

INTERNAL AUDITING PRACTICES AND INTERNAL CONTROL QUALITY IN STATE-OWNED ENTERPRISES: EVIDENCE FROM PAKISTAN

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Abstract. *This study examines the role of internal auditing practices compliance with the International Standards for the Professional Practice of Internal Auditing (ISPPIA) in enhancing internal control quality in Pakistani State-Owned Enterprises (SOEs). Data was collected through an online survey of Chief Audit Executives (CAEs) of SOEs from various sectors. An ordinal logistic regression model was used to test the influence of compliance with international best practice guidelines of the Institute of Internal Auditors (IIA) related to independence of the internal audit function, competence of the internal audit function, quality assurance and improvement programmes, and audit committee characteristics over seventeen principles of the Committee of Sponsoring Organizations (COSO) of the Treadway Commission Internal Control Framework. The results indicate that the independence of the internal audit function (IAF) and the characteristics of the audit committee have a statistically significant positive impact on the internal control system. However, findings related to quality assurance and improvement programs, and competence of the IAF, were deemed insignificant. The study is expected to contribute to accountability theory by highlighting that how quality internal audit practices can enhance internal control and thereby strengthen the accountability mechanism in public sector. The results are also expected to have important practical implication, both locally and globally.*

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Introduction

Internal auditing is an integral part of the corporate governance structure based on the agency theory notion of ownership and control separation (Jensen & Meckling, 2019). This agency relationship emphasizes the development and execution of a control mechanism to protect the interest of the shareholder and the assessment of such mechanism by external and internal auditors (Shleifer & Vishny, 1997). External auditing ensures that the board of directors and management are discharging their accountability obligations by providing their

independent view about financial statements (Power, 2000), whereas internal auditing assists the board and management in discharging their duties and responsibilities by providing assurance and consultancy services over the quality of internal control mechanisms formulated and executed by them across the governance paradigm (Beasley et al., 2000; Coram et al., 2008; Gramling et al., 2004; Spira & Page, 2003).

Although, the development, implementation and maintenance of internal control is the ultimate duty of management, the legitimate role of internal auditing is to assist and support management in carrying out those duties and responsibilities (IIA, 2017). Despite its role in corporate governance arena, major corporate scandals in recent decades have raised concerns about internal audit, which is not addressing the key risks or performing the role it should. It means that what standards expect from internal audit differs from what it delivers in practice, which Kotb et al. (2020) referred to as “performance gap of internal audit value adding role.”

Motivated by this research gap, this study is concerned with internal auditing practice compliance with *the International Standards for the Professional Practice of Internal Auditing (ISPPIA)* issued by the *Institute of Internal Auditing (IIA)* and its impact on internal control quality in Pakistani SOEs. IIA is the international regulatory authority issue best practice guidelines for the professional practice of internal auditing, and compliance with *ISPPIA* strengthens the delivery of internal audit services, which in turn helps organizations improve governance processes, manage risks, and design and implement controls to more effectively achieve their goals. Internal auditors, audit committees, management, boards, shareholders, and regulators can all benefit from it (IIA, 2017). According to the *Security and Exchange Commission of Pakistan (SECP)*, the implementation of international standards of IIA is mandatory for state-owned enterprises in Pakistan (SECP, 2017). SOEs in Pakistan are underperforming, which is attributed to poor financial management as a result of poor governance (Cheema, 2020). Furthermore, for Iftikhar (2015), poor performance of SOEs is primarily due to the fact that they have too many layers of accountability and lack a good accountability system.

Keeping in view the importance of internal auditing as an accountability mechanism, this research investigated the role of a compliant IA practice with *ISPPIA* in enhancing the internal control quality of commercial SOEs in Pakistan. The impact of independence, quality assurance and improvement programmes, IA competence, and audit committee characteristics on internal controls was tested using ordinal logistic regression. An online survey was conducted, and 72 usable responses were collected. The regression results show that the independent variables have direct association with the internal control quality. However, the positive effects of quality assurance and improvement programmes and the competence of the internal auditing, were statistically insignificant.

The overall findings of the study contribute to the existing body of knowledge in numerous ways. To our knowledge, this is the only study that empirically test the impact of compliant IA practice in enhancing the quality of internal control in SOEs, particularly in an emerging economy with a weak governance structure. Second, the study is expected to contributes to accountability theory by highlighting that how quality internal audit practices can enhance internal control and thereby strengthen the accountability mechanism in public sector. Third, the study results reveal that attribute standards of independence, competence, quality assurance, and improvement programmes, as well as the involvement of the audit committee in the internal auditing process, have useful implications for SOEs' internal control systems. Fourth, the findings show that internal auditing practice that adheres to international best practices guidelines contributes to the governance of low-performing SOEs. Finally, the findings are expected to be of interest to policymakers and regulators as they develop and implement policies in public sector organizations.

Governance Structure of SOEs in Pakistan

State-owned enterprises (SOEs) are public sector organizations established by the government under some legal arrangements with a full or semi-autonomous status, providing goods or services to public on a full or partial self-financing basis and over which the state has full or partial of control. State owned entities have significant contribution in the economies of to both developed and developing countries. Therefore, an effective governance structure of public sector enterprises is essential for financial stability and sustainable growth (OECD, 2021).

In Pakistan, there are 204 state-owned enterprises (SOEs), which include public-sector companies (PSCs), federal authorities (FDs), and developing finance institutions (DFIs) (MoF, 2017). Companies in the public sector are further classified as commercial or non-commercial. In Pakistan, SOEs are established under two legal frameworks: statutory corporations and public companies. Statutory corporations are established under public laws, whereas public companies are formed under private laws. With a few exceptions, the corporate governance model is present in both types of entities. However, adoption of the model varies across both types of organizations. Statutory corporations have more state control, while public companies have greater organizational autonomy (Naveed et al., 2018).

The *Security and Exchange Commission of Pakistan (SECP)* is the legislative body in charge of developing rules and regulations for the country's businesses. SECP is constantly striving to improve the governance structure of SOEs in order to bring them more competitive in the global business market. However, the level of compliance remains inadequate and requires further amendment in legislative

reforms (Ameer, 2013). The SECP has clearly stated in the *Public Sector Companies (Corporate Governance) Rules, 2013*, that there should be an independent internal audit function in public sector companies, and the chief internal auditor shall report to the audit committee. Furthermore, internal audit practices in public sector organizations must comply, to the maximum extent possible, with the IIA best practice guidelines of internal auditing (SECP, 2017).

Literature Review

Internal control quality and IAF independence

The IIA and published research have established best practice guidelines for internal auditors to follow in order for them to remain objective and independent in their value-added role. According to *Attribute Standard 1110* of the *International Standards for the Professional Practice of Internal Auditing* “Internal audit activity must be independent, and internal auditors must be objective in performing their work”. The ability of auditors to be free from such circumstances that threaten their ability to perform their duties in an unbiased manner is known as independence, whereas objectivity is the auditors' unbiased mental attitudes in carrying out their responsibilities, and they trust their work and make no quality compromises (IIA, 2017).

Established literature also provides guidelines for the independence of IAF and objectivity of auditors. For example, Sarens and De Beelde (2006) suggest that IAF should have an appropriate organizational status to remain objective and independent because internal auditors are both employees of the organizations and assess and monitor management decisions and assist them in making decisions regarding internal controls. Christopher et al. (2009) emphasize the importance of establishing IAF independence through proper CAE reporting lines. Threats to independence arise from the audit committee's lack of accounting expertise, lack of full authority over hiring, firing, and evaluating the performance of CAE, and CAE's failure to report to the audit committee. Other authors have made similar suggestions, such as having a more independent audit committee, expertise in accounting finance, and private audit committee meetings with CAE, all of which have a significant association with internal auditing function's independence and objectivity (Goodwin, 2003; Raghunandan et al., 2001; Turley & Zaman, 2007). Independence and objectivity are necessary for IAF (Alzaban & Gwilliam, 2014) to be implemented in the organisation and can affect the quality and performance of IAF (Tahajuddin & Kertali, 2018).

Similarly, several other studies have associated internal audit functions' independence to their quality and effectiveness (Cohen & Sayag, 2010; Dellai & Omri, 2016; Endaya & Hanefah, 2016; Oussii & Taktak, 2018). Limited studies have examined the association between internal audit independence and internal control system. Zhang et al. (2007), for example, argue that higher independence of internal auditors is expected to be associated with the identification of internal

control weaknesses. Fadzil et al. (2005) on the other hand, observed no significant impact of IAF independence on any aspect of the internal control system.

Given that internal audit independence undoubtedly has a significant impact on IAF quality and effectiveness, it can be proposed that internal audit independence will lead to improved internal control quality. Furthermore, little is known about the compliance of Attribute Standards 1110 of the IIA regarding independence and its association with internal control quality in developing-country SOEs, which leads to the development of the first hypothesis.

H1: The higher the independence of the internal audit function, the higher the quality of internal controls.

Internal audit competence and internal control quality

Internal auditors, like other professionals, must have specific skills and abilities to perform their duties and discharge their responsibilities with professional diligence care (McIntosh & Auditors, 1999). “Individual auditors and the internal audit function collectively must possess the knowledge, skill, and competences required to perform their tasks with proficiency and due professional care”, according to IIA Attribute Standard 1200 (IIA, 2017). Internal auditors should be competent in three areas, according to the IIA *Research Foundation's Common Body of Knowledge (CKOB)* survey (2010): knowledge, behavioural, and technical skills and abilities. Rose (2016) identified a list of personal and technical skills required by CAEs to overcome technical deficiencies and meet the value-added expectations of stakeholders in another report based on the CKOB 2015 survey. Personal skills of CAEs include analytical/critical reasoning and interpersonal skills, and technical skills includes accounting, risk management assurance, computer skills, industry related know how and data analysis skills.

Prior research has documented the effects of internal audit competence on a variety of variables. Several studies, for example, have linked the role of a competent internal audit function to its quality and effectiveness (Baharud-din et al., 2014; Drogalas et al., 2015; Salehi, 2016; Saputra et al., 2020). Breger et al. (2020) suggest in a recent study that external auditors rely more on internal audit functions that meet ISPPIA standards of proficiency and due professional care. Internal audit competence has been linked to IA effectiveness and financial reporting quality in the public sector organizations (Gamayuni, 2018). Similarly, Kabuye et al. (2017) linked the competence of the IAF to the enhancement of frauds detection. Ismael and Kamel (2021) associated internal audit competence to a reduction in income-increasing earning management in UK firms.

There have been very few studies providing evidence on the relationship between internal audit competence and internal control quality and have produced

multiple results. Oussii and Taktak (2018) indicated that internal auditor competence in terms of qualification, experience, and training has negative association with the detecting internal control weaknesses and thus improving internal control quality. Lin et al. (2011) observed similar findings regarding internal auditor competence with regard to internal control weaknesses. Similarly, Chang et al. (2019) discovered that IA competence is positively associated to the effectiveness of internal control over compliance. However, Fadzil et al. (2005) revealed negative influences of IA professional proficiency over the various aspects of internal control quality.

The preceding discussion demonstrates that the literature linking the compliance of internal audit Attribute *Standard 1200 of proficiency and due professional care* with internal audit quality is very limited and provides contradictory results. This leads to the formulation of our second hypothesis.

H2: The more competent the internal audit function, the higher will be the internal control quality

Quality assurance and improvement programs and internal control quality

Quality assurance and improvement programmes have a positive relationship with IAF, having active role in corporate governance (Sarens et al., 2012). The IIA *Attribute Standard 1300* requires “the chief audit executive must develop and maintain Quality Assurance and Improvement Programmes that covers all aspects of internal audit activity”. Quality assurance and improvement programmes are intended to expediate the assessment of IA practice compliance with the international standards and the application of the Code of Ethics. It also evaluates the quality of internal auditing activities and explores opportunities for advancement. The CAE should assure the board of directors over the quality assurance and improvement program (IIA, 2017).

Existing research shows that quality assurance and improvement programmes have a variety of effects on internal auditing quality. Lin et al. (2011), for example, propose that internal audit function with quality assurance and improvement programmes can help prevent material weaknesses. According to Johl et al. (2013), IAF quality assurance and improvement programmes help reduce earnings management. . Pizzini et al. (2015) suggest Quality assurance and improvement programmes can help prevent audit delays. Few studies have been conducted to investigate the effects of quality assurance and improvement programmes on the effectiveness of internal control. For example, Oussii and Taktak (2018) conclude that internal audit quality assurance and follow-up processes reduce internal control weaknesses.

Based on the preceding arguments, it can be proposed that *Quality Assurance and Improvement Programmes* would improve the quality of internal controls, leading to the development of our third hypothesis.

H3: Internal audit functions with quality assurance and improvement programmes are more likely to improve internal control quality.

Audit committee characteristics and internal control quality

The main function of the audit committee is to monitor the activities of the IAF, and existing literature has documented the positive effects of audit committee characteristics on the different aspects of IAF quality and effectiveness. Frequent audit committee meetings with internal auditors improve internal audit effectiveness (Arena & Azzone, 2009). The oversight role of audit committee can improve audit quality by identifying the strengths and weaknesses of internal audit activities and ensures that IA recommendations are implemented (Alzeban & Sawan, 2015). According to Abdullah et al. (2018), audit committee monitoring of internal audit process can improve audit performance and quality of various audit stages, particularly in planning stage. Al-Dhamari et al. (2018) observed that audit committee meetings and the index have a positive influence on investment in internal audit functions, whereas audit committee tenure has a negative influence on internal audit budget.

Several studies have linked various audit committee characteristics to various reporting qualities. For example, Alzeban (2018) suggests that a reporting relationship between the AC and internal auditors improves the quality of financial reporting. Similarly, Alzoubi (2019) linked the existence of an audit committee and an internal audit function to a reduction in earnings management and the number of meetings between audit committee and internal audit to financial reporting quality. Furthermore, Alzeban (2020) identified three audit committee characteristics: independence, expertise in accounts and auditing, and the number of annual interactions to play a mediating role in the impact of internal audit independence on firm performance.

Furthermore, some studies show that internal audit functional competence has a positive impact on IA quality. According to Khlif and Samaha (2016), audit committee characteristics have a significant positive effect on the quality of internal controls. Furthermore, Lin et al. (2011) show that when the AC reviews IA activities and processes on a regular basis, it improves internal control quality and helps the internal audit function detect more internal control weaknesses. Similarly, Oussii and Taktak (2018) believe that audit committee qualities such as independence, accounting and finance expertise, and frequent meetings with IA are negatively associated with internal control weaknesses. Furthermore, Alzeban (2019) provides an evidence that the number of independent members, members with accounting and auditing expertise, and audit committee meetings with chief internal auditors have a positive relationship with internal control quality and decrease internal control weaknesses.

From the discussion above we anticipate that audit committee characteristics like AC independence, accounting and finance expertise, meetings with IA, and reporting relationship with IA will have a positive impact on internal control quality. Therefore, the following hypothesis is developed to test our anticipation.

H4: The audit committee's characteristics are likely to have an impact on the quality of internal controls.

Theoretical Framework

Agency theory has traditionally dominated the auditing literature and is widely used in external auditing perspectives. Business contracts involve agency issues, and audit services are used to reduce agency costs (Watts & Zimmerman, 1983). It has also been associated to the existence, functions, duties and authorities of internal audit function, where the principal incurs the monitoring cost to ensure that the managers are acting responsibly, while the auditee incurs the bonding cost to signal the principals that they are acting in accordance with the terms of employment (Adams, 1994). However, internal audit in agency-oriented theorization has been criticized because it ignores the structural organizational origins and complicated social setting in which internal auditing is positioned as a technological tool for exercising power (Mihret & Grant, 2017). Furthermore, the agency relationship is market-driven, with information asymmetry issues shared with external parties via external audit reports, whereas internal audit is not market-driven. Shareholders and the market do not have access to internal audit reports (Mihret et al., 2010).

Agency theory have also been challenged by the scholars and proposed their own theoretical perspectives for conceptualizing internal audit research. E.g., transaction cost economics (Roussy, 2013), labour process theory (Mihret, 2014), and institutional theory (Lenz et al., 2018) among others. Others, such as Christopher (2010) argue that internal audit is a multifaceted phenomenon that cannot be conceptualized through the lens of a single theory, necessitating a multi-theoretical approach. Similarly, (Mihret et al., 2010) combines institutional theory and Marxist theory of the industrial capital circuit to provide a theoretical framework for internal audit research.

Because the existing literature lacks an integrated conceptual framework for explaining the role of internal audit, additional research should be conducted under the accountability framework (Mihret & Khan, 2013). Individuals are required to accept responsibility for their actions and provide reasons for their actions under the accountability framework. Accountability is associated with the delegation of power from shareholders (principal) to managers (agent) to ensure that the way between both parties is maintained (Sinclair, 1995). However, accountability is not limited to agent and principal relationships; it can also be applied to more complex relationships in which the actor is accountable to multiple stakeholders both inside and outside of the organisation organization (Greiling & Spraul, 2010). Because accountability necessitates the assurance of various financial and operational data

by internal auditors, IAF is a critical component of the accountability mechanism of public sector organizations. Almqvist et al. (2013) use accountability theory to conceptualize the role of internal auditing in the governance in government organizations.

The modern metamorphosis of capitalism has made the structure of capitalist organizations more complex by separating ownership and control, with the board overseeing and controlling management's actions, while management controls and monitors employees' activities (Burawoy, 1982). These multiple controls are located at the board, management, and operational levels in today's corporate governance model (Christopher, 2010). These controls help improve accountability in the value creation processes (Bryer, 2006).

Internal audit is viewed as risk management and control technology that serves to align the interests of various stakeholders (shareholders, board, management, and employees) through assurance and consultancy services under this accountability framework of multiple controls (Mihret & Khan, 2013). Internal audit may be conceptualized as an assurance and consultancy service within this accountability framework to promote internal controls and risk management and to enhance the multi-layered accountability structure within the contemporary corporate governance framework. Internal audit provides assurance and consultancy services to highlight areas where management intervention is required to run business operations in accordance with the accountability demands of boards and other stakeholders.

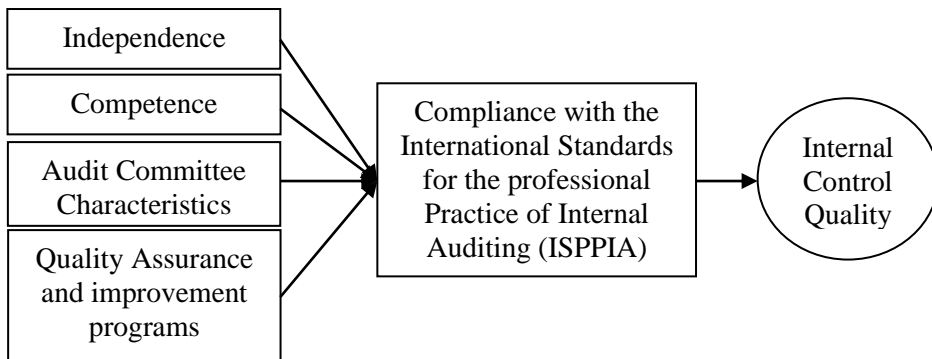


Figure 1 Conceptual Model

Sample and data collection

Pakistan currently has 212 SOEs operating in various sectors. There are 85 commercial SOEs, 44 non-commercial SOEs, and 83 subsidiaries of commercial SOEs (MoF, 2017). Our research sample consists of all 85 commercial SOEs. Structured questionnaires were used to collect information. The questionnaire is

divided into two sections. The first part of the questionnaire ascertains compliance with the *ISPPIA* in terms of *Attribute Standard 1100 (Independence and Objectivity)*, *Standard 1200 (Proficiency and Due Professional Care)*, and *Standard 1300 (Quality Assurance and Improvement Program)*. The first section also contains information about the audit committee's working relationship with the internal audit function. The second part of the questionnaire assesses the quality of internal control. Questionnaires were emailed to the chief internal auditors of all 85 commercial SOEs. A phone call follow-up process was used to increase response rate.

A total of 77 responses were received from the 85 emailed questionnaires. The remaining 5 questionnaires were rejected due to incomplete responses. When compared to other studies in the literature, the overall response rate was around 83 percent, which is a relatively high rate for an online survey (Alzeban, 2019, 2020; Alzeban & Sawan, 2015; Christopher et al., 2009; Oussii & Taktak, 2018). This high response rate can be attributed to our text message and phone call follow-up process. Table II summarizes the sampling design.

Table 1 *Sampling Design Statistics*

<i>Sample Selection</i>		
Number of SOEs register in 2021		85
SOEs deleted because of non-response to the survey		-8
SOEs deleted because of incomplete responses		-5
Total usable sample		72
<i>Sample breakdown by industry/sector</i>		
	<i>No.</i>	<i>% (Sample)</i>
Energy	28	38.9
Financial Services	16	22.2
General Services	13	18.1
Manufacturing	5	6.9
Transportation and Communication	6	8.3
Others	4	5.6
Total	72	100

Variables Measurement

The independent variables

The level of compliance with ISPPIA of IIA was measured using four independent variables. The first variable is internal auditor independence, which is measured using statements evolved from IIA attribute standards and published literature. To assess the independence of the internal audit function, six indicators were used (Christopher et al., 2009): functional reporting line, administrative reporting line, budget approval of the internal audit function, input in audit planning, approval of the audit plan, and appointment and dismissal of CAE. These indicators were scored on a five-point Likert scale. The competence of the internal audit function is

the second independent variable, which is measured using five indicators: academic qualification, professional qualification, certification, experience, and training.

The third independent variable is the quality assurance and improvement program, which is measured by indicators such as the use of ongoing monitoring by an internal assessor, self-assessment, periodic assessment by an independent internal assessor, and external assessment. Each indicator's score was calculated using These indicators were scored on a five-point Likert scale (Oussii & Taktak, 2018). Two more items were added to the quality assurance and improvement program variable: external assessments conducted over the previous five years and reporting of quality assurance and improvement program results. The characteristics of audit are the fourth independent variable. The following items are included: the audit committee composition (number of members, number of independent members, member(s) with accounting and finance background, percentage of time spent on internal audit topics), and the invitation of the chief audit executive to the audit committee.

Control variables were also included in the model to validate the relevance of related factors that can affect the findings of the regression analysis. Organization size (SIZ_ORG) was measured as the number of employees, and internal audit department/section size (SIZ_IAF) was measured as the number of internal auditing staff serving in the department. Previous studies in the IA literature (Coram et al., 2008; Goodwin-Stewart & Kent, 2006; Zain et al., 2006) also used these control variables.

Dependent variable

The majority of studies used publicly available data on internal control to assess internal control quality (Barua et al., 2010; Krishnan & Visvanathan, 2007; Lin et al., 2011; Zhang et al., 2007). However, due to a lack of information about internal control in SOEs in Pakistan, we rely on survey data obtained from internal auditors about internal control in their respective organizations. We used the internal control framework 2013 of the *Committee of Sponsoring Organizations (COSO) of the Treadway Commission* to measure internal control quality for this purpose. This model has extensively been used as a commonly accepted framework for internal control and is widely recognized as the conclusive standard against which the effectiveness of their internal control quality is measured.

Numerous studies have used the *COSO* internal control framework to assess the quality of internal control (Chan et al., 2021; Fourie & Ackermann, 2013; Saleem et al., 2019). The control environment, risk assessment, control activities, information and communication, and monitoring activities are the five components of the framework. Seventeen internal control principles related to these *COSO*

internal control framework components were chosen as indicators of internal control quality, and a five-point *Likert scale* (*Strongly disagree*= 1 to *strongly agree*= 5) was used to assess these indicators. The median of all the statements was computed to represent the variable. We anticipate that more compliant internal audit practices in SOEs will result in higher quality internal control. The impact of internal audit compliance on the internal control system was modelled using the regression models below.

$$ICQ = \beta_1 IND + \beta_2 COMP + \beta_3 QUAL + \beta_4 ACCH + \beta_5 SIZ_ORG + \beta_6 SIZ_IAF + \varepsilon$$

Table 2 *Variables Used in the Model*

ICQ	A composite score measuring the Control Environment component. The variable is formed by taking median of 17 items which are the principles of COSO model, and each principle was measure on a five-point Likert Scale (1= strongly disagree to 5= strongly agree).
IND	A composite score measuring the Independence of Internal Audit Function. The score is formed by 8 items: IA administratively reporting to executive management, IA functionally reporting to AC/BOD, IA budget is approved by AC/BOD, Input for IA planning is given by AC/BOD, IA planning is approved by AC/BOD, IA head is appointed, dismissed and evaluated by AC/BOD and movement of internal audit to other function
COMP	A composite score measuring the competence of the IAF staff. The score is formed by standardizing Academic Qualification, Professional Qualification, Certification, Years of Experience and Training received in hours per years.
QUAL	A composite score measuring the quality assurance and improvement program of internal audit function. The score is formed by aggregating 6 variables: having a quality assurance and improvement program, ongoing monitoring by internal assessor, periodic monitoring through self-assessment, periodic monitoring by an independent internal assessor, external assessment, and external assessment during the past five years
ACCH	A composite score measuring the Audit Committee characteristics. The score is formed by aggregating 5 variables: number of audit committee member, number of independent members, members having accounting or finance background, percent of time spent on IA topics, and the invitation of CAE to audit committee.
SIZ_ORG	A control variable and was measured by the number of total employees within the organization.
SIZ_IA	A control variable and was measured by taking the number of internal auditors working in the organization.

Each item was measure on a five-point Likert Scale (1= strongly disagree to 5= strongly agree). The median of all the five statements was computed to represent the variable.

Analysis and Findings

Descriptive statistics

Table III shows descriptive statistics of all the variables of the variables. In the dependent variables Internal Control Quality (ICQ) has a median value of 4, indicating that internal control quality has mostly responded as “Agree”. The independence variable has a median of 5 indicating that mostly the respondents have selected the “Strongly Agree” option in the scale and it reveals that independence is the most compliant function of IA in the sample. While quality assurance and improvement programs, competence of IA and Audit Committee characteristics have respectively a median value of 4 of each.

Table 3 *Descriptive Statistics*

	<i>Min</i>	<i>Max</i>	<i>Median</i>	<i>Std. Devn</i>	<i>Skewness</i>	<i>Kurtosis</i>
ICQ	1	5	4	1.15	-0.81	-0.40
IND	2	5	5	0.71	-1.86	4.27
COMP	2	5	4	0.75	-0.98	1.52
QUAL	1	5	4	0.73	-1.40	3.33
ACCH	2	5	4	0.97	-0.99	0.07
SIZ_ORG	1	5	2	1.19	1.44	1.23
SIZ_IA	1	5	3	1.27	0.38	-1.29
AGE	2	4	3	0.62	-0.19	-0.52
GEND	1	2	1	0.40	1.58	0.50

The descriptive statistics also include Skewness and Kurtosis to check for the problem of normality in the variables and the results indicate that the highest value for skewness is 1.58 which is within the limit of the prescribed values of ± 1.96 . However, the highest value for kurtosis is 4.27 which violate the threshold value of ± 2.00 (Rahman & Ali, 2006). Therefore, the study proceeds with nonparametric analysis to avoid the strict assumptions of parametric tests.

Correlation analysis

Table 4 shows the correlation results of the variables. Spearman correlation was done to avoid the strict assumptions of parametric analysis. The independent variables: independence of IA function, quality assurance and improvement programs, competence of the internal audit function and characteristics of the audit committee have significant positive correlation with all the dependent variable, (Internal Control Quality). However, the correlation among the independent

variables; size of the organization (SIZ_ORG), size of the internal audit department (SIZ_IAF) and age of the respondents are insignificant. Further, the correlation coefficients among the independent variables are below the threshold of 0.70, showing the absence of the statistical problems of multicollinearity (Kervin, 1995). Further, we also calculated the variance inflation factor (VIF) to confirm the absence of multicollinearity and the highest value of VIF was found 1.946, which is also below the threshold value of 10.

Table 4 *Correlation Statistics*

No.	Variables	1	2	3	4	5	6	7	8	9
1	ICQ	1.00								
2	IND	0.31**	1.00							
3	COMP	0.29*	0.30**	1.00						
4	QUAL	0.48**	0.27*	0.27*	1.00					
5	ACCHR	0.57**	0.24*	0.28*	.479**	1.00				
6	SIZE_ORG	-0.10	-0.10	-0.20	-0.145	0.208	1.00			
7	SIZE_IAF	0.11	0.23	0.23	.234*	.339**	.373**	1.00		

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

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

Regression analysis

Table V shows the result of Ordinal Logistic Regression. This model was used to avoid the strict assumptions of parametric test like ordinary least square (OLS) model and to enhance the reliability of the model, since the dependent variable was measured on Likert scale. The results of the approximate likelihood-ratio test ($\chi^2 = 28.71$, $p = 0.05$) indicate that the proportional odds assumption has not been violated.

The first independent variable in the model is the IAF independence (IND). This variable is included to test H1. The second variable in the model is the (QUAL) quality assurance and improvement programs which is included to test the second hypothesis (H2) of the study. The third hypothesis (H3) was tested by incorporating the independent variable the characteristics of audit committee (ACCH). Finally, the independent variable competence of the internal audit function (COMP) was used to test the final hypothesis (H4).

Table IV shows the model is statistically significant ($LR \chi^2 = 35.74$, $p = 0.000$, $Pseudo R^2 = 0.42$) and this indicates that approximately 42 percent changes in the dependent variable are explained by the dependent variables. All the independent variables; independence of the internal audit function (IND), competence of the internal audit function (COMP), quality assurance and improvement programs (QUAL) and characteristics of audit committee (ACCH) have positive impacts on the internal control quality (ICQ). However, the results of QUAL and COMP are

statistically non-significant. Therefore, H1 and H4 are accepted while H2 and H3 are rejected.

Further, the control variables; size of the organization (SIZ_ORG) and size of the internal audit department/section (SIZ_IAF) also provide non-significant results and indicate and the size of organization and size of internal audit staff has no role in enhancing the internal control quality of the organization. The overall regression results indicate that all the five components of internal control system of COSO internal control framework are positively influenced by only two of the attribute standards; Independence of IAF and audit committee characteristics and therefore we accept H1 and H4. While quality assurance and improvement programmes and competence of IAF have no significant impact on the different components of internal control and therefore, we reject H2 and H3.

Table 5 *Parameter Estimates*

Variables		Estimate	Std. Error	Wald	Sig.
Threshold	[ICQ = 1.00]	6.16	2.19	7.92	0.01
	[ICQ= 2.00]	8.76	2.21	15.71	0.00
	[ICQ = 3.00]	9.41	2.25	17.45	0.00
	[ICQ = 4.00]	11.83	2.43	23.76	0.00
	IND	0.76	0.35	4.69	0.03
Location	COMP	0.23	0.36	0.41	0.52
	QUAL	0.67	0.35	3.65	0.06
	ACCH	1.11	0.29	14.78	0.00
	SIZ_OR	0.09	0.22	0.15	0.70
	SIZ_IA	-0.25	0.22	1.34	0.25

Discussion

This study investigates the role of internal audit compliance with the international best practice guidelines of IIA in enhancing the internal control system of commercial SOEs in Pakistan. All the commercial SOEs of Pakistan have been taken as a study sample and an online survey was conducted to collect the responses from chief audit executives. Independence of IAF, competence of internal auditors, quality assurance and improvement program and characteristics of audit committee were taken as the independent variables while seventeen principles of COSO internal control framework were taken as the dependent variable. The Ordinal Logistic Regression results show that all the independent variables; Independence of the internal audit function, competence of the internal audit function, quality assurance and improvement program and audit committee characteristics have positive influences over the internal control quality.

Findings related to the independence of internal audit function reveal that independence of the internal audit function, in terms of IA reporting relationship, IA planning and budget approval, inputs for internal audit plans and movement of internal auditors to other functions, have statistically significant association with internal control quality and therefore support H1 of the study. These findings provide evidence that independence according to *attribute standards 1110 of IIA* has significant association with internal control quality. If auditors are more independent in performing their duties and responsibilities, it is likely to improve the quality of internal controls. These results are consistent with prior studies of Zhang et al. (2007). However, the results are contrary to the study of Fadzil et al. (2005). Results related to the competence of the internal audit function in terms of educational qualification, professional qualification, training and experience, are statistically insignificant which does not support our second hypothesis H2. These results suggest that internal auditors with higher academic and professional qualification, having more training and experience have no effects on internal control quality. These results contradict with majority of the previous studies like (Chang et al., 2019; Lin et al., 2011; Oussii & Taktak, 2018).

Similarly, the regression findings related to quality assurance and improvement programs show statistically insignificant association with internal control quality and therefore do not provide support for the third hypothesis H3. It means that internal audit function having quality assurance and improvement programs for monitoring assessing the internal audit activities according to international standards have no effects on internal control quality. These results are inconsistent with the prior results of Oussii and Taktak (2018). Finally, findings related to audit committee characteristics in terms of size of AC, independence of AC, specialty in accounting and finance and interaction with the chief audit executives have positive and statistically significant association with internal control quality and provides support for our fourth hypothesis H4. These findings are support majority of the literature (Alzoubi, 2019; Khlif & Samaha, 2016; Krishnan & Visvanathan, 2007; Lin et al., 2011; Oussii & Taktak, 2018).

The overall findings suggest that independence which is one of the most important characteristics of IAF and different dimensions of audit committee; size, independence, expertise in accounting and finance and frequency of meetings and interaction with chief audit executives can enhance the internal control quality in SOEs. While, academic and professional qualification of the auditors, area of specialization, training and experience and quality assurance and improvement programs of IAF have no significant role in improving internal control quality. However, the study sample is only limited to commercial SOEs, further research should be conducted to include non-commercial SOEs and other public sector organizations. Further, this study examined the influence of attribute standards of independence, competence of IA, quality assurance and improvement programs and audit committee characteristics over the internal control quality. Future studies

should incorporate other dimensions of attribute and performance standards of IIA to have a complete understanding of the situation.

Conclusion

The aim of this paper is to empirically examine the role of IA practices compliance with IIA best practice guidelines on internal control quality in commercial SOEs in Pakistan. To investigate the issue, international standards related to internal audit function independence, competence, quality assurance and improvement programmes, and audit committee characteristics were used to test their impact on the seventeen principles of the *Committee of Sponsoring Organizations (COSO) of the Treadway Commission Internal Control Framework 2013*.

Data were collected from the chief audit executives of 72 commercial SOES from various sectors using an online questionnaire. Ordinal logical regressions were used to examine the impact of standard compliance on internal control quality. The findings indicate that conforming internal audit practices to international standards has a beneficial impact on internal control quality. Compliance with internal auditing function independence and audit committee features has a considerable positive impact on internal control quality. While the outcomes of the IAF competence and quality assurance and improvement initiatives were deemed to be inconsequential. Two control variables; size of the organisation and the size of the internal audit department, were included in the model, however, their results were also found to be insignificant.

The overall findings indicate that internal audit practices that comply to international best practices guidelines have a considerable influence over internal control quality. The results of the study would be helpful both in theory and in practice. To the best of our knowledge, this is the first study to look into the role of internal audit in SOEs in Pakistan. Theoretically, the study is expected to contribute to accountability by highlighting that compliant internal audit practices can improve the internal control system and thereby enhancing the accountability mechanism in public sector organizations. The findings could be useful for both international and domestic regulators and standard-setters with respect to state owned enterprises. Further, the findings are also expected to have important implications for government policymakers in enhancing accountability mechanisms in public sector organizations in developing nations with similar social and economic characteristics.

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