 internal auditors	Quantitative, by distributing a survey	financial reporting, and budgeting in the agencies. AIS has an apposite influence on internal auditor work.
Napitupulu, Mahyuni and Sibarani	2016	internal control effectiveness	AIS	State-Owned Enterprises in Indonesia (SOEs).	Structural Equation Model (SEM) and Explanatory survey method approach with Partial Least Square (PLS) analysis tool	The internal control's effectiveness significantly influenced the MAIS's quality.
Sari and Purwanegara	2016	organizational factors (organizational culture, implementation of internal accounting information system, organi	AIS	Accounting staff from 26 governments in Bandung.	Quantitative, With description The analysis variable is operational.	There is a organizational factor's positive impact on the AIS outcome's quality.

Carolina	2015	organizational structure, management commitment, information technology, e-commerce and leaderships style) organizational structure	AIS	61 state-owned enterprises in Bandung, Indonesia.	Quantitative, by distributing survey.	The AIS's successful implementation depends on the organizational structure. - AIS's successful implementation affected positively interested user's satisfaction.
Qatani and Hezabr	2015	AIS	The business organization's value chain.	64 employees in the public shareholding's finance department industrial companies in	Quantitative, by distributing survey.	Lack of the availability of AIS's basic components and the AIS's level of quality needed to enhance the business's value chain.

Al-Hiyari, AL-Mashr egi, Nik Mat and Aleka m	2013	Human resources, data quality and management commitment	AIS	Bahrain's Kingdom.	119 student from University Utara Malaysia	Quantitative, by distributing survey.	There is a significant connection between AIS, data analysis and management commitment. - There is no significant relationship between AIS and human resources.
Mndzebele	2013	AIS	Internal control	Six hotels in Swaziland	Quantitative, by distributing the survey	Internal control and AIS faced the same barriers listed as physical barriers, organizational structure, procedures and policies.	
Sambasivam and Assefa	2012	AIS	Internal control	Professionals in the accounting field in Ethiopian Manufacturing Industries.	Quantitative, by distributing the survey	AIS enhance the financial report's quality and lead to more effective internal control system.	
Salehi and Abdoreza	2011	Middle managers ; human resources; organizational structure; environmental	AIS	100 financial managers work in companies listed on Tehran Stock Exchange.	Quantitative, by distributing survey.	There is a significant relationship between organizational culture, financial problems, environmental factors, organizational	

Grand e, Estéba nez and Colo mina.	011 ²	factors ; financial issues and organizati onal culture AIS	the perfo rmance and organ ization's producti vity.	250 employ ee from SMEs in Spain	Quant itative, by distri buting surve y	structure, human resources, and Middle managers on AIS. There is a significant and positive association among the SMEs that utilize AIS for bank and financial management and improved performance measures. The findings provide support that the AIS'S integration within the ERP system enhancing the accounting information and the internal control's quality in companies.
Alzou bi	011 ²	AIS	Intern al control	Accoun tants and financia l manage rs' Group who works in compan ies that applied ERP system.	Quant itative, by distri buting surve y	There is a significant effect of IT and AIS in general on the internal audit and control's
Moort hy, Seethara man, Mohame d, Gopalan and	011 ²	AIS	IAE	Internal auditor	Revie w of pieces of literature and Quantita tive, by distributi	There is a significant effect of IT and AIS in general on the internal audit and control's

San					ng	effectiveness.
Bades cu and Garce s- Ayerb e	2 009	IT	Produ ctivity of Spani sh organ izations	341 mediu m- sized and large compan ies (SMEs)	surve y The main source of informat ion used in this study is the Entre preneuri al Strate gy Inquiry, an economi c resear ch progr ammed devel oped by the Depar tment of Scien ce and Tech nology and the Public Enter prise Foun dation. Quant itative, by distributi ng the	The sensitivity of labour productivity to changes in technological l capital intensity is positive and significant and that changes do not occur unless the firm- specific, and also, period- specific effects are corrected.
Sajad y, Dastgir and Nejad	2 008	AIS	The perform ance of finance manager s.	95 finance managers of listed companies		The study found that adoption of AIS at these companies led

				at Tehran Stock Exchange.	survey	to improve managers' decision-making process, internal controls and the financial reports' quality guided the procedure of the company's transactions.
Mihret and Yismaw	2007	Internal audit quality, management support, organizational setting and audited attributes on internal audit effectiveness.	IAE	Large public sector higher educational institutions in Ethiopia	case study of a large public sector higher educational institution in Ethiopia	Internal audit quality and management support has a significant effect on IAE during organizational setting and audited attributes do not affect on IAE.
Ismail and King	2005	alignment of AIS requirements	Firm performance	310 firms in Malaysia	Quantitative, by distributing survey	The Malaysian SMEs with greater AIS alignment had accomplished enhanced organizational performance than firms with low AIS

Naranjo-Gil	2004	AIS	Organization performance	112 CEOs in 218 hospitals in Spain.	112 CEOs in 218 hospitals in Spain. Questionnaire-based survey for the data collection and structural equation modelling (SEM) as its tool for data analysis.	alignment. The finding confirmed that there is indirect impact of sophisticated AIS on organization performance.
Banke, Chang and Kao	2002	Information technology	Accounting Firm productivity	Employee from five offices of a global public accounting firm	quantitative and qualitative	The information Technology's implementation caused the enhancement of accounting firm productivity. The research found that the differentiation of activities in multi-area is considered the primary reason
Mia and Chenhall	1994	MAS	Organization performance	61 managers of 20 manufacturing firms	Quantitative, by distributing survey.	

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4. Conclusion

Using internal audit effectiveness measures, sample selection, and accounting information system variables, the research generated varied findings ranging from positive to negative to statistically insignificant correlations. The researchers discovered approximately 20 papers that dealt with the relationship between the dependent and independent variables, with the majority of the studies establishing a positive and significant relationship. Despite these positive studies, few studies reported negative effects. After defining the studies through a systematic review, the researchers concluded that most studies on the two variables indicated that accounting information system possesses an influential and significant impact on internal audit effectiveness.

The theoretical contribution of this paper can help interpret the challenges involved in utilizing accounting information system factors in Omani companies. This paper will add the implementation of accounting information system efficiency to the theoretical framework, focusing on other issues, especially the importance of improving the capabilities and skills of managers and employees according to modern technologies and their influence on the Omani companies' efficacy. Including accounting information system efficiency in the conceptual structure of accounting information system elements will be a novel and unique contribution.

From a practical perspective, this paper is significant for all stakeholders (owners, managers, employees, government) because it provides the decision-makers with empirical findings that lead to a superior understanding of the connection between AIS and IAE and their effect on companies performance.

The researchers have a future vision to demonstrate and ascertain the impact of the accounting information system on internal audit effectiveness by utilizing the audit committee as a moderating variable and its result in the companies listed in Muscat Securities Market (MSM).

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