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Universitat Autònoma de Barcelona

Doctoral dissertation:

The effects of the internal audit function quality attributes on financial reporting quality: Evidence from Bangladesh

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ABSTRACT

The relationship between internal monitoring mechanisms (IMM) and financial reporting quality (FRQ) has been researched extensively, but findings are incomplete and inconclusive regarding the importance of specific internal audit function (IAF) attributes and the role of the IAF in combination with other IMM. Moreover, most studies have been performed in developed economies, leaving doubts about their generalisability in the context of developing countries, where the regulatory and legal systems are often far from being strong. This dissertation aims to gain a deeper understanding of both issues and investigates the relationship between IAF quality attributes, audit committee (AC) quality, and FRQ in the setting of a developing country, specifically Bangladesh.

To establish the dissertation's concrete research objectives, a systematic literature review was carried out by inventorying prior publications, organising their findings, and identifying specific research gaps. Then, two empirical studies were performed, using survey and secondary data from non-financial firms listed on the Dhaka Stock Exchange. The survey was addressed to heads of internal auditing, chief financial officers, and AC members, and was used to construct novel measures of IAF quality and AC quality. The secondary data were extracted from the firms' annual reports and the *DataStream* database for fiscal years 2018-2020 and were primarily used to determine FRQ (proxied by abnormal accruals).

The empirical results show that IAF quality is significantly and negatively related to abnormal accruals, suggesting that also in the Bangladeshi context IAF quality plays an important role in advancing FRQ. Furthermore, specific IAF quality attributes such as staff competence, independence, and work performance all matter and mutually strengthen each other in this regard. Finally, resource availability (proxied by firm size) and AC quality also have a significant positive effect on FRQ, where IAF quality mediates the relationship between firm size and FRQ, while no such mediation effect was found for AC quality.

The dissertation contributes to the academic auditing-related literature, firstly with the proposed new constructs for IAF quality and AC quality. Secondly, the results suggest that the impact of the IAF on FRQ observed in developed economies is generalisable to the developing world. Thirdly, the

importance of different dimensions of IAF quality has been established. The implication for companies and their stakeholders is that the IAF is a tool they can use in their efforts to improve FRQ and mitigate agency problems, but attention must be paid to all of its aspects, including staff competence, independence, and work performance. Interesting insights for regulators are that both AC and IAF quality have a bearing on FRQ and that smaller companies might not dedicate spontaneously sufficient resources to strengthening their IAF; no impact of company size was observed with respect to AC quality, which could imply that current AC regulation is as effective for companies of all sizes.

Los efectos de los atributos de calidad de la función de auditoría interna en la calidad de la información financiera: evidencia de Bangladesh

RESUMEN

La relación entre mecanismos de control interno y calidad de la información financiera (FRQ - *financial reporting quality*) se ha investigado extensamente, pero los hallazgos son incompletos y no concluyentes con respecto a la importancia de atributos específicos de la auditoría interna y el papel de la auditoría interna en combinación con otros mecanismos de control interno. Además, la mayoría de los estudios se han realizado en economías desarrolladas, lo que deja dudas sobre su generalización en el contexto de países en desarrollo, donde los sistemas regulatorios y legales a menudo están lejos de ser sólidos. Esta tesis tiene como objetivo obtener una comprensión más profunda de ambos temas e investiga la relación entre los atributos de calidad de la auditoría interna, la calidad del comité de auditoría y FRQ en el entorno de un país en desarrollo, específicamente Bangladesh.

Se llevó a cabo una revisión sistemática de la literatura mediante el inventario de publicaciones anteriores, la organización de sus hallazgos y la identificación de lagunas de investigación específicas para establecer los objetivos de investigación concretos de la tesis. Luego, se realizaron dos estudios empíricos, utilizando una encuesta y datos secundarios de empresas no financieras que cotizan en la Bolsa de Valores de Dhaka. La encuesta estuvo dirigida a jefes de auditoría interna, directores financieros y miembros del comité de auditoría, y se utilizó para construir medidas novedosas de la calidad de la auditoría interna y del comité de auditoría. Los datos secundarios se extrajeron de los informes anuales de las empresas y de la base de datos *DataStream* para los años fiscales 2018-2020 y se usaron principalmente para determinar el FRQ (representado por devengos discrecionales anormales).

Los resultados empíricos muestran que la calidad de la auditoría interna está significativa y negativamente relacionada con devengos discrecionales anormales, lo que sugiere que también en el contexto de Bangladesh, la calidad de la auditoría interna juega un papel vital en el avance de FRQ. Además, atributos de calidad específicos de la auditoría interna, como la competencia, la independencia y el desempeño profesional del personal, son todos importantes y se fortalecen mutuamente en este

sentido. Por último, la disponibilidad de recursos (aproximada por el tamaño de la empresa) y la calidad de comité de auditoría también tienen un efecto positivo significativo en la FRQ, donde la calidad de la auditoría interna media la relación entre el tamaño de la empresa y la FRQ, mientras que no se encontró tal efecto de mediación para la calidad del comité de auditoría.

La tesis contribuye a la literatura académica relacionada con la auditoría, en primer lugar, con los nuevos constructos propuestos para la calidad de la auditoría interna y la calidad del comité de auditoría. En segundo lugar, los resultados sugieren que el impacto de la auditoría interna en la FRQ observado en las economías desarrolladas es generalizable al mundo en desarrollo. En tercer lugar, se ha establecido la importancia de las diferentes dimensiones de la calidad de auditoría interna. La implicación para las empresas y otras partes interesadas es que la auditoría interna es una herramienta que pueden utilizar en sus esfuerzos por mejorar la FRQ y mitigar los problemas de agencia, pero se debe prestar atención a todos sus aspectos, incluida la competencia, la independencia y el desempeño profesional del personal. Ideas interesantes para los reguladores son que la calidad tanto del comité de auditoría como de la auditoría interna tienen impacto sobre la FRQ y que posiblemente empresas más pequeñas no dedicarán espontáneamente suficientes recursos para fortalecer su auditoría interna; no se observó ningún impacto del tamaño de la empresa en la calidad del comité de auditoría, lo que podría implicar que la regulación actual del comité de auditoría es igual de efectiva para empresas de todos los tamaños.

Els efectes dels atributs de qualitat de la funció d'auditoria interna sobre la qualitat dels informes financers: evidència de Bangla Desh

RESUM

La relació entre els mecanismes de control intern i la qualitat de la informació financera (FRQ - *financial reporting quality*) s'ha investigat àmpliament, però els resultats són incomplets i no concloents quant a la importància dels atributs específics de l'auditoria interna i el paper de l'auditoria interna en combinació amb altres mecanismes de control intern. A més, la majoria d'estudis s'han realitzat en economies desenvolupades, deixant dubtes sobre la seva generalització en el context dels països en vies de desenvolupament, on els sistemes reguladors i legals sovint estan lluny de ser forts. Aquesta tesi té com a objectiu obtenir una comprensió més profunda d'ambdues qüestions i investiga la relació entre els atributs de qualitat de l'auditoria interna, la qualitat del comitè d'auditoria i la FRQ en l'entorn d'un país en desenvolupament, concretament Bangla Desh.

Es va dur a terme una revisió sistemàtica de la literatura mitjançant l'inventari de publicacions prèvies, l'organització dels seus resultats i la identificació de buits de recerca específics per establir els objectius concrets de recerca de la tesi. A continuació, es van realitzar dos estudis empírics, utilitzant una enquesta i dades secundàries d'empreses no financeres que cotitzen a la Borsa de Valors de Dhaka. L'enquesta es va dirigir a caps d'auditoria interna, directors financers i membres del comitè d'auditoria, i es va utilitzar per construir noves mesures de la qualitat de l'auditoria interna i la qualitat del comitè d'auditoria. Les dades secundàries es van extreure dels informes anuals de les empreses i de la base de dades *DataStream* per als exercicis fiscals 2018-2020 i es van utilitzar principalment per determinar la FRQ (aproximat per meritacions discrecionals anormals).

Els resultats empírics mostren que la qualitat de l'auditoria interna està relacionada de manera significativa i negativa amb les meritacions discrecionals anormals, cosa que suggereix que també en el context de Bangla Desh, la qualitat de l'auditoria interna té un paper vital en l'avenç de la FRQ. A més, els atributs específics de qualitat de l'auditoria interna com ara la competència, la independència i l'acompliment del personal són tots importants i s'enforteixen mútuament en aquest sentit. Finalment,

la disponibilitat de recursos (aproximada per la mida de l'empresa) i la qualitat del comitè d'auditoria també tenen un efecte positiu significatiu en la FRQ, on la qualitat de l'auditoria interna actua com variable medidora entre la mida de l'empresa i la FRQ, mentre que no es va trobar aquest efecte de mediació per a la qualitat del comitè d'auditoria.

La tesi contribueix a la literatura acadèmica relacionada amb l'auditoria, en primer lloc amb les noves mesures proposades per a la qualitat de l'auditoria interna i la qualitat del comitè d'auditoria. En segon lloc, els resultats suggereixen que l'impacte de l'auditoria interna sobre la FRQ observat a les economies desenvolupades és generalitzable al món en desenvolupament. En tercer lloc, s'ha establert la importància de les diferents dimensions de la qualitat de l'auditoria interna. La implicació per a les empreses i altres parts interessades és que l'auditoria interna és una eina que poden utilitzar en els seus esforços per millorar la FRQ i mitigar els problemes d'agència, però s'ha de prestar atenció a tots els seus aspectes, incloses la competència, la independència i l'acompliment del personal. Idees interessants per als reguladors són que la qualitat tant del comitè d'auditoria com de l'auditoria interna tenen una incidència en la FRQ i que possiblement les empreses més petites no dedicaran de manera espontània recursos suficients a reforçar la seva funció d'auditoria interna; no s'ha observat cap impacte de la mida de l'empresa en la qualitat del comitè d'auditoria, la qual cosa podria implicar que la regulació actual del comitè d'auditoria és igual d'efectiva per a empreses de totes les mides.

LIST OF ACRONYMS AND ABBREVIATIONS

AC	Audit Committee
AICPA	American Institute of Certified Public Accountants
AJR	Audit Judgment Rule
BSA	Bangladesh Standards on Auditing
BSEC	Bangladesh Security and Exchange Commission
CAE	Chief of Audit Executive
CBOK	Common Body of Knowledge
CEO	Chief Executive Officer
CFO	Chartered Financial Officer
CG	Corporate Governance
DSE	Dhaka Stock Exchange
FRQ	Financial Reporting Quality
FDI	Foreign Direct Investment
GAIN	Global Audit Information Network
IA	Internal Auditor
IAASB	International Auditing and Assurance Standards Board
IAF	Internal Audit Function
IAQ	Internal Audit Quality
IAFQ	Internal audit function quality
IIA	Institute of Internal Auditors
IMMs	Internal Monitoring Mechanisms
MTG	Management Training Ground
SEC	Security and Exchange Commission
SLR	Structured Literature Review

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

The importance of the internal audit function (IAF) has increased due to the tremendous pressure on the corporate governance (CG) players (Pomeroy, 2010), and its prominence and companies' reliance on it have increased accordingly (Cohen et al., 2010; Desai et al., 2010). It also provides relevant information to companies' management regarding the audit committee (AC), financial reporting quality (FRQ), internal controls, and risk management (Harrington, 2004). Thus, the IAF is considered to be an essential internal mechanism to enhance the overall effectiveness of the CG. The IAF's efficiency is crucial for improving the quality of financial reporting (Collier & Ampomah, 2009). Pickett (2011) argued that the efficiency of the IAF relies on realising its importance in improving the FRQ by enhancing governance, risk management, and internal control in preparing financial statements. According to Arens and Loebbecke (1997), an effective IAF results in quality financial reporting. However, a weaker IAF is associated with a more fragile board and AC independence and expertise, higher audit fees, less accurate earnings forecasts, and increased cost of finance (Schneider & Wilner, 1990).

The IAF has evolved as an internal assurance function for management that primarily focuses on accounting transactions and anti-fraud activities (Ramamoorti, 2003). At the turn of the 20th century, the IAF was formally established and broadened its responsibilities with the growth of business activities. Morgan (1979) argued that the IAF has emerged to add value and has broken away from its historical role as an organisational policeman and watchdog. Several financial scandals in different organisations in the world, such as BAT-Yava (in Russia), Enron and Hollinger (in the United States), Greencool (in China), and Transmile Group Berhad (in Malaysia), have derived widespread interest in the IAF and brought this issue to the consideration of the concerned parties. Modern complex business models, the pace of technological advancement, and regulation changes have also broadened internal auditors' service areas (e.g., financial risk assessment, cyber risk assessment, and culture assessment) through the utilisation of innovative ideas (e.g., cutting-edge audit analytics, automated robotic process, and application of agile practices) (Deloitte, 2018). Therefore, the IAF has become an attractive new research avenue for academics to investigate and originate directions to improve the performance of these systems to prepare a high-quality financial report. Many consider the IAF to be a reasonable

solution to the apparent breakdown in the systems of financial reporting, internal control, and ethical behaviour (Gramling et al., 2004).

The literature mostly addressed the IAF's impact on financial reporting quality (FRQ). However, the IAF's effectiveness depends on its quality attributes, which play a crucial role in the improvement of FRQ. Professional standards and prior research (AICPA, 2008; Prawitt et al., 2009) have suggested that IAF quality incorporates specific attributes of the organisations and parties performing internal audit activities, such as the competence, independence, objectivity, and work performance of IAF personnel. Several studies have focused on the significance of IAF quality attributes, such as higher quality related to lower earnings management (Abbott et al., 2016; Gros et al., 2017; Prawitt et al., 2009), reduced accounting risks (Prawitt et al., 2012), and enhanced prevention and reduction of material weakness (Lin et al., 2011). Moreover, higher IAF quality strengthens external auditors' reliance on IAF work, which increases the external audit effectiveness (Abbott et al., 2012; Felix et al., 2001).

Most of these studies have primarily focused on well-developed capital markets, for example, the US (Abbott et al., 2016; Christ et al., 2015; Prawitt et al., 2009), Italy (Onza, 2018), and Germany (Gros et al., 2017), and little evidence has been observed in emerging economies, such as Malaysia (Al-Jaifi et al., 2019), Saudi Arabia (Alzeban, 2018), and Oman (Gebayel et al., 2018). Therefore, the current study examines the overall scenario and performance of the IAF's impact on FRQ from the view of a developing country, specifically Bangladesh. In fact, to the best of my knowledge, no literature has documented evidence on this issue from companies listed on the Dhaka Stock Exchange (DSE), and this is the first study in the Bangladeshi context to investigate the impact of IAF quality attributes on FRQ. A few studies have investigated relevant issues, focusing mainly on CG performance, external audits, and audit fees, but IAF quality-relevant issues have been overlooked. However, the IAF has gained significant importance in recent years due to its wide range of internal consulting roles within the firms' risk management function. Therefore, this study explores the impact of IAF quality attributes on FRQ using a unique empirical sample from Bangladesh.

1.2 Economic overview of Bangladesh

The Bangladeshi economy is one of the top ten fastest-growing economies in the world. The International Monetary Fund (IMF) in its World Economic Outlook, 2022, has positioned Bangladesh as the 35th biggest economy in the world in terms of nominal GDP in 2022 and 25th in terms of purchasing power parity (PPP). By strategic use of its location, Bangladesh could potentially act as an economic corridor and as a hub between India, China, and Southeast Asia. This signifies a possible rise in trade, transport, and tourism in the context of the Chinese Belt and Road Initiative. Moreover, Bangladesh has become an attractive investment place for international investors, as reflected in the World Investment Report 2017, which ranked Bangladesh 16th among 74 foreign direct investment (FDI) recipient nations with a record US\$ 2.87 billion FDI inflow in 2019. Further, due to the Rohingya crisis, multiple agreements have been conducted between international partner countries and Bangladesh in a commitment for public and private investments to improve socio-economic development. Thus, the economic progress in different parameters have raised the importance of IAF quality to enhance FRQ for boosting investors' confidence. Therefore, this study investigates IAF quality attributes in preparing high-quality FRQ from the context of Bangladesh.

1.3 Capital market in Bangladesh

The capital market in Bangladesh is comprised of two stock exchanges, which are namely Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE). While the DSE is more popular than CSE in terms of trade volume, currently, a total of 442 companies' shares and debentures are traded in the equity market (258 in DSE and 184 in CSE). The securities market instruments in Bangladesh include unit certificates, mutual certificates, shares, debentures, wage earners development bonds, Fixed Deposit Receipts, and various saving certificates under the National Savings Schemes. This market is regulated by the Bangladesh Security and Exchange Commission (BSEC).

1.4 Corporate governance and internal auditing in the context of Bangladesh

From the perspective of a developing country like Bangladesh, CG practice might lack regulatory control, such as inadequate external monitoring and weak CG mechanisms. Siddiqui (2010) focused on Bangladesh's adoption of an Anglo-Saxon model of CG, which is arguably a hybrid of outsider-dominated market-based systems. The CG of Bangladesh stands on a weak regulatory system,

with problems such as a lack of external monitoring and auditing services (Fan & Wong, 2005). Recently, the Bangladesh Government and regulatory agencies have paid considerable attention to improving the regulatory environment through economic and business advancement. In 2006, the CG guidelines were issued and required all listed company boards to adopt the codes to ensure a sound internal control system and recommend the establishment of an IAF. The earlier-developed CG code was amended in 2012 and more recently in 2018 on a ‘comply or explain’ basis to heighten CG performance and protect stakeholders’ interests. The comply or explain basis implies that stock market-listed firms are required to comply with the CG codes to ensure assurance or review the tasks of the internal control system and provide an explanation in the case of non-compliance. The newly amended code clarifies the roles and responsibilities of the IAF, the IA plan, and the preparation and submission of the IA report (Bangladesh Security and Exchange Commission [BSEC], 2018). The guidelines also revised the AC’s role concerning the IAF, such as its responsibilities for reviewing internal audit reports, overseeing IAF activities, providing recommendations to the board of directors regarding the appointment and dismissal of the Chief of Audit Executive (CAE), and compensation (BSEC, 2018). The code stipulates the characteristics of the AC: for example, it is obligatory for all listed companies to form an AC composed of three members, including at least one independent director. The AC members must be appointed by the board of directors, and their job responsibilities need to be stated clearly (BSEC, 2018). Thus, the recent amendment of the CG Code relating to the IAF and AC may enhance the overall CG quality.

As an initiative to improve the overall CG performance, in 2004, the Bangladesh Security and Exchange Commission appointed the Institute of Internal Auditors Bangladesh (IIAB) to establish a regulatory task force to formulate guidelines for the IAF. Hence, the IIAB performs its guideline development activities by following a common set of international IIA standards, which monitor the Institute of Internal Auditors (IIA) headquarters. The main objective of the IIA Bangladesh is to contribute to the development of IA’s effectiveness and CG practice in local enterprises. The IIA Bangladesh’s works extend beyond public organisations into the private sector, representing garments, telecom, NGOs, banking, and IT.

1.5 Theoretical framework

Based on the witness in the existing literature, two distinct theories are relevant to this study focus (the relationship between IAF quality and FRQ). The theories are namely agency theory and institutional theory promoted by Adams (1994) and DiMaggio and Powell (1983), respectively. Literature often used these theories' viewpoints to conceptualise the relationships between corporate governance mechanisms (IAF and AC) and FRQ (Paape, 2007). Below, both theories are explained and the reasons behind their adoption in this study are justified.

1.5.1 Agency theory

Agency theory is the most dominant theory in CG (Cohen et al., 2008; Hermanson et al., 2009), and posits that CG mechanisms are established to oversee management activities to address the separation of ownership and control in the organisation. Agency theory employs to explain contractual obligations between the principal and agent. The shareholders (the principal) of a firm provide valuable resources for the firm's establishment, while the manager (the agent) controls and operates the business affairs on behalf of the shareholders. In line with the agency theory view, management acts as an agent for shareholders (i.e., the principal), whereas the shareholders expose to the opportunistic behaviour of the management since the decision-making control process is assigned to the management (Jensen & Meckling, 1976). It is the shareholders' responsibility to monitor management performance, while shareholders' improper monitoring of management leads to the misuse of resources, such as for the management's self-interest instead of maximising shareholders' wealth. Adams (1994) notes that principals usually have inadequate information than the agents and that this information asymmetry undesirably influences the principals' ability to oversee whether their interest is being properly served by agents. It also assumes that agents and principals act rationally based on their agreement process to maximise their wealth, while due to the agent's self-seeking motives, they are likely to take the opportunity to act against the interest of the owners of the firm. In addition, Adams (1994) mentioned another type of agency problem called "adverse selection". This happens when the principals do not have access to all information at the time a decision is taken by a manager and is thus unable to justify whether the manager's decision is in the best interest of the firm. This adverse selection sometime leads to agency problems between agents and principals (Lazarides & Drimpetas, 2008).

Sometimes, owners may prioritise their interests even at the cost of other stakeholders, and thus they tend to interfere in management decisions to maximise short-term profit, while management prefers to maximise firm wealth by earning long-term sustainable profits. Therefore, conflicts of interest between owners and management evolve and can rise exponentially. The owner needs to monitor management decisions and activities for accountability purposes, whereas it is challenging for the owner due to the excessive cost. In some cases, due to a lack of knowledge and expertise owners cannot actively engage in this process. As such, the board need to utilise alternate option-setting internal monitoring mechanisms (e.g., IAF and AC) to fulfil oversight responsibilities (Johnson et al.,1996). The monitoring mechanisms' implementation over agents involves an additional cost which is the monitoring cost. Within a corporate governance of the entity, the board of directors works on behalf of shareholders by safeguarding their interests and monitoring the activities of management.

Agency theory proposes that an IAF develop to mitigate agency costs inside the firm (Jensen & Meckling, 1976). They argue that an IAF reduces agency costs by enhancing the quality of information flows between the principal and agent. Earlier studies also highlighted that the inclusion of internal audits due to the change in CG regulations significantly affects governance monitoring performance. Fama and Jensen (1983) and Jensen and Meckling 1976) noted that under the agency theory assumption, implementing monitoring mechanisms in management endeavours to align agents' interests with principals and minimise information asymmetry. According to Paape (2007) this theory offers an acceptable explanation for the practice of internal audit. Moreover, it plays a crucial role in monitoring the CEO and board executives' activities (e.g., approving the corporation's strategy and internal control system) and overseeing the financial reporting process, which significantly reduces external auditing costs. Adams (1994) argues that agency theory can rationalise the presence of IAF, the nature of IAF and the approach adopted by internal auditors to their work.

1.5.2 Institutional theory

The institutional theory demonstrates how the institution will, over time, adapt and become like other institutions via standards and regulations, modelling of best practices, benchmarking, and socialisation (Cohen et al., 2008), it is regardless of whether these practices are best suited for the

institutions (Cohen et al., 2008). The theory also emphasises the diffusion of practices among institutions and the impact of professions that generate isomorphic pressures on institutions (Mihret et al., 2012).

Several IAF changes have been witnessed in recent years due to the sequel corporate financial scandals since 1990 (O'Regan, 2001). According to the CG model by the IIA, the IAF put the fourth level and considered it as one of the four cornerstones of the CG mechanisms, along with the AC, executive management, and the external auditor (IIA, 2017). Moreover, the IAF role has been shifted from merely a watchdog to a valuable proactive contributor in the company's risk management and CG process. Arena et al. (2006) and Sarens and Abdolmohammadi (2011a) argue that the importance of the IAF has been tremendously growing over the last few decades because of numerous whimsical practices and fraud in financial reporting. These unexpected situations led to pervasive regulatory changes in different countries, particularly in the financial regulatory frameworks. The most popular evident instance is the Sarbanes-Oxley Act of 2002.

The role of IA has transformed from being a watchdog for corporate management to a more value-adding service provider when comparing the deinstitutionalisation of old practices to the institutionalisation of new ones. These changes have broadened internal auditors' work areas over time and are thus institutional change dynamics. While institutional theory has been embraced limitedly in accounting and IA research (Mihret et al., 2012), it has gradually become prominent among the researchers in the field of IAF (Arena et al., 2006; Arena & Azzone, 2007). These studies, however, mostly emphasise IA practices and IAF quality characteristics (Mihret et al., 2012).

1.5.3 Theoretical diagnosis

From the above theoretical discourse, the following conclusions can be drawn:

- i. The agency theory assumption relies on the existence of the contractual relationship between the management (agent) and the owner (principal) of the business entity and lends itself to the exploration of the cause for the existence of IAF in the organisation. This theory has received tremendous significance in internal audit literature due to its adaption by Adams (1994) for theorisation, particularly to offer explanations for the essence of internal auditing.

- ii. Institution theory underlines the survival value of IAF's conformity with the institutional environment. Such conformism leads to legitimacy, stability, and access to resources adopted to offer justification for the increased and enhanced role of IAF. This is attributable to the abstraction of internal audit from external audit and the eventual professionalization of internal auditing worldwide through the establishment of IIA in the USA on November 10, 1941. Foster and Greenawalt (1995) noted that the increased need for internal audits has international and national implications, as witnessed by the growth of multinational corporations and joint ventures operating under different governmental and cultural influences.

Several internal audit-related studies (e.g., Adams, 1994; Paape, 2007; Sarens & Abdolmohammadi, 2011) have employed agency theory to understand the role of internal audit and its assumptions, which reinforces the theoretical understanding of current research as well. This also reflects the formulation of the study hypotheses as popular agency cost variables relevant to the study are examined. Hence, this 'agency' view of the relationship between owners and management has implications for the methodological approach adopted by researchers. Research in CG has usually been grounded in an objective ontology and positivist epistemology, hence the dominant use of quantitative methods. Watts and Zimmerman (1983) are reliable supporters of agency theory and positivism, and they have argued for accounting research to retain its traditional quantitative focus and for it to remain 'true' to its origins. On the other hand, the institutional theory is also given significant importance and applied in internal auditing studies, particularly in recent times. Literature employed this theory in different countries' perspectives, such as Al-Twajjry et al. (2003) in Saudi Arabia, Arena and Azzone (2006) in Italy, and Mihret et al. (2012) in Ethiopia. These studies applied institutional theory to analyse the adoption and characteristics of IAF in their respective country contexts. The current study has employed institutional theory to understand and explain the research issue and to formulate research hypotheses.

1.6 Conceptual framework

1.6.1 Internal audit function (IAF) quality attributes

Internal audit evolved as an internal business function for corporate management that placed an emphasis on anti-fraud activities and the verification of accounting transactions (Ramamoorti, 2003). Historically, it has been considered an “organisational policeman and watchdog”, while over time it has shifted its role from being a watchdog for management to a strategic service provider for the company (Deloitte, 2018). Eventually, it becomes an integral part of the CG mechanisms and exists in many organisations and assists the management in attaining effectiveness in areas such as risk management, internal control, operations, and overall CG responsibilities. The IAF is one of the elements of effective CG and financial reporting (Davidson et al., 2005; IIA, 2003; Schneider et al., 2009), and it must possess an appropriate level of quality to be deemed as a valuable resource to ensure FRQ (Gramling et al., 2004; Prawitt et al., 2009). An effective IAF is required to improve the quality of financial reporting (Collier & Ampomah, 2009). According to Arens and Loebbecke, (1997) effective IAF in results in the production of quality financial reporting.

According to SAS No.65 (American Institute of Certified Public Accountants [AICPA], 1991) IAQ attributes include internal auditor *competence, objectivity, and work performance*. IAQ attributes, such as *competence, independence, objectivity, and proficiency* are considered as indicators of IAF’s quality (Abbott et al., 2016; Chang et al., 2019; Krishnamoorthy, 2002; Lin et al., 2011; Prawitt et al., 2009; Suwaidan & Qasim, 2010) and suggest that FRQ is significantly related with IAF’s attributes. AICPA (2013) standards explain that IAQ characteristics are comprised of competence (e.g., educational level and certification), and objectivity (e.g., reporting relationship, and quality of work performance, adequacy of audit programs and scope of work performed). Similarly, the IIA promulgated standard describes IAQ attributes to be independence, objectivity, proficiency, and due care (IIA, 2003).

IAQ factors can be briefly elucidated to explore the underlying concept and importance of its implication in the assurance of FRQ. For instance, an internal auditor’s competence represents the ability to perform auditing tasks diligently following professional standards (Council, 2013). The Institute of Internal Auditors (IIA) defines competence as “the ability of an individual to perform a job

or task properly, being a set of defined knowledge, skills, and behaviour” (IIA, 2013). Internal auditor competence includes educational qualification, job experience, and training (Prawitt et al., 2009). While IAF independence has a close relationship with objectivity, the glossary demonstration of IIA Standards distinguishes these concepts. Within an IAF setting, independence is described as “the freedom from conditions that threaten the ability of the internal audit activity to carry out internal audit responsibilities in an unbiased manner” (Council, 2013), which involves a degree of freedom to perform and access other sections of the organisation. Meanwhile, auditing standard SAS 65 (AICPA, 1991) describes the internal auditor work performance as the nature and extent of the IA assignment performed. Prior studies observe that internal auditor work performance is a crucial factor for IAF quality (e.g., Brown and Karan, 1986; Margheim, 1986; Schneider, 1985b). External auditor reliance defends IAF work performance like other IAF quality factors (Dezoort et al., 2001; Gramling, 1999). Internal auditor work performance includes, for example, the scope of work performance, the evaluation process of internal auditor work performance and the adequacy of the audit plan (AICPA, 1991). Thus, AICPA and IIA ascertain internal auditor’s quality characteristics will be utilised in the current study to examine their relative importance of FRQ.

1.6.2 Financial reporting quality

The financial reporting quality (FRQ) denotes accurate financial statements information that allows stakeholders to analyse a company’s financial performance and prospects to make a decision. According to the Financial Accounting Standards Board (FASB), the International Accounting Standards Board (IASB), the Accounting Standard Board in the United Kingdom (ASB) (UK), and the Australia Accounting Standard Board (AASB), FRQ represents financial statements that provide accurate and fair information about the underlying financial position and economic performance of an entity. Chung et al. (2017) mentioned that FRQ is a main monitoring mechanism of company management that curbs the opportunistic behaviour of the management and, hence, eliminates the possibility of adverse selection and moral hazard. The research identified several characteristics of quality reporting based on the FASB, such as predictive and feedback value, timeliness, neutrality, and representational faithfulness (Jaggi et al., 2015; Lourenço et al., 2018; Velury & Jenkins, 2006; Ying, 2016). The first element indicates how financial information help to predict the overall performance of the company and to

confirm these predictions, specifically regarding the ability to generate cash flow. The concept of timeliness refers to how information loses its relevance to the decision-making process if it is not available in time, whereas neutrality indicates that the information is not biased and does not tend to benefit only one party. Lastly, the information is said to be faithfully represented if management reports all transactions and events to investors accurately.

The IAF is one of the cornerstones of effective corporate governance and financial reporting (Gramling et al., 2004; IIA, 2003). IAF focuses on controls, operational risks, and appropriate financial reporting. The role of internal audit quality is important in detecting earnings management and improving FRQ. By the IIA's definition, internal audit should bring a "systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes" (IIA, 2013). Standards for the internal auditing profession affirm the IAF's responsibility to monitor financial reporting (e.g., IPPF, 2012), help detect and deter fraud (e.g., IIA, 2009b; IPPF, 2012), as well as reduce related losses (Coram et al., 2008; Ege, 2015; Norman et al., 2010), whereas internal audit ineffectiveness more likely leads to poor quality of financial reporting. To illustrate, internal audit ineffectiveness is incapable of both preventing and detecting errors or misstatements and fails to mitigate any opportunistic attempts to manipulate the financial reports (Doyle et al., 2007; Ji et al., 2017). Conversely, it is effective in assisting to mitigate the agency problem by increasing the reliability of financial reporting. Conceptually, internal audit has the potential to enhance the quality of financial reports.

1.7 Motivation for the study

Given the recent financial irregularities, the importance of the IAF has increased and the internal auditor has changed from being a watchdog for management (monitoring assets) to become a more value-adding tactical service provider (advising service) (Deloitte, 2018). As such, IAF has widely been established as a vital CG mechanism and plays a decisive role in improving FRQ (Gramling et al., 2013; Phornlaphatrachakorn, 2020; Prawitt et al., 2009), which enhances investor protection and stock market efficiency. Pickett (2011) argues that the efficiency of the IAF relies on the realisation of its importance in improving the FRQ by enhancing governance, risk management, and internal control in preparing financial statements. The IAF's effectiveness depends on its quality determinants, which

ascertain the external audit standards for external auditor evaluation of an internal auditor's performance. Gramling et al. (2004) posit that the IAF is only a valuable source of information if it possesses an appropriate level of quality. Several studies have empirically investigated this research avenue (IAF and FRQ) (e.g., Davidson et al., 2005; Gros et al., 2017; Johl et al., 2013; Prawitt et al., 2009). However, there are still knowledge gaps, such as *to what extent the IAF quality attributes affect FRQ* and *whether IAF quality determinants are equally important and contribute to the management or whether emphasising a particular IAF quality attribute can ensure FRQ*. Moreover, the literature has been almost silent concerning the effect of IAF quality and AC quality on the relationship between firm size and FRQ. Thus, it is imperative to investigate the comparative importance of the IAF quality determinants for FRQ and the likely effects of the AC and IAF quality attributes on the relationship between firm size and FRQ.

Previous literature predominately focuses on developed economic settings (e.g., Australia, US, UK, and European countries) and only a few studies observed developing countries (e.g., Malaysia, Saudi Arabia, Oman). Also, the literature is almost silent on this crucial research issue in Southeast Asian countries, where the market structure is different, high ownership concentration is a common feature of publicly listed firms (Gill, 2003), and the judicial system is said to be relatively weak where CG rules are more relaxed (Shleifer and Vishny, 1997). Of course, the IAF in Bangladesh is significantly different from that in the US and European settings in terms of policy implications and maturity as it has recently been treated as a mandatory part of CG. Moreover, it is unreasonable to transfer and implement a well-developed IAF structure to a developing economic setting due to the distinct political, cultural, and socio-economic framework. In response to the global CG improvement, the Bangladeshi code of CG has been amended in 2012 and more recently in 2018 to enhance CG performance and protect stakeholders' interests. This amendment also helps to present on the international platform that Bangladeshi financial dealings within the public organisation are transparent, which might even be seen as having potential ramifications concerning the maintenance of international relations and perceptions of funding. The recent CG code underlines and amends some internal audit-related aspects, such as IAF establishment, the roles and responsibilities of IAF, the internal audit plan, and the internal audit report (BSEC, 2018). The guidelines also revised the AC role concerning IAF, such as

responsibilities for reviewing internal audit reports, overseeing IAF activities, providing recommendations to the board of directors regarding the appointment and dismissal of the CAE, and compensation (BSEC, 2018). Hence, it is imperative to understand whether IAF quality attributes play a significant role in preparing high-quality FRQ after numerous changes in the Code of CG in Bangladesh. Also, the current study has immense importance to reduce the literature gap and to help with understanding the nature and mechanism of IAF and AC relating to FRQ in Bangladesh. Specifically, the study attempts to investigate the effects of IAF and AC quality attributes on FRQ on non-financial listed companies in Bangladesh.

1.8 Research objectives

The growing reliance on the IAF by multiple governance stakeholders demands a better understanding of it (Desai et al., 2010) as IA is a valuable resource if it possesses an appropriate level of quality (Gramling et al., 2004). The literature has determined that lower IAF quality may hamper the reliability of stakeholders in the information or work performance of internal audits (Burton et al., 2012; Desai et al., 2010) and reduce FRQ (Goodwin & Seow, 2002; Gramling et al., 2013; Prawitt et al., 2009; Schneider & Wilner, 1990). Therefore, this study attempts to understand the likelihood of IAF quality attributes being important for FRQ from the perspective of a developing country, specifically Bangladesh. Moreover, the study examines the likelihood of AC quality and IAF quality importance to the interaction between firm size and FRQ, as the AC and IAF are the vital governance mechanisms that assist the management in multiple ways and contribute to enhancing FRQ. If the AC quality and IAF quality are effective in this, then FRQ will not be compromised.

The objective of this study is to investigate the impact of the IAF quality determinants on FRQ. Specifically, the study examines the effects of IAF quality attributes on FRQ in non-financial listed companies in Bangladesh. Observed from the perspective of developing countries, including Southeast Asian countries, there is a lack of empirical evidence on this crucial research issue. These countries' market structure is different in terms of the high ownership concentration in the publicly listed firms (Gill, 2003), and the judicial system is relatively weak (Shleifer & Vishny, 1997). These relevant issues motivate me to conduct this study. This study also attempts to minimise the existing literature gap on the IAF quality factors that affect FRQ in the Bangladeshi setting. Several previous studies

have investigated this research avenue empirically; however, to the best of my knowledge, all these studies have mainly been conducted in the context of developed countries (e.g., Australia, the US, and European countries), and only a few have considered developing countries (e.g., Malaysia). Therefore, the current study is imperative to reduce the research gap and understand the importance of IAF quality attributes for FRQ in Bangladesh. Overall, the study offers an insight into the IAF quality attributes regarding FRQ in Bangladesh and discovers a need for reform in this area to add value. Thus, the study contributes toward the understanding of the actual role of internal audit practices in entities and explains how IAF quality attributes influence the quality of financial reporting.

1.8.1 Specific objectives

The specific research objectives are as follows:

- To undertake a systematic literature review on internal audit functions (IAFs) and financial reporting quality (FRQ) to determine future research guidance and identify knowledge gaps.
- To examine the relative importance of the IAF quality attributes to FRQ.
- To investigate the mediation effect of audit committee quality and internal audit function quality on firm size-financial reporting quality nexus.

1.9 Contribution of the study

This study adds several contributions to the existing body of literature as follows. Firstly, the first research objective is to review the prior literature to identify the knowledge gaps for further study. Several research gaps are identified based on the earlier literature review and IAF's contemporary challenges that are likely to be fruitful for future research investigation. Moreover, this systematic literature review comprehensively and critically analyses all the relevant issues related to the internal audit, IAF quality attributes, and other internal monitoring mechanisms. Secondly, concerning empirical papers, prior literature mostly has been focusing this research issue (IAF and FRQ) on the external auditors' perceptions to evaluate the internal audit effectiveness, while only a few studies addressed other stakeholders and interested parties (Coram et al., 2008; Razak et al., 2010). Contrary, the current study used other stakeholders (AC, CFA, senior management) perceptions to evaluate IAF's quality for FRQ. As far as auditing in Bangladesh is concerned, much of this research to date focuses on

external audit practices in the banking sector, and to a lesser extent the non-banking sector. Thus, this study significantly contributes to the internal audit literature by addressing the association between IAF quality attributes and AC quality characteristics with FRQ. Thirdly, the existing literature has offered a limited understanding of the IAF's quality attributes and their relative importance to enhance FRQ. The current study investigates this crucial issue, for example considering the relative importance of IAQ characteristics and identifying their individual and joint importance to reinforce their relationship and enhance FRQ. Fourthly, the second empirical paper addresses the relationship between firm size and FRQ with the mediation effect of AC quality and IAF quality, which is relatively new in audit-related studies. Earlier studies primarily examine the relationship between AC and FRQ, or IAF and FRQ. Thus, the findings would be worthwhile for consideration by the entity, investors, and regulators in their decision-making. Fifthly, a unique method is used to construct the IAF quality and AC quality scores to examine their relationship with FRQ, which is relatively new in the audit-related literature. Previously only two studies highlighted the importance of the IAF quality for FRQ by Prawitt et al. (2009) and Gros et al. (2017) in the US market and German context, respectively. These results might not be generalisable to the developing market where the legal system is far from being strong. Thus, the findings could have significant importance in the developing country context.

The contribution to practice is vital to corporations that employ internal auditing and AC, users of internal audit information, providers of internal audit services, and the standard-setting and regulatory bodies, including the IIA and CG regulators. Companies and IAF service users should be interested in their IAF quality and how to enhance their IAF quality, as IAF information is important for management to prepare reliable financial reporting and for users to evaluate management decisions, whether they reflect firms' interests. The thesis provides an understanding of the overall view of the mechanisms and performance of the IAF's quality attributes, the AC's characteristics, and their effect on FRQ. More specifically, the current study provides valuable insights by demonstrating the importance of the IAF's quality attributes and the AC's quality characteristics that can be utilised by stakeholders (e.g., board of directors, chief of audit executive (CAE) and AC) to ensure FRQ. As the findings show how IAF quality and AC quality play a significant role to enhance the overall financial reporting process, in particular, the relative importance of IAF quality attributes underpins the

relationship between IAF and FRQ. Moreover, the findings of this study could be relevant to the regulators and standard setters, who recommend and require firms to maintain IAF quality. The study also should be equally useful to market/financial analysts as the outcomes of this study in terms of the monitoring mechanisms. Further, the resulting overall FRQ can be used to assess the market behaviour of DSE firms. Additionally, this study contributes to the literature on the developing world, particularly Southeast Asia, and countries that have similar economic environments. Finally, the corporate management of firms in Bangladesh may also find the results of this study useful for testing their investment in and consideration of IAFs. The findings of the current study should also be helpful for local regulators interested in reinforcing CG rules in the Bangladeshi market.

1.10 Chapters overview

This dissertation contains of three papers, presented in the following chapters. The papers examine the relationship between IAF quality and FRQ, focusing on the existing literature to determine the knowledge gaps and other related organisational factors, such as firm size and AC characteristics. Paper one (chapter two) follows a systematic literature review approach to define the research objectives, conduct the search article, organize the findings of the articles, including the methodology, categorize the literature, and identify the research gaps considering the existing literature's insights. Meanwhile, papers two and three (chapter four and five) are based on the quantitative research approach, obtaining data from a questionnaire survey conducted with the companies' head of internal auditors, chief financial officers (CFOs), and AC members in Bangladesh and from the annual reports of their respective companies. This research approach facilitates the validation of the study's findings. Figure 1.1 shows the structure of the thesis.

Chapter two contains a systematic literature review of the current knowledge concerning the IAF and FRQ to extend the understanding and identify the knowledge gaps. A structured literature review approach is employed to ascertain the research objectives, search for articles, organize articles' findings, and develop future research opportunities for the period 2004–2020. The paper proposes research avenues to fill the gaps. (I) The prior literature relevant to the IAF is dominated by external auditors' perspectives and lacks internal auditors' viewpoints, leading to a misunderstanding of the relative importance and estimation method of IAF quality determinants. (II) Earlier research outcomes are

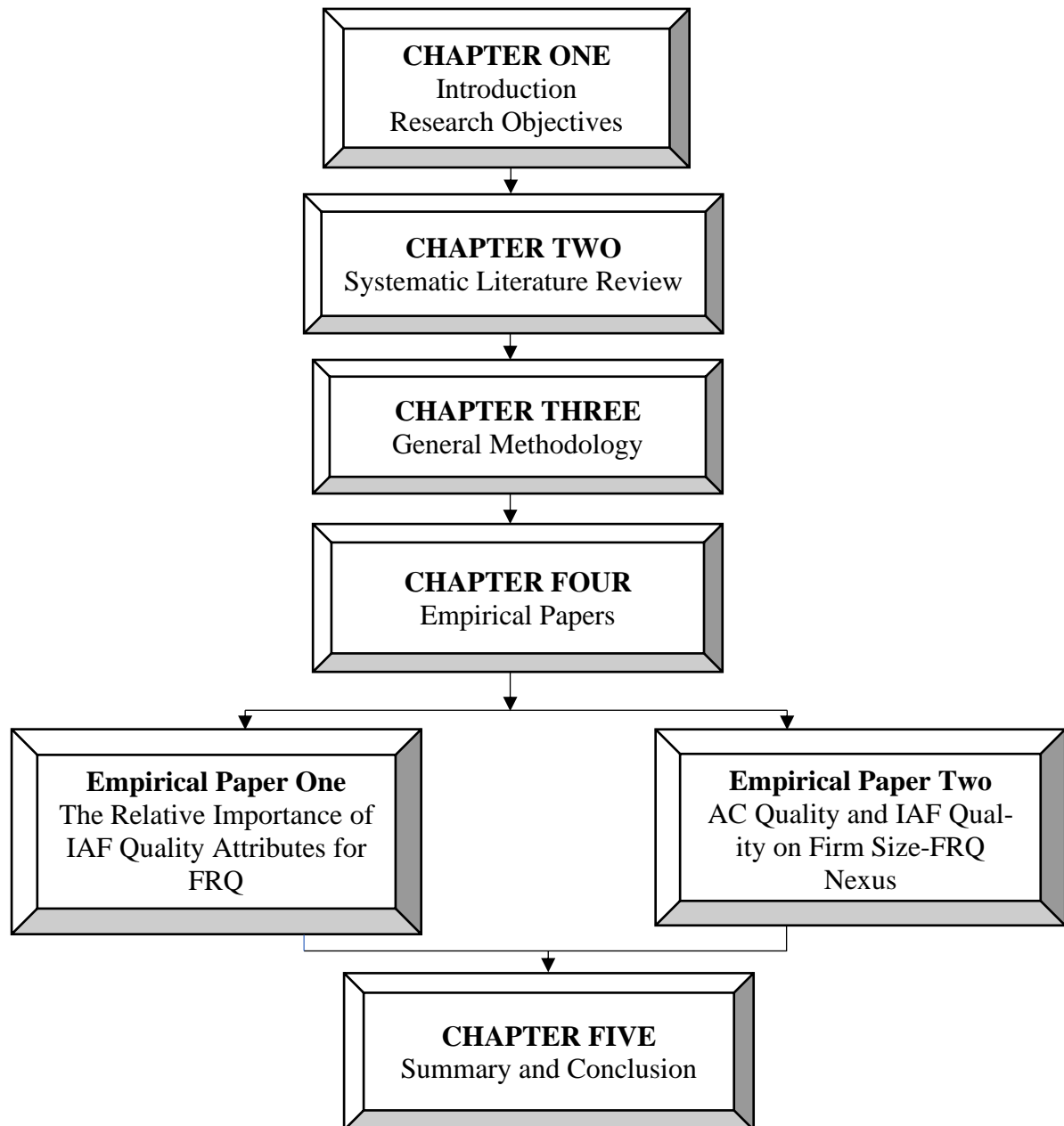
contradictory regarding the IAF and internal monitoring mechanisms (IMMs), requiring further investigation of the extent to which the IAF and AC perform monitoring in an organisation. (III) The country-specific literature on the IAF setting and its role in preparing high-quality financial reports is minimal. Thus, examinations of undocumented countries are still lacking.

Chapter three contains information about the data collection (primary and secondary) process. The data on IAF quality attributes and AC characteristics are obtained through an online survey emailed to 223 non-financial companies listed on the Dhaka Stock Exchange (DSE) in Bangladesh. The survey questionnaire was sent to all listed non-financial companies (223) in February 2021. More specifically, the questionnaire was emailed to the head of the internal auditors, chief financial officers (CFOs), and audit committee (AC) members of the target companies. From the 223 non-financial listed firms, we find information on 157 company financial statements from secondary sources (e.g., company annual reports, Thomson Reuters DataStream, and the DSE official website) to estimate our dependent variable (ABNACC) and continuous variables, and the remaining firm financial data that are not available for the fiscal year 2020. As our survey requested information request to provide based on the fiscal year 2020, all the accounting-based data collected relate to the fiscal year 2020.

Chapter four encompasses empirical papers one and two. The first empirical paper examines the relationship between IAF quality and FRQ and the individual and interaction effects of the IAF quality attributes (i.e., IAF competence, independence, and work performance) on FRQ. Data were collected from archival sources (e.g., DataStream and company annual reports) and a survey questionnaire. The survey responses are utilised to measure IAF quality, and the archival data are used to estimate abnormal accruals (a proxy for FRQ). The findings show that IAF quality is negatively (positively) and significantly related to abnormal accruals (FRQ). The results also show that IAF individual components (competence, independence, and work performance) are to be found negative (positive) and significantly related to abnormal accruals (FRQ). Concerning the interaction effects of IAF attributes and FRQ, we observe that IAF competence, independence, and work performance are jointly significant and negatively (positively) associated with abnormal accruals (FRQ) and strengthen each other to improve the overall IAF quality and enhance FRQ. The results retain their robustness when alternative

measures are applied. Our results advocate the agency theory by focusing on the interaction between the IAF quality and FRQ to ensure principals' rights.

Figure 1. 1 Structure of the thesis



The second empirical paper one investigates the effects of the firm size on FRQ through the mediating effects of AC quality and IAF quality. The study's analyses are conducted using a questionnaire survey and archival data of listed non-financial companies listed on the Dhaka Stock Exchange (DSE). The AC quality and IAF quality scores are constructed using survey responses and FRQ estimates employing archival data. We perform both structural equation modelling and ordinary least squares regression to test the association between firm size, AC quality, IAF quality, and FRQ. The

findings show that the firm size is positive and significantly related to IAF quality; however, the results for firm size and AC quality are not significant. The findings also reveal that the firm size, AC quality, and IAF quality are significantly and negatively (positively) associated with abnormal accruals (FRQ). Moreover, we find a mediation effect of the IAF quality in the relationship between firm size and FRQ, while no mediation effect is observed for AC quality.

Chapter five presents a summary of the thesis and highlights the contributions and policy implications of the study. The chapter also explains several limitations of the study and potential research guidance for future research.

CHAPTER TWO

SYSTEMATIC LITERATURE REVIEW

The role of the internal audit function in financial reporting quality: A structured
literature review

Abstract

This study reviews the current knowledge concerning the internal audit function (IAF) and financial reporting quality (FRQ) to extend understanding and determine the knowledge gaps in what IAF research has investigated. Literature synthesis is categorized into three themes: the role of IAF quality attributes in FRQ, other internal monitoring mechanisms (IMMs) (AC and internal control system), and country-specific literature on the IAF and FRQ; and identify possible research directions that may enhance IAF quality. We utilise a structured literature review methodology to ascertain the research objectives, search for articles, organize articles' findings, and develop future research opportunities for the period 2004 to 2022. The paper proposes research avenues to fill the gaps. (I) The prior literature relevant to the IAF is dominated by external auditors' perspectives and lacks internal auditors' viewpoints, leading to a misunderstanding about the relative importance and estimation method of IAF quality determinants. (II) Earlier research outcomes are contradictory regarding the IAF and IMMs, requiring further investigation of the extent to which the IAF and audit committees (AC) perform monitoring in an organisation. (III) The country-specific literature on the IAF setting and its role in preparing high-quality financial reports is minimal. Thus, the area still lacks examinations of undocumented countries.

Keywords: Internal audit quality, financial reporting quality, internal monitoring mechanisms, geographic origin, systematic literature review

Paper type: Literature review

2.1 Introduction

The internal audit-relevant literature has been growing over the decades and offers useful insights into the current scenario and the potential effects of the IAF in corporate governance (CG) (Gramling et al., 2004). IAF evolved as an internal assurance function for management that primarily focused on accounting transactions and anti-fraud activities (Ramamoorti, 2003). At the turn of the twentieth century, the IAF formally established and broadened its responsibilities with the growth of business activities. The Institute of Internal Auditors (IIA) started in 1947 that extended the IAF scope and nature of the operation (e.g., compliance, control assurance) (Walsh, 1963). In the late 1970s, internal audit (IA) earned professional recognition and became an integral part of the CG, where it served the top management, such as the board of directors (Ramamoorti, 2003). Thereby, IAF extended work from the accounting records verifier to compliance and assurance issues. Recent accounting scandals worldwide shifted the role of IAF from a watchdog to a valuable proactive contributor. Morgan (1979) argues that the IAF emerged to add value and break away from its historical nature of organisational policeman and watchdog. According to the CG model by the Institute of Internal Auditors (IIA), the IAF put the fourth level and considered it as one of the four cornerstones of the CG mechanisms, along with the AC, executive management, and the external auditor (IIA, 2017). It also provides a third-line defence in a company and equips the other internal mechanisms with a holistic view of governance structures and how effectively performing within the company. Modern complex business models, the pace of technological advancement, regulation changes have broadened internal auditors' service areas (e.g., financial risk assessment, cyber risk assessment, culture assessment) through utilizing innovative ideas (e.g., cutting-edge audit analytics, automated robotic process, application of agile practices) (Deloitte, 2018). Therefore, IAF becomes an integral part of the internal monitoring system to enhance FRQ and good governance.

Despite the numerous developments and given the spate of the recent corporate financial collapses in the last two decades, the quality of IAF is being questioned, and presumably, the role of IAF has not been executed accordingly. In a recent study, Christopher (2019) notes that the IA ineffectiveness is the cause of weak functional and structural arrangements of the IAF that leads to a *role-playing gap* and *questionable quality* arises from the ambiguity of the contradictory role of IAF, internal

auditors' questionable position in the organisation, and the method of IA practice by the internal auditors. Conversely, the role of IAF should positively affect FRQ and controls mechanisms (Goodwin & Seow, 2002; Gramling et al., 2013; Prawitt et al., 2009; Schneider & Wilner, 1990). Thus, the motivation about the issues of the role and quality of the IAF association with FRQ and other IMMs (e.g., AC and internal control system) to enhance good governance.

The auditing standards recognize the importance and relevance of the IAF and consider it a crucial mechanism for the internal monitoring and financial reporting process (AICPA, 2013). Similarly, the audit risk model suggests that effective IAF can reduce control risk (AICPA, 2013). IAF's role is to ensure an effective internal control system and manage business risks. It is also a major source of information for the AC and an accurate reviewer of internal control and risk management (Gramling & Hermanson, 2009). Arens et al. (2012) posit that the IAF can be effective if relevant audit conducts over internal control and financial reporting regularly to enhance the reliability of the financial statement. Thus, the IAF has an important effect on the financial reporting process and internal monitoring operation.

Stakeholders (investors and creditors) widely rely on the information provided by the company and utilise it to assess the risk and potential outcomes of the investment (Healy & Palepu, 2001). According to the financial accounting standard board (FASB), financial reports are important to investors, creditors, and other users to make rational decisions related to credit, investment, and other decisions (Kieso et al., 2012). Therefore, the quality of financial reports needs to be of utmost reliability in terms of providing unbiased and relevant information about the company. The corporate governance mechanisms (IAF, AC, and internal control system) may play a significant role in ensuring FRQ. Meanwhile, there has been debate concerning the role of CG mechanisms in increasing FRQ from the theoretical perspectives (Agency and Signalling theory) (Bédard & Gendron, 2010). The current study analyses the role of the IAF and other internal monitoring mechanisms on the financial reporting process by reviewing the archival studies.

Several studies address this research tends to look at the significance of the IAF quality and internal mechanisms in preparing the high-quality financial report and improving internal control efficiency. In this study, we review the IAF and IMM's related published studies and categories into three

themes of areas (i.e., (1) the role of IA and IAF quality attributes for FRQ; (2) other IMM's relationship with IAF quality, FRQ, and other organisational matters; and (3) geographic origin perspectives) to analyse the role and quality of the IAF and synthesize them to find investigated aspects; and to provide where future research may further emphasize. To analyse these themes of knowledge, we develop two research questions are as follows:

- 1) *What research issues investigated relevant to the IAF quality and other IMM's to enhance FRQ and CG since 2004?*
- 2) *How can future research address IAF quality and other IMM's aspects to enhance FRQ and prevent future corporate finance scandals?*

To explain these questions, we utilise a structured literature review (SLR) methodology and restrain the scope of the study in two ways. First, our review is limited to IAF and IMM's literature published in journals between 2004-2022 and shaded periodic changes in the IAF landscape. Second, our analysis confines the IAF and IMM's research published in accounting journals to maintain the quality and relevancy of the review.

To date, a considerable number of literature reviews exist in the IA literature; however, no reviews address IAF quality attributes and the internal monitoring mechanism's relationship with FRQ, as shown in Table 2.1.

Table 2.1 Existing literature review

Study	Focus	Objective	Scope
Gramling et al. (2004)	Role of IAF in CG	To examine how the IAF assists CG through external auditor, AC, and management	Pre-SOX IAF studies
Allegrini et al. (2006)	CBOK 2006	To investigate how the IAF changes in response to shifts in business practice	Europe
Cooper et al. (2006)	CBOK 2006	To explore why the IAF changes in response to shifts in business practice	Asia Pacific
Hass et al. (2006)	CBOK 2006	To demonstrate how the IAF changes in response to shifts in business practice	North America
Mihret et al. (2010)	IA effectiveness	To develop theoretically justifiable approaches to identify the antecedents of IA effectiveness	IA effectiveness literature

(The table continues to the next page.)

Stewart and Subramaniam (2010)	IA independence and objectivity	To review IA independence and objectivity literature, emphasizing organisational status, the role of internal auditors, risk management, outsourcing, co-sourcing, and the use of IA as an MTG for the manager	IA independence and objectivity literature since 1999
Lenz and Sarens (2012)	The IA profession	To address why the IA profession has been marginalized in the governance debate on solutions following the financial crisis in 2007	IA literature (2007-2010)
Bame-Aldred et al. (2013)	External audit reliance on the IAF	To outline the relationship between external auditors and IAF in post-SOX	Post-SOX auditing standards and IA literature
Lenz and Hahn (2015)	IAF effectiveness	To review what IA effectiveness literature has developed since Bailey et al.'s (2003) study	IA literature since Bailey et al.'s (2003)
Nuijten et al. (2015)	The IA profession perspective	To critically analyse how the condition of intensifying interactive (social, organisational, and technological) complexity relates to the principles and methodologies of the IA profession, now and in the future	IA literature highlighting the issue of interactive complexity
Al-akra et al. (2016)	Regulatory reforms of IA	To review IA literature related to regulations in the MENA region emphasizing objectivity, independence, consulting, and assurance activities	MENA region
Lenz et al. (2018)	IA effectiveness	To identify the tension between institutional forces and the role of agency	IA effectiveness empirical studies since 1999
Roussy and Perron (2018)	Post-SOX IAF literature	To identify IAF related knowledge gaps by analysing three themes: the role of IAF, IAF quality, and the practice of IAF	IAF research published between 2005 and mid-2017
Christopher (2019)	The failure of IA	To critically review where the IAFs have failed in executing the role of preventing or detecting breaches of controls	Corporate collapses (2000-2015)
Kotb et al. (2020)	Post-Enron IA research	To evaluate how IA literature has developed and identify future research avenues to advance IA to address emerging challenges	IA research in the post-Enron (2005-2018)
Christ et al. (2021)	New and innovative IA practices	To provide insight to practitioners on how the practice of IA has changed due to the technological innovation and new IA challenges	Information technology, staffing and personnel development, and agile auditing

The current study extends the earlier reviews, thereby making a discrete and incremental contribution to internal auditing and CG. Moreover, the existing reviews emphasize the North American perspective; however, our study includes all published papers regardless of whether they focus on a particular country or continent. The current review is unique for the following reasons.

Firstly, it is an updated review of IAF- and FRQ-relevant articles published from 2004 to 2022, while the previous reviews consider academic literature until 2018 and concern only the IAF. Secondly, our study extends the scope of the area to the IA role, the AC, and financial reporting collectively to investigate the role of IAFs quality attributes, IMMs, and country perspectives (both developed and developing countries); however, earlier studies focus primarily on one aspect (internal auditing). Thirdly, we synthesize the periodic evolution of relevant keywords and concepts concerning the IAF and FRQ to provide important intuitions regarding this avenue. Fourthly, our review includes all the qualitative and quantitative research on the IAF and FRQ, whereas prior reviews all follow Gramling et al. (2004) and simply consider agency theory and quantitative articles. Finally, the current study explains the methodologies and findings of the numerous studies to establish whether the research outcomes are similar when the authors follow the same research methodology in different country settings.

The objective of this study is to synthesize the accounting-related literature (e.g., on the IAF and FRQ) to offer guidance for future investigation and highlight the knowledge gaps regarding the role of the IAF in improving high-quality financial reporting. To obtain such findings, prior studies on the IAF and FRQ published since 2004 across the world are reviewed. The outcomes of the study are relevant to academicians, auditors, and other concerned parties. Considering the growing global attempts to enhance internal audits, an updated literature review with a global perspective is imperative. The current literature review intends to analyse the periodic evolution of aspects of the IAF, such as IAF quality attributes' effects on FRQ, the role of IMMs, and the relevant geographic origin, to ascertain knowledge gaps and make recommendations for future studies. The study contributes to the IA literature by offering an in-depth analysis of the crucial issues concerning the IAF (e.g., internal audit quality attributes and IMMs) and their impact on FRQ.

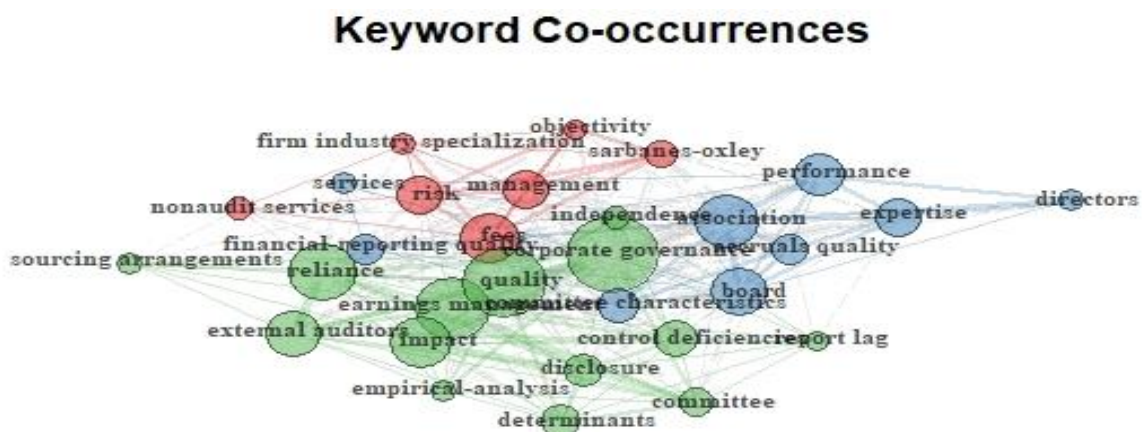
The remainder of the paper is structured as follows. The next section explains our methodology, after which we discuss the three perspectives from which we synthesize the literature. We then present the literature review and findings of the most current empirical research (2004–2022) and the research gaps. Finally, we conclude the literature review by describing a brief overview of the study.

2.2 Methodology

This review focuses on articles on the IAF and FRQ published in international accounting- and auditing-related journals between 2004 and 2022 to establish the overall state of the academic knowledge regarding the role of the IAF in FRQ. Traditional literature reviews mostly relied on “detailed and well-grounded knowledge of the issue” (Petticrew & Roberts, 2008). We utilise the structured literature review (SLR) (Massaro et al., 2016; Kotb et al., 2020) concept to perform the following phases of our review: defining the research objectives, conducting the search article, organizing the findings of the articles, including the methodology, categorizing the literature according to three perspectives, and identifying the research gaps considering the existing literature’s insights.

We compile a list of keywords and keyword combinations based on the existing literature issues relating to the IAF and FRQ (i.e., IA; internal audit and FRQ; IAQ and FRQ), as shown in Figure 2.1. Using those keywords, we perform a full-text search between 2004 and 2022 in the scholarly databases Web of Science and Scopus.

Figure 2.1 Research keywords



To search for articles, we applied two approaches: (1) a paper that includes even if the content appears minimal of IAF, and (2) analyse full articles, including research notes and discussions. Then, we scrutinized the titles and abstracts of all articles. The Web of Science database search was performed utilizing the mentioned keywords, resulting in 83 articles related to the IAF and FRQ. Then, we screen 83 search articles to 59 from 2004 to 2022 by considering several criteria (e.g., the research

domains database (Web of Science core collection), document types (articles), and business and economics category), as shown in Figure 2.2. Moreover, to restrain the scope of academic journals, we exclude practitioner publications and the *Internal Auditor Magazine* and Common Body of Knowledge (CBOK) surveys published by the Institute of Internal Auditors (IIA). The search finds articles find from different research areas, as shown in Figure 2.3. A related articles search is performed using the Scopus database, and an equal number (59) of articles results.

Figure 2.2 Research protocol

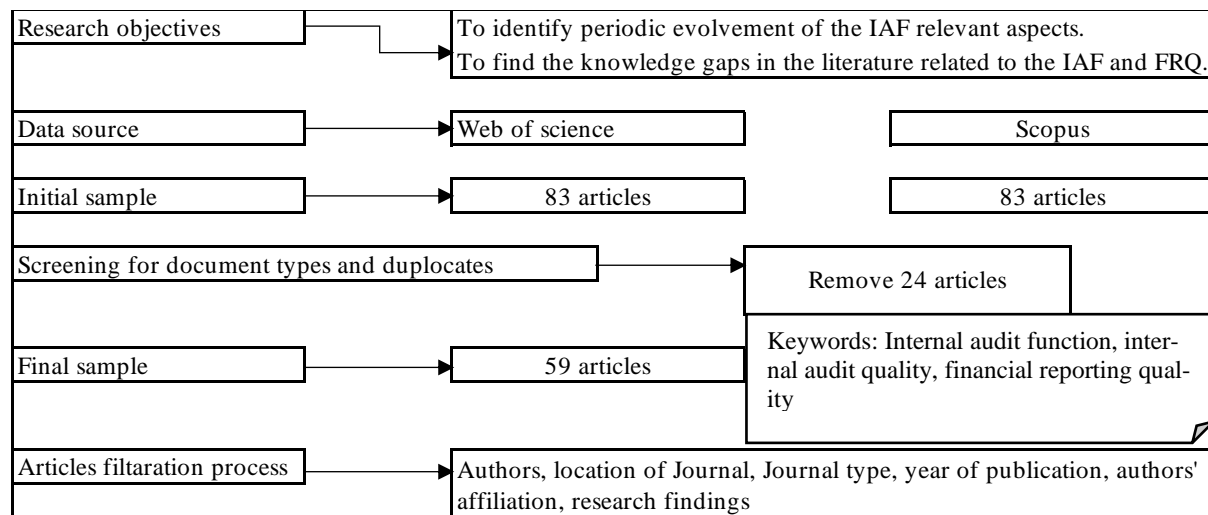


Figure 2.3 Articles by Areas

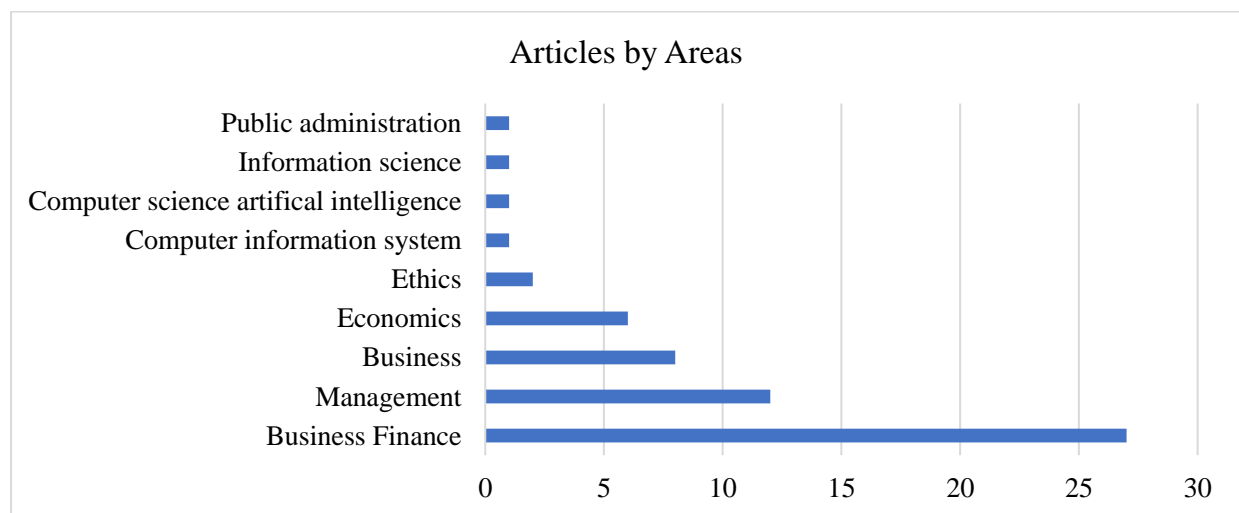
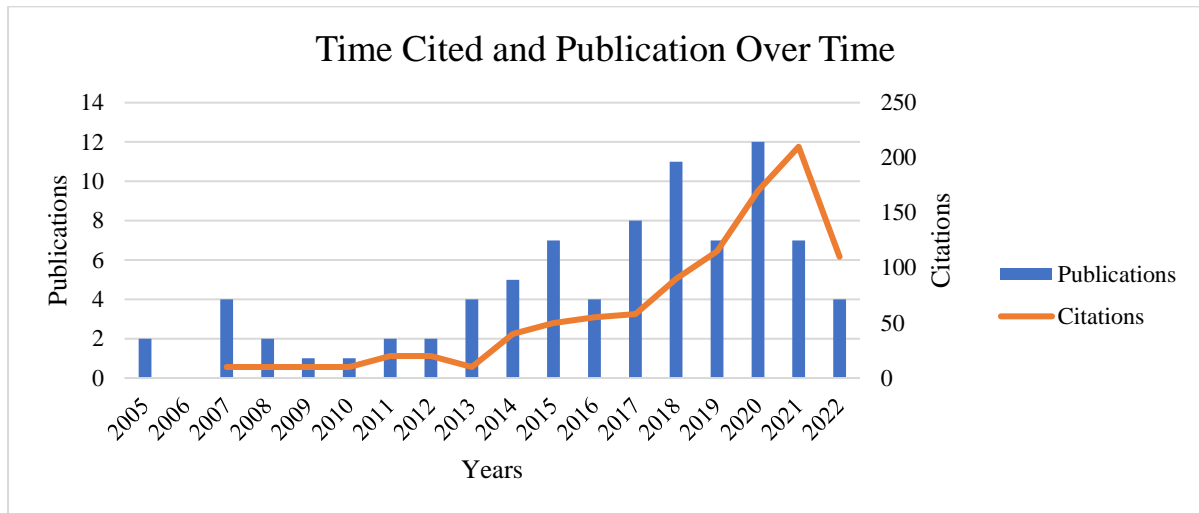


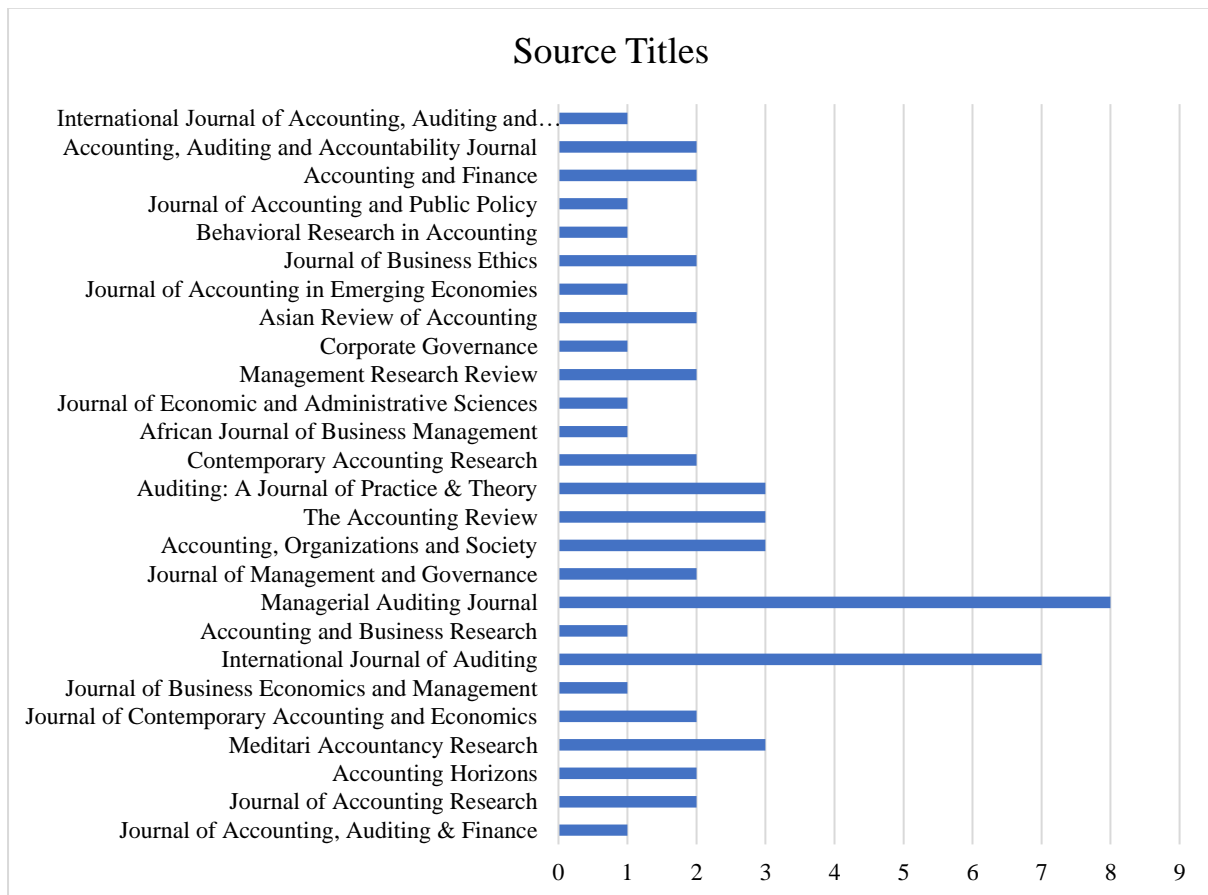
Figure 2.4 shows the number of articles published citations each year since 2000, indicating that, during this period, 2018 and 2020 are significantly more productive than other years. Meanwhile, depicts the total number of citations by year, in which 2020 and 2021 are crucial, reaching peaks of 175 and 200, respectively.

Figure 2.4 Publication by year



The articles are collected from the different journals, as shown in Figure 2.6. The highest number of papers, eight, is found in the *Managerial Auditing Journal*, and the second-highest number, seven, is collected from the *International Journal of Auditing, Auditing: A Journal of Practice and Theory*, the *Accounting, Organisation and Society*, the *Meditari Accountancy Research*, the *Accounting Review*, and the *Asian Review of Accounting* provides three papers each.

Figure 2.5 Articles per journal



Finally, the article searches for evidence that most of the studies adopt a quantitative research approach to measure the role of the IAF in FRQ by utilizing survey data. We also observe that, of 45 quantitative studies, 24 conduct surveys, including the GAIN database, and the remaining studies employ archival data. We also note that 23 of the 59 articles are published in accounting and auditing journals over our sample period. Finally, all the review literature categories are divided into three themes of knowledge (i.e., the impact of internal audit quality (IAQ) on FRQ, internal monitoring mechanism, and relevant geographic area). In the end, several articles replicate more than one theme of knowledge due to their relevance to other groups and are included in distinct categories.

2.3 What research issues investigated relevant to the IAF quality and IMM to enhance FRQ and CG since 2004?

2.3.1 A conceptual framework of IAF quality and FRQ

Internal auditing is a function that exists in many organisations and assists the management in attaining effectiveness in the areas such as risk management, internal control, operations, and overall CG responsibilities. The IAF is one of the elements of effective CG and financial reporting (Davidson et al., 2005; IIA, 2003; Schneider et al., 2009), and it must possess an appropriate level of quality to be deemed as a valuable resource to ensure FRQ (Gramling et al., 2004; Prawitt et al., 2009).

Internal audit quality (IAQ) refers to some quality characteristics that must belong to an internal auditor and should be monitored and periodically assessed by the Chief of Audit Executive (CAE) (IIA, 2003). According to SAS No. 65 (American Institute of Certified Public Accountants, Auditing Standards Board, 1991), the IAF quality determinants comprise competence (e.g., educational level and certification), objectivity (e.g., reporting relationship), and work performance (e.g., adequacy of audit programs and scope of work performed). Similarly, the Institute of Internal Auditors (IIA) standard describes IAF quality consist of objectivity, independence, proficiency, and due care (IIA, 2003). Prior research follows both the AICPA's and the IIA's descriptions of IAF quality factors to measure IA performance. Likewise, Alzeban and Gwilliam (2014) suggest that IAQ characteristics (e.g., competence, the relationship between internal and external auditors, size, management support for IA, and independence) are associated with IA effectiveness. Further, some factors may affect the IAF, such as the competence and objectivity of the internal auditor (Messier et al., 2008, Moeller, 2009). Therefore,

the current study reviews and emphasizes the most repeatedly used IAQ attributes to measure FRQ in the prior studies.

Conversely, FRQ indicates the accuracy of the financial statement information used by stakeholders to analyse a company's financial performance and prospects and enables them to make financial and non-financial decisions. According to Gibson (2011), financial reporting is the procedure of developing financial statements to present financial information to the concerned parties, enabling them to make business and economic decisions. FRQ is influenced by several organisational determinants and company IAF and other IMMs (the IAF and internal control system). Some specific FRQ characteristics of a company comprise the leverage, profitability, firm size, and size of the audit firm (Al-Asiry, 2017; Soheilyfar et al., 2014). The other classification of components that affects FRQ incorporates the features of CG, such as the board composition, the ownership structure, and board size (Chakraborty & Hussainey, 2015; Fathi, 2013; Thalassinos & Liapis, 2014). Finally, the study reviews the relevant literature on IAF quality attributes and FRQ to identify potential future research avenues.

2.3.2 Internal monitoring mechanisms

The agency theory suggests that the existence of the IAF and AC ensures oversight functioning in the monitoring of management actions. As indicated, risk-based auditing is affected by the IMMs. The IMM comprises the IAF, AC, internal control system, and risk management. These monitoring mechanisms are used as a substitute for the costly monitoring activities of institutional investors (Al-Jaifi et al., 2019). The IAF is considered part of CG and plays a crucial monitoring role (Anderson et al., 1993). Prawitt et al. (2009) suggest that the IAF's primary job is to monitor day-to-day management actions and external financial reporting. Therefore, the findings confirm that the IMM is crucial in promoting quality audit practice and developing high-quality financial reporting. Moreover, the prior literature specifically emphasizes the IAF and AC mechanisms rather than other IMM attributes. Therefore, the current literature mostly highlights the IAF and the AC as part of the IMMs.

2.3.3 Relevant geographic area

This perspective includes geographically published literature relevant to the IAF and FRQ globally. Literature shows a substantial number of US-based studies published on these issues. Thus, this part of the literature review analyses nation-wise published articles and the scope of the investigation

on these issues apart from US studies. We also review non-US literature research aspects, and whether these replicate the US-based studies. If non-US literature recurs US studies aspects, are the outcomes similar or report different results? Finally, several future research directions develop based on the analysis of the identified literature.

2.4 IAF quality attributes and FRQ

A total of 20 articles relevant to internal audit function (IAF) quality are reviewed and classified into two categories in this section. The first group deals with IAF quality attributes' impact on FRQ, and the second theme is IAQ's effects on FRQ with the moderation of internal governance roles (e.g., AC, operation, compliance, and internal control quality). Based on the literature review, research gaps are revealed at the end of the section, indicating future research opportunities. Table 2.2 contains the details of this stream of research and summarizes the key outcomes.

2.4.1 The evolvement of the IAF

Researchers document the evolving role of the IAF (e.g., Ahlawat & Lowe, 2004; Burton et al., 2012; Carcello et al., 2005; Cohen et al., 2010; Ernst & Young, 2011; Gramling et al., 2013; Gramling et al., 2004; Moeller, 2009; Ramamoorti, 2003). Primarily, the IAF focuses on financial controls and is considered as an expansion of the external audit. In the 1990s, IA evaluative activities spread to other areas (e.g., operational, management, financial, risk assessment, and compliance) and became broader (Gramling et al., 2013; Moeller, 2009; Ramamoorti, 2003). Moreover, due to the highly publicized accounting scandals at the beginning of the last decade and the gradual change in the business process, the IAF received tremendous significance as a vital contributor to sound CG and FRQ. Therefore, a considerable number of studies address the IAF's performance and quality determinants' effects on FRQ.

2.4.2 IAF quality literature analysis

IAF quality factors are treated as quality attributes by many studies (e.g., Christ et al., 2015; Prawitt et al., 2009; Taylor et al., 2003). IAF quality attributes are ascertained according to external audit standards for external auditors' evaluation of an internal auditors' performance. Professional standards SAS No. 65 (American Institute of Certified Public Accountants, Auditing Standards Board,

1991) and Prawitt et al.'s (2009) prior research suggests that the IAF quality attributes comprise internal auditor competence, work performance, and objectivity. A sizeable number of studies since the publication of the AICPA's guidelines about the IAF factors consider IAF quality determinants; however, most of these studies adopt the external auditor perspective (Gramling et al., 2004). Most of the literature highlights three IAF quality attributes, namely competence, independence, and objectivity; the other studies are less focused. IA independence, objectivity, and proficiency are considered indicators of the quality of the IAF (Krishnamoorthy, 2002; Messier & Schneider, 1988; Suwaidan & Qasim, 2010). Most of this literature adopts a survey approach; however, a few studies use semi-structured interviews to measure IAF quality's impact on FRQ.

The literature relevant to IAF quality's attributes highlights two ideas. Firstly, the impact of IAF quality's determinants on FRQ that addressed by many studies (e.g., Abbott et al., 2016; Al-Shetwi et al., 2011; Alzeban, 2018, 2019b; Arum, 2015; Christ et al., 2015; Gebrayel et al., 2018; Gras-Gil et al., 2012; Gros et al., 2017; Johl et al., 2013; Oussii & Boulila, 2018; Pizzini et al., 2015; Prawitt et al., 2009), which use the IAF quality attributes (e.g., competence, independence, and objectivity). Secondly, several studies (e.g., Chang et al., 2019; Ege, 2015; Jiang et al., 2018; Lin et al., 2011; Prawitt et al., 2012; Rose et al., 2013; Soh & Martinov-Bennie, 2011) explore the degree of IAF quality's influence on internal control, management, and operational efficiency and employ the IAF quality attributes competence and objectivity.

To evaluate the IAF's influence on FRQ, researchers use different IAF quality determinants (e.g., competence, objectivity, independence, performance, and work performance) and research methods. Abbott et al. (2016) examine IAF quality determinants' effectiveness using survey data, and their result suggests that IAF quality attributes (competence and independence) are the critical antecedents to an effective IAF in monitoring financial reporting. However, Arum (2015) considers competence and objectivity instead of independence (Abbott et al., 2016) to evaluate this issue (IAF effectiveness and FRQ). The study confirms that the IAF's quality positively affects IAF effectiveness and FRQ.

Similar findings (Pizzini et al., 2015) indicate that the IAF's determinants (competence and objectivity) contribute to financial statements and diminish audit delay. Gros et al. (2017) suggest that

IAF quality constrains earnings management and ensures an elevated level of FRQ. They developed a composite measure of IAF quality using internal auditor competence and independence based on the survey responses. Prawitt et al. (2009) explore the relationship between IAQ determinants and FRQ using IIA GAIN database survey responses and find that IAQ is related to a reduced level of earnings management. These findings are relatively similar in that IAF quality attributes (e.g., competence, objectivity, and independence) improve FRQ. The literature utilises different research approaches; for instance, Pizzini et al. (2015) and Prawitt et al. (2009) used archival data (the GAIN database), and other studies follow the survey research approach. Gros et al. (2017) and Prawitt et al. (2009) developed a single composite measure for IAF quality comprising individual IAF attributes (competence and independence), while their computation techniques are different.

However, Al-Shetwi et al. (2011), Davidson et al. (2005), and Johl et al. (2013) note a negative relationship between IAF quality and FRQ. This finding is inconsistent with other relevant research outcomes. Therefore, the researcher justifies this outcome by addressing several relevant country-specific reasons (i.e., an inadequate legal system, political interference, and a less regulated CG system). Alzeban (2018) addresses various aspects of the IAF and FRQ, such as CEO engagement in sourcing, and suggests that the CEO's intervention in the recruitment of the CAE impairs IAF quality and decreases FRQ. Alzeban (2019b) employs a survey approach to examine IA reporting line implementation and its effect on FRQ. The result shows that the IA report to the AC positively affects FRQ, whereas the IA report to CEO negatively influences FRQ. Oussii and Boulila (2018) observe IAF attributes' impact on internal control quality and FRQ through a survey of CAEs. The result indicates that IAF attributes are positively and significantly associated with internal control quality and financial reporting processes.

Table 2.2 Role of IAF quality attributes

Author and year	Research issue(s)	Methodology	Finding(s)
Alzeban (2019b)	To examine the effect of the IA reporting line and execution of IA recommendations on FRQ	Survey and Archival data (observations from 201 UK listed firms)	IA reports submission to the AC has a significant effect on FRQ; on the other hand, IA reports to CEO negatively affect FRQ.
Chang et al. (2019)	To explore the role of IAF quality on internal control over operations and compliance	Archival data (observations from 142 Taiwan listed firms)	IAF quality (competence) has a positive impact on the effectiveness of internal control in compliance but not in operation.
Alzeban (2018a)	Does the CEO's interference in the recruitment of CAE affect IAF quality and FRQ?	Survey and Archival data (307 London Stock Exchange-listed companies)	CEO involvement in the appointment of CAE impairs IAF quality (competence and independence), and consequently, FRQ also decreases.
Gebrayel et al. (2018)	To address how the AC and IAF effects FRQ	Archival data (observations from 139 Omani listed firms)	The presence of IAF and frequent AC meetings improve FRQ by monitoring organisational risks and internal controls.
D'Onza and Sarens (2018)	To examine the factors that assist in building a high-quality relationship between internal auditors and auditees	Survey on 78 Italian CAEs	Senior management audit plan setting and management training ground both positively affect IA's and auditee interactions.
Jiang et al. (2018)	To determine how organisational and environmental factors related to firm incentives influence to establish a high-quality IAF	The Common Body of Knowledge 2010 survey data	IAF quality is positively associated with most of the organisational and environmental factors, which improve governance mechanisms.
Oussii and Taktak (2018)	To address how the IAF determinants affect internal control quality	Survey (59 CAE from Tunisian listed companies)	The IAF quality attributes are positively and significantly related to the internal control system and the financial reporting process. IAF constrains earnings management and ensures FRQ. Moreover, IAF improves audit efficiency in shorter audit delays and decreases audit fees.
Gros et al. (2017)	To investigate the effect of IAF quality on FRQ and audit efficiency	Questionnaire Survey	IAF quality independence and competence are necessary antecedents to effective IAF financial reporting monitoring.
Abbott et al. (2016)	To examine the role of IAF quality attributes effectiveness in monitoring FRQ	Survey (CAEs and internal auditors)	IAF quality independence and competence are necessary antecedents to effective IAF financial reporting monitoring.

(The table continues to the next page.)

Arum (2015)	To discover how the internal auditors' competency and objectivity effects IAF effectiveness and FRQ	Survey on Indonesian listed companies	Internal auditor competency and objectivity have a positive impact on IAF effectiveness and FRQ.
Christ et al. (2015)	To evaluate the effects of internal auditors' rotation on FRQ	Semi-structured interviews (AC chairs and CAEs)	The rotational staffing model in IAF allows internal auditors in managerial positions to be related to lower FRQ.
Ege (2015)	To examine the IAF quality and the likelihood of management misconduct	Archival data (observations of IIA's 2010 GAIN database)	IAF quality competence is negatively associated with management misconduct.
Pizzini et al. (2015)	To identify the effect of IAF quality and its significance to the financial reporting process and audit delay	Archival data (observations from an IIA's database)	IAF quality objectivity and competence contribute to financial statements and diminish audit delay.
Johl et al. (2013)	To address how IAF and board quality impact on firm's FRQ	Survey and Archival data	IAF is related to increased FRQ, and this relationship is affected by the board quality.
Gras-Gil et al. (2012)	To explore the relationship between IAF and FRQ	Survey on causes	IAF and external auditor regular meetings and cooperation in producing the annual audit help to develop FRQ.
Prawitt et al. (2012)	To examine the Pre-SOX IAF outsourcing and its association with accounting risk	Archival data (observations from a proprietary database)	Outsourcing IA work to the external auditor reduce accounting risk than keeping the IAF entirely in-house. Moreover, external auditors work in the IA work to improve FRQ.
Al-Shetwi et al.(2011)	To determine how the IAF quality impact FRQ	Survey and interview of internal and external auditors	IAF quality is not significantly related to the FRQ. The weak relationship between the IAF quality and FRQ may be due to the regulatory system and ineffective CG practices.
Lin et al. (2011)	To analyse the role of IAF in disclosing material weakness (MW) and IAF quality and activities	Archival data (observations from 214 US-listed firms)	IAF is more strongly related to disclosing MW than the IAF quality objectivity, competence, and investment.
Soh and Martinov-Bennie (2011)	To discuss the roles, responsibilities, and characteristics of IAF and its effectiveness in performance evaluation	Interviews (AC members and CAEs)	The role of IAF and perception of its effectiveness significantly expand and refocus within the CG mosaic.
Prawitt et al. (2009)	To examine the relationship between IAF quality and earnings management	Archival data	IAF quality is negatively associated with earnings management.

FRQ is influenced by some other organisational factors along with IAF quality. Gras-Gil et al. (2012) report that the frequent meetings and collaboration between the IAF and the external auditor in preparing annual audits help to develop high-quality financial reporting. Gebrayel et al. (2018) document that the presence of the IAF and regular AC meetings improve FRQ. Christ et al. (2015) claim that IAF staff rotation into managerial positions is associated with lower FRQ. Johl et al. (2013) reveal that IAF quality attributes enhance FRQ; however, it is affected by the board quality. Relevant research also highlights the importance of IAF quality and addresses the relationship with other management aspects (e.g., internal control, management, and operational efficiency). For instance, IAF quality improves internal control effectiveness in compliance but not in operation (Chang et al., 2019), is negatively associated with management misconduct (Ege, 2015), and increases the prevention and detection of material weaknesses (Lin et al., 2011), enhances management performance and evaluation efficiency (Soh & Martinov-Bennie, 2011), and fosters governance mechanisms and develops internal auditors' and auditees' interactions (Jiang et al., 2018). Moreover, high-quality IAF decreases accounting risk (e.g., fraudulent financial reporting) (Prawitt et al., 2012) and diminishes external audit fees (Abbott et al., 2016).

2.5 Role of other IMM's

2.5.1 The evolvement of the IMM's

The internal monitoring mechanisms (IMMs) are developed to deal with agency conflicts between management and stakeholders. The IMM eases the agency problem by decreasing the information asymmetry between external board members and managers (Anderson et al., 1993; Chen et al., 2008; DeFond & Jiambalvo, 1992). Moreover, the IMM assures financial control and financial reporting. Researchers find that the effectiveness of the IMM's dimensions (e.g., the IAF, AC, and internal control system) is crucial for improving FRQ (DeZoort & Salterio, 2001; Nagy & Cenker, 2002). The category includes a total of 30 articles based on the contents and findings of the literature to determine future research opportunities. Table 2.3 summarizes the articles from this stream of literature.

2.5.2 IMM's literature analysis

This group of studies mostly emphasizes three ideas (e.g., IAF, AC, a management training ground, IA outsourcing, and other relevant issues). Studies also observe the IMM's association with FRQ (e.g., Al-Jaifi et al., 2019; Almer et al., 2008; Alzeban, 2018; Arel et al., 2012; Holt & DeZoort, 2009; Prawitt et al., 2012), internal auditors outsourcing (Jokipii & Di Meo, 2019), and the management training ground (Carcello et al., 2018; D'Onza & Sarens, 2018). The relevant literature indicates that the IMMs (the IAF and AC) have a positive and a negative relationship with FRQ, MTG, IA outsourcing, and internal control systems. For instance, Phornlaphatrachakorn (2020) posits that AC effectiveness is significantly associated with IAF quality, FRQ and organisational success. The study also suggests that IAF quality and FRQ strongly mediate the relationship between AC and organisational success. While AC effectiveness and IAF quality are measured based on the key stakeholder's perceptions instead of the IIA standards. On the other hand, Abbott et al. (2022) address the IAF quality relationship with investment efficiency, the study shows that IAF quality improves internal information management that requires investment decisions. They also profound that IAF quality is related to lower levels of the firm under and overinvestment, which is related to firms having high complexity or high growth. From a unique perspective, Calvin (2021) investigates the IIA Core Principles' impact on the likelihood that an IA's effectiveness is threatened through pressure to modify valid audit findings. He finds that the greater adherence to the Core Principles is related to a lower likelihood of receiving pressure to modify valid audit findings for IA staff and CAEs, but results differ by the source of pressure. Al-Jaifi et al. (2019) consider a survey sample from Malaysia and find that the IMMs are positively related to institutional ownership. They also concluded that the IMM's effectiveness reduces intuitional investors' cost of monitoring and commitment to ensuring FRQ. Alzeban (2018) addresses the involvement of the CEO in the appointment of the CAE. The research utilises a survey and an archival sample based on UK-listed companies and finds that CEO interference in the recruitment of a CAE impairs the IAF quality and FRQ. Arel et al. (2012) examine the combined effect of the strength of ethical administrative leadership and the IAF on accounting managers through an experiment. They indicate that the IAF and ethical leadership incorporate to determine the likelihood that accountants will book the entry.

This weave of research also addresses internal auditor outsourcing and external audit fees. For example, a recent study by Jokipii & Di Meo (2019) shows evidence of the relationship between IAF determinants and external auditors' fees using Common Body of Knowledge (CBOK) data. They concluded that a consulting-oriented and uncontrolled IAF is likely to increase co-sourcing fees while an IAF with more expertise decreases co-sourcing fees paid to external auditors. Munro and Stewart (2010) argue that IA outsourcing and consulting influence the reliance on IA work. However, Prawitt et al. (2012) use archival data (the GAIN database) to investigate whether IA outsourcing is related to accounting risk. They find that outsourcing IA work to an external auditor involves a lower accounting risk and improves FRQ. Several studies provide ad hoc evidence of the acceptance of the use of the IAF as a management training ground (MTG) in the organisation. For instance, the existence of the IAF as an MTG is usual among corporate bodies (Abbott et al., 2016; Christ et al., 2015) with higher external audit fees (Messier et al., 2011) and less efficient internal auditors (Anderson et al., 2012). However, Carcello et al. (2018), in their recent study, address the relationship between the IAF and MTG through a survey approach and argue that managers depend on MTG internal auditor exhortations more than non-MTG internal auditors; moreover, they note that MTG internal auditors have superior natural expertise and knowledge. Similarly, D'Onza and Sarens (2018) document that internal auditors have a positive relationship with the auditee in terms of the senior management audit plan setting and MTG.

Table 2.3 Internal monitoring mechanisms

Author and year	Research issue(s)	Methodology	Finding(s)
Abbott et al. (2022)	To investigate the association between IAF quality and investment efficiency	GAIN survey for the period 2007–2015	IAF quality augments and enhances the internal information set management requires for an investment decision.
Calvin (2021)	To investigate the impact of that IIA’s Core Principles has on the likelihood that an IAF effectiveness is threatened through pressure to modify valid audit findings	The CBOK 2015 practitioner survey	Grater adherence to the Core Principles by both internal audit staff and CAEs are related to a lower likelihood of receiving pressure to modify audit findings.
Phornlaphatrachakorn (2020)	To explore the influence of AC effectiveness on organisational success through mediating effects of IAF quality and FRQ	Questionnaire survey	AC effectiveness is positively and significantly associated with IAF quality, FRQ, and organisational success.
Oussii and Boulila (2020)	To investigate whether the source of AC accounting expertise influences the IAF effectiveness	Questionnaire survey	AC accounting expertise is related to the execution of IA report recommendations and IAF effectiveness but is not associated with non-accounting financial expertise.
Al-Jaifi et al. (2019)	To address the relationship between IAF, AC, and institutional ownership	Archival data (observations from 505 Malaysian listed firms)	Positive associations exist between IAF and AC effectiveness and institutional ownership.
Alzoubi (2019)	To examine how the AC existence and IAF affect the earnings management	Archival data (observations from 86 Jordan listed firms)	AC existence and IAF decrease earnings management and improve FRQ.
Chang et al. (2019)	To determine the role of the IAF quality on internal control over operations and compliance	Archival data (observations from 142 Taiwan listed firms)	A large IA team can improve IA performance for compliance and operation; however, internal auditor competence is positively related to internal control over compliance, but not in operations.
Jokipii and Di Meo (2019)	To examine the relationship between IAF characteristics and external auditors’ paid fees to assist IA activities	The Common Body of Knowledge 2015 survey data	IAFs with consulting-oriented and autonomous are likely to pay higher co-sourcing fees; however, with greater expertise, IAFs are paid lower.
Vadasi et al. (2019)	To explore the effect of IA professionalization on IA effectiveness	Questionnaire survey	IIA guidance and possession of professional certifications by internal auditors leads to increased contribution to CG.

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Jiang et al. (2018)	To address the influence of organisational and environmental factors on firms' incentives to establish IAF quality	The CBOK 2010 survey data	IAF is positively associated with firm complexity and complex firm demand for additional advising and monitoring for formal controls.
Alzeban (2018a)	Does the CEO interfere in the appointment of CAE affect IAQ and FRQ?	Survey and Archival data (307 London Stock Exchange-listed companies)	CEO interference in the appointment of CAE decrease IAQ, which ultimately reduces FRQ.
Erasmus and Coetzee (2018)	To evaluate the differences in perception of the key stakeholders on the drivers of IAF effectiveness	Questionnaire survey	IAF stakeholders' perceptions are different in their level of prominence of the identified drivers that influence the identified measures of IA effectiveness. CAEs prefer senior management on MTG internal auditors' suggestions over non-MTG internal auditors' suggestions, and this holds across multiple suggestion domains.
Carcello et al. (2018)	To investigate how IAF as an MTG affects manager's reliance on internal auditor recommendations	Questionnaire survey	IA positively associates with the auditee in terms of senior management audit plan setting and MTG.
D'Onza and Sarens (2018)	To examines the abilities of internal auditors to establish high-quality relationships with auditees	Survey on 78 Italian CAEs	Frequent AC meetings and the presence of IAF improve FRQ by monitoring organisational risks and internal controls.
Gebrayel et al. (2018)	To address the effect of the AC and IAF on FRQ	Archival data (observations from 139 Omani listed firms)	IMMs are significantly related to the execution of risk-based auditing in in-house IAF.
Abidin (2017)	To explore the effects of the IAF and AC in the implementation of risk-based auditing in the in-house (IAF)	Questionnaire survey	IAF size is positively associated with AC size, firm affiliation to the finance sector, and risk management committee. While the size of IAF and the firms' diffusion of ownership are not significantly related
Alhajri (2017)	To identify the factors related to the size of IAF	Archival data (observations from 122 Kuwait listed firms)	Initiating an AJR increases ACM accountability in confirming the reasonableness of the financial statements.
Kang et al. (2015)	To examine the effects of the AJR on ACM's professional scepticism concerning an accounting estimate	Survey on Audit Committee Members of 35 Australian public companies	The ethical executive leadership and IAF jointly affect accountants' decision-making.
Arel et al. (2012)	To address the joint effect of the ethical executive leadership and IAF impact on the accounting decisions	Experimental	

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Prawitt et al. (2012)	To determine Pre-SOX IAF outsourcing and its association with accounting risk	Archival data (observations from a proprietary database)	Outsourcing IA work to the external auditor has less accounting risk compared to keeping the IAF entirely in-house. Moreover, when the external auditor performs some work in IA, enhance FRQ.
Carpenter et al. (2011)	To explore how brainstorming helps to determine internal auditor fraud judgments	Experimental	Internal auditors' group brainstorming is involved fewer fraud risks than individual brainstorming.
Prawitt et al. (2011)	Does IA contribute to a decrease in external audit fees?	Global Audit Information Network (GAIN) database (2000-2005)	External auditor supervision of the internal auditor reduces audit fees. However, the financial tasks under supervision do not impact fees.
Barua et al. (2010)	To examine the relationship between characteristics of the AC and the investment in IAF	Archival data (observations from 181 US-listed firms)	IA budget is negatively associated with the existence of an auditing expert on the committee and the average tenure of the AC members.
Munro and Stewart (2010)	To investigate the impact of IA outsourcing and consulting engagement on external auditors' reliance on IA work	Experiment (external auditors)	IA outsourcing and consulting influence reliance on IA work. External auditors use internal auditors' help to perform evaluation and substantive testing.
Arena and Azzone (2009))	To analyse the organisational structural characteristics that influence the effectiveness of IA	Survey and Archival data (observations from 153 Italian listed firms)	IA effectiveness is influenced by different organisational structural characteristics (e.g., processes and activities, IA team, and organisational links).
Holt and DeZoort (2009)	To address the internal audit report effects on investor perception of oversight effectiveness and confidence in financial reporting trustworthiness	Experiment	Internal audit report affects investors' perception; particularly when fraud risk is high.
Almer et al. (2008)	To examine the firm's post-restatement action on non-professional investors' perceptions of management financial reporting credibility	Experimental	Non-professional investors' perceptions of management's financial reporting reliability affect by both the nature of the restatement and post restatement action.
Turley and Zaman (2007)	To address the association between the AC, financial reporting staff, IAF, and external auditors	Case Study	The informal network between AC participants and the AC effect on governance outcomes happens outside the formal structure.
Davidson et al. (2005)	To address the role of a firm's internal governance structure in constraining earnings management	Archival data (observation from 434 Australian listed firms)	Non-executive board directors and AC are associated with a lowed EM. However, IAF and auditor are not related to a reduction in earnings management.

2.5.3 Other documented roles of the IMMs

Several studies consider the IMM's are essential for organisational strategic activities such as internal control systems, internal auditor judgment, and risk management. Chang et al. (2019) suggest that the IMM positively affects internal control compliance, while Abidin (2017) reveals that the IMM and risk management system are meaningfully related to the execution of risk-based auditing. Alhajri (2017) indicates a positive relationship between the IMM (IAF size and AC size), firm affiliation with the finance sector, and separate risk management committees. After investigating the effects of the audit judgment rule (AJR) on AC members' (ACMs') professional skepticism, Kang et al. (2015) conclude that initiating the AJR enhances ACMs' accountability for guaranteeing the reasonableness of the financial statement. Moreover, the AJR improves ACMs' overall easiness in the treatment of accounting estimation. Carpenter and Jones (2015) perform research on internal auditor (IA) fraud judgments and report that IA brainstorming identifies fewer risks than nominal groups (individual auditors); however, brainstorming groups recognize more quality fraud risks than nominal groups. Holt and DeZoort (2009) find that IA reports improve investors' judgment, especially when the fraud risk is high. Relevant to the AC and internal audit budget, some studies, such as Barua et al. (2010), provide evidence that a lower IAF budget is related to the AC inclusion of an auditing expert and the average longer tenure. Prawitt et al. (2011) note a negative relationship between external audit fees and time spent by the internal auditors to assist external auditors.

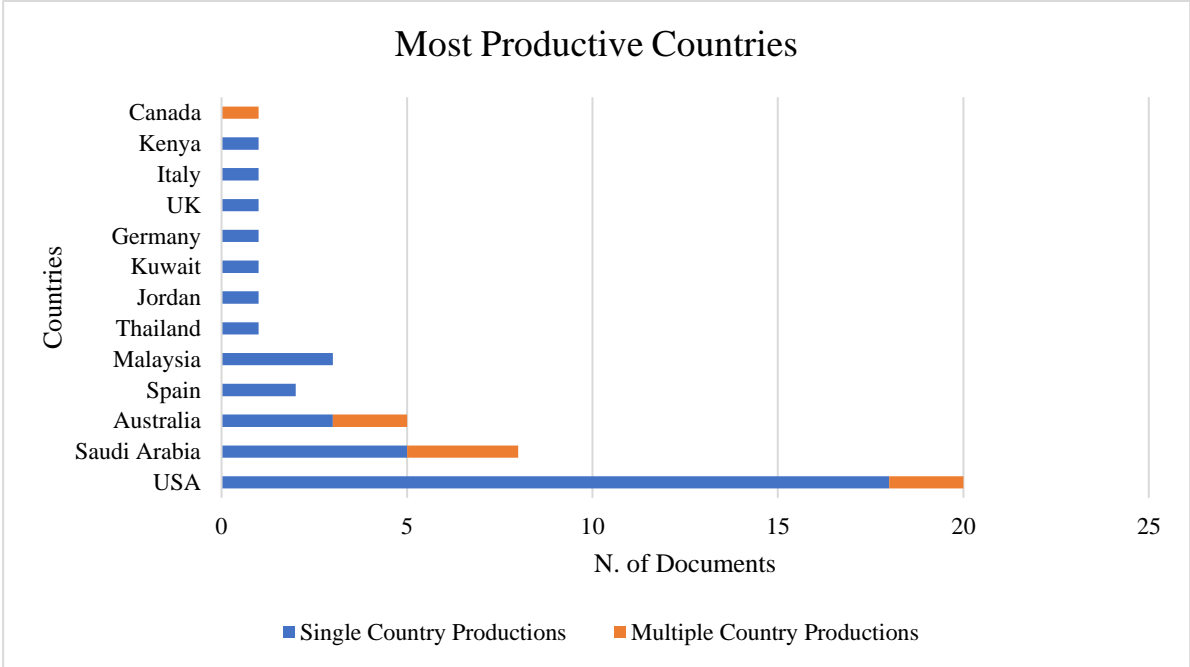
2.6 Geographic Origin Literature Analysis

The last theme of knowledge encompasses articles relevant to the geographic origin that shed light on the non-US literature contribution to these issues. Additionally, if non-US literature replicates US studies, do the findings of the studies are similar or show different outcomes due to the country settings. Regarding these issues, a total of 17 papers are identified and reviewed in the following section, and a summary is presented in Table 2.4. Moreover, research gaps and potential opportunities are subsequently addressed.

The literature review on the effects of IAF quality on FRQ provides evidence that research focuses on these crucial issues in a limited number of countries, such as Australia (Davidson et al.,

2005), Malaysia (Al-Jaifi et al., 2019), Germany (Gros et al., 2017), Saudi Arabia (Al-Shetwi et al., 2011), Spain (Gras-Gil et al., 2012), and Jordan (Alzoubi, 2019), as shown in Figure 2.7.

Figure 2.6 Country-wise article production



Literature relevant to the IAF and FRQ under country-specific settings such as Gros et al. (2017) survey the German listed firms to investigate the effects of IAF quality on FRQ. They report that the IAF quality restrains earnings management and thus ensures a high level of FRQ. By performing a survey on CAEs, Gras-Gil et al. (2012) show a positive association between the IAF’s envelopment in the financial accounting process and FRQ in the Spanish setting. Al Shetwi et al. (2011) analyse the same issue with a survey sample from Saudi Arabia and report a negative association between IAF quality and FRQ. Davidson et al. (2005) observe the role of internal governance structures (e.g., the IAF, board of directors, and AC) in restricting earnings management by utilizing a sample of 434 listed Australian firms and discretionary accruals. Alzoubi (2019) confirms that the existence of an AC and IAF decreases earnings management and improves FRQ in Jordanian companies. These studies recurrence of several US-based studies (e.g., Prawitt et al., 2009; Abbott et al., 2012; Abbott et al., 2016), and the results mostly show similarities except Davidson et al. (2005) and Al Shetwi et al. (2011), who report a negative relationship between IAF and FRQ.

Table 2.4 Geographic origin

Author and year	Research issue(s)	Methodology	Finding(s)
Phornlaphatrachakorn (2020)	To examine the influence of AC effectiveness on organisational success through mediating effects of IAF quality and FRQ in Thailand	Questionnaire survey	AC effectiveness is significantly and positively associate with IAF quality, FRQ, and organisational success in Thai entities.
Alzoubi (2019)	To investigate the effects of AC existence and IAF on the earnings management of Jordanian companies	Archival data (observations from 86 Jordanian listed firms)	AC existence and IAF decrease earnings management and improve FRQ in Jordanian companies.
Alzeban (2019a)	To address the impact of IA compliance with the International Standards for the Professional Practice of Internal Auditing (ISPPIA) FRQ in the Saudi Arabian	Archival data (Data gathered from 142 CAE executive Saudi listed companies)	IA compliance with the ISPPIA reveals greater effectiveness of IA and better FRQ.
Al-Jaifi et al. (2019)	To examine the role of IMMs on institutional ownership in Malaysia	Archival data (observations from 505 Malaysian listed firms)	Positive associations exist between IMM's effectiveness and institutional ownership that help to alleviate institutional investors' cost of monitoring high FRQ.
Baatwah et al. (2019)	To assess how do the IAF external providers affect audit efficiency in Oman?	Archival data (observations from 711 Oman listed firms)	IAF efficiency significantly improves when IAF suppliers are from Big4; however, IAF suppliers from a non-Big4 audit firm relevantly reduce audit efficiency.
Alzeban (2018b)	To examine the effects of IA on the successful implementation of International Financial Reporting Standards (IFRS) in Saudi Arabia	Archival data (annual reports)	IA plays a little contribution in the implementation of IFRS since relevant agencies and listed companies do not recognize the value of IA involvement in this accounting setting.
Al-Dhamari et al. (2018)	To review the relationship between related party transactions and audit fees in Malaysia	Archival data (Manually Collected data from top 120 listed firms in Malaysia)	Audit fees are higher for related party (RP) sales and purchases; however, audit fees are lower for firms that engage in RP sales and purchases when those firms maintain a well-founded IA unit.
Alhajri (2017)	To identify what factors are related to firms' investment in the IAF in Kuwait	Archival data (observations from 122 Kuwait listed firms)	IAF size is positively related to the firm connection with the AC size, finance sector, and the availability of a separate risk management committee.

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Table 2. 4 (Continued)

Gros et al. (2017)	To investigate the impact of IAF quality on FRQ and audit efficiency in Germany	Questionnaire survey	IAF constrains earnings management and ensures FRQ. Moreover, IAF improves audit efficiency by shorting audit delays and minimizing audit fees.
Abbott et al. (2016)	To determine the role of IAF quality attributes effectiveness in monitoring FRQ based on the US setting	Survey (CAEs and internal auditors)	IAQ attributes independence and competence are necessary antecedents to effective IAF financial reporting monitoring.
Pizzini et al. (2015)	To examine how IAF quality and its contribution affects the financial reporting process and audit delay based on the US setting	Archival data (IIA's database)	IAF quality (competence and objectivity) contributes to reducing audit delays and financial statements.
Gras-Gil et al. (2012)	To interrogate the association between IAF and FRQ in the Spanish setting	Survey (CAEs)	IAF is positively related to involvement in the financial accounting process and FRQ.
Al-Shetwi et al. (2011)	To investigate the impact of the IAQ on FRQ in the context of Saudi Arabia	Survey and interview of internal and external auditors	IAF quality is not significantly related to the FRQ, which may be due to an inadequate regulatory and ineffective CG system.
Leung et al. (2011)	To examine the relationship between the management and the accountability structures with IAF in Australia	Survey (CAEs) in Australia	A weak relationship shows between the internal auditor tasks and IAF objectives. Therefore, the role of the internal auditor may not be able to execute well in the internal governance.
Waweru et al. (2011)	To address the AC's practices and their relationship with other stakeholders and overall performance in Kenyan listed companies	Questionnaire survey	AC's relationship with IAF, management and external auditors improves the FRQ. Moreover, limited human capacity, dominant shareholders, and government intervention influence the operations of ACs in Kenya.
Prawitt et al. (2009)	To investigate the relationship between IAF quality and earnings management	Archival data (IIA's GAIN database)	There is a negative relationship between the IAF quality and earnings management estimated by abnormal accruals.
Turley and Zaman (2007)	To examine the relationship between the AC, financial reporting individuals, IAF, and external auditors based on the UK setting	Case Study	Informal communication between AC participants and the AC on governance performance occurs outside the formal process.

On the other hand, a few more country-specific studies are observed to be relevant to the IAF, IMM's, and FRQ, which found non-recurrence of US studies and address new issues from this perspective. For instance, Turley and Zaman (2007) develop a case study on the UK corporate scenario. They argue that an AC can build up a “tone” that allows the IA to have a certain degree of influence in the organisation. As such, the authors suggest that the AC has significant effects on the governance outcome and other organisational stakeholders. Likewise, based on the Saudi Arabian setting, Alzeban (2019a) addresses the impact of the IA's compliance with the International Standards for the Professional Practice of Internal Auditing (ISPPIA) on FRQ. The study indicates that the IA's compliance with the ISPPIA improves the IAF's effectiveness, which results in better FRQ. In addition, the IAF's efficiency significantly improves when the IAF provider is from the Big4; however, a non-Big4 audit firm IAF provider notably reduces the audit efficiency from the Omani perspective (Baatwah et al., 2019). Alhajri (2017) documents that the IAF size is significantly related to the AC size, presence of a risk management committee, and firm affiliation with the finance sector in Kuwaiti-listed firms. Waweru et al. (2011) perform a study in the Kenyan setting and suggest that AC performance is affected by limited human capacity, shareholder domination, and government interference. They note that the board and the AC are significantly related to lower earnings management. Likewise, Al-Jaifi et al. (2019) reveal that an effective IAF and AC alleviate institutional investors' commitment to high FRQ and cost of monitoring in Malaysia using a sample of 505 companies listed on Bursa Malaysia between the period 2009–2012. Phornlaphatrachakorn (2020) examines the impact of AC effectiveness on organisational success with mediating effects on IAF quality and FRQ. He reports that AC effectiveness is significantly related to IAF quality, FRQ, and organisational success.

2.7 How can future research address IAF quality and IMM's aspects to enhance FRQ and prevent future corporate finance scandals?

2.7.1 IAF quality attributes and FRQ future research opportunities

The prior research contributes several insights into the impact of the IAF and its quality attributes on enhanced financial reporting, corporate mechanisms (e.g., FRQ, operation, internal control, AC usefulness, and board quality), and external auditor reliance. Besides, some studies address the

IAF's effectiveness and the causes of the effects of internal and external factors, such as the management, the environmental, and management misconduct, on the IAF; however, there are several avenues for further investigation. For instance, the IAF quality determinants still require further examination to determine how the researcher can potentially demonstrate and quantify them. In addition, very little is known regarding the role of the IAF in the accounting information system and the potential role that it may perform in the development and shielding of this information system. Similarly, the relationship between the IAF and IT is relatively unexplored, while the cyber risk is one of the prime challenges experienced by firms in recent years. The earlier literature exclusively concentrates on the external auditor's perspective on the quality of the IAF's perception of abnormal accruals, whereas other parties involved in the management and operational concern, such as human resource management, functional managers, financial analysts, regulators, and risk management, are unobserved. Research may adopt a survey approach to stakeholders for that particular purpose.

Relevant to IAF quality and FRQ, most of the research emphasizes three IAF quality components (competence, independence, and objectivity); however, the remaining quality attributes are overlooked. Therefore, it would be useful to address the relative significance of IAF quality components for a company and its evaluation method. Conducting a survey questionnaire with CAEs or CIAs might be a reasonable approach to analyse this issue. Furthermore, some studies examined the IAF quality's association with FRQ (e.g., Abbott et al., 2016; Arum, 2015; Gros et al., 2017; Oussii & Boulila, 2018; Prawitt et al., 2009) and show a positive link between IAF quality and FRQ; however, an investigation is needed to understand how and why IAF quality affect FRQ and how a firm can benefit from ensuring IAF quality. An extensive questionnaire survey may be performed to answer this question. Likewise, another promising research avenue could be to investigate the non-financial reporting results of a high-quality IAF.

Finally, more research needs to be undertaken on this theme (the role of the IAF), for example, to determine how to enhance internal auditors' quality and overall internal audit program efficiency to ensure high-quality financial reporting. Since firms usually operate the IAF through in-house IA

sourcing, they are not well equipped in terms of IA activities (e.g., consulting and assurance activities). Therefore, a set of policies and guidance is warranted to improve the IAF's capabilities. The study may utilise a survey or interview approach with relevant stakeholders (e.g., CAEs, CEOs, and external independent professionals).

2.7.2 IMM's future research opportunities

The above perusal of the literature indicates that the IAF and the audit committees play multiple roles in the organisations. The research mostly reveals that the IAF and the AC work reciprocally to ensure the internal monitoring system. However, other monitoring mechanisms (e.g., financial transparency, corporate compliance, and information disclosure) and their relationship with FRQ remain unaddressed and warrant further research. We also do not know about the relation between the IAF and the co-sourcing fees in specific country settings. Future research also may focus on whether the IAF's factors and co-sourcing fees assist IA activities in minimizing managerial opportunistic actions most effectively. Moreover, improved coordination and knowledge sharing may enhance FRQ; however, no investigation observes this issue. Thus, an attractive direction for future research is to establish whether organisations can reduce their accounting risk by improving the coordination and knowledge sharing between the IAF and the external auditors without outsourcing to the external auditors. Further, it can be interesting to investigate the management's viewpoint towards the IAF's quality attributes and their importance to the management in strengthening the IMMs.

We also do not know much about the relationship between the IAF and the management training ground (MTG), as Stewart and Subramaniam (2010) noted that few studies investigate the impact of the MTG on IAF quality. Many countries consider the IAF as an MTG; however, it needs to determine how prevalent the practice is on a global basis and whether this practice impairs the IAF's quality. Therefore, it would be a promising research avenue to consider the effect of IAF as an MTG on internal auditors and auditees. A further study may also examine the conditions under which the use of the IAF as an MTG can improve internal auditor competencies to support auditees. Moreover, the internal auditor often provides recommendations about operations to the manager; however, we do not

know how the manager treats them. A further study may examine how managers respond to IA in different contexts. The prior literature finds that the IMM (IAF and AC) and ownership structures are related to FRQ but overlook the extent to which they incorporate FRQ. This issue could be investigated in different country settings as the institutional structure and monitoring mechanisms may differ by country due to the cultural and governance policy. The existing literature mostly emphasizes the IMM's effectiveness in enhancing FRQ, while the IMM's performance also influences other organisational aspects, for example, governance decision making and overall entity performance, which warranted further investigation. Finally, we do not know whether the IAF, AC performance, and FRQ are influenced by gender differences in financial expertise. Gender difference can be a significant factor in changing organisational performance. Thus, this could be an emergent and promising issue to address in future research.

2.7.3 Geographic origin future research opportunities

Given the scarcity of research on the country-specific practice of the IAF, the literature in only a few countries witnesses this issue, as shown in Figure 2.7. We do not know the real scenario of IAF performance in many countries. Hence, how countries are aligning the IAF with the IIA standards in their unique setting, especially emerging countries, and what sort of alternatives are available to manage unexpected exertions are likely to be nebulous. Therefore, it is imperative to address all countries regarding this issue as so far studies only document 18 countries, although 170 countries have adopted the IIA standards globally. Moreover, a plausible reason for the existence of a minimal number of studies is that IA studies are hard to conduct based on archival data. Therefore, researchers may rely on other methodological approaches (e.g., surveys, and interviews), which are quite challenging and time-consuming.

The existing literature is developed based on a relevant sample of IAFs in specific countries, and there is an ambiguity whether the results of the literature are applicable to other jurisdictions and cultures. Notably, cultural scopes such as family ownership and power-related studies' outcomes relevant to Eastern and Southeast Asian cultures, such as those in Malaysia, Singapore, India, and

Bangladesh, warrant further exploration. We also have little knowledge about how auditors determine the audit criteria to perform document assessment in a particular country setting and which IAF determinants are emphasized to ensure FRQ. Additionally, regarding the IA sourcing, more light needs to be shed on country-specific practices, for example, to establish whether firms implement their country settings to recruit internal auditors (in-house or outsourcing), what sort of qualification criteria they apply to recruit IAs, and which measures they utilise to evaluate IA performance. Moreover, it could be worthwhile conducting further research on the interaction between the internal auditors and the AC to examine how the purposes and criteria are negotiated in different country settings. Finally, the prior literature may be examined in other country settings utilizing their sample to ascertain whether studies offer similar results (e.g., Gebrayel et al., 2018; Gras-Gil et al., 2012; Soh and Martinov-Bennie, 2011).

2.8 Conclusion

To encapsulate the current academic knowledge about the IAF and FRQ, we reviewed IA articles published in accounting journals between 2004 and 2020 utilizing a structured literature review approach. We identified 59 internal audit- and financial reporting-related papers and categorized them into three central themes, specifically the role of IAF quality attributes in FRQ, the role of internal monitoring mechanisms, and the geographically specific. In each perspective, we explained recent studies that have included the body of knowledge relating to the role of the IAF and IAF quality and highlighted opportunities for future research.

The IA existing literature has widely focused on the IAF common problematic issues rather than addressing performance declining contents that might cause diminishing IA effectiveness. We know relatively little, especially, about the IAF quality determinants measurement and evaluation methods and their relative importance in enhancing IAF performance and preparing high-quality financial reporting. Existing studies also were silent about the urgency of the IAF quality, such as *to what extent IAF quality is crucial to improve IAF effectiveness?* Overall, previous IAF research could not clarify the significance of the IAF and its implication and contribution to the day-to-day operation in practice. Moreover, we do not know much about the role of IAF quality factors for IT aspects (e.g., cyber

security, data management, and IT assets protection) and new IA extending areas (i.e., agile application, robotic procedure). Existing literature predominantly focused on the role of IAF and AC for FRQ; however, cost-minimizing issues (e.g., co-sourcing fees, internal monitoring cost) were unaddressed. More study urges to investigate the role of IAF and IMMs, *how to ensure the utmost execution of IAF roles according to IIA standards to enhance IAF quality and strengthen its position in the organisation?* Our analysis also shows that non-profit organisations and private companies are less studied than public limited companies. Furthermore, our investigation indicates that only a few countries' studies are documented on the IAF and reveal the dominance of North American and European papers, while most of the nations' scenarios are still unknown. Thus, this issue is still open for undocumented countries and advocates to investigate their perspectives.

Future studies to follow up on the current paper would be appropriate and insightful regardless of the prospective authors' choice of theoretical frameworks or methodological design perspective. In conclusion, the role of the IAF and IAF quality is a rich and fruitful area of investigation in which researchers can make a valuable contribution to the ongoing development of the profession.

CHAPTER THREE

GENERAL METHODOLOGY

3.1 Introduction

The purpose of this chapter is to present a roadmap of the research methods employed to collect, analyse, and interpret data to achieve research objectives. Thus, this section discusses the research design and methods utilised to address the research objectives as outlined in *Chapter One*. This chapter is structured as follows: Section 3.2 outlines the research objectives; Section 3.3 set the tone for the philosophical foundation of the research methodology; Section 3.4 illustrates a description of the research design and method of the study; Section 3.5 offers details of data collection methods employed in this study; and Section 3.6 outlines the statistical tools adopted for analysing questionnaire survey and archival data (i.e., data collected from respondent companies' annual reports and DataStream); Section 3.7 contains the archival data collection process; and finally Section 3.8 summarises the chapter.

3.2 Research objectives

As mentioned in *Chapter One*, I have developed three objectives for this research, which are as follows:

- To develop a systematic literature review on internal audit function (IAF) and financial reporting quality (FRQ) related literature to determine future research guidance and knowledge gaps.
- To investigate the relative importance of the internal audit function (IAF) quality attributes for financial reporting quality (FRQ).
- To examine the mediation effect of audit committee quality and internal audit function quality on firm size-financial reporting quality nexus.

3.3 The philosophical foundation of the methodology

The philosophical foundation of research is the key to which methods and strategies are adopted to conduct research. There are two research philosophies commonly followed to describe the strategy or approaches of research methods referred to as “epistemology” and “ontology”. These philosophical approaches, derived from the research questions, allow the researcher to determine *what* research method should be adopted and *why* (Saunders et al., 2009).

Ontology is concerned with “what constitutes reality and how we can understand existence”, while epistemology can be understood in terms of “what develops valid knowledge and how it is obtained”. Rose et al. (2015) explain that epistemology usually considers the questions of how we know what we claim to know. On the other hand, Bryman and Bell (2011) describe the idea of ontology by asking the question as to whether social objects should be considered a reality external to social actors, or whether social phenomena emerge from the consequences and perceptions of social actors.

Generally, positivism and interpretivism are called phenomenology (Bryman & Bell, 2011), perceived within the perception of either constructionism or objectivism, which are the two popular and dominant philosophical foundations of research methodology (Bryman & Bell, 2011). The primary objective of phenomenological philosophy is to have a better understanding of the social world by interpreting human experience earned through practical experience in a way that can apply a source of qualitative evidence (Mayoh & Onwuegbuzie, 2015). The research can be classified as either theory-validating (deductive) or theory-building (inductive) (Bryman & Bell, 2011; Rose et al., 2015). Researchers mostly describe a research approach from the epistemological perspective. This issue is further discussed by Rose et al. (2015), who confirms that researchers can essentially be classified in terms of their epistemological inclination. This section concentrates on the two research paradigms (positivism and interpretivism), including the epistemological and ontological aspects, to recognise and enhance the understanding of the diverse research philosophical ideologies.

Positivism is the orientation of adopting a scientific approach to perform research inanimate or animate, and researchers that follow this line of orientation are referred to as positivists. From an ontological view, this line of epistemology is known as embedded in objectivity, i.e., “facts are facts” (Bryman & Bell, 2011). However, interpretivism refers to the school of thought that rejects positivism and supports the pure science approach, thus, it is unsuitable for social science research. Interpretivism asserts that differences exist between the object of science (e.g., rock and chemical) and the human being (i.e., social science study) (Rose et al., 2015), and thus, the scientific research methods of positivism are not sufficient if eloquent interpretations are to be outlined from studies.

On the other hand, interpretivism perception identifies that human reasoning is changeable, and people actively interpret the world and do so within a specific socio-cultural context (Rose et al.,

2015). It can be argued from the epistemological perspective considered to be embedded in the quest for subjective knowledge. The above interpretations indicate the relationship between epistemological and ontological orientations, particularly when focusing on the philosophical aspects of research in social science, and where the main focal point is the organisation or human reasoning.

Positivists and objectivists expect to isolate themselves from the object of their research, given that the general principle of the scientific approach of research methodology is that knowledge should be earned in a value-free manner, with the perception that objects are naturally embedded with meanings and meaningful realities, awaiting innovation without any intervention. Both of their perspective, only procedures through means such as data collection and analysis alike to scientific approach utilise in natural science for hypothesis testing, and verification of causal relationships are ideal for such invention. Thus, knowledge-based positivism is assumed to be value-free, objective, and replicable, and thus generalisable. However, interpretivists and constructionists consider themselves to be part of the object under study in social science, and people use their perception to explain the social world, and that knowledge eventually becomes subjective. This indicates that researchers study them as part of the object and are not detachable, and thus, objective or value-free research seems impossible. That is “the knower and the known” are considered as inseparable (Rocco et al., 2003).

Based on the above discussion and considering the research objectives specified in chapter one, the philosophical foundation of the study can be established based on the interpretivism epistemological foundation and constructionism ontological orientation. As such, three research objectives are designed in the study involved with several internal governance mechanisms (i.e., IAF and AC are related to enhancing governance effectiveness and FRQ) identified and considered to address governance issues and their contribution to FRQ. These are animate domains, and their perceptions may not be entirely value-free; in fact, the domain is not totally scientific, like a rock or molecules are.

3.4 Research design

Research design is the step that specifies the structure and techniques of the research that enable a researcher to attain reasonable outcomes of the research objectives. Blalock & Blalock (1982) describe that the research design entails a set of guidelines based on what the research carries out. It is

imperative to establish a research method after shaping the research objectives (Punch, 2005). According to Ghauri & Gronhaug (2005), “research methods refer to a systematic, focused and orderly collection of data to obtain information from them, to solve/answer a particular research problem or question” (p. 127). The researcher usually follows three common types of research approaches: the quantitative approach, the qualitative approach, and the mixed approach.

3.4.1 Quantitative research

Quantitative research is relevant to several statistical elements that are designed to quantify the perceptions of the target groups in how they are aware, think, believe, or are inclined to behave in a certain way. The quantitative approach employs quantitative measurement and uses diverse statistical analysis (Gillham, 2000; Hussey & Hussey, 1997). Holland and Campbell (2005) focus on the advantages of quantitative research, such as how it produces standardised numerical data along with describing and predicting a relationship for a large population with a high degree of confidence. This approach is also employed to perform sophisticated forms of estimation and establishes more reliability, causality, and generalisation capability in the study outcomes (Bryman, 2001).

However, the quantitative approach encountered several disadvantages as well, which stem from the point that the quantitative method attempts to neutralise the researcher, or to reduce or eliminate the researcher’s influence on the research, to the extent that researchers become disembodied abstractions’ and depersonalised (Collins, 1992). Moreover, Robson (2002) identifies several disadvantages of quantitative research, referring to it as “a field where it is not at all difficult to carry out an analysis which is simply wrong, or inappropriate for your purposes. Further, the negative side of readily available analysis software is that it becomes that much easier to generate elegantly presented rubbish” (p. 285). The quantitative research analysis of relationships between variables generates a static view of social life or the social processes (Cicourel, 1982). Maxwell (2005) argues that quantitative research is a structured approach that ensures the comparability and generalisation ability of the data through individuals, times, settings, and researchers.

3.4.2 Qualitative research

Qualitative research involves non-numerical aspects, such as individuals' perceptions, attitudes, beliefs, views, and feelings. This methodology uses a descriptive, non-numerical approach to collect and interpret information, aiming at understanding the phenomenon. The qualitative approach demonstrates how non-numerical characteristics help develop a framework to connect attitudes and behaviours (Hakim, 1987). More concisely, qualitative research produces findings without any statistical procedure or other methods of qualification. Corbin and Strauss (1990) assert that this approach provides a means of accessing unquantifiable facts and addressing research problems by examining several social settings and the individuals who inhabit the settings. Kvale (1996) explains that this research method involves alternative conceptions of social knowledge of meaning, reality, and truth in social science research. Babbie (2009) argues that this approach is an effective strategy for studying subtle nuances in attitudes and for examining social processes over time. He also underlines that flexibility and validity are the advantages of the approach. However, several inherent limitations identify this approach over the period. For example, this approach employs non-numeric data collection methods, such as case studies, personal experience, interviews, observations, and historical and visual texts (Morse & Field, 1995; Symon & Cassell, 1998) and uses small samples. Further, it is not representative or typical and results in invalid generalisations of the outcomes (Berg, 2001; Bryman, 2001). Berg (2001) also noted that this approach is relatively time-consuming, which leads to weaker forms of measurement.

3.4.3 Mixed method

The mixed-method is the combination of both qualitative-quantitative approaches, which provides the opportunity for 'triangulation'¹ (Flick, 1992; Leedy, 1997; Scandura & Williams, 2000), while it effectively incorporates 'multiple research strategies' (Burgess, 1982). This research paradigm is supported by several authors (e.g., Creswell, 2003; Johnson & Christensen, 2004; Newman et al., 1998; Reichardt & Rallis, 1994). Thus, this approach has higher acceptability among the researchers

¹Triangulation refers to the process of employing multiple data collection methods within a study to check the validity of the data derived (Denzin, 1978).

to achieve their research objectives. The popularity of the method increases for several specific reasons. For instance, the mixed-method study robustly checks of the results, which is crucial to enhancing the reliability of findings, and individual weaknesses may be reduced through the combination of both methods (Punch, 2005).

3.4.4 Choosing the method for the current study

Choosing a research method for a study depends on the nature of the research. The research method's determination relies upon the forms of the research objective(s) (Field & Morse, 1995). However, Punch (2005) and Jaeger (1988) note that the research method chosen varies on the research objectives to resolve them. This study uses the quantitative research method (in the form of a questionnaire survey) to obtain the desired findings of the research issues. Creswell (2003) illustrates that a survey design is a numeric response to the trends, attitudes, and opinions of the participants.

The current study investigates the effects of the CG mechanisms (e.g., the internal audit function and audit committee) and quality attributes on FRQ from the perspective of Bangladesh. Therefore, the questionnaire responses were used to measure IAF and AC quality attributes. Meanwhile, the archival data were utilised to estimate abnormal accruals (a proxy for FRQ). The questionnaire survey was conducted on different focus group opinions, such as the internal auditors, AC chairpersons, chief financial officers, and the company secretaries. The data collection process from the perspective of Bangladesh is always challenging. Especially for research purposes, companies do not tend to disclose information about financial and corporate governance performance. Moreover, the archival data sources (e.g., Refinitiv DataStream, company annual reports) are not well-equipped and up to date.

This study, therefore, performed a questionnaire survey to grasp the target groups' views on the study issues (IAF and AC), quality, and archival data collected from the company's annual reports and Thomson Reuters DataStream for analysing FRQ (earnings management). The following sections elucidate in more detail the questionnaire survey and archival data collection process.

3.5 Sample selection

In sample-based studies, the target sample groups under surveyance must be defined to ensure that the selected sample provides an accurate representation of the population (Thomas, 1996). The

current study sample consists of all Bangladeshi non-financial companies listed on the Dhaka Stock Exchange (DSE). As per the SEC record as of December 2020, a total of 223 non-financial companies were confirmed as the target sample, representing 14 industries. Of the 223 firms, 26 were eliminated because of the small number of firms (less than five observations) in the specific industry, which is vital to ensure unbiased estimation of the accrual quality (Abbott et al., 2016; Gros et al., 2017; Johl et al., 2013). Consistent with earlier internal audit relevant studies (such as Abbott et al., 2016; Alzeban, 2019; Carcello et al., 2005; Gros et al., 2017; Prawitt et al., 2009; Scarbrough et al., 1998), the survey questionnaire targets the following professions: Audit Committee (AC) members, Certified Internal Auditors (CIAs), Chief Audit Executives (CAEs), Chief Financial Officer (CFs). Companies who do not have an internal audit department or annual reports in the fiscal year 2019-20 are excluded.

3.5.1 Questionnaire survey

A questionnaire survey is the most prevalent data collection method in the social science field (Easterby-Smith et al., 2012). In this method, respondents are asked questions of a similar nature of questions under the same circumstances (Easterby-Smith et al., 2012; Li et al., 2000). The questionnaire survey is crucial in describing the characteristics of a large population (Babbie, 2009). Oppenheim (2000) notes that the questionnaire method allows respondents to think liberally or discuss with others rather than give an immediate answer, such as in an interview. Therefore, this method is more effective in avoiding errors arising from interviewer bias. Hence, a questionnaire is a valuable tool that allows researchers to collect a large volume of data from a sizeable population in a highly efficient way to examine different variables' relationships in a study (Saunders et al., 2009).

Concerning the designing questionnaires, Bourque & Fielder (2003) posit that they should be developed with short, precise, and understandable questions to make it convenient for the potential respondents to answer. The current study utilises a questionnaire survey to investigate several hypotheses proposed on this research issue. At the beginning of the questionnaire design process, a variety of relevant issues (e.g., the concept of the research, possible research methods, and item development process) were discussed with subject experts, PhD candidates, university professors, and corporate professionals to develop the questionnaire. Moreover, several academic literatures and contemporary

audit standards were reviewed to develop the survey questionnaire. The development of the questionnaire involves a review of the earlier studies with the logic of identifying and constructing appropriate instruments to measure the variables of the study. Bryman et al. (2007) recommend to use previously used questions that were successfully employed to collect similar data. Therefore, a distinct set of questionnaires were reviewed in a similar field of study to prepare a unique questionnaire for the current study. Questions relevant to this study were modified in terms of aligning to the details Bangladeshi setting, variable characteristics, and research issues. The questionnaire was designed by following a self-explanatory method to grasp information from the listed firms on internal audit function (IAF) and audit committee practices. In designing the questionnaire, I mostly followed previous similar studies (e.g., Abbott et al., 2016; Alzeban, 2019; Gros et al., 2017) that dealt with IAF and AC practices under different country contexts. After that, a pre-test was undertaken by conducting a pilot interview to establish the feasibility and time consumption to complete the questionnaire. Thus, the intended questionnaire was sent to the academics, Certified Internal Auditors (CIA), CFOs, and AC members for their evaluation in terms of understandability, feasibility, and time required. A preliminary questionnaire was designed by reviewing previous literature and feedback from the pilot survey. The questionnaire is composed of three sections relating to the IAF and AC.

3.5.2 Overview of the survey questionnaire

We structure our survey questionnaire (see Appendix 3) in three sections, for which details are provided in the following section.

Section one: The respondents were required to provide general information regarding themselves and their companies. This included the participant's company name, position held in the company, professional qualifications, and the number of years they have been working as an internal auditor. The respondents were also asked to provide information about their external auditor.

Section two: This section required information on the determinants of the IAF. Firstly, they were asked about the internal auditors' competence, such as external certifications to the IAF, number of internal audit professionals in the internal audit unit, number of qualified internal audit staff, and internal audit employees' average days of annual training. Secondly, the questions were relevant to

the internal audit unit's independence such as to whom internal audit reports submit functionally, degree of top management involvement in the preparation of internal audit departments' annual budget, degree of management influence in the appointment and termination of the head of internal audit, internal auditors' independence to access different departments of the company, whether internal auditors' have the requirements to perform non-audit functions, and the responsibilities of preparing an internal audit plan. Thirdly, a set of questions were asked related to internal audit department's work performance. This included statements addressing the importance of internal auditors' performance assessment, the importance of a code of ethics to guide audit works, external auditor feedback, and the specification of job responsibilities to ensure quality. Internal audit independence and work performance related questions were developed based on a five-point Likert scale anchored as 5 = strongly agree; 4 = agree; 3 = no opinion; 2 = disagree; 1 = strongly disagree. The questionnaire entailed 42 items and three general questions.

Section three: This section contains questions about the AC characteristics in the organisation. The participants requested to answer whether an AC exists in the company. Upon their answer (Yes/No), respondents may proceed with the remaining questions. For instance, if participants choose the Yes option, they must answer the subsequent questions; otherwise, they may submit the questionnaire. The remaining part of the questionnaire includes questions about the size of AC and non-executive directors, the experience and qualification of the AC members, professional designations of the AC members, the number of AC meetings in a year, the average length of the AC meetings, and the number of meetings of AC with the CEO in the year.

3.5.3 Pilot study

A pilot study was performed before conducting the survey questionnaire. The purpose of the pilot study is to ensure the proposed questionnaire is understandable and free of ambiguity for the target groups. The pilot study screened the questions' for vagueness, ambiguity, and understandability (Cooper & Schindler, 2003). It recommends performing the pilot study within a small group. Hussey & Hussey (1997) suggest that the questionnaire piloting with a small sample of respondents is useful to check its suitability for achieving the research objectives. Moreover, it needs to consider the length

of time spent on each question along with the whole questionnaire by the respondents. A lengthy questionnaire may discourage the respondents from participating in the survey.

The current study draft questionnaire was sent to twelve corporate professionals and three senior academics for their feedback on the design, timing, and understandability of the questions asked of the intended participants, as shown in Table 3.1. The review feedback is received from seven practitioners and three senior academics, for instance, four Certified Internal Auditors (CIA), one Audit Committee (AC) member, one Certified Public Accountant (CPA), and three University Professors. The pilot study participants were chosen based on their knowledge and experience in the relevant fields (e.g., accounting and auditing practice) of expertise.

Table 3. 1 The responses rate of the pilot study

<i>Piloting Group</i>	Sample	Response	% Of Response Rate
Certified Internal Auditor (CIA)	6	4	67
Academics	5	3	60
Certified Public Accountant (CPA)	3	2	67
Audit Committee Member	3	1	33
Total	17	10	57

The draft questionnaire package contains a cover letter describing the objective of the pilot study. Also, a review form was attached with the cover letter for the reviewer evaluation comments. The questionnaire is generated in the Google Forms platform and the link is included in the cover letter. The reviewer requested participants to complete the questionnaire and provide their feedback on the clarity and relevance of the questions. All reviewer feedback was found favourable with the positive comments that stated questions were clear and understandable, and no comments were received on modification for the questionnaire. The time required to complete the questionnaire is about 8-10 minutes (the questionnaire and cover letter copy are attached in Appendices 1, 2, and 3). Some feedback was found from the reviewer related to the questionnaire cover letter. One reviewer recommended adding a sentence relating to the importance of this study from the perspective of Bangladesh, while another reviewer advised shortening the cover letter.

In the initial draft of the questionnaire, one question was included related to the internal audit quality (independence) in section two, which consists of five Likert scale-based measurements used by Alzeban & Gwilliam (2014) and Abbott et al. (2016). However, it differs from the study by Gros et

al. (2017), which used binary questions. Some review comments received on this question were to revise the wording to make it more understandable. To draw an overview, all participants were requested to provide their feedback on the structure and content of the draft questionnaire along with the appropriateness of the survey cover letter. As mentioned above, based on the reviewer feedback and comments, the questionnaire was modified.

3.5.4 Administration of questionnaire survey

The questionnaire was administrated electronically using an online survey tool known as “Google Forms”. This survey instrument is web-based, developed by Google and widely accepted, particularly for academic surveys. An online questionnaire has numerous benefits over the physical distribution of a questionnaire to the targeted participants, as the following describes:

- i. Online survey reduces time and costs of questionnaire administration as the researcher tends to avoid the hassles of personal visits to the respondents’ locations.
- ii. It is also beneficial in terms of ease of reaching out to the participants who are usually far difficult to reach either physically or by telephone as respondents are often extremely busy with their daily schedules.
- iii. Online administration of questionnaires reduces the turnaround time due to the speed of dispatch and ease of completion of the questionnaire on the part of the interested participants.

The online questionnaire was used for this study to ensure a high response rate, and a plan was implemented to reach out to the target audience at the beginning of the survey. In the beginning, a firm list in the sectors listed DSE was developed including personal contact of companies’ secretaries made with the DSE. This company detail has been verified based on the database maintained on the DSE website in December 2021. While producing the contacts of the listed firms’ CAEs and AC members, the companies’ annual reports, DSE database, and IIA information were used. It needs to be mentioned that all financial and non-financial companies’ CAEs are required mandatorily to join the IIA in Bangladesh to enhance their internal audit competence. Following the list of the firms and CAEs contact details, the questionnaire was distributed among the target participants.

The questionnaire was sent to the target groups in February 2021 after several amendments were made based on the pilot study feedback. In the questionnaire package, a cover letter and two supporting letters were included to clarify the objectives of the survey questionnaire. The cover letter, addressed to the IAF, concerns personnel, such as the CAEs, CFOs, and AC members, based on the stock market-listed companies' address and in some cases telephone interviews. This questionnaire cover letter confirmed anonymity and the importance of the survey for the research. The Ph.D. supervisor letter also delineated the purpose and importance of the survey for the research. The third letter was issued by IIA Bangladesh, which requested all IIA members to participate in this survey and stated the genuineness of the study. The questionnaire was sent to a total of 197 non-financial companies listed on the Dhaka Stock Exchange (DSE). All financial companies were excluded from the target sample as they were strictly monitored by the central bank. Also, non-listed companies were not included in the target sample as they are not obligated to publish their annual reports at regular intervals.

3.5.5 Questionnaire survey responses

The survey questionnaire's target population are Dhaka Stock Exchange (DSE) listed non-financial firms. A total of 223 companies are reflected from the different industry sectors such as cement, ceramics, engineering, food and allied, fuel and power, IT, jute, paper and printing, pharmaceuticals and chemicals, service and real estate, tannery, telecommunication, textile, and travel and leisure industry, as shown in Table 3.3. Of the 223 non-financial firms, 26 are eliminated because of the small number of firms (less than five observations) in the specific industry, which is vital to ensure unbiased estimation of the accrual quality (Abbott et al., 2016; Gros et al., 2017; Johl et al., 2013). The industries excluded from the sample are jute, paper and printing, service and real estate, tannery, telecommunication, and travel and leisure, as shown in Table 3.3. Also, Cement and Ceramics industries are accumulated due to the lower number of firms in each industry to fulfil abnormal accruals measurement criteria. This is because both industries are pretty similar in terms of their business and product patterns to facilitate customers' needs. As such, the ultimate target population for the survey questionnaire was 197 companies. The questionnaire was distributed to these firms in February 2021.

More specifically, the questionnaire was emailed to the CAEs, CFOs, and AC members of the target companies. After the initial email, we received a total of 48 usable responses. To ensure a high volume of responses from the participants, we sent two reminders every two weeks after the initial and subsequent follow-up email. After the fourth week (March 2021), we made a telephone call to all non-responding recipient firms to encourage them to participate in the survey. From this we obtained an additional 37 answers, thereby giving a total of 85 responses from different companies (a company-specific response rate of 43%). Individual sample-group responses rates are as follows: company secretaries (48%), AC members, head of internal auditors and CFOs (40%), and other management members (47%), as shown in Table 3.2. The company secretary sample-group responses rate is relatively high because most of the companies' secretaries are members of the internal audit group. Thus, the respondents commonly considered them as our target participants. A possible justification for the comparatively lower response rate category (head of internal auditors) is that the company secretary is usually responsible for handling public relations and maintaining outside queries. Therefore, in most cases, our questionnaire has been received by the company secretaries and participants themselves. It is necessary to mention that the company secretary is an important member of the internal audit and AC in Bangladesh.

Table 3. 2 Analysis of the questionnaire survey responses rate

<i>Description</i>	Total e-mailed	Received within 2 nd week	Received between 3 rd -4 th weeks	Received between 4 th -8 th weeks	Total Received Responses	% Of Response Rate	Total Usable Responses
AC members	52	9	7	5	21	40	20
Company secretaries	54	11	9	6	26	48	25
Head of internal auditors	47	9	6	4	19	40	19
Chief financial officers	25	5	2	3	10	40	10
Other management members	19	4	3	2	9	47	9
Total	197	38	27	20	85	43	83

Overall, a total of eighty-five (85) responses were obtained at the end of two months survey, representing a 43% response rate. From the total of 85 responses, two responses were eliminated due to incompleteness and double submission by the same participant, bringing our total to 83. We calculate IAFQ quartiles using 80 survey responses because three more responses were eliminated as the

respondent company's financial statements did not match the ABNACC (DataStream missing data of the respondent firms). This reduced the pooled sample size to 80. Our response rate of 43% compares favourably with similar and related studies such as Abbott et al. (2016)-20.7%; Lenz et al. (2014)-34.3%; Adel and Maissa (2013)-66.7%; Zaman and Sarens (2013)-27.8%; Gras-Gil et al. (2012)-65.3%; Sarens et al. (2012)-28.8%; and Gros et al. (2017)-9.67%.

Several reasons were identified regarding the lack of response from non-respondent firms for not participating in the survey: i) participants fear disclosing information because they think it may threaten the confidentiality of the company and IAF; ii) lack of time to participate in the survey questionnaire with a busy schedule; iii) higher authority restriction to release information relevant to IAF quality, and iv) due to the rotation of IAF staff-in-charge, new staff claimed that they do not have sufficient knowledge about IAF quality.

3.5.6 Investigating non-response bias

The likely occurrence of non-response bias is when the responders' proportion is significantly different from the non-responders of the sample in a survey questionnaire. Literature recognised that mail questionnaire responses are generally poor and that it is common to see a low response percentage. Thus, diagnoses require ensuring the reliability of the data and identifying whether non-response bias exists (Bartlett and Chandler, 1997), as quoted (Mohiuddin, 2013).

To test for the possibility of nonresponse bias, researchers commonly use two techniques such as checking the significance between responding and non-responding firms and comparing early and late responses. The first test conducted on the questionnaire survey checked whether the respondents' firms substantially differ from the non-respondents' firms (Armstrong & Overton, 1977) in terms of the abnormal accruals, size of the firms, cash flow from the operation, return on assets, leverage, sales growth (Goodwin-Stewart & Kent, 2006). On the other hand, the second technique diagnoses the non-response bias by comparing questionnaire responses of early and late responders (Oppenheim, 2000; Wallace & Mellor, 1988). The logic behind this is that 'late' responses were reasonable 'surrogates' for non-responders (Wallace & Mellor, 1988). Hence, the first ten questionnaires were chosen and grouped into 'early' and the last ten questionnaire grouped into 'late' in this study. Both responses

were then compared with each other and tested for the significant difference in ABNACC, size, cash flow from the operation, return on assets, leverage, and sales growth.

Following the first technique, the respondents' firms were compared to the industry makeup of the total population of nonbank listed firms, as shown in Table 3.3. The results show that the distribution of the sample is largely comparable. For example, the highest proportion of survey responses (nearly 28%) was obtained from the engineering sector, while the greater number of firms (about 26%) belong to the textile sector, which has a response rate of approximately 13%. Most of the firms in the target population and survey responses were from four sectors comprising engineering, fuel and power, pharmaceuticals and chemicals, food and allied, and textiles.

Table 3. 3 Sample selection results

<i>Industry</i>	No. of Respondents Firms	% Respondents Firms	Sample Population	% Sample Population	No. of DSE Non-financial Firms	% of DSE Non-financial Firms	% of Sample Industry
Cement & Ceramics	9	6	12	6	12	3.1	75
Engineering	23	27.7	42	21.3	42	18.9	54.8
Food & allied	11	13.3	20	10	20	9	55
Fuel & power	10	12	23	12	23	10.3	43.5
IT sector	6	7.2	11	5.6	11	5	54.5
Jute	0	0	0	0	3	1.3	0
Paper & printing	0	0	0	0	6	2.6	0
Pharmaceuticals & chemicals	13	15.7	31	15.7	31	14	41.9
Service & real estate	0	0	0	0	4	1.8	0
Tannery industries	0	0	0	0	6	2.7	0
Telecommunication	0	0	0	0	3	1.3	0
Textile	11	13.3	58	29.4	58	26	19.0
Travel & leisure	0	0	0	0	4	1.7	0
Total	83	100	197	100	223	100	

* Financial firms are excluded from the population as these firms face additional regulation unique to their industry.

The T-test results ($P > .05$) show there is no significant difference between the responding and non-responding firms concerning ABNACC, SIZE, CFO, ROA, LEVERAGE, and SALESGROW, as shown in Table 3.4. Therefore, it can be mentioned confidently that the study does not face a non-response bias with respect to dependent and independent variables.

Table 3. 4 T-test of differences between responding and non-responding firms

Variable	Regression sample of contacted firms		Respondents' firms		Non-respondents' firms		Test of differences	
	N	Mean	N	Mean	N	Mean	Difference	P Value
ABNACC	157	-0.0024	80	0.0170	77	-0.0209	0.0379	0.2019
SIZE	157	13400000000	80	16559952670	77	9269257599	7290695072	0.1029
CFO	157	841000000	80	755664445.5	77	891403379.5	-135738933.9	0.8917
ROA	157	0.0180	80	0.0179	77	0.0102	0.0076	0.7230
LEVERAGE	157	0.5138	80	0.5107	77	0.2454	0.2653	2.3247
SALESGROW	157	-0.1533	80	-0.1372	77	102.3322	102.1950	0.1664

Statistical significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

To test a potential non-response bias, the early and late responses were compared with each other and tested for significant differences between the two groups in their key constructs ABNACC, SIZE, CFO, ROA, LEVERAGE, SALESGROW, as shown in Table 3.5. The T-test results ($P > .05$) show none of them are significant except for the firm size, which was found significantly different between early and late respondents. Thus, it can be concluded that the data do not suffer from a non-response bias.

Table 3. 5 Comparison between ten early and late respondents' firms

Variable	Early respondents' firms		Late respondents' firms		Test of differences	
	N	Mean	N	Mean	Difference	P Value
ABNACC	10	0.0101	10	0.0352	-0.0251	0.0606
SIZE	10	16861261400	10	7935342989	8925918411	0.0459*
CFO	10	1234909067	10	610564317.9	624344748.8	0.0691
ROA	10	0.0143	10	0.0196	-0.0053	0.7897
LEVERAGE	10	0.4585	10	0.6202	-0.1617	0.6342
SALESGROW	10	-0.2556	10	-0.3116	0.0561	0.5760

Statistical significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

3.6 Validity

The validity of a research instrument is a key feature that a researcher adopts to measure it. Cooper and Schindler (2008) noted that validating a research instrument's crucial part is the definition of the construct of interest, and at this stage, the researcher needs to ensure the clarity and precision of the research instrument. There are two types of validity of measurements with which most researchers are concerned, they are: content validity and construct validity (Cooper & Schindler, 2008).

3.6.1 Content validity

Content validity of an instrument refers to the degree of coverage of the topic under investigation. To evaluate the content validity of an instrument, researchers first need to determine what sort of elements constitutes adequate coverage of the issue (Cooper & Schindler, 2008). In this study, the content validity was performed through the pilot study explained in the earlier section. To this extent, several modifications were incorporated based on the feedback of the pilot survey respondents in terms of questionnaire development and whether questions covered all the necessary aspects identified in the literature. Also, pilot study responses were utilised to confirm the expected time limitation within which the questionnaire should be completed.

3.6.2 Construct validity

Construct validity deals with the degree of the scale that represents the concept being measured (Saunders et al., 2009). This validation is difficult to establish; researchers still want to ensure that their measurement techniques have a satisfactory degree of validity. The study used clear and direct questions in the questionnaire reflected through a pilot test, which indicates the construct is acceptably valid. Moreover, the use of a five-point Likert scale in the questionnaire also contributes to the construct validity.

3.6.3 Reliability

Reliability measurement of the data is important before performing a statistical analysis. Sekaran and Bougie (2003) state that data reliability involves the accuracy and precision of a measurement procedure. Validity and reliability can be differentiated based on the concept, i.e., validity shows the agreement between two different attempts to measure the same construct through the diverse methods, while reliability represents the agreement using similar methods (Cooper & Schindler, 2008). Likewise, Oppenheim (2000) describes reliability as ‘consistency’ between methods. Thus, reliability refers to an instrument or technique that generates the same results whenever it is used.

3.6.3.1 Test of reliability

There are three tests of reliability estimation methods, such as the test-retest, the parallel-forms, and the split-half (Frankfort-Nachmias & Nachmias, 1996; Hussey & Hussey, 1997; Saunders et al., 2009).

The test-retest method employs the control of an instrument on the same sample at two separate times to compute a correlation on the set of scores. In this method, the error is defined as anything that leads a person to find different scores from two different measurements (Oppenheim, 2000). However, in the *parallel-forms* method, the researcher constructs two parallel sets of a measuring instrument administered to the same group of people, and both results must be correlated to establish an estimate of reliability. *The split-half method* estimates reliability by considering each of two or more parts of a measuring instrument on a separate scale and scoring them accordingly, in which both results should be correlated (Frankfort-Nachmias & Nachmias, 1996). *The coefficient alpha method* shows a summary result of the inter-correlations that contain a set of items. Coakes and Steed (2009) claimed that the alpha coefficient is a reliability test commonly considered by researchers to check internal consistency. The coefficient alpha should be regularly estimated to assess the quality of measures. If the alpha is lower than the acceptable level, some items do not share equally in the common core and should be eliminated (Churchill & Iacobucci, 2006). The range of alpha coefficient is from 0 to 1, and the usual practice value is 0.60 as the minimum acceptable level of Cronbach's alpha. Smith (2003) argued that a reliability coefficient value above 0.60 is acceptable. The alpha value is computed based on the average correlation of items within the test.

The current study establishes the reliability of the items of questionnaire statements focusing on internal consistency. I followed the coefficient alpha method among the other three reliability test methods to check the reliability of the survey questionnaire. The reliability test was performed on all Likert score relevant questions, such as IAF quality independence and work performance. The test result is shown in the following table.

The alpha coefficients in both IAF quality (independence and work performance) cases are higher than 0.6, as shown in table 3.3. These scales reveal that the questionnaire survey data maintain internal inconsistency and are reliable for analysis.

Table 3. 6 The reliability analysis scale

<i>IAF qualities</i>	Coefficient alpha value					Weighted average
	AC members	Company secretaries	Head of internal auditors	Chief financial officers	Other management members	
Independence	0.612	0.721	0.752	0.674	0.725	0.6968
Work performance	0.595	0.612	0.635	0.645	0.621	0.6216

3.7 Archival data selection

The target sample of this study consists of non-financial firms listed on DSE in Bangladesh for the fiscal year 2018 to 2020. The target sample was filtered based on the existence of an internal audit department, an audit committee, and the availability of annual reports for the fiscal year 2020. From the 223 non-financial listed firms, we found financial statement information for 157 companies from online database sources such as companies' annual reports, Thomson Reuters DataStream, and the DSE official website to estimate our dependent variable (ABNACC) and continuous variables, while the remaining firms' financial data are not available for the financial year 2020. As our survey requested information to be provided based on the fiscal year 2020, all the accounting-based data collected relate to the fiscal year 2020.

Table 3. 7 Industry distribution and firms selected for FRQ in the financial year 2018 to 2020

<i>Industry</i>	No. of DSE listed firms	%	Firms selected for FRQ	%
Cement	7	3.1	6	3.1
Ceramics	5	2.2	5	2.2
Engineering	42	18.9	36	18.9
Food & allied	20	9	16	9
Fuel & power	23	10.3	17	10.3
IT sector	11	5	10	5
Jute	3	1.3	0	1.3
Paper & printing	6	2.6	0	2.6
Pharmaceuticals & chemicals	31	14	27	14
Service & real estate	4	1.8	0	1.8
Tannery industries	6	2.7	0	2.7
Telecommunication	3	1.3	0	1.3
Textile	58	26	40	26
Travel & leisure	4	1.7	0	1.7
Total	223	100	157	100

It needs to be mentioned that the archival data collection process was quite challenging due to companies' financial data unavailability and inaccessibility. We were experiencing difficulties, particularly in extracting companies' financial data from online sources (e.g., Thomson Reuters

DataStream, CompStat, and Bloomberg). As with other third-world countries, most of the Bangladeshi companies' financial statement data are not either unavailable or not easily accessible on online platforms. As the firms are not strictly regulated to follow the financial data-sharing system in these countries, companies are often reluctant to share financial data to avoid unexpected potential manipulations. Therefore, we mostly manually extracted financial statement data from companies annual reports.

We estimate the ABNACC of the modified Jones model using 157 non-financial companies from eight distinctive industries. As mentioned earlier, our target sample consisted of 223 non-financial listed companies listed on the DSE, and we excluded all financial institutions (376) due to their strict monitoring by the central bank. Of the 223 non-financial firms, 66 were eliminated because of the small number of firms in the industry and unavailable financial data in 2020, as shown in 3.7. According to the earlier literature in this area (Abbott et al., 2016; Gros et al., 2017; Johl et al., 2013), to ensure an unbiased estimation of accrual quality, six industries were excluded with less than five observations in a total of 26 firms. The industries excluded from the sample are jute, paper and printing, service and real estate, tannery, telecommunication, and travel and leisure, as shown in Table 3.7.

3.8 Conclusion

This chapter has explained the research approaches adopted in this study to attain its objectives. It demonstrates the several types of research approaches and determines one for the current research investigation. It also described detailed procedures that were followed to design and prepare the closed-ended questionnaire. The chapter also reported the methods adopted to conduct the pilot study and the advantages obtained through the piloting of the questionnaire. Moreover, it illustrates the overall structure and development steps of the survey questionnaire. It also provides information about the questionnaire responses received from participants over the conducting period and the techniques utilised to confirm the validity and reliability. The later part of the chapter elucidates the secondary data collection process and finalises the sample selection process for the estimation of ABNACC. In brief, the chapter shows an elaborate scenario of the research methodology aspects of the study and describes how the issues are addressed.

CHAPTER FOUR

EMPIRICAL PAPER ONE

The relative importance of the internal audit function quality attributes for financial reporting quality: Evidence from a developing economy

Abstract

Purpose – This paper aims to explore the association between internal audit function (IAF) quality and financial reporting quality (FRQ) and the individual and joint effects of IAF quality attributes (e.g., IAF competence, independence, and work performance) on FRQ.

Design/methodology/approach – This study uses a unique dataset of the survey questionnaire and archival data. The survey responses are utilised to measure IAF quality, and the archival data are used to estimate abnormal accruals (a proxy for FRQ).

Findings – The findings show that IAF quality is negatively (positively) related to abnormal accruals (FRQ) and that IAF competence, independence, and work performance are negatively (positively) and significantly associated with abnormal accruals (FRQ). Concerning the joint effects of the IAF quality attributes on FRQ, we observe that IAF competence, independence, and work performance are jointly significant, and their combined presence strengthens each other relationship with abnormal accruals (FRQ). The results remain their robustness when alternate measures are applied. Our results advocate the agency theory by focusing on the interaction between the IAF quality and FRQ to ensure principals' rights.

Originality/value – The findings of this study contribute to the existing internal audit literature by extending the understanding and presenting new insights of IAF quality attributes' relative importance in preparing high-quality financial reporting. It also offers decisive implications for firms and practitioners in developing IAF and its quality determinants in decision-making to enhance FRQ.

Keywords: Internal audit function, internal audit function quality attributes, financial reporting quality, corporate governance

Paper type Research paper

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4.1 Introduction

The internal audit function (IAF) is considered to be an essential element of corporate governance (CG) mechanisms since the aftermath of the corporate scandals and the global financial crisis. In the US, regulatory agencies (e.g., the NYSE and NASDAQ) have mandated that listed firms formalize their IAF since 2004 (Security and Exchange Commission (SEC), 2013). In other countries, regulatory bodies have also required the mandatory establishment of the IAF in the listed companies to improve governance monitoring efficiency. The rationale behind the IAF is that it provides critical relevant information regarding the audit committee, financial reporting, risk management, and internal controls (Harrington, 2004). The effectiveness of IAFs is important to enhance financial reporting quality (FRQ) (Collier & Ampomah, 2009; Phornlaphatrachakorn, 2020). According to Arens and Loebbecke (1997), an effective IAF results in producing high-quality financial reporting. Thus, the IAF's effectiveness plays a significant role in preparing fair financial reporting.

Earlier studies also support the assertion that IAF effectiveness is significantly associated with FRQ (Gros et al., 2017; Prawitt et al., 2009), establishing that the intuitive appeal of IAF plays a decisive role in developing high-quality financial reporting by assisting the management and improving the internal controls (Jiang et al., 2018). While these studies are based on the developed economic context; therefore, their findings are not generalizable to the developing economic setting due to their questionable governance mechanisms system. Moreover, prior studies' primarily focus on the relationship between IAF quality and FRQ. However, the IAF quality attributes of individual or joint effects on FRQ are not sufficiently unexplored. Whereas the IAF's effectiveness depends on its quality determinants, which ascertain the external audit standards for external auditor evaluation of an internal auditor's performance. Professional agencies (e.g., AICPA, 1991; IIA, 2012) stipulate that IAF quality attributes comprise internal auditor competence, work performance, and objectivity. Likewise, IAF quality attributes, such as competence, objectivity, independence, and proficiency, are considered indicators of IAF quality (Abbott et al., 2016; Chang et al., 2019; Krishnamoorthy, 2002; Lin et al., 2011; Prawitt et al., 2009; Suwaidan & Qasim, 2010), and it is suggested that FRQ is significantly related to IAF quality attributes. It acts as a function that improves the ability of IAF and prevents

financial misstatements. IAF plays an incremental role in monitoring management’s performance as a third party and serves to detect and deter material misstatements, thereby improving earnings management in the company (Prawitt et al., 2009). The auditing standards recognize the importance and relevance of the IAF and consider it as a crucial mechanism for the internal monitoring and financial reporting process (AICPA, 1997). Similarly, the audit risk model suggests that effective IAF can reduce control risk (AICPA, 1997). Pickett (2011) IAF can be effective if it can realize its role in improving the quality of financial reporting by improving the governance, risk management, and internal control in the process of preparing the financial statements. However, in a recent study, Christopher (2019) notes that the internal audit ineffectiveness is the cause of weak functional and structural arrangements of the IAF that leads to a role-playing gap and questionable quality arises from the ambiguity of the contradictory role of IAF, internal auditors’ questionable position in the organisation, and the method of IA practice by the internal auditors. Previous studies focus primarily on a single composite score of IAF quality instated of individual measurements of IAF quality characteristics and their significance for FRQ. However, the degree of importance of the IAF quality determinants from the entity perspective is still confusing (Kotb et al., 2020). Professional standards also do not recognize the relative significance of IAF quality attributes for internal auditors to enhance their performance (Kotb et al., 2020; Reckers & Lee, 1997). Therefore, this knowledge gap requires further investigation to minimize its ambiguity.

Table 4. 1 Geographic comparison of the IAF Quality literature

Study	Focus	Objective	Scope
Abbott et al. (2016)	Role of the IAF competence and independence in FRQ	To examine whether IAF competence and independence have the ability to improve FRQ	US
Gros et al. (2017)	Relationship between IAF and FRQ	To explore the effects of IAF quality on FRQ and audit efficiency	German
Johl et al. (2013)	Impact of IAF on FRQ	To determine the relationship between IAF quality and FRQ.	Malaysia
Prawitt et al. (2009)	IAF quality effects on earnings management	To investigate the relationship between IAF quality and FRQ.	US

Prior studies address the association between IAF quality and FRQ (Davidson et al., 2005; Gros et al., 2017; Johl et al., 2013; Prawitt et al., 2009) by utilizing different IAF quality determinants, such as competence, independence, objectivity, proficiency, and work performance, in distinctive country settings. However, most of the studies focus on US and European country settings, and little is highlighted on the emerging and developing perspectives (Kotb et al., 2020), as shown in Table 4.1. Moreover, despite the instinctive appeal of IAF quality positively affecting FRQ, earlier studies' findings are not consistent as the intuition would suggest, such as Prawitt et al. (2009) and Gros et al. (2017) find a significant relationship between IAF quality and FRQ; whereas other studies' Davidson et al. (2005) and Johl et al. (2013) finds no significant association of them. Therefore, we develop IAF quality using a unique construction to investigate the association between IAF quality and FRQ from the developing country's perspective to generalize the findings in developing country economic settings. Moreover, due to the globalization of internal auditing standards, it is important to understand *how* effectively IAF performs under different jurisdictions.

The current study uses IAF quality attributes (e.g., competence, independence, and work performance) to investigate the association between IAF quality attributes and FRQ and their relative importance in the context of Bangladesh. The Bangladeshi economy is one of the top ten fastest-growing economies in the world. As the International Monetary Fund (IMF), in its World Economic Outlook, 2018, has positioned Bangladesh as the 44th largest economy in the world in terms of nominal GDP in 2017 and 32nd in terms of purchasing power parity (PPP). From the strategic location point of view, it can be a potential economic corridor and act as a hub between India, China, and Southeast Asia. This signifies a possible rise in trade, transport, and tourism in the context of the Chines Belt and Road Initiative. Moreover, Bangladesh has become an attractive investment place for international investors as reflected in World Investment Report 2017 and has ranked Bangladesh 16th among 74 FDI-recipient countries with a record US\$ 2.65 billion FDI inflow in 2019. These progress in different economic parameters have raised the importance of IAF quality to enhance FRQ for boosting investors' confidence. Therefore, this study investigates IAF quality attributes in preparing high-quality FRQ from the context of Bangladesh. Of course, the IAF in Bangladesh is significantly different from the US and European settings in terms of policy implications and maturity, as it has been treated

as a mandatory part of CG. The code of CG in Bangladesh has required the mandatory establishment of the IAF in all listed companies since 2004 (BSEC, 2004); however, little investigation has focused on the role of the IAF quality on companies' FRQ from the Bangladeshi context. Thus, the current study examines the effects of the IAF quality on FRQ and the relative importance of the IAF quality attributes (competence, independence, and work performance) for FRQ. Specifically, we intend to examine whether IAF quality factors are equally important to prepare better financial reporting or emphasizing an individual IAF quality attribute FRQ can be enhanced. Therefore, we develop two research questions to address these issues, which are as follows:

RQ1. Is IAF quality play a significant role in producing a better financial report in a developing country context?

RQ2. Does IAF quality attributes are equally important to enhance FRQ?

The agency theory postulates that the company consists of a nexus of agreements between the financial investors (principals) and managers (agents) who are entitled to supervise and control those resources (Jensen & Meckling, 1976). Like an earlier auditing study (Joksimovic & Ahmed, 2017), this study is grounded based upon the agency theory concept to investigate this issue (i.e., the relative importance of IAF quality determinants in developing high-quality financial reporting processes) as it is related to decreasing agency cost (Gramling et al., 2004; Institute of Internal Auditors [IIA], 1999). This theory views the IAF as an essential monitoring mechanism within the CG mosaic that aims to mitigate information asymmetry problems between the principle and the agents (Fadzil et al., 2005; Goodwin-Stewart & Kent, 2006; Sarens & Abdolmohammadi, 2011). This theory also suggests that the internal auditors' quality improvement may develop the IAF's ability results to improve the FRQ.

In this study, we examine two different relationship aspects of IAF quality attributes and FRQ. First, we investigate whether IAF quality (a composite score of IAF quality attributes) is negatively (positively) associated with abnormal accruals (FRQ), abnormal accruals being considered as the proxy for FRQ. Second, we also investigate whether IAF quality components individually and jointly influence FRQ and the relative importance of IAF components for FRQ. We perform our analysis using an exclusive data set of 157 non-financial firms listed on the Dhaka Stock Exchange (DSE) in Bangladesh. Our data are obtained from two sources (i.e., a questionnaire survey and archival data).

The questionnaire survey, conducted with all listed non-financial firms in the DSE, receives a total of 80 useable responses from the heads of the internal auditors, chief financial officers (CFOs), and audit committee (AC) members. The archival data are collected from secondary sources (e.g., annual reports, DataStream, and the DSE website) for the fiscal year 2020. To measure FRQ, we utilise the modified Jones model (Dechow et al., 1996) to measure abnormal accruals, as described by Kothari et al. (2005). Our results show that IAF quality is negatively (positively) and significantly associated with abnormal accruals (FRQ) (Abbott et al., 2016; Gros et al., 2017; Prawitt et al., 2009). Concerning the IAF individual components, our results reveal that IAF competence, independence, and work performance are statistically significant and negatively (positively) associated with abnormal accruals (FRQ). Our results also show that the interaction between IAF quality attributes improves overall IAF quality and enhance FRQ. In other words, IAF competence, independence, and work performance combined presence reinforces each other and enhance FRQ. These findings are consistent with earlier literature (Abbott et al., 2016).

Our study makes several contributions to the relevant IAF literature. First, unlike earlier studies (Abbott et al., 2016; Gros et al., 2017), this study examines the effects of IAF quality (composite measures) on FRQ and separately explores the relative importance of each IAF quality attribute's influence on FRQ. We also adopt distinct measurement techniques to compute IAF quality and IAF individual components of the IAF. As such, our study establishes that IAF quality significantly and positively affects FRQ with a well-defined measurement method for IAF quality and its quality attributes. In contrast, earlier IAF literature generally focuses on the relationship between IAF and FRQ and implicitly overlooks IAF quality components' relative importance for FRQ (e.g., Gros et al., 2017). Second, we address the IAF quality attributes comparative importance and whether IAF quality attributes are equally important in producing high-quality financial reporting. The findings reveal that IAF quality attributes are individually and jointly significant for FRQ and strengthen each other relationship with FRQ, which is a crucial outcome of this study that adds value to the existing literature and IAF practitioners. Third, prior literature investigates the relationship between IAF quality and FRQ from the well-developed economy and CG mechanisms perspective, while our study considered a developing economy and weak CG regulatory context to examine whether IAF plays a significant role in

preparing external financial reporting. Our results support earlier studies' findings that IAF quality is positively and significantly associated with FRQ. Fourth, the prior literature generally uses dichotomous variables concerning IAF independence and work performance; however, our study uses a Likert scale approach for both variables to obtain internal auditor perceptions and obtain an accurate measurement. Fifth, our study is the first to offer direct empirical support for the role of IAF quality in the developing country context, especially findings that components of IAF play a role in deterring earnings management.

The rest of the study is structured as follows. First, we present background information and review the relevant literature. Second, we developed three hypotheses for the study and described the sample and model. Next, the results of the data are discussed. Finally, we develop the conclusion and discuss the limitations and opportunities for future investigation.

4.2 Literature review and hypothesis development

4.2.1 Earlier studies on IAF quality and FRQ

FRQ is influenced by several organisational CG and governance monitoring mechanisms related factors; however, much research primarily focuses on the impact of CG performance, internal control system, board performance, and audit committee on FRQ (Ashbaugh-Skaife., 2008; Beasley et al., 2000; Cohen et al., 2004; Doyle et al., 2007; Klein, 2002). While the IAF is one of the four cornerstones of the effective CG and FRQ (Christ et al., 2015; Gramling et al., 2004; Institute of Internal Auditors [IIA], 2002; Prawitt et al., 2009). A little academic research witnessed that the IAF quality plays a significant role in developing better financial reporting. Previous IAF-related research emphasises the importance of IAF effectiveness for enhancing internal control quality (Lin et al., 2011), reducing fraud (Ege, 2015), audit and external audits (Abbott et al., 2012; Felix et al., 2001; Prawitt et al., 2011), IAF quality assist to shorting external audit delay (Pizzini et al., 2015). Relatively lower investigation evidence on the role of IAF quality on FRQ (Davidson et al., 2005; Gros et al., 2017; Johl et al., 2013; Prawitt et al., 2009). This stream of research commonly highlights the external auditors' reliance on the IAF for support in preparing high-quality financial reporting (Abbott et al., 2012; Kotb et al., 2020; Messier et al., 2011; Prawitt et al., 2009; Roussy & Perron, 2018). Moreover, these

studies predominantly focus on the two most prominent IAF quality attributes (e.g., competence and independence) and empirically analyse their importance in upsurging the quality of financial reporting processes in different country settings.

Internal auditor competence represents the ability to perform auditing tasks carefully by following professional bodies (International Auditing and Assurance Standards Board [IAASB]). The Institute of Internal Auditors (IIA) delineates competence as “*the ability of an individual to perform a job or task properly, being a set of defined knowledge, skills, and behaviour*” (IIA, 2013). Internal auditor competence includes educational qualification, job experience, and training (Mazza & Azzali, 2015; Prawitt et al., 2009; Wan-Hussin et al., 2021). While the IAF independence has a close relationship with objectivity, the Glossary demonstration of IIA Standards distinguishes these concepts. In an IAF setting, independence is described as “the freedom from conditions that threaten the ability of the internal audit activity to carry out internal audit responsibilities in an unbiased manner” (Council, 2013), which involves a degree of freedom to perform and access other sections of the organisation. Meanwhile, auditing standard SAS 65 (AICPA, 1991) describes the internal auditor work performance as the scope and nature of the IA jobs performed. Prior studies observe that internal auditor work performance is crucial for IAF quality (e.g., Brown & Karan, 1986; Margheim, 1986; Schneider, 1985b). External auditor reliance depends on IAF work performance like other IAF quality factors² (Dezort et al., 2001; Gramling, 1999). Internal auditor work performance includes, for example, the scope of work performance, the evaluation process of internal auditor work performance, and the adequacy of the audit plan (AICPA, 1991).

The significance of the IAF is revealed in several prior studies, such as for improving the quality of internal control for financial reporting (Jiang et al., 2018; Lin et al., 2011), reducing earnings management (Prawitt et al., 2009; Schneider & Wilner, 1990), and preventing fraud (Ege, 2015). However, an ineffective IAF may disrupt an environment of internal control, which is a cause of irregularities in financial reporting (Brody et al., 1998). Schipper & Vincent (2003) state that poor earnings information leads to unintended wealth transfer. Despite the importance of the IAF for FRQ,

² Dezort et al. (2001) recommend that external auditors’ reliance on IAF depends on the external auditors’ evaluation of three IA quality determinants (e.g., competence, objectivity, and work performance).

little attention to the association between IAF and FRQ can be observed in the academic literature worldwide. The existing literature primarily focuses on well-developed capital markets and little known about developing countries (Kotb et al., 2020), as shown in Table 1. The findings of the existing literature are marginally based on the developing country settings and do not reflect developing nations' IAF scenarios. Hence, the current study attempts to minimize the research gaps by examining the relationship between IAF quality and FRQ in a developing country setting, specifically Bangladesh. Moreover, the prior research does not sufficiently address and provides little evidence regarding the extent to which IAF quality attributes individually and jointly related to FRQ, creating a need for further investigation.

4.2.2 Hypothesis Development

4.2.2.1 *Relationship between IAF Quality and FRQ*

The current study investigates IAF quality attributes and their likely impact on FRQ. We expect that IAF quality deters earnings management and improves FRQ. To understand the relationship between IAF quality and FRQ, we consider the agency theory assumption that denotes principals (shareholders) do not trust agents (managers) to deliver reliable and relevant information; thus, that leads to information asymmetry and adverse selection (Adams, 1994). Internal auditors play a crucial role to minimize information asymmetry (Adams, 1994; DeFond, 1992) and preventing and detecting fraud in the preparation of high-quality financial reporting (Church et al., 2001; Coram et al., 2008). Several prior IAF-related studies highlight the effectiveness of IAF to improve risk assessments (Asare et al., 2012; Sarens & De Beelde, 2006), securing assets (Beasley et al., 2015; Coram et al., 2008), reducing management misconduct (Ege, 2015), internal control system (Chang et al., 2019; Lin et al., 2011), audit quality (Prawitt et al., 2012), and audit efficiency (Felix et al., 2001). While the limited literature observes the relationship between IAF quality on FRQ (Davidson et al., 2005; Gros et al., 2017; Johl et al., 2013; Prawitt et al., 2009). Abbott et al. (2016) investigate the combined effects of IAF quality (competence and independence) on FRQ using a survey and archival data. The study reveals that both these IAF qualities (competence and independence) are necessary for FRQ; however, they overlook exploring IAF work performance and its relationship with FRQ, while IAF work performance is one

of the important quality attributes of IAF (AICPA, 1991). Moreover, their result is may not generalizable because the survey data is from an economic recession period (2009). Adopting a survey approach to German companies, Gros et al. (2017) examine the role of IAF quality in FRQ in a German setting characterized by a two-tier CG system, constructed an IAF quality score containing six IAF quality components, specifically IAF financial resources, employees' experience, certification, training, IAF independence, and IAF certification. They reveal that IAF quality assists in reducing earnings management and ensures FRQ. However, their results are not widely generalizable due to the small sample size (5%) and overlook the IA work performance in measuring their IAF quality score. Phornlaphatrachakorn (2020) notes that IAF is positively related to FRQ and organisational success. He mainly focuses on the overall IAF effectiveness and ignores IA quality attributes to compute IAF effectiveness. In another study, Prawitt et al. (2009) is the first archival study to examine the relationship between IAF quality attributes and FRQ using the IIA GAIN database. They compute a composite score of IAF quality determinants of US firms by following external auditing paradigms related to competence and objectivity. To measure IAF competence, they consider firm-specific factors (e.g., internal auditor professional certification, training, and work experience). The study finds a positive relationship between IAF quality and FRQ measured using discretionary accruals.

However, a few contrary results can be observed. For example, Davidson et al. (2005) explore the impact of the voluntary practice of an IAF on FRQ using a sample of Australian companies. They note a negative relationship between the existence (versus absence) of an IAF and earnings management. Moreover, García et al. (2012) report a negative relationship between an IAF and earnings management in a Spanish context. The two study outcomes are consistent; however, they primarily emphasize the formation and presence of an IAF but overlook its design or qualities of IAF. Johl et al. (2013) perform a study using a dataset from the Malaysian context to determine whether IAF attributes have an impact on FRQ. The results reveal that no significant association exist between IAF and FRQ; however, the study finds that some IAF quality attributes are significantly and positively associated with FRQ. While the literature is almost silent in the developing county context, specifically Bangladesh. Moreover, it is not generalizable to apply earlier literature findings due to the different

corporate environments. Therefore, this study examines the effects of IAF quality on FRQ using a unique approach from the Bangladeshi perspective.

Nevertheless, despite several negative findings between IAF quality and FRQ, we still believe that IAF quality attributes improve the performance of internal auditors', which assists in reducing financial reporting errors and enhancing FRQ. Hence, we expect that IAF quality is crucial to decreasing earnings management and ensuring high-quality financial reporting, which leads to our first hypothesis as follows:

H1. IAF quality is significant and positively related to FRQ.

4.2.2.2 The relative importance of the IAF quality attributes for FRQ

Concerning the relative significance of IAF quality attributes in preparing high-quality financial reporting, it is crucial to understand whether there is a cumulative beneficial effect of IAF quality components on FRQ. We explore the potential impact of IAF quality attributes on individual and joint effects on FRQ. According to the external auditing standards (AICPA, 1991), the IAF quality attributes consist of three determinants (i.e., the internal auditor's competency, independence, and work performance), and all are treated as being equally important for IAF effectiveness. Several studies highlighted the importance of IAF quality attributes in ensuring IAF overall quality. Earlier literature (e.g., Brown, 1983; Desai et al., 2010; Krishnamoorthy, 2002; Maletta, 1993; Messier et al., 2011; Messier & Schneider, 1988; Schneider, 1984, 1985a, 1985b; Suwaidan & Qasim, 2010) confirms that the three IAF determinants (IAF competence, independence and work performance) are equally crucial in ensuring IAF quality. Thus, the IAF quality attributes are likely to play ample roles individually and jointly to improve overall IAF quality and thereby enhance FRQ.

4.2.2.3 IAF quality attributes and FRQ

IAF competence is widely recognized to be crucial in ensuring IAF effectiveness and securing good FRQ. The competence of the IAF is the collective important qualifications and skills of the internal auditor to perform the audit works required by its mandate (IIA, 2006). Earlier literature (e.g., Edge & Farley, 1991; Maletta, 1993; Messier & Schneider, 1988) posits that the IAF's effectiveness is related to its competence and training. IIA (2006) stipulates that the internal auditors must have a

certain level of competency to assess financial reporting integrity. Abbott et al. (2016) investigate the relationship between IAF quality components (competence and independence) with FRQ and posit that IAF qualities are important to guaranteeing FRQ. They compute IAF competence using an hourly budget and review several disparate scopes of IAF competence, such as the level of education, certification, and experience of the IAF staff. In a recent study, Jiang et al. (2018) explore the influence of environmental and organisational factors on IAF quality in the international context. Their findings confirm that organisational factors affect the IAF fieldwork, not competence and independence. Prawitt et al. (2009) highlight competence, showing a positive relationship between IAF competence and FRQ. Ege (2015) examines the relationship between IAF quality and management misconduct. He argues that IAF competence is not positively related to the likelihood of management misconduct. Margheim (1986) evince that IAF competence is significantly associated with the external audit budget and thereby that the external auditor focuses on internal auditor competence. The code of CG in Bangladesh requires that the head of internal audit and internal audit members must be competent in terms of the qualification, knowledge, and skill to perform their jobs effectively (BSEC, 2004).

On the other hand, the independence of the IAF allows the internal auditor to conduct audit work without interference from the management. IAF should have sufficient independence to contribute to the accuracy of the internal auditor's work and the ability to rely on the results and report (IIA, 2006). Abbott et al. (2016) investigation also shows that the IAF's effectiveness depends on the complementary role of independence and competence. Abdel-Khalik et al. (1983) argue that IAF independence plays a comparatively major role in IAF quality improvement. Chartered Institute of Internal Auditors (2019) stipulates that "*the internal audit activity must be independent, and internal auditors must be objective in performing their work*". In the case of Bangladesh, the code of CG specifies the importance of the internal auditors' independence to carry out their duties with high standards (BSEC, 2018).

Margheim (1986) evince that the IAF work performance is the most valuable factor to internal audit judgment and is significantly associated with the external audit budget. External auditors consider IAF work performance as an important determinant of the IAF quality measurement. Schneider (1984, 1985a) and Brown and Karan (1986) show that external auditors more focus on the quality of

internal auditors' work performance than on competence and independence. Krishnamoorthy (2002) reveals that the external auditors' satisfaction depends on the evidence of the internal auditor's work performance and places less importance on IAF competence. Thus, this finding indicates that IAF work performance is an important antecedent for IAF effectiveness and determining IAF qualities. For Bangladesh, the code of CG guidelines includes provisions to evaluate internal auditors' work performance annually to ensure IAF work efficiency (BSEC, 2018).

Following the auditing standards and prior literature findings, we expect that the IAF competence, independence, and work performance contribute to improving FRQ in the context of Bangladesh. Hence, we develop the following hypothesis as follows:

H2a. IAF competence, independence, and work performance are positively associated with FRQ.

4.2.2.4 IAF quality attributes relative importance for FRQ

IAF quality attributes (competence, independence, and work performance) are important to detect financial statement fraud (Beasley et al., 2000) and deter earnings management (Abbott et al., 2016; Prawitt et al., 2009). Also, external auditors' reliance on IAF depends on external auditors' assessment of the IAF quality determinants such as competence, independence, and work performance (DeZoort et al., 2001; Gramling, 1999). Krishnamoorthy (2002) suggests that the comparative importance of the IAF quality attributes varies between studies, but their findings generally reveal that all three IAF qualities have a significant effect on IAF effectiveness. AICPA (1991) also highlights the importance of IAF competence, independence, and work performance for IAF judgment. Similarly, Bangladesh Standards for Auditing (BSA, 2019) and (BSEC, 2004) require external auditors to review and assess the IAF in terms of competence, audit plan, scope of function, and professional due care. Thus, we expect that IAF competence, independence, and work performance are mutually strengthened their relationship with FRQ. Prior studies slightly shaded this aspect by focusing on IAF quality determinants. For instance, Abbott et al. (2016) observe the relationship between the internal auditor's quality attributes (competence and independence) and FRQ. Their findings confirm that both these attributes have a positive impact on FRQ. Likewise, Arum (2015) considers IAF competence

and objectivity to evaluate the effectiveness of the IAF for FRQ. He reports that IAF competence is positively associated with IAF effectiveness and FRQ. Prawitt et al. (2009) note that the IAF's competence and independence are the ability of internal auditors to play a decisive role in protecting the quality of financial reporting. Whereas Desai et al. (2010) reveal that IAF quality attributes (i.e., competence, independence, and work performance) are interdependent and treated equally by the external auditor. Moreover, Messier et al. (2008) state that internal audit effectiveness principally depends on internal auditors' independence and competence. Schneider (1984, 1985a) and Brown and Karan (1986) show that external auditors more focus on the quality of internal auditors' work performance than on competence and independence. Thus, it is likely that IAF competence, independence, and work performance jointly reinforce each other to enhance FRQ.

H2b. The interaction between IAF competence, independence, and work performance is positively associated with FRQ.

4.3 Research methodology

4.3.1 Data and sample selection

We investigate our hypothesis by using a survey questionnaire and archival data. The same methods are performed in the earlier IAF-related studies (e.g., Abbott et al., 2016; Carcello et al., 2005; Johl et al., 2013). Relevant data on IAF quality attributes are obtained through an online survey emailed to 197 non-financial companies listed on the Dhaka Stock Exchange (DSE) in Bangladesh. We sent our survey questionnaire to 197 non-financial companies in February 2021. More specifically, we emailed our questionnaire to the head of the internal auditors, chief financial officers (CFOs), and audit committee (AC) members of the target companies. We received a total of 85 responses from different companies (a company-specific response rate of 43%). However, two responses were eliminated due to the double submission by the same participant and missing information for mandatory questions. We test potential nonresponse bias by comparing the early and late responders and test for significant differences in abnormal accruals, size, CFO, leverage, ROA, and sales growth. None of the differences is significant. We also compare our respondents' and non-

respondents' firms using the same variables (abnormal accruals, size, CFO, leverage, ROA, and sales growth). The difference is not significant except for the size of the firms.

From the 223 non-financial listed firms, we find 157 companies' annual reports in the secondary sources (e.g., companies' website, Thomson Reuters DataStream, and the DSE official website) which are used for estimating dependent variable (ABNACC) and continuous variables, and the remaining firms' financial data are not available for the financial year 2020. As our survey requested information request to provide based on the fiscal year 2020, all the accounting-based data collected relate to the fiscal year 2020. We use 157 companies' financial data to estimate our abnormal accruals because the higher number of observations provides better accruals estimation as used by Abbott et al. (2016), Gros et al. (2017), and Johl et al. (2013), and subsequently merge them with survey data.

4.3.2 Survey details

We structure our survey questionnaire (see Appendix 3) in three sections. Section one contains questions relevant to the participating companies' general information and the IAF service provided; section two consists of questions concerning IAF quality attributes; and section three elicits audit committee information. Our questionnaire was pretested with three academics, four chief internal auditors, and three chief financial officers from the listed firms. In our questionnaire package, we included a cover letter and two supporting letters to clarify the objectives of the survey questionnaire. The cover letter, addressed to the IAF, concerns personnel, such as the head of internal auditors, CFOs, and AC members, based on the stock market-listed companies' addresses and in some cases by telephone interviews. We emailed our survey questionnaire to 197 listed non-financial companies in February 2021, which resulted in a total of 48 usable responses. To ensure a high volume of responses from the participants, we sent two reminders every 2 weeks after the initial and subsequent follow-up email. After the fourth week (March 2021), we made a telephone call to all non-responding recipient firms to encourage them to participate in the survey and obtained an additional 37 answers, thereby giving a total of 85 responses (Table 4.2).

From the total of 85 responses, two responses are eliminated due to the incompleteness and double submission by the same participant, bringing our total to 83. We calculate IAF quality

quartiles using 80 survey responses because three more responses are eliminated as the respondent company's financial statements do not match the ABNACC, as shown in Table 4.2. We estimate the ABNACC of the modified Jones model using 157 non-financial companies from 8 distinctive industries. As mentioned earlier, our target sample consisted of 223 non-financial listed companies listed on the DSE, and we exclude all financial institutions (376) due to their strict monitoring by the central bank. Of the 223 non-financial firms, 66 are eliminated because of the small number of firms in the industry and unavailable financial data in 2020, as shown in Table 4.2.

Table 4. 2 Sample description and selection process

	Sample Firms	%
<i>Survey sample description and responses breakdown</i>		
Total sample size	223	
Questionnaires distributed	197	100
Questionnaire responses received	85	43
Missing questionnaires information (Unusable)	-2	1
DataStream missing data of respondent firms	-3	2
Final questionnaire responses	80	41
<i>Sample description of abnormal accruals and Kothari m-Jones model</i>		
Total number of DSE listed firms (financial and non-financial)	604	
Total listed financial firms	367	
Total listed non-financial firms	223	100
Firms excluded due to the small industry	-26	12
Sample firms missing data for model estimation	-40	18
Total observation used for ABNACC estimation - Kothari m-Jones model	157	70

4.3.3 Variable measurement

4.3.3.1 Dependent variable

To estimate FRQ, we employ the *ABNACC* model as a proxy for FRQ (Francis, 2011), following the previous literature (Abbott et al., 2016; Alzeban, 2019; Johl et al., 2013; Prawitt et al., 2009). We apply the performance-adjusted cross-sectional modified Jones model (Dechow et al., 1996) to measure abnormal accruals, as described by Kothari et al. (2005). Kothari et al.'s model entails both an intercept term and a measure of performance. Following earlier studies, we estimate industry-specific coefficients to calculate the abnormal accruals based on the year and company (ISIN code) for all listed non-financial firms (Dhaka Stock Exchange) in DataStream 2020. We estimate ABNACC as the residual from the following regression:

$$\left[\frac{TA_{it}}{A_{it-1}} \right] = \beta_0 + \beta_1 \left[\frac{1}{A_{it-1}} \right] + \beta_2 \left[\frac{(\Delta REV_{it} - \Delta AR_{it})}{A_{it-1}} \right] + \beta_3 \left[\frac{PPE_{it}}{A_{it-1}} \right] + \beta_4 \left[\frac{NI_{it}}{A_{it-1}} \right] + \varepsilon_{it}$$

Where, TA_{it} is the total accruals for estimation firm i in year t , A_{it-1} is the total assets at $t-1$ for firm i , ΔREV_{it} is the change in net revenue, ΔAR_{it} is the change in accounts receivable, PPE_{it} is the gross property, plant, and equipment and NI_{it} is the net income for estimation firm i in year t . We then investigate the ABNACC's relationship with the IAFQ to establish whether they are positively or negatively associated.

4.3.3.2 Independent variables

We use three IAF quality components (IAF competence, independence, and work performance) to calculate our independent variable, the *IAFQ*. We apply a quartile scouring scheme to all three IAF quality attributes to gain a composite score of IAF quality. The quartile scores of IAF competence, independence, and work performance are accumulated to calculate IAFQ scores, as shown in Table 4.3. Internal auditing standards consider the following three elements to capture the professional expertise or competence of the IAF employees: work experience, professional certification, and training. Prawitt et al. (2009) and external auditing standards (Institute of Internal Auditors [IIA], 2012) emphasize the importance of internal auditors' professional experience, which has a particular effect on FRQ. Likewise, they focus on the significance of actual qualifications (e.g., certification) and internal audit-related training of internal auditors.

Prior studies measure IAF competence using a variety of techniques. For instance, Gros et al. (2017) use a percentage scoring scheme for all IAF competence factors separately; Abbott et al. (2016) employ the hourly basis IAF resource expenditure; Johl et al. (2013) consider only IAF experience based on the number of years since the IAF's establishment. Furthermore, Prawitt et al. (2009) apply a composite number measuring method ranging from zero to six and assign components a score of one to above the median. Our measurement procedure for IAF competence differs from those of the earlier studies. We calculate the quartiles for each *IAF competence* component (work experience, professional certification, and training days during a year) and cumulated them to obtain an *IAFCOMP* score, as shown in Table 4.3.

Table 4. 3 Internal audit function quality composite score

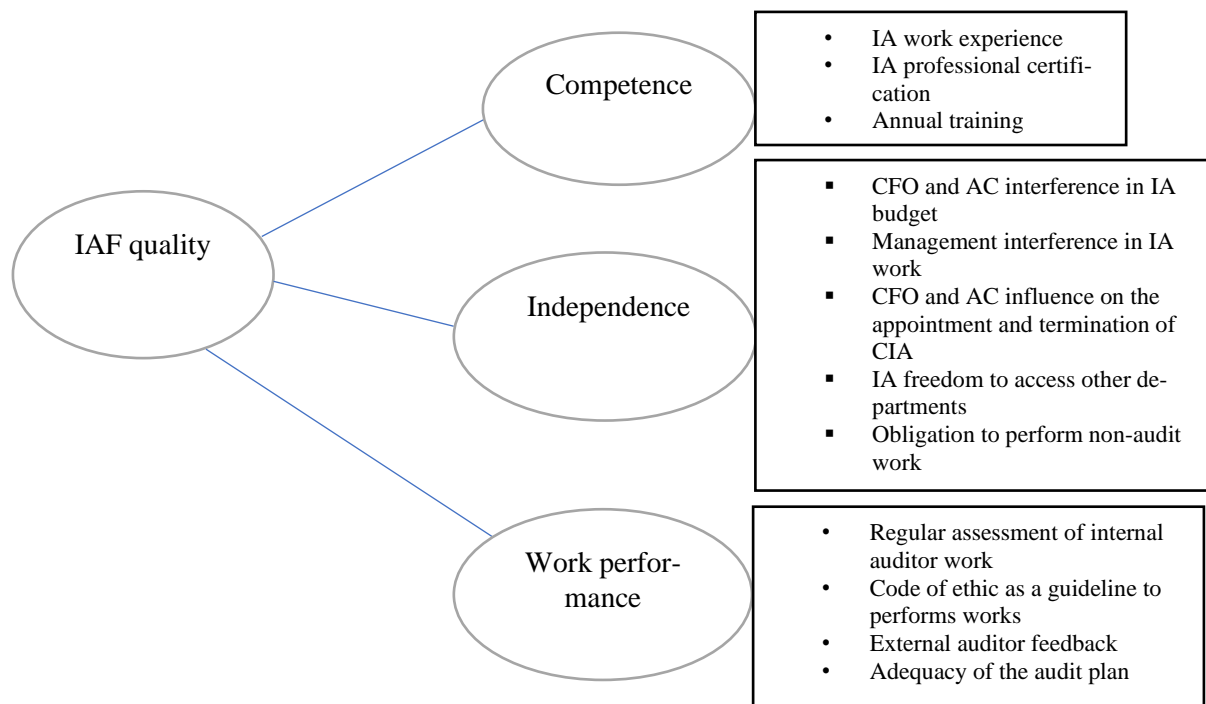
	Description	Measurement technique	
IAFQ-attributes			
(1) <i>IAF competence</i>	Cumulative unweighted quartile score of internal auditor work experience, professional certification, and annual training days		Cumulative score (a, b, & c)
(a) Internal auditor work experience	Percentage of internal auditors' work experience, who have at least three years of professional experience		Quartile score
(b) Internal auditor professional certification	Percentage of internal auditors with one or more audit certification		Quartile score
(c) Internal auditor training	Internal auditors' average number of training days during last year		Quartile score
(2) <i>IAF independence</i>	Likert-scale survey responses factorize to obtain useable data	Factor analysis	Quartile score
(3) <i>IAF work performance</i>	Factor test performs on IAF work performance-related Likert-scale questions	Factor analysis	Quartile score
IAFQ <i>IAF competence</i> (Internal auditor work experience + certification + training) + <i>IAF independence</i> + <i>IAF work performance</i>			Cumulative score

On the other hand, to understand the level of *IAF independence* in the organisation, we construct five statements following the interpretation of internal auditing guidelines (IIA, 2017) and the prior literature (Abbott et al., 2016). We consider that the CFO and audit committee can influence the ability of IAF and its oversight roles that affect IAF independence. In Figure 1, five specific aspects are related to IAF independence (e.g., CFO and AC involvement in the IAF annual budget, management interference in IAF work, the influence of the CFO and AC on the appointment and termination of CIA, internal audit staffs' free access to all departments in the company and internal audit staff members' obligation to perform non-auditing activities). These statements are included in the questionnaire with a Likert scale from completely disagree ("1") to completely agree ("5").

Prior studies consider several criteria, such as audit clients' feedback, regular assessment of internal auditor works, code of ethics and standards, and IAF scope, to measure *IAF work performance* (Al-Shetwi et al., 2011; Lin et al., 2011; Pizzini et al., 2015). In our study, a total of five statements are developed concerning IAF work performance (e.g., the scope of work performance, the evaluation process of internal auditor work performance, and the adequacy of the audit plan) and included in the questionnaire with a Likert scale to determine the level of agreement of the respondents, as shown in Figure 4.1.

We conduct a principal components factorial analysis on the IAF independence and work performance Likert scale questions to reduce the set of items and to generate continuous scores for use in a multivariate multiple regression analysis. We first calculate the factor loadings using the principal component method (PCM) to check the correlation between variables (KMO and Bartlett's test). The factor analysis shows the factors with eigenvalues higher than one represent approximately 70 percent and 65 percent of the underlying variance of the IAF components independence and work performance, respectively. We also calculate Cronbach's alpha to determine the level of reliability of our measurement instruments, which is about (0.60). Then, we calculate the quartile of the factor results to produce a usable score with other IAF quality attributes, as shown in Table 4.3. Therefore, the level of agreement ranges from strongly disagrees ("1") to strongly agree ("5").

Figure 4.1 Internal audit quality attributes



We conduct a principal components factorial analysis on the IAF independence and work performance Likert scale questions to reduce the set of items and to generate continuous scores for use in a multivariate multiple regression analysis. We first calculate the factor loadings using the principal component method (PCM) to check the correlation between variables (KMO and Bartlett's test). The factor analysis shows the factors with eigenvalues higher than one represent approximately 70 percent and 65 percent of the underlying variance of the IAF components independence and work

performance, respectively. We also calculate Cronbach's alpha to determine the level of reliability of our measurement instruments, which is about (0.60). Then, we calculate the quartile of the factor results to produce a usable score with other IAF quality attributes, as shown in Table 4.3.

4.3.3.3 Control variables

Following earlier literature, we include several firm-specific factors that may affect FRQ, as shown in Table 4.4. Dechow and Dichev (2002) posit that a firm's size affects accruals, we control for company *SIZE* (log of company assets). We include *AGE* as the number of years for which a firm has been appearing on the DataStream because firms may experience different accruals patterns over their firm life cycle (Abbott et al., 2016; Prawitt et al., 2009). We include *ROA* (Return on Assets) to control for performance because low performance increases the incentive for accruals management. *ROA* is computed as the net income divided by the total assets (Arun et al., 2015; Tanyi & Smith, 2015). *CFO* (log of the cash flow from the operation), *SGROWTH* (sales growth from the preceding year), and *CFOVOL* (operating cash flow volatility) are included as control variables because these variables may affect the accruals estimation (Menon & Williams, 2004); moreover, more sizeable and high profitable companies are expected to maintain better FRQ and to involve in fewer earnings management (Dechow et al., 2010). The variable *LEVERAGE* (total debt/total assets) controls the company debt effects and income-decreasing accruals (Bravo & Reguera-Alvarado, 2018; Press & Weintrop, 1990). We include *BIG4* to control for audit quality, which influences accruals (Alzeban, 2019).

4.3.3.4 Regression model

To address our hypotheses (the association between IAF quality attributes and FRQ and the relative importance of IAF quality components for FRQ), we estimate the abnormal accruals (ABNACC) as a proxy for FRQ (Kothari et al., 2005). In our investigation, we anticipate finding a negative association between IAF quality and ABNACC. Thus, if the IAF quality in a firm increase, the ABNACC should decrease, and the FRQ quality should improve. The following ordinary least squares (OLS) regression model is utilised to test our hypotheses:

$$ABNACC_i = \beta_0 + \beta_1 IAFQ_i + \beta_2 SIZE_i + \beta_3 AGE_i + \beta_4 LEVERAGE_i + \beta_5 LCFO_i + \beta_6 SGROWTH_i + \beta_7 ROA_i + \beta_8 CFOVOL_i + \beta_9 BIG4_i + \varepsilon_i \quad (1)$$

$$ABNACC_i = \beta_0 + \beta_1 IAFCOMP_i + \beta_2 IAFIND_i + \beta_3 IAFWORKPERFOR_i + \beta_4 (IAFCOMP * IAFIND * IAFWORKPERFOR)_i + \beta_5 SIZE_i + \beta_6 AGE_i + \beta_7 LEVERAGE_i + \beta_8 LCFO_i + \beta_9 SGROWTH_i + \beta_{10} ROA_i + \beta_{11} COFVOL_i + \beta_{12} BIG4_i + \varepsilon_i \quad (2)$$

Table 4. 4 Variable definition and measurement

Variable	Description
<i>ABNACC</i> (FRQ)	FRQ estimates using the total value of abnormal accruals adopting the Kothari et al. (2005) version of the modified Jones model. Abnormal accruals are the error term of the equation below: $[TAit/Ait-I] = \beta_0 + \beta_1 [I/Ait-I] + \beta_2 [(\Delta REVit - \Delta ARit)/Ait-I] + \beta_3 [PPEit/Ait-I] + \beta_4 [NIit/Ait-I] + \varepsilon it$ Where TA is the total accruals for estimation firm i for year t, Ait-1 is the total assets at t-1 for firm i, $\Delta REVit$ is the change in net revenue, $\Delta ARit$ is the change in account receivable, PPEit is gross property, plant, and equipment, and NIit is the net income for estimation firm i for year t
<i>IAFQ</i>	IAFQ score is the unweighted average score of IAF competence (IAF employee experience, certification, training), IAF independence and work performance
<i>IAFCOMP</i>	IAF competence measures by aggregating internal auditors' qualities (<i>EXPERIENCE</i> , <i>CERTIFICATION TRAINING</i>) factor test scores
<i>IAFIND</i>	IAF independence measures using five Likert-scale statements employing factor analysis and quartile on the factor analysis results
<i>IAFWORKPERFOR</i>	Five Likert-scale statements use to estimate IAF work performance by utilizing factor analysis and apply the percentiles on it
<i>SIZE</i>	Natural log of total assets
<i>AGE</i>	Natural log of the number of years since the firm's first appearance in the DataStream database
<i>LEVERAGE</i>	Total debts (sum of current liabilities and long-term debt) divided by total assets of a company
<i>CFO</i>	Cash flow from operations scaled by lagged total assets
<i>SGROWTH</i>	Sales growth (sales of current year subtracting sales of prior year) divided by sales of the prior year
<i>ROA</i>	Net income scaled by total assets
<i>COFLOV</i>	Standard deviation of Cash flow from operations for 2018-2020
<i>BIG4</i>	Coded "1" if the firm audited by Big4 (a proxy for audit quality) "0" else

4.4 Results

4.4.1 Descriptive statistics

Table 4.5 presents the descriptive statistics for the 80 respondent firms, IAF quality attributes, and IAFQ. The survey responses show that on average, 76% of IAF employees (4) have more than 3 years of work experience and almost 25% have a professional certification. The number of annual training days differs between 0 and 60 days among the companies, with a mean of about 19 days. Our overall IAF competence mean (median) is 2.0152 (2), which is a composite score of internal auditor work experience, professional certification, and annual training (Table 4.5). The respondents moderately agree with the statements of the IAF independence with the mean (median) of 1 (0.88), while relatively more strongly agree with the IAF work performance statements (mean of 3 and median of 2.97). The mean (median) IAFQ is 3.3170 (3.25), with the smallest value of 2 and the topmost value of 4.75, indicating that moderate variation exists between companies, as shown in Table 4.5. The

overall IAF quality composite score is comparatively low, and none of the components reflects the highest quartile of our IAFQ.

Table 4. 5 IAF quality measurement using survey responses

IAF quality attributes score calculation	Obs	Mean	Median	SD	Min	Max
<i>IAF competence</i>	80	2.0152	2	0.4813	1	3
% Auditors with >3 years' work experience	80	0.7651	0.75	0.1603	0.4	1
% Auditors with external certification	80	0.2464	0.25	0.1434	0	0.6666
Internal auditor training days per year	80	19.06	20	9.012	0	60
<i>IAF independence</i>	80	1	0.8788	0.7074	0.1472	4.0651
<i>IAF work performance</i>	80	2.9999	2.9787	0.6463	0.5184	4.4305
Total IAFQ	80	3.3170	3.25	0.6357	2	4.75

Notes: All IAF quality components definitions are defined in Table 4.3.

To obtain a positive value of IAF independence and IAF work performance, we recalibrated both factor values by adding 2.

Table 4.6 provides the descriptive outcomes for *ABNACC* and the control variable. The results reveal that the mean (median) *ABNACC* is -0.0045 (0.0035) and ranges from the smallest score of -0.5618 to the highest score of 0.2199. Our sample firms' assets size has a mean (median) of TK12.24 million (TK36.10 million) and a mean (median) age of 14.80 (12) years. Their leverage is pretty high (mean 49.83%; median of 42.93%) and their operating cash flow is TK71.96 million (mean) and TK 12.170 million (median). Notably, the average sales growth from 2019 to 2020 was 6.59% and the mean *ROA* was 1.55%, reflecting the 2020 economic situation. An economic downturn is reflected during our sample period. Our measurements highlight the economic consequences of COVID-19.

Table 4. 6 *ABNACC* and control variables summary statistics

Variable name	Obs	Mean	Median	SD	Min	Max
<i>ABNACC</i>	80	-0.0045	0.0035	0.1672	-0.5618	0.2199
<i>ASSETS (TK'000)</i>	80	1224790	3610384	2768810	64247	292717
<i>SIZE</i>	80	22.0380	22.0259	1.7349	18.0728	26.0224
<i>AGE</i>	80	14.80	12	8.9783	2	28
<i>LEVERAGE</i>	80	0.4983	0.4293	0.4644	0.0195	3.0409
<i>CFO (TK'000)</i>	80	719612	121709	266836	-101597	248204
<i>CFO</i>	80	0.0568	0.0443	0.0856	-0.1029	0.3475
<i>SALESGROW</i>	80	0.0659	0.0542	0.7447	-0.6365	0.8733
<i>ROA</i>	80	0.0155	0.0170	0.0891	-0.8166	0.1715
<i>COFVOL</i>	80	0.0463	0.0372	0.0363	0.0037	0.1731
<i>BIG4</i>	80	0.5755	1	0.4952	0	1

Notes: All variable definitions describe in Table 4.4.

ABNACC is Kothari et al. (2005) form of the modified Jones model to estimate abnormal accruals, *SIZE* is the taka value of total assets in millions, *AGE* is the years since the company's appearance in the DataStream, *LEVERAG* equals the total debt (sum of long- and short-term debt) of a company, *CFO* is the cash flow from operations scaled by lagged total assets. *ROA* equals a return on assets, *COFVOL* is the standard deviation of cash flow from operation for 2018-2020, *BIG4* is coded "1" if the company is audited by one of the Big 4, "0" otherwise, *SALESGROWTH* is the percentage of one-year sales growth.

Table 4.7 shows the Pearson correlation coefficients and p -values results for our model's variables. The results reveal that the *ABNACC* is negatively correlated with the *IAFQ* and supports our H1; however, the IAF quality attributes (competence, independence, and work performance) are non-significant and negatively correlated with *ABNACC*. We check the possibility of multicollinearity, and the variance inflation factors (VIF) score of our standard regression, which is less than 2, suggesting that no multicollinearity is existed (Neter et al., 1990).

4.4.2 Multivariate results

Table 4.8 reports the outcomes of the ordinary least squares (OLS) regression of *ABNACC* (a proxy for FRQ) on measures of IAF quality determinants related variables and several control variables. Our predicted signs for the *IAFQ* and components are negative as we predicted higher IAF quality attributes (e.g., IAF competence, independence, and work performance) and lower income-increasing accruals. We expect a significant and positive relationship between IAF quality and FRQ in our H1. Our results support H1 as they show that *IAFQ* is significantly and negatively (Coeff. = -0.0194, t -stat. = -2.00) associated with *ABNACC* (p -value < 0.05). The finding indicates that the IAF quality is positively and significantly associated with FRQ. In other words, it suggests that higher IAF quality is associated with higher FRQ and is more likely to reduce *ABNACC*. Our result is consistent with earlier IAF-related literature (e.g., Gros et al., 2017; Prawitt et al., 2009).

Table 4.9 reports the multivariate results of the relationship between IAF individual and interactive quality attributes (competence, independence, and work performance) and *ABNACC*. The results show that the coefficients on IAF competence, independence, and work performance are negative and significantly related to *ABNACC*, with the p -values (coefficient) of < 0.05 (-0.0604), < 0.05 (-0.1233), and < 0.05 (-0.1128) respectively. These findings suggest that IAF quality competence, independence, and work performance is negatively and significantly associated with abnormal accruals and positively related to FRQ, which supports our H2a. The results of IAF competence and independence are consistent with prior research (Abbott et al., 2016) and IAF work performance (Margheim, 1986).

Table 4. 7 Pairwise correlation matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	VIF
1. ABNACC	1													
2. IAFQ	-0.0963 (0.3956)	1												1.44
3. IAFCOMP	-0.0533 (0.6389)	0.7896*** (0.0000)	1											1.17
4. IAFIND	0.0762 (0.5014)	0.3414*** (0.0019)	-0.0761 (0.5023)	1										1.23
5. IAFWORKPERFOR	-0.1800 (0.1101)	0.5058*** (0.000)	0.0406 (0.7204)	0.0245 (0.8290)	1									1.14
6. SIZE	-0.0708 (0.5325)	0.2738*** (0.0140)	0.1389 (0.2191)	0.2268** (0.0431)	0.1595 (0.1577)	1								1.41
7. AGE	-0.0605 (0.5940)	0.0071 (0.9504)	0.0590 (0.6029)	-0.0817 (0.4710)	-0.0178 (0.8758)	-0.2110* (0.0603)	1							1.20
8. LEVERAGE	-0.0884 (0.4355)	-0.0059 (0.9585)	0.0059 (0.9584)	0.0600 (0.5968)	-0.0736 (0.5163)	-0.1166 (0.3029)	0.2491** (0.0259)	1						1.41
9. CFO	-0.2553* (0.0223)	0.0577 (0.6238)	-0.0152 (0.8933)	0.0241 (0.8323)	0.1261 (0.2651)	-0.0845 (0.4563)	-0.0632 (0.5773)	-0.1154 (0.3079)	1					1.32
10. SGROWTH	0.0670 (0.5547)	0.1211 (0.2846)	0.2049 (0.0683)	-0.0837 (0.4604)	-0.0219 (0.8470)	0.1329 (0.2400)	0.1252 (0.2684)	-0.3369** (0.0022)	-0.2510** (0.0247)	1				1.44
11. ROA	0.1734** (0.0321)	0.1369 (0.2260)	0.1377 (0.2233)	0.1695 (0.1329)	-0.0853 (0.4516)	0.2061 (0.0666)	-0.0526 (0.6431)	-0.3182** (0.0040)	0.3555** (0.012)	0.3636** (0.0009)	1			1.57
12. COFVOL	-0.1807*** (0.1087)	0.0541 (0.6337)	0.0116 (0.9187)	0.0410 (0.7183)	0.0620 (0.5846)	-0.2368** (0.0345)	0.1332 (0.2388)	0.1420 (0.2090)	0.2349** (0.0360)	0.0204 (0.8577)	0.1809 (0.1082)	1		1.27
13. BIG4	-0.0065 (0.9546)	0.2266** (0.0433)	0.0926 (0.4138)	0.1624 (0.1502)	0.1919* (0.0882)	0.3553** (0.0012)	-0.1448 (0.2000)	-0.1289 (0.2544)	0.2189* (0.0630)	0.0470 (0.6791)	0.2002* (0.0750)	-0.0699 (0.5380)	1	1.26

Variables defined in Table 4.4, p values report in parentheses
 Statistical significance levels: * p < 0.1; ** p < 0.05; *** p < 0.01

Table 4. 8 Multivariate results for H1 (ABNACC)

Dependent Variable: ABNACC				
	Coefficient	Std.err	<i>t</i> -statistics	P > <i>t</i>
Intercept	0.2272	0.0839	2.71	0.009**
<i>IAFQ</i>	-0.0194	0.0098	-2.00	0.049**
<i>SIZE</i>	-0.0063	0.0037	-1.69	0.095*
<i>AGE</i>	-0.0010	0.0006	-1.54	0.128
<i>LEVERAGE</i>	0.0150	0.0125	1.19	0.236
<i>CFO</i>	-0.5028	0.0719	-6.99	0.000***
<i>SGROWTH</i>	-0.0018	0.0277	-0.07	0.947
<i>ROA</i>	0.5612	0.0591	9.48	0.000***
<i>COFVOL</i>	0.3378	0.0125	1.84	0.070*
<i>BIG4</i>	0.0061	0.1837	0.49	0.624
<i>Model</i>				
<i>R</i> ²	0.6475			
<i>Adjusted R</i> ²	0.6022			
<i>N</i>	80			

Statistical significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$
 Variables are defined in Table 4.4

Concerning the interactive term between *IAFCOMP*, *IAFIND*, and *IAFWORKPERFOR*, a negative and significant coefficient of (*IAFCOMP*IAFIND*IAFWORKPERFOR*) and *ABNACC*, with a *p*-value (coefficient) of < 0.05 (-0.0709). The results suggest that the IAF competence, independence, and work performance jointly strengthen each other relationship with *ABNACC*. In other words, the impact of the IAF competence, independence, and work performance on FRQ is mutually dependent on the level of all three IAF quality attributes, which support our H2b and are consistent with earlier studies (Abbott et al., 2016; Arum, 2015). The reduction in abnormal accruals for a certain level of IAF competence, independence, and work performance is conditional upon the level of these IAF quality attributes. This suggests that firms focus on IAF competence (independence and work performance), but without IAF independence and work performance (competence) is not possible to establish an effective IAF and ensure FRQ. Thus, IAF competence, independence, and work performance are jointly important for strengthening IAF quality and enhancing FRQ. Several control variables' signs and significance levels are compatible with earlier research, except for the positive coefficient for *SGROWTH*, *ROA*, and the negative coefficient for *SIZE* (Abbott et al., 2016; Prawitt et al., 2009).

Table 4. 9 Multivariate results for H2a & H2b (ABNACC)

Dependent Variable: ABNACC	(1)		(2)		(3)		(4)	
	Coefficient	<i>t</i> -statistics	Coefficient	<i>t</i> -statistics	Coefficient	<i>t</i> -statistics	Coefficient	<i>t</i> -statistics
Intercept	0.2362	2.79**	0.2027	2.38**	0.2018	2.36**	0.3930	3.53***
<i>IAFCOMP</i>	-0.0245	-2.05**					-0.0604	-2.97**
<i>IAFIND</i>			-0.0115	-0.45			-0.1233	-2.22**
<i>IAFWORKPERFOR</i>					-0.0065	-0.30	-0.1128	-2.04**
<i>IAFCOMP*IAFIND*IAFWORKPERFOR</i>							-0.0709	-2.11**
<i>SIZE</i>	-0.0072	-2.00**	-0.0076	-2.02**	-0.0077	-2.05**	-0.0070	-1.90*
<i>AGE</i>	-0.0010	-1.56	-0.0011	-1.59	-0.0010	-1.55	-0.0010	-1.53
<i>LEVERAGE</i>	0.0161	1.28	0.0143	1.11	0.0132	1.02	0.0186	1.47
<i>CFO</i>	-0.5119	-7.10***	-0.4973	-6.74***	-0.4928	-6.62***	-0.4532	-5.86***
<i>SGROWTH</i>	0.0043	0.15	-0.0080	-0.28	-0.0069	-0.24	0.0037	0.13
<i>ROA</i>	0.5674	9.57***	0.5620	9.11***	0.5530	8.88***	0.5641	9.23***
<i>COFVOL</i>	0.3077	1.69*	0.3030	1.61	0.3058	1.61	0.2234	1.19
<i>BIG4</i>	0.0040	0.33	0.0027	0.22	0.0029	0.22	0.0083	0.66
<i>Model</i>								
<i>R</i> ²	0.6484		0.6284		0.6278		0.6731	
<i>Adjusted R</i> ²	0.6032		0.5806		0.5799		0.6145	
<i>N</i>	80		80		80		80	

Statistical significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Variables are defined in 4.4

4.4.3 Additional Analysis and Robustness Check

We propose that *IAFQ* is a unique construct that aggregates several IAF quality-related determinants. To check these propositions, we regress *ABNACC* against IAF quality attributes. The IAF quality attributes include measures of IAF competence (internal auditor work experience, professional certification, and annual training days), independence, and work performance. We also include additional variables that influence company abnormal accruals and IAF quality effectiveness, such as firm size, age, leverage, operating cash flows, sales growth, return on assets, operating cash flows volatility, and BIG4. Table 4.10 results show that all the IAF quality determinants are negatively associated with *ABNACC*, and the results are statistically significant only for IAF certification. The results suggest that internal auditor professional certification has a significant influence in improving overall IAF quality and thereby enhances FRQ.

We conduct additional tests to assess the consistency and robustness of our baseline findings. To check the robustness, we apply the modified Jones model to estimate abnormal accrual quality (*ABACCQ*) in the place of the performance-adjusted Jones model. The empirical results support our main analysis. In Table 4.10, the results show that the *IAFQ* is negatively and significantly correlated with *ABNACC* (Coeff. = -0.0199, *t*-stat. = -2.20), which supports our initial findings for H1. In addition, we utilise the same model and variables to test our H2 results. Consistent with the principal results, coefficient estimates for the interactive term for *IAFCOMP*IAFIND*IAFWORKPERFOR* are significant with a *p*-value (coefficient) of < 0.05 (-0.0731). The results provide additional support that the joint presence of IAF competence, independence, and work performance reinforces each other relationship with *ABNACC*. These results support our H2b. The findings relating to the individual quality attributes are of interest, and we are curious to understand their relative importance for FRQ. Our findings show that IAF competence, independence, and work performance are significantly correlated with FRQ. The IAF's effectiveness depend on the combinations of its different constituent elements rather than the effects of individual components; separating the components into individual factors may not accurately capture these combinations. Therefore, we perform an interaction to understand whether IAF quality components' joint presence strengthens each other the results show that IAF quality attributes mutually reinforce each other and improve IAF quality and FRQ.

Table 4. 10 Multivariate results (ABNACC)

Dependent Variable: ABNACC	(1)		(2)		(3)		(4)		(5)		IAFQ score	
	Coefficient	<i>t</i> -statistics	Coefficient	<i>t</i> -statistics	Coefficient	<i>t</i> -statistics	Coefficient	<i>t</i> -statistics	Coefficient	<i>t</i> -statistics	Coefficient	<i>t</i> -statistics
<i>Intercept</i>	0.2557	3.33***	0.2817	3.85***	0.2532	3.31***	0.2539	3.33***	0.2530	3.31***	0.2799	3.71***
<i>Internal auditor experience</i>	-0.0071	-0.35										
<i>Internal auditor certification</i>			-0.0504	-2.83***								
<i>Internal auditor training</i>					-0.0015	-0.08						
<i>IAF independence</i>							-0.0139	-0.58				
<i>IAF work performance</i>									-0.0049	-0.24		
<i>IAFQ score</i>											-0.0194	-2.71**
<i>SIZE</i>	-0.0094	-2.77**	-0.0093	-2.89***	-0.0094	-2.76***	-0.0091	-2.66***	-0.0093	-2.73***	-0.0079	-2.00*
<i>AGE</i>	-0.0007	-1.18	-0.0006	-1.08	-0.0007	-1.19	-0.0008	-1.20	-0.0007	-1.18	-0.0008	-1.69
<i>LEVERAGE</i>	0.0144	1.29	0.0182	1.57	0.0155	1.27	0.0152	1.33	0.0152	1.23	0.0157	1.19
<i>CFO</i>	-0.6002	-8.60***	-0.6812	-9.54***	-0.6661	-8.81***	-0.6625	-8.90***	-0.6625	-8.71***	-0.6782	-6.99***
<i>SGROWTH</i>	0.003	-0.40	0.0020	0.08	-0.0119	-0.44	-0.0125	-0.53	0.1258	-0.47	0.0068	-0.07
<i>ROA</i>	0.5285	9.48***	0.5851	10.17***	0.5754	9.42***	0.5810	9.46***	0.5733	9.42***	0.5969	9.48***
<i>COFVOL</i>	-0.2505	-0.88	-0.0164	-0.87	-0.0179	-0.88	-0.0184	-0.93	-0.0178	-0.89	-0.0085	1.84
<i>BIG4</i>	0.003	0.22	0.0033	0.29	0.0023	0.20	0.0028	0.24	0.0027	0.23	0.0063	0.49
<i>Model</i>												
<i>R</i> ²	0.6733		0.7063		0.6727		0.6743		0.6730		0.6475	
<i>Adjusted R</i> ²	0.6312		0.6685		0.6306		0.6324		0.6309		0.6022	
<i>N</i>	80		80		80		80		80		80	

Statistical significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Variables are defined in 4.4

Table 4. 11 Multivariate results using Modified Jones model

Dependent Variable: ABACCQ	(1)		(2)	
	Coefficient	t-statistics	Coefficient	t-statistics
Intercept	0.2038	2.63**	0.3684	3.59***
<i>IAFQ</i>	-0.0199	-2.20**		
<i>IAFCOMP</i>			-0.0586	-3.10**
<i>IAFIND</i>			-0.1294	-2.53**
<i>IAFWORKPERFOR</i>			-0.1255	-2.46**
<i>IAFCOMP*IAFIND*IAFWORKPERFOR</i>			-0.0731	-2.37**
<i>SIZE</i>	-0.0055	-1.62	-0.0061	-1.79*
<i>AGE</i>	0.0002	0.45	0.0003	0.51
<i>LEVERAGE</i>	-0.0125	-1.08	-0.0098	-0.84
<i>CFO</i>	-0.5357	-8.06***	-0.4782	-6.72***
<i>SGROWTH</i>	-0.0071	-0.28	-0.0041	-0.16
<i>ROA</i>	0.5687	10.39***	0.5652	10.04***
<i>COFVOL</i>	0.4469	2.63	0.3397	1.96
<i>BIG4</i>	0.0011	0.10	0.0040	0.35
<i>Model</i>				
<i>R</i> ²		0.7131		0.7358
<i>Adjusted R</i> ²		0.6762		0.6884
<i>N</i>		80		80

Statistical significance levels: * p < 0.1; ** p < 0.05; *** p < 0.01
 Variable are defined in Table 4.4

To investigate potential endogeneity, we perform a two-stage least squares analysis utilizing an instrumental variable approach. Given that our IAF quality components are not correlated with each other and do not appear to significantly effect IAF quality, our focus is predicating IAFQ score in first-stage regression. Our objective is to employ instrumental variables that are correlated with the IAFQ score but not correlated with our measurement of FRQ. Our instrumental variables include an average IAFQ score by Assets and Cash flow from operations. The overall results reflect our analysis is not suffering any endogeneity.

4.5 Conclusion

This study examines the relationship between IAF quality and ABNACC (a proxy for FRQ) and the comparative importance of IAF quality determinants (competence, independence, and work performance) in preparing high-quality financial reports. We also examine the mutual effects of the IAF quality components on ABNACC. This examination is performed utilizing a unique data set of survey answers and archival data from the perspective of an emerging country, Bangladesh. A composite score (IAFQ) is

developed using IAF quality components, such as internal auditor work experience, professional certification, average annual training days, IAF independence, and IAF work performance, by following survey responses. We find a relatively major difference in IAF quality in Bangladeshi companies may be due to the company size differences. Dechow and Dichev (2002) find that larger firms invest more resources in the IAF and other monitoring mechanisms than smaller firms' which enhances large firms' IAF quality. We use the performance-adjusted cross-sectional modified Jones model (Dechow et al., 1996) to measure abnormal accruals (as a proxy for FRQ), as described by Kothari et al. (2005).

Our empirical results indicate that the IAFQ is negatively and significantly associated with ABNACC, which reflects greater IAF quality being likely to reduce abnormal accruals (earnings management) and thereby enhance FRQ. In other words, these findings suggest that IAF quality has a significant role in preparing high-quality financial reporting. This finding provides valuable insights into our first research question that IAF quality plays a vital role in reducing earnings management and contributing financial reporting process in the developing country context. We also analyse the individual and joint effects of IAF quality attributes (competence, independence, and work performance) on ABNACC. Our findings show that IAF competence, independence, and work performance are statistically significant and negatively associated with ABNACC. Thus, the overall findings for the IAF's quality attributes indicate that IAF quality attributes are positively and significantly associated with FRQ and are likely to detect earnings management. Concerning the IAF quality attributes interaction effect on FRQ, the results show a positive significant relationship between interaction term and FRQ. This result reveals that higher IAF quality is related to the combined presence of IAF competence, independence, and work performance, which reinforce each other to enhance FRQ. The overall findings are consistent with the hypothesis that the joint presence of IAF competence, independence, and work performance are necessary elements for effective IAF and better financial reporting. These results answer our second research question that the individual effect of IAF competence is significant on FRQ; however, IAF competence, independence, and work performance jointly strengthen each other relationship with FRQ.

The outcomes of this study extend earlier studies (e.g., Abbott et al., 2016; Prawitt et al., 2009) in terms of addressing the IAF quality relationship with FRQ from the viewpoint of a growing country, Bangladesh. Abbott et al. (2016) address the importance of IAF competence and independence in fostering FRQ. In our study, we consider IAF competence and independence along with an additional IAF

component (work performance) to investigate their relative importance in developing high-quality financial reporting in a developing country context. Thus, our results enrich the existing literature on IAF quality and advance our understanding of the significance of IAF quality attributes in FRQ. Moreover, this is the first empirical examination of the association between IAF quality and FRQ from the developing country's perspective with a significant result of this association. Another study by Johl et al. (2013) investigate the relationship between IAF quality and FRQ from the Malaysian context; however, their results evidence no significant relationship exist between IAF and FRQ. Thus, our findings could contribute to the existing literature by adding value to the developing country context. These findings also provide insights into how the IAF contributes to FRQ in a developing country setting, like Bangladesh. They will also be relevant to the policymakers for future regulatory reforms aiming to improve IAF effectiveness and CG mechanisms. In particular, our results on the individual characteristics of IAF quality might have important indications for company management and regulators. We identify IAF quality (competence, independence, and work performance) as being positively and significantly related to FRQ. Therefore, the joint presence of IAF competence, independence, and work performance is likely to be crucial for IAF quality and to enhance FRQ. Hence, firms could focus on the components of IAF competence, such as internal auditor professional certification, experience, and training, to enhance IAF efficacy with the other two IAF quality attributes (independence and work performance). Our findings are also relevant to IAF in decision-making in other similar country settings.

Further studies could investigate the same issue but consider the operational aspect, such as how to improve the IAF's effectiveness in minimizing the monitoring cost of financial reporting. The same research can also help to provide an understanding of IAF performance evaluation and oversight issues, such as identifying the right evaluator (e.g., CFO, AC member, or external auditor) of IAF performance. Moreover, it could be interesting to address the effects of cultural and political factors on IAF quality attributes. Our study encounters several limitations. For instance, firstly, our sample selection focuses on relatively big industries in terms of the number of firms and omits small sectors. Secondly, a substantial number of firms are not considered due to the lack of archival financial information, decreasing our total sample size. Thirdly, like in other surveys, the questions may be answered unconsciously. Therefore, we adopt Cronbach's alpha to test the consistency of the questionnaire and find a satisfactory level of internal consistency.

EMPIRICAL PAPER TWO

The mediation effect of the audit committee quality and internal audit function
quality on firm size-financial reporting quality nexus

Abstract

Purpose – This study examines the effects of firm size on financial reporting quality (FRQ) proxied by abnormal accruals through the mediating effects of audit committee (AC) quality and internal audit function (IAF) quality.

Design/methodology/approach – Based on data from a questionnaire survey and archival sources of non-financial companies listed on the Dhaka Stock Exchange (DSE), we perform both structural equation modelling and ordinary least squares regression to test the developed hypotheses.

Findings – Results show that the firm size is positive and significantly related to IAF quality. The findings also reveal that the firm size, AC quality, and IAF quality are significantly associated with abnormal accruals (FRQ). Moreover, we find a mediation effect of the IAF quality on the relationship between firm size and FRQ, while no mediation effect is observed for AC quality. Our results advocate agency theory by highlighting the relationship between firm size, AC quality, IAF quality, and FRQ to ensure stakeholders' rights.

Research limitations/implications – Like other survey-based studies, several caveats are encountered in this study. First, the accuracy of the data relies on the response of the survey participants. Second, the study is restricted to the survey questions that cover limited details of several areas of the AC and IAF. Third, our sample selection focuses on relatively big industries in terms of the number of firms and omits small sectors. Fourth, the 38 percent survey response rate may reflect that participant have well-developed IAF, which encourage them to participate in the survey. Thus, the survey results may not be generalizable to non-respondent firms

Originality/value – To the best of the authors' knowledge, this is the first study to explore the mediation effect of audit committee quality and internal audit function quality on firm size-financial reporting quality nexus in a developing country, particularly in the context of Bangladesh.

Keywords – Audit committee quality, internal audit function, firm size, reporting quality, corporate governance

Paper type Research paper

5.1 Introduction

In the aftermath of corporate scandals and the recent financial statement distortions, the significance of internal monitoring mechanisms (e.g., AC and IAF) has been increasing remarkably among regulators to improve the quality of financial reporting. The AC and IAF have become vital components of the corporate governance (CG) mosaic (Gramling & Hermanson, 2009) and play a crucial role in monitoring the financial statement preparation to restrain fraudulent reporting (Baxter & Cotter, 2009; Cohen et al., 2004; García et al., 2012). Regarding the effectiveness of the AC and IAF, the greater financial size of the firms has a substantial effect on the provision of adequate resources and support. Large firms generally tend to exhibit and emphasize stringent internal monitoring to accomplish organisational objectives (Vermeer et al., 2006) and enhance FRQ (Gebayel et al., 2018). Chow (1982) argued that the firms' financial size influences their internal monitoring mechanisms.

The AC and IAF are the governance mechanisms that assist the management in multiple ways and contribute to enhancing FRQ. For instance, the IAF provides assurance services to the AC in areas such as financial reporting integrity, fraud investigations, compliance, internal control, and organisational governance (Abbott et al., 2010; Cohen et al., 2004; Gramling et al., 2004). Standard setters (AICPA, 2013; IIA, 2012) consider the IAF to be a valuable resource for the AC to find the required information for monitoring the senior management and fulfilling its oversight responsibilities. To ensure AC and IAF efficiency, both need sufficient financial support for adequate staffing and training (Alzeban & Sawan, 2013; Cohen & Sayag, 2010). Thus, firm size is a critical issue and concerns the decision to allocate the necessary financial resources to ensure better AC and IAF quality. Larger firms are likely to focus more on the AC (Klein, 2002), which results in high-quality financial reporting. Abbott (2016) reported that firm size, professional certification, and experience are related to IAF quality. As such, AC and IAF quality and operational performance mostly rely on organisational financial size.

Earlier studies have primarily focused on the relationship between firm size and AC and IAF effectiveness. For instance, Sarens and Abdolmohammadi (2011) evinced that organisation's size, the number of reporting levels, and the ownership structure affects the IAF. Much of the related prior research (Barua et al., 2010; Carcello et al., 2005; Wallace & Kreutzfeldt, 1991) has posited that the firm's size, profitability, industry, and AC characteristics influence their IAF. Meanwhile, concerning the AC and IAF

relationship, Bishop et al. (2000) ascertained that the IAF is a valuable source of information for the AC to improve FRQ. DeZoort and Salterio (2001) and Nagy and Cenker (2002) observed that the efficacy of the AC and IAF is crucial to enhancing FRQ. The SEC promulgated that the AC plays a decisive role in ensuring FRQ (SEC, 2003). Phornlaphatrachakorn (2020) found that AC effectiveness and IAF quality enhance FRQ and organisational success. Benkel et al. (2006) revealed that the AC reduces the level of discretionary accruals. However, the literature has been almost silent concerning the influence of the AC quality and IAF quality on the relationship between firm size and FRQ. Thus, it is imperative to examine the likelihood of AC quality and IAF quality being important to the interaction between firm size and FRQ, as shown in Figure 5.1.

The agency theory focuses on the role of the AC and IAF in reducing conflicts of interest between shareholders and managers and enhancing FRQ (Bédard & Gendron, 2010). The agency conflict occurs between managers and shareholders due to opportunistic behaviour and information asymmetry (Adams, 1994) and is a concern of the AC and IAF. The AC and IAF monitor the financial reporting process in their self-interest at the expense of shareholders to minimize the agency costs (Jensen & Meckling, 1976). Moreover, the code of CG code requires that all listed firms to have the mediatory establishment of the AC and internal audit to ensure that they have an internal monitoring system (BSEC, 2018). A larger organisational size allows sufficient resource allocation to the AC and IAF to improve their monitoring efficiency and financial reporting process. Thus, the greater size of the entity, the AC, and the IAF jointly affect the reduction of managers' incentives relating to shareholder equity by ensuring the fairness of FRQ.

The AC's characteristics generally enhance its efficiency in performing its responsibilities (Lin & Hwang, 2010). The AC quality characteristics consist of the AC size, independence, frequency of meetings, and financial literacy, which have been found to be positively associated with high-quality financial reporting (Abbott et al., 2004; Beasley et al., 2000; Bédard et al., 2008; Gendron et al., 2004). On the other hand, the IAF quality attributes comprise internal audit competence, independence, and work performance (AICPA, 1991; IIA, 2012). Earlier studies (e.g., Abbott et al., 2016; Chang et al., 2019; Krishnamoorthy, 2002; Lin et al., 2011; Prawitt et al., 2009; Suwaidan & Qasim, 2010) have revealed that the IAF effectiveness relies on the IAF quality determinants, such as competence, independence, and work performance, and which help to improve FRQ.

Despite the intuitive appeal of the firm size, AC quality, and IAF quality positively affecting FRQ, the prior empirical evidence is not as strong as the intuition would suggest. For example, larger firms have greater monitoring needs and higher incentives to maintain AC effectiveness and FRQ (Klein, 1998). Carcello et al. (2005) revealed that larger firms have a larger budget for internal audits, which changes the IAF performance. Conversely, Prawitt et al. (2009) suggested that a lack of resourcing for the IAF results in poor IAF quality. This flow of research focused on the firm size effects on the AC quality and the IAF, while their relationship with FRQ remains unobserved. On the other hand, several studies have explored the relationship between AC and IAF quality; for example, Al-Jaifi et al. (2019) examined the institutional investor preferences for internal governance mechanisms; Alzoubi (2019) addressed the effect of the existence of an AC and IAF on earnings management; and Gebrayel et al. (2018) studied the AC's and the IAF's influence on FRQ. These studies mostly highlighted the AC characteristics; however, the IAF relationship with FRQ was slightly shaded, and IAF quality determinants were overlooked. Much of the research related to the AC and IAF has been conducted in developed country settings, considering for example the AC quality characteristics associated with financial reporting among US firms (Bédard et al., 2008; Klein, 2002; Song & Windram, 2004). Goodwin and Seow (2002) explored the relationship between AC characteristics and financial statement error in the UK setting; other studies have examined the AC characteristics and IAF relationship with earnings management in the Spanish setting (García et al., 2012; Pucheta-Martínez & De Fuentes, 2007). Meanwhile, from the developing country perspective, few studies (e.g., Al-Sukker et al., 2018; Baatwah et al., 2019; Johl et al., 2013; Mat Zain et al., 2006) have focused on AC and IAF effectiveness. To investigate these knowledge gaps, we pose the following research questions:

RQ. Do AC quality and IAF quality influence FRQ?

RQ. Do AC quality and IAF quality affect the relationship between firm size and FRQ?

Hence, the current study examines the relationship between firm size and FRQ with mediation effects of AC quality and IAF quality in a developing country context, specifically that of Bangladesh.

We answer our research questions using a unique data set of 157 non-financial companies listed on the Dhaka Stock Exchange (DSE) in Bangladesh. Our data are collected from primary (survey questionnaire) and secondary (company annual reports and DataStream) sources. The questionnaire survey, conducted with all listed non-financial firms (223) listed on the DSE, receives a total of 80 useable responses

from the companies' head of internal auditors, chief financial officers (CFOs), and audit committee (AC) members. We estimate abnormal accruals (a proxy for FRQ), and we employ the modified Jones model (Dechow et al., 1996), as described by Kothari et al. (2005), using archival data of the sample firms. Firm size is measured using the total assets of the company (Abbott et al., 2016, 2010; Arena & Azzone, 2009; Davidson et al., 2005; Mat Zain et al., 2006). Larger companies usually have more expanded and decentralized activities that need effective governance monitoring mechanisms (Arena & Azzone, 2009; Goodwin-Stewart & Kent, 2006). The questionnaire responses are utilised to construct AC and IAF quality scores. The audit committee quality (ACQ) score is measured using AC characteristics (i.e., size, independence, meeting, and financial expertise), and the internal audit function quality (IAFQ) score is computed by applying IAF quality attributes (i.e., internal auditor work experience, certification, training, IAF independence, and IAF work performance). Then we employ the structural equation model and multiple regression with our firm size-, AC-, and IAF quality-related variables with control variables against abnormal accruals to examine the association between firm size, AC quality, and IAF quality and FRQ.

The findings of our study contribute to the AC and internal audit literature and have significant implications for concerned parties (e.g., regulators and business entities) regarding several aspects. Firstly, this study examines the association between firm size, AC, and IAF quality and FRQ, constructing composite scores for ACQ and IAFQ using the quartile scheme method, which is unique and has not been adopted in the prior literature. Secondly, earlier studies have addressed the firm size effects on the AC's effectiveness and the IAF's performance; however, this study contributes to a deeper understanding of the relationship between firm size and FRQ through the effects of the AC and IAF quality. Thirdly, this is the first empirical study to address the impact of the AC and IAF quality in the relationship between firm size and FRQ, the results of which will be useful for the entities, investors, and regulators in realizing the importance of the AC and IAF quality in producing high-quality financial reporting. Fourthly, the empirical evidence documented by this study should be valuable for audit researchers interested in linking it to the international empirical findings concerning this issue witnessed in other markets. Finally, our results are relevant to similar economic settings in decision making related to internal monitoring mechanisms.

The remainder of this paper is structured as follows. The following section provides a review of the pertinent literature and hypothesis development. The research methodology is described in Section 3, followed by the empirical results. The paper ends with a summary of the conclusions.

5.2 Literature review and hypothesis development

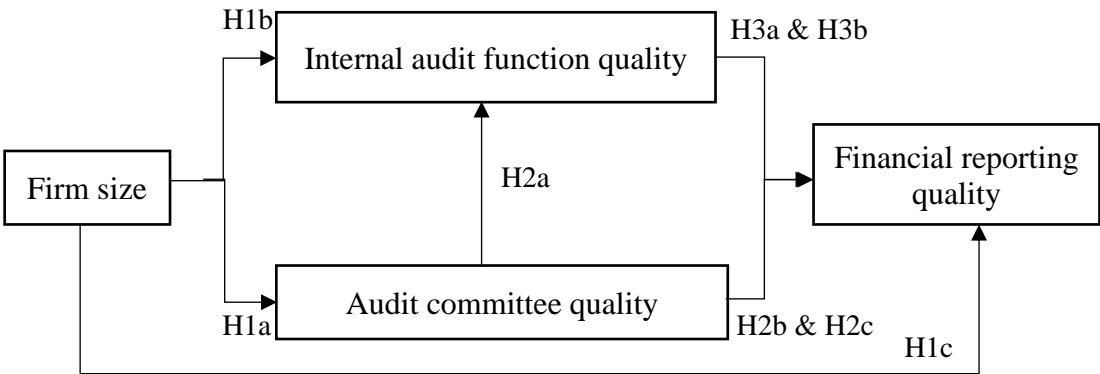
5.2.1 Prior studies on firm size, AC quality, IAF quality, and FRQ

One of the fundamental functions of the internal monitoring mechanisms is to ensure FRQ through the internal monitoring of the firm. Arena and Azzone (2009) posited that the company size and the existence of an AC and IAF influence FRQ. In this study, we examine the relationship between firm size and FRQ with the effect of AC and IAF quality. The agency theory explains the cause of the imperfect relationship or agency conflict between the principal (shareholders) and the agent (management) (Jensen & Meckling, 1976). The AC and IAF are the decisive mechanisms to reduce agency conflict. Of course, firm size has an impact on AC and IAF effectiveness by providing financial resources. The AC plays a crucial role in reducing agency problems and information asymmetry, improving financial reporting reliability (Klein, 2002; Zhou et al., 2020). Similarly, IAF quality attributes play a significant role in ensuring high-quality financial reporting (Abbott et al., 2016; Gros et al., 2017; Prawitt et al., 2009). As mentioned, earlier studies have reported limited investigations of the firm size, mostly in developed economic settings. This stream of research includes a group of studies focusing on examining the firm size effects on AC effectiveness (Carey et al., 2000; Deli & Gillan, 2000; Klein, 1998, 2002; O'Sullivan, 1999) and other groups of studies that investigating the firm size relationship with the IAF (Barua et al., 2010; Carcello et al., 2005; Sarens & Abdolmohammadi, 2011; Vermeer et al., 2006; Wallace & Kreutzfeldt, 1991).

Whereas prior research related to the AC and IAF (Alzoubi, 2019; García et al., 2012; Gebrayel et al., 2018; Phornlaphatrachakorn, 2020; Pucheta-Martinez et al., 2005; Pucheta-Martinez & De Fuentes, 2007) has investigated the AC characteristics and IAF relationship with FRQ, this stream of research has marginally emphasized the AC determinants' relationship with FRQ and highlighted in the internal audit without considering the IAF quality attributes. However, the IAF quality attributes play a significant role in ensuring high-quality financial reporting (Abbott et al., 2016; Gros et al., 2017; Prawitt et al., 2009). In the Bangladeshi context, a few studies have investigated the impact of AC characteristics and their effects on organisations' performance. Rahman et al. (2019) reported that the AC size assists in improving the profitability of firms, but AC independence is scarce. Mat Zain et al. (2006) suggested that internal auditors contribute to the financial reporting process when the AC is independent, and members possess

financial knowledge. Adhikary and Mitra (2016) showed that AC independence is related to firm size and leverage. They confirmed that large firms with potential opportunities reduce the freedom of the AC, while firms with high leverage demand AC independence to ensure FRQ. Ali and Meah (2021) investigated the factors of AC independence and reported that larger corporate boards and independent directors increase AC independence. Thus, the current study examines the impact of AC quality and IAF quality on FRQ, which has not been widely tested in developed or developing country contexts. In terms of AC characteristics, the Blue-Ribbon Committee (BRC, 1999) recommended that AC quality attributes comprise AC size, independence, meeting, and financial expertise. These recommendations expect to result in more effective AC oversight of the financial reporting process (Abbott et al., 2004). Concerning the internal audit quality components, the Institute of Internal Auditors (IIA) stipulated that the IAF quality comprises internal auditor competence, independence, and work performance (AICPA, 2013; IIA, 2012), which have been found to be significantly positively associated with FRQ (Abbott et al., 2016; Chang et al., 2019; Krishnamoorthy, 2002; Lin et al., 2011; Prawitt et al., 2009; Suwaidan & Qasim, 2010).

Figure 5.1 The conceptual model of the firm size-financial reporting quality relationships



5.2.2 Hypothesis development

5.2.2.1 Relationship between firm size and AC quality

Firm size is one of the crucial factors in improving AC quality. The resource dependence theory explains that the AC may rely on the board members for financial resources to attain a competitive advantage in internal monitoring efficiency (Cohen et al., 2008; Hasan et al., 2020). AC quality also helps to reduce agency problems by improving its supervision of the board and management (Ruiz-Barbadillo et al., 2007). Thus, company size and required resource allocation are important aspects to ensure AC quality and a sound internal monitoring system. Carcello et al. (1992) determined that firm size is one of the

most crucial factors for AC quality. Firm size is also a determinant of audit fees and auditor choices as larger companies need to exert greater audit effort due to their high business volume (O'Sullivan, 1999). Klein (2002) examined the relationship between the AC and the board characteristics and found that larger firm size has a significant effect on the AC effectiveness. This finding reflects that the larger firms provide more resources for AC quality than the smaller firms. However, Al-Najjar (2013) asserted that firm size is negatively associated with AC independence. Deli and Gillan (2000) investigated factors related to the AC composition and showed that the firm size is positively associated with the AC, while DeZoort et al. (2002) suggested that AC effectiveness is related to the qualified members with the resources and authority to secure shareholders' interest by producing reliable financial reporting, internal control, and risk management through decent oversight efforts. Hence, it is likely that firm size plays a decisive role in improving AC quality. Based on the above findings, the following hypothesis is stated:

H_{1a} Firm size is positively associated with AC quality.

5.2.2.2 Relationship between firm size and IAF quality

The IAF needs to have adequate resources to ensure its effectiveness. The resource dependence theory posits that the management may depend on the board of directors for the necessary resource allocation to increase effective performance (Cohen et al., 2008; Hillman et al., 2009). Moreover, the IAF should be well-resourced to enhance its quality as it makes a significant contribution to decreasing agency conflict and minimizing agency costs (Adams, 1994). Large firms are likely to allocate more resources to their IAF to meet their potential needs (training, staffing, and external certification). Sarens and Abdolmohammadi (2011) investigated this issue utilizing data from the Belgian context and showed that the firm's size is one of the significant factors in the IAF's size and effectiveness. Carcello et al. (2005) found a positive association between the firm size and the financial budget for the IAF. They specified that a larger budget is associated with the large financial resources of a firm, which has a positive impact on the IAF. Krane and Eulerich (2020) examined the drivers of IAF internationalization. The study revealed that firm size is one of the drivers associated with the degree of IAF internationalization. Moreover, the IAF size, existence, and budget are influenced by several firm-level determinants, such as firm size (Wallace & Kreutzfeldt, 1991). Alhajri (2017) contended that the size of the IAF is not significantly related to the size of the firm, though the result is not consistent with those of other similar studies,

possibly due to the data sample being from a smaller market size. Goodwin-Stewart and Kent (2006) examined this issue using data related to Australian companies and found that IAF effectiveness is strongly related to firm size and risk management. Thus, large firms allocate more resources to the IAF to improve internal monitoring efficiency. The following hypothesis is suggested:

H_{1b}. Firm size is positively associated with IAF quality.

5.2.2.3 Relationship between firm size and FRQ

The resource dependence theory describes that board members as being responsible for allocating resources to internal monitoring mechanisms to attain competitive advantages in FRQ (Hasan et al., 2020; Hillman et al., 2009). Large companies usually employ more resources to ensure monitoring mechanisms and high-quality financial reporting. Much previous research (Watts & Zimmerman, 1981) has suggested that financially wealthy firms are more capable of maintaining earnings management to increase reliability. Large firms provide more resources for an effective AC and IAF to prepare high-quality financial reporting through their stringent monitoring system (DeZoort et al., 2002). Xie et al. (2003) explored the role of the AC, executive committee, and board of directors in preventing earnings management. The findings of the studies showed that earnings management is less likely to happen in companies that include more independent board members and corporate expertise. They also concluded that firm size is positively related to board independence. Several more relevant studies have witnessed firm size as being positively and significantly related to FRQ (Abbott et al., 2016; Alzeban, 2019; Alzoubi, 2019; Gros et al., 2017; Johl et al., 2013; Mardessi, 2021; Phornlaphatrachakorn, 2020; Prawitt et al., 2009). Based on the above, the research findings confirm that firm size significantly affects FRQ. Hence, we expect firm size to be crucial to reducing earnings management and ensuring high-quality financial reporting, leading to the following hypothesis:

H_{1c}. Firm size is positively associated with FRQ.

5.2.2.4 Relationship between AC quality and IAF quality

AC is a unique form of CG mechanism for overseeing the IAF's performance and FRQ. It is required to review internal audit programmes and maintain the adequacy of the scope of internal audits (Mat Zain et al., 2006). The IAF is also increasingly being trusted by ACs to deliver their CG responsibilities. More specifically, the AC corresponds with the IAF to diminish the information asymmetry problem

between executive managers and itself (Sarens et al., 2009). In this regard, AC characteristics are crucial to ensure the supervision of IAF quality. Carcello et al. (2005) argued that, to ensure IAF quality and assistance for the AC, the AC should monitor the IAF's performance. Prior studies have predominantly focused on AC effectiveness rather than AC quality characteristics' effects on IAF quality; for example, DeZoort and Salterio (2001), Harrington (2004), and Nagy and Cenker (2002) considered the AC effectiveness necessary to improve IAF quality. Turley and Zaman (2007) posited that the AC supports enhanced IAF effectiveness, which ultimately turns into a good resource to execute its obligations. Concerning the relationship between AC quality characteristics and IAF quality, the BRC (1999) and the National Commission on Fraudulent Financial Reporting (1987) argued that frequent meetings between the AC and the internal auditors improve IAF effectiveness. Haron et al. (2005) investigated the companies' compliance requirements relating to the AC in the Malaysian context. They found that AC meetings and independence are likely to be beneficial to IAF quality improvement. McHugh and Raghunandan (1994) concluded that the AC's regular meetings with internal auditors are valuable for IAF quality. Strawser et al. (1995) contented that frequent IAF meetings and reporting to the AC should improve IAF quality. Earlier studies also noted that AC quality characteristics (e.g., independence, financial expertise, and frequent meetings) positively and significantly affect IAF quality (Alzeban & Sawan, 2015; Mat Zain et al., 2006; Sarens et al., 2013). McDaniel et al. (2002) noted that the AC members' knowledge and expertise are vital for the effective handling of internal audits to address and solve potential audit risks. Adel and Maissa (2013) found that the AC and IAF relationship is positively associated with the AC member's financial knowledge. Krishnan and Lee (2009) emphasized the AC's financial expertise, which helps to increase IAF quality. AC independence involves a certain degree of support and adds quality to the IAF (Mat Zain et al., 2006; Zaman & Sarens, 2013). Thus, AC quality characteristics are a significant driver in enhancing IAF quality. The hypothesis is formulated as follows:

H_{2a}. AC quality is positively related to IAF quality.

5.2.2.5 Relationship between AC quality and FRQ

The AC performs a tremendous role in ensuring the integrity of financial reporting by reducing earnings management, fraudulent reporting, and illegal actions (Asiedu & Deffor, 2017). AC quality characteristics (i.e., size, independence, meetings, and financial expertise) are crucial to monitoring financial

reporting procedures. Abbott et al. (2004) and Lin and Hwang (2010) noted that an AC's quality characteristics assist in enhancing its efficiency and performance in the preparation of high-quality financial reporting. Substantial archival literature has reported the effects of AC determinants on FRQ (e.g., Al-Jaifi et al., 2019; Alzoubi, 2019; García et al., 2012; Gebrayel et al., 2018; Ghazali & Shafie, 2019; Khoo et al., 2020; Mardessi, 2021; Phornlaphatrachakorn, 2020; Pucheta-Martínez et al., 2005; Pucheta-Martínez & De Fuentes, 2007).

The hypothesis relates to the relationship between AC quality attributes and FRQ. Prior studies have addressed the effects the AC's quality attributes on FRQ and showed their relative importance. For instance, several studies have found that AC size is significantly associated with FRQ as they share diverse skills and experiences (Dhaliwal et al., 2010; Pucheta-Martínez & De Fuentes, 2007), while other have shown that it is irrelevant to the financial reporting process (Davidson et al., 2005; Mardessi, 2021; Xie et al., 2003). Related to the AC meetings, an AC can be more effective when AC members hold frequent meetings. Gebrayel et al. (2018), Menon and Williams (2004), and Xie et al. (2003) suggested that regular meetings between AC members are negatively related to the level of earnings management and better financial statement monitoring. However, Shahkaraiah and Amiri (2017) showed that AC meetings are negatively and significantly related to FRQ. Conversely, AC independence is often considered an imperative tool to enhance AC efficiency in overseeing the financial reporting process. Several studies have investigated whether AC independence affects FRQ. The results reflect a positive association between AC independence and FRQ (Amin et al., 2018; Davidson et al., 2005; Klein, 2002). The AC's financial expertise is deemed crucial to the AC's effectiveness as it requires the performance of multiple duties that need a high level of financial knowledge (DeFond et al., 2005). Abbott et al. (2004) posited that having financial expertise in AC could be better for FRQ. Dhaliwal et al. (2010) revealed that AC financial literacy increases FRQ. However, Katmon and Al Farooque (2017) found an insignificant association between the financial expertise and AC discretionary accruals. Based on the above literature findings, the AC's characteristics are important to reducing earnings restatement and ensuring FRQ. Moreover, AC quality significantly affects the relationship between firm size and FRQ. Hence, it is likely that AC quality mediates the association between firm size and FRQ. A larger firm size has a positive impact on the AC quality, and better AC quality leads to high-quality financial reporting. Thus, the hypotheses are posited as follows:

H_{2b}. AC quality is positively associated with FRQ.

H_{2c}. AC quality mediates the relationship between firm size and FRQ.

5.2.2.6 Relationship between IAF quality and FRQ

IAF quality depends on the outcomes of better AC quality, which leads to higher FRQ. Professional agencies (e.g., AICPA, 1991; IIA, 2012) have stipulated that IAF quality attributes comprise internal auditor competence, independence, and work performance. Earlier literature (e.g. Abbott et al., 2016; Alzeban & Sawan, 2015; Chang et al., 2019; Krishnamoorthy, 2002; Lin et al., 2011; Prawitt et al., 2009; Suwaidan & Qasim, 2010) has considered these attributes to be indicators of IAF quality and suggested that FRQ is significantly related to the IAF quality attributes. Archival studies have largely emphasized the IAF's competence and independence to examine the relationship between IAF quality and FRQ (Abbott et al., 2012; Messier et al., 2011; Prawitt et al., 2009). In this study, besides IAF competence and independence, we include IAF work performance to measure IAF quality.

Our third hypothesis is related to the relationship between IAF quality and FRQ. The agency theory explains the agency problem between the principal (shareholders) and agent (management) (Jensen & Meckling, 1976). The IAF assists in alleviating agency conflicts and information asymmetry (Adams, 1994; DeFond, 1992) and detecting fraud in the preparation of financial reporting (Coram et al., 2008). Thus, we expect that the IAF quality attributes decrease earnings management and enhance FRQ. Previous literature (Abbott et al., 2016; Gros et al., 2017; Prawitt et al., 2009) has asserted that IAF quality is associated with high-quality financial reporting. Prawitt et al.'s (2009) archival study was the first to examine the relationship between IAF quality attributes and FRQ using the GAIN database. They measured IAF quality determinants by following external auditing standards relating to competence and objectivity. They confirmed a positive relationship between IAF quality and FRQ. Abbott et al. (2016) explored IAF quality (competence and independence) joint effects on FRQ using a survey and archival data. They reported that IAF quality positively affects FRQ. Gros et al. (2017) addressed the relationship between IAF quality and FRQ in the German setting and revealed that IAF quality reduces earnings management and ensures a high level of FRQ. Phornlaphatrachakorn (2020) reported that IAF quality is positively and significantly related to FRQ and organisational success.

Whereas several studies have reported contrary results, Johl et al. (2013), for example, noted a negative relationship between IAF quality and FRQ; however, some IAF quality attributes showed a significant association with FRQ. Davidson et al. (2005) found a negative association between the IAF and earnings management. Similarly, García et al. (2012) indicated that the IAF is negatively related to earnings management. These three literature findings are consistent; however, they primarily emphasize the formation and presence of an IAF but overlook the design or qualities of the IAF. Despite several negative results concerning IAF quality and FRQ, we still believe that IAF quality attributes improve the performance of internal auditors and assist in reducing financial reporting errors and enhancing FRQ. Moreover, IAF quality plays a decisive role in the relationship between firm size and FRQ. Thus, it is likely that larger firms have better IAF quality, and better IAF quality leads to higher FRQ. Thus, we expect that IAF quality mediates the relationship between firm size and FRQ. The following hypotheses are proposed:

H_{3a} IAF quality is positively associated with FRQ.

H_{3b} IAF quality mediates the relationship between firm size and FRQ.

5.3 Research methodology

5.3.1 Sample and data collection

This study addresses the role of the IAF quality in the relationship between AC quality and FRQ utilizing a survey questionnaire and archival data. A survey was conducted on non-financial firms listed on the Dhaka Stock Exchange (DSE) in Bangladesh. Consistent with the earlier AC and internal audit research (e.g., Abbott et al., 2004; Alzeban & Sawan, 2015; Alzoubi, 2019; García et al., 2012), our survey targeted head of internal auditors, AC members, and chief financial officers (CFOs). The survey posed questions about the participant company's general information, IAF service provided, IAF quality attributes, and AC information. We emailed our survey questionnaire to 197 listed non-financial firms in February 2021 and received a total of 48 usable responses. To promote a high volume of responses from the participants, we sent two reminders every 2 weeks after the beginning and subsequent follow-up emails. After the fourth week (March 2021), we made a telephone call to all non-responding recipient firms to encourage them to participate in the survey and obtained an additional 37 answers, thereby increasing the total to 85 responses (a company-specific response rate of 43%) (Table 5.1). This response rate is fairly

reasonable compared with the achieved rates by earlier studies. For instance, Alzeban and Sawan (2015), addressing AC characteristics' impact on the implementation of internal audit recommendations, obtained a response rate of 34% from the UK-listed firms. Zaman and Sarens (2013), studying the relationship between the AC and the IAF, reported a response rate of 28.8%. Leung et al. (2011), investigating the relationship between the management and accountability structures and the IAF, achieved a response rate of 21.4%.

Table 5. 1 Sample selection process

	Sample Firms	%
<i>Survey sample description and responses breakdown</i>		
Total sample size	223	
Questionnaires distributed	197	100
Questionnaire responses received	85	43
Missing questionnaires information (Unusable)	-2	1
DataStream missing data of respondent firms	-3	2
Final responses used merged with dependent and control data	80	41
<i>Sample description of Discretionary accruals and Kothari m-Jones model</i>		
Total number of DSE listed firms (financial and non-financial)	604	
Total listed financial firms	367	
Total listed non-financial firms	223	100
Firms excluded due to the small industry	-26	12
Sample firms missing data items for model estimation	-40	18
Total observation used for abnormal accruals estimation - Kothari m-Jones model	157	70

Of the total 85 responses, two responses were eliminated due to incompleteness and double submission by the same participant, bringing our total to 83. We calculate AC quality and IAF quality using 80 survey responses because three more responses were eliminated as the respondent company's financial statements did not match the abnormal accruals (ABNACC), as shown in Table 5.1. We estimate the ABNACC of the modified Jones model using 157 non-financial companies from eight distinctive industries from 2018 to 2020, as presented in Table 5.1. The archival data are extracted from secondary sources (e.g., company annual reports, Thomson Reuters DataStream, and the DSE official website) to estimate the dependent variables (ABNACC) and continuous variables. Financial institutions are excluded from the sample due to their unique industry regulations and accounting implications.

5.3.2 Variable measurement

5.3.2.1 Dependent variable

To measure FRQ, we apply the *ABNACC* model as a proxy for FRQ (Francis, 2011), following the prior literature (Abbott et al., 2016; Alzeban, 2019; Johl et al., 2013; Prawitt et al., 2009). We adopt the performance-adjusted cross-sectional modified Jones model (Dechow et al., 1996) to estimate abnormal accruals, as described by Kothari et al. (2005). Kothari et al.'s model includes both an intercept term and a measure of performance. Following previous research, we measure industry-specific coefficients to calculate abnormal accruals based on the year and company (ISIN code) for all listed non-financial firms (Dhaka Stock Exchange) in DataStream 2020. We estimate *ABNACC* as the residual from the following regression:

$$\left[\frac{TA_{it}}{A_{it-1}} \right] = \beta_0 + \beta_1 \left[\frac{1}{A_{it-1}} \right] + \beta_2 \left[\frac{(\Delta REV_{it} - \Delta AR_{it})}{A_{it-1}} \right] + \beta_3 \left[\frac{PPE_{it}}{A_{it-1}} \right] + \beta_4 \left[\frac{NI_{it}}{A_{it-1}} \right] + \varepsilon_{it}$$

Where, TA_{it} is the total accruals for estimation firm i in year t , A_{it-1} is the total assets at $t-1$ for firm i , ΔREV_{it} is the change in net revenue, ΔAR_{it} is the change in accounts receivable, PPE_{it} is the gross property, plant, and equipment and NI_{it} is the net income for estimation firm i in year t . We then investigate the *ABNACC*'s relationship with the IAFQ score to establish whether they are positively or negatively associated.

5.3.2.2 Independent variable

The firm size (*FIRMSIZE*) is computed using the total assets of the company (Abbott et al., 2016, 2010; Arena and Azzone, 2009; Davidson et al., 2005; Mat Zain et al., 2006). We expect that *FIRMSIZE* (log of company assets) increases the size of the abnormal accruals (Dechow and Dichev, 2002). Firm size data extract from the company's annual reports and DataStream sources. Consistent with prior related studies, we expect that the *FIRMSIZE* is positively associated with FRQ (Abbott et al., 2016; Davidson et al., 2005; Gros et al., 2017; Mat Zain et al., 2006).

To measure AC quality (ACQ), we use survey questionnaire responses and company annual report information related to the AC quality characteristics (e.g., size, independence, meetings, and financial literacy). AC size is the number of AC members (Davidson et al., 2005; García et al., 2012; Mardessi, 2021). AC independence is the proportion of independent members of the AC (Abbott et al., 2004;

Davidson et al., 2005; García et al., 2012; Ghazali and Shafie, 2019). AC financial expertise is calculated by the proportion of AC members with financial experts (Abbott et al., 2004; Carcello et al., 2005). AC meetings are the number of meetings held between AC members in a financial year (Davidson et al., 2005; García et al., 2012; Mardessi, 2021). Subsequently, we calculate quartile scores on all AC components and cumulated them to construct an AC quality score, as shown in Table 5.2.

Table 5. 2 AC quality score (ACQ score)

	Description	Measurement technique
<i>ACQ-characteristics</i>		
(1) <i>AC size</i>	The number of AC members	Quartile score
(2) <i>AC independence</i>	The percentage of independent AC members	Quartile score
(3) <i>AC meetings</i>	The number of AC meetings held in one year	Quartile score
(3) <i>AC financial expertise</i>	The proportion of financial expertise AC members	Quartile score
ACQ score (AC size + AC independence + AC meetings + AC financial expertise)		Cumulative score

While (*IAFQ score*) computes using five IAF quality factors (i.e., internal audit employee work experience, professional certification, average annual training days, IAF independence, and IAF work performance) questionnaire responses (Abbott et al., 2016; Gros et al., 2017; Johl et al., 2013; Prawitt et al., 2009). IAF quality independence and work performance are measured by applying the principal component method (PCM) to check the correlation between variables (KMO and Bartlett’s test). Afterward, we utilise a quartile scouring scheme on all five IAF quality attributes to measure a composite score of IAF quality. The quartile scores of five IAF quality attributes are accumulated to construct *the IAFQ score*, as presented in Table 5.3.

Table 5. 3 Internal audit function quality score (IAFQ Score)

	Description	Measurement technique	
<i>IAFQ-attributes</i>			
<i>(1) IAF competence</i>			
(a) Internal auditor work experience	Percentage of internal auditors work experience, who possess at least three years of professional experience		Quartile score
(b) Internal auditor professional certification	Percentage of internal auditors with one or more audit certification		Quartile score
(c) Internal auditor training	Internal auditors' average number of training days during last year		Quartile score
<i>(2) IAF independence</i>	Likert-scale survey responses factorize to obtain useable data	Factor analysis	Quartile score
<i>(3) IAF work performance</i>	Factor test performs on IAF work performance-related Likert-scale questions	Factor analysis	Quartile score
IAFQ score (Internal auditor work experience + certification + training+ IAF work performance)			Cumulative score

5.3.2.3 Control variables

Following prior studies, we encompass several firm-specific factors that may influence the level of FRQ, as shown in Table 5.4. We control *AGE* is the number of years the company appeared on the DataStream; it includes because firms may experience several accruals patterns on the firm life cycle (Abbott et al., 2016; Prawitt et al., 2009). We include *ROA* (Return on Assets) and *LOSS* to control for performance because low performance increases an incentive for accruals management. *ROA* computes as net income scaled by total assets and *LOSS* (coded “1” if the firm experienced a loss in the preceding year, “0” otherwise) (Arun et al., 2015; Tanyi and Smith, 2015). *CFO* (cash flows from the operation), *CFOVOL* (Operation cash flows volatility), and *SGROWTH* (sales growth from the preceding year) are included because these variables may affect the accrual estimation (Dechow et al., 1996; Menon and Williams, 2004). The variable *LEVERAGE* (total debt/total assets) controls the company’s debt effects and income-decreasing accruals (Bravo and Reguera-Alvarado, 2018; Press and Weintrop, 1990). Earlier studies reveal that independent directors (*BINDP*) play a key role in strengthening CG and enhancing FRQ (Bravo and Reguera-Alvarado, 2018; Habib and Bhuiyan, 2016).

5.3.2.4 Model specification

We use the structural equational model (SEM) to examine the mediation effect of the AC quality, and IAF quality on the relationship between firm size and FRQ. The SEM is an appropriate statistical method for a composite-based approach (Sarstedt et al., 2016). Additionally, least squares (OLS) regression models are utilised to test the variables' relationships. In this study, we test the effect of the IAF quality and AC quality on FRQ as estimated by abnormal accruals (*ABNACC*). The following models utilise to test our hypotheses:

$$ACQ_i = \beta_0 + \beta_1 FIRM SIZE_i + \beta_2 AGE_i + \beta_3 LEVERAGE_i + \beta_4 CFO_i + \beta_5 SGROWTH_i + \beta_6 COFVOL_i + \beta_7 ROA_i + \beta_8 BINDP_i + \varepsilon_i \quad (1)$$

$$ABNACC_i = \beta_1 ACQ_i + \beta_2 IAFQ_i + \beta_3 FIRM SIZE_i + \beta_4 AGE_i + \beta_5 LEVERAGE_i + \beta_6 CFO_i + \beta_7 SGROWTH_i + \beta_8 COFVOL_i + \beta_9 ROA_i + \beta_{10} BINDP_i + \varepsilon_i \quad (2)$$

$$IAFQ_i = \beta_0 + \beta_1 FIRM SIZE_i + \beta_2 AGE_i + \beta_3 LEVERAGE_i + \beta_4 CFO_i + \beta_5 SGROWTH_i + \beta_6 COFVOL_i + \beta_7 ROA_i + \beta_8 BINDP_i + \varepsilon_i \quad (3)$$

$$IAFQ_i = \beta_0 + \beta_1 ACQ_i + \beta_2 FIRM SIZE_i + \beta_3 AGE_i + \beta_4 LEVERAGE_i + \beta_5 CFO_i + \beta_6 SGROWTH_i + \beta_7 COFVOL_i + \beta_8 ROA_i + \beta_9 BINDP_i + \varepsilon_i \quad (4)$$

In Table 5.4, the variable definitions are explained. Based on the earlier literature, we expect AC quality (*ACQ*) to be negatively (positively) associated with *ABNACC* (FRQ) (Dhaliwal et al., 2010; García et al., 2012; Mardessi, 2021; Menon and Williams, 2004). AC quality (*ACQ*) is expected to be positively related to IAF quality (*IAFQ*) (Alzeban and Sawan, 2015; Mat Zain et al., 2006; Rezaee et al., 2003). We also expect that IAF quality (*IAFQ*) to be negatively (positively) associated with *ABNACC* (FRQ) (Abbott et al., 2016; Prawitt et al., 2009). The direction of the relationship between *ACQ* and FRQ, *ACQ* and *IAFQ*, *ACQ* and *IAFQ* mediation effect on the association between *FIRM SIZE* and FRQ is undetermined.

Table 5.4 Variable definition and measurement

Variable	Description
<i>ABNACC</i> (FRQ)	FRQ estimates using the total value of abnormal accruals adopting the Kothari <i>et al.</i> (2005) version of the modified Jones model. Abnormal accruals are the error term of the equation below: $[TAit/Ait-1] = \beta_0 + \beta_1 [1/Ait-1] + \beta_2 [(\Delta REVit - \Delta ARit)/Ait-1] + \beta_3 [PPEit/Ait-1] + \beta_4 [NIit/Ait-1] + \varepsilon it$ Where TA is the total accruals for estimation firm <i>i</i> for year <i>t</i> , <i>Ait-1</i> is the total assets at <i>t</i> – 1 for firm <i>i</i> , $\Delta REVit$ is the change in net revenue, $\Delta ARit$ is the change in account receivable, <i>PPEit</i> is gross property, plant, and equipment, and <i>NIit</i> is the net income for estimation firm <i>i</i> for year <i>t</i>
<i>FIRMSIZE</i>	Natural log of total assets
<i>ACQ score</i>	ACQ composite score construct using AC characteristics (size, independence, meetings, and financial expertise)
<i>IAFQ score</i>	IAFQ score is the unweighted average score of IAF competence (employee experience, certification, training), IAF independence, and work performance
<i>AGE</i>	The number of years since a firm first appearance in the DataStream database
<i>LEVERAGE</i>	Debt as a proportion of total assets
<i>CFO</i>	Cash flow from operations scaled by lagged total assets
<i>SGROWTH</i>	Sales growth (sales of current period minus sales of prior year) divided by sales of the prior year
<i>CFOVOL</i>	Standard deviation of Cash flow from operations for 2018-2020
<i>LOSS</i>	Dummy variable equal to 1 if a company experienced a loss in the fiscal year 2020, 0 otherwise
<i>ROA</i>	Net income scaled by total assets
<i>BINDP</i>	Percentage of the independent directors to the total number of board members

5.4 Results

5.4.1 Descriptive statistics

Tables 5.5, 5.6, and 5.7 present the summary statistics of the study. Tables 5.5 and 5.6 contain the descriptive results for the 80 respondent firms' IAF and AC quality characteristics scores. The survey results show that, on average, about three-quarters of the IAF employees have more than 3 years of work experience, and nearly 25% have a professional certification, as shown in Table 5.5. The annual training days vary between 0 and 60 days, with a mean (median) of about 19 (30) days. The IAF independence mean (median) is 1 (0.8788), which is lower than the IAF work experience of 2.99. The overall IAFQ

score mean (median) is 3.3170 (3.25), with a minimum value of 2 and a maximum value of 4.75, which reflects a moderate variation that exists between firms, as shown in Table 5.5.

Table 5.5 IAF quality score measurement

IAF quality attributes	Obs	Mean	Median	SD	Min	Max
<i>IAF competence</i>	80	2.0152	2	0.4813	1	3
% Auditors with >3 years' work experience	80	0.7651	0.75	0.1603	0.4	1
% Auditors with external certification	80	0.2464	0.25	0.1434	0	0.6666
Internal auditor training days per year	80	19.06	20	9.012	0	60
<i>IAF independence</i>	80	1	0.8788	0.7074	0.1472	4.0651
<i>IAF work performance</i>	80	2.9999	2.9787	0.6463	0.5184	4.4305
Total IAFQ score	80	3.3170	3.25	0.6357	2	4.75

Notes: All IAF quality components definitions are defined in Table 5.3.

To obtain a positive value of IAF independence and IAF work performance, we recalibrated both factor values by adding 2.

Table 5.6 provides the descriptive statistics for AC quality scores. The results show that the AC size average (median) is 3.42 (3), with the lowest number being three and the highest of 10 members. Regarding the average number of meetings held between AC members, the mean (median) is about 4.58 (4), which indicates that all the respondent companies meet the requirement of the Bangladeshi Code of CG regarding the minimum number of AC size and number of meetings (BSEC, 2018). The results further indicate that the mean (median) number of AC independent members is 1.42 (1), with the lowest value of 1 and the highest value of 4, while the minimum number of financial expertise in the AC is 1 and the maximum is 4, with a mean of 3.12. This shows that all the selected companies comply with the Bangladeshi CG code's minimum requirement concerning AC independent and financial expert members (BSEC, 2018).

Table 5.6 ACQ score measurement

ACQ-characteristics	Obs	Mean	Median	SD	Min	Max
<i>AC size</i>	80	3.4268	3	0.6826	3	6
<i>AC meeting</i>	80	4.5853	4	1.1913	3	10
<i>AC independence</i>	80	1.4268	1	0.6067	1	4
<i>AC financial expertise</i>	80	1.7195	1	0.9161	1	5
Total ACQ score	80	3.1209	3.25	0.4211	1.75	3.75

Notes: All IAF quality components definitions are defined in Table 5.2.

Table 5.7 presents the descriptive scores for the *ABNACC* and control variables. The results show that the mean (median) *ABNACC* is -0.0045 (0.0035) and ranges from the lowest score of -0.5618 to the highest score of 0.2199. The results also indicate that the sample firms' assets size has a mean (median) of TK12.24 million (TK36.10 million) and their mean (median) age is 14.80 (12) years. While the sample firms' leverage is relatively high (mean 49.83%; median of 42.93%), their operating cash flow is TK71.96 million (mean) and TK 12.170 million (median). Notably, the average sales growth from 2019 to 2020 was 6.59%, and the mean (median) *ROA* is 3.8% (3.21%), with a range from a minimum value of -2.9% to a maximum value of 18.94%, which indicates that a financial performance gap exists between companies. Additionally, it shows that the mean of board of directors' independence is 24.93%, with the lowest values of 0 and the highest of 69.89%.

Table 5.7 *ABNACC* and control variables summary statistics

Variable name	Obs	Mean	Median	SD	Min	Max
<i>ABNACC</i>	80	-0.0045	0.0035	0.1672	-0.5618	0.2199
<i>FIRMSIZE (TK'000)</i>	80	1224790	3610384	2768810	64247	292717
<i>LFIRMSIZE</i>	80	22.0380	22.0259	1.7349	18.0728	26.0224
<i>AGE</i>	80	14.80	12	8.9783	2	28
<i>LEVERAGE</i>	80	0.4983	0.4293	0.4644	0.0195	3.0409
<i>CFO (TK'000)</i>	80	719612	121709	266836	-101597	248204
<i>CFO</i>	80	0.0568	0.0443	0.0856	-0.1029	0.3475
<i>SGROWTH</i>	80	0.0659	0.0542	0.7447	-0.6365	0.8733
<i>CFOVOL</i>	80	0.0462	0.0372	0.0362	0.0028	0.2100
<i>LOSS</i>	80	0.1102	0	0.3137	0	1
<i>ROA</i>	80	0.0380	0.0321	0.0891	-0.2899	0.1894
<i>BINDP</i>	80	0.2493	0.3010	0.1907	0	0.6989

Notes: All variable definitions describe in Table 5.4.

ABNACC is Kothari et al.'s (2005) form of the modified Jones model to estimate abnormal accruals, *FIRMSIZE* is the taka value of total assets in millions, *AGE* is the years since the company's appearance in the DataStream, *LEVERAGE* equals the total debt (sum of long- and short-term debt) of a company, *CFO* is the cash flow from operations scaled by lagged total assets. *ROA* equals a return on assets, *LOSS* is coded "1" if the firm had losses, and "0" otherwise, *SGROWTH* is the percentage of one-year sales growth, *CFOVOL* is the standard deviation of the cash flows from operations for 2018-2020.

Table 5.8 reports the Pearson correlation coefficients between *ABNACC*, *FIRMSIZE*, *ACQ*, and *IAFQ* results. The correlation shows that the *ABNACC* is negatively correlated with *FIRMSIZE*, *ACQ*, and *IAFQ*, which supports our hypotheses. We undertake a robustness check for multicollinearity in the model and carry out an assessment of the variance inflation factor (VIF) (Table 5.8). The VIF value is at a satisfactory level, showing no multicollinearity problem (Gujarati, 2003). Specifically, the highest VIF level is 2.29 (less than 10), which indicates that multicollinearity is no longer a problem in the model.

Table 5.8 Pairwise Spearman correlation matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	VIF
1. ABNACC	1												
2. LFIRMSIZE	-0.0683 (0.5473)	1											1.30
3. ACQ score	-0.0707 (0.5333)	-0.0719 (0.5265)	1										1.20
4. IAFQ score	-0.0964 (0.3951)	0.2738*** (0.0140)	0.0042 (0.9707)	1									1.52
5. AGE	-0.0449 (0.6923)	-0.2120 (0.0603)	-0.1056 (0.3513)	-0.0071 (0.9504)	1								1.33
6. LEVERAGE	-0.0848 (0.4544)	-0.1166 (0.3029)	0.0436 (0.7007)	-0.0059 (0.9585)	-0.2491** (0.0259)	1							1.61
7. CFO	-0.2260** (0.0438)	0.0845 (0.4563)	0.1322 (0.2424)	0.0557 (0.6238)	-0.0632 (0.5773)	-0.1154 (0.3079)	1						1.57
8. SGROWTH	0.0906 (0.4241)	0.1329 (0.2400)	0.3078*** (0.0055)	0.1211 (0.2846)	0.1252 (0.2684)	-0.3369*** (0.0022)	0.2510** (0.0247)	1					1.58
9. CFOVOL	0.1733 (0.1242)	-0.1357 (0.2300)	0.1182 (0.2963)	0.0243 (0.8308)	0.1918* (0.0883)	0.1692 (0.1335)	0.1728 (0.1254)	-0.0784 (0.4895)	1				1.39
10. LOSS	-0.3354*** (0.0024)	-0.2528** (0.0237)	-0.1135 (0.360)	0.0655 (0.5625)	0.2784** (0.0124)	0.4370*** (0.000)	-0.2014* (0.0733)	-0.2054 (0.0676)	-0.1200 (0.2910)	1			2.29
11. ROA	0.1476 (0.0686)	0.1911 (0.0896)	0.1237 (0.2742)	0.1482 (0.1894)	-0.0621 (0.5842)	-0.2753** (0.0135)	-0.5423*** (0.000)	0.2107 (0.0606)	0.0946 (0.4040)	-0.5257*** (0.000)	1		2.37
12. BINDP	-0.1457 (0.1971)	0.3748*** (0.0006)	0.1878* (0.0953)	0.0391 (0.7306)	-0.1102 (0.3305)	-0.1988* (0.0771)	0.2606** (0.0196)	0.0529 (0.6409)	0.0909 (0.4220)	0.1021 (0.3673)	0.1009 (0.3732)	1	1.73

Variables defined in Table 5.4, *p* values reported in parentheses

Statistical significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

5.4.2 Multivariate analysis

Table 5.9 reports the SEM path coefficients and hypothesis test results of the relationship between firm size, AC quality, IAF quality, and ABNACC (a proxy for FRQ). Tables 5.10 shows the ordinary least squares (OLS) regression results of the FRQ relationship with firm size, AC quality, IAF quality, and control variables. First, we assess whether the model ‘fits’ the data using different goodness of fit indices by analysing the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the goodness of fit index (GFI), and the standardized root mean square residual (SRMR). The RMSEA’s acceptable fit ranges are 0 to .08 (Pituch & Stevens, 2016). A CFI value below .90 indicates that the model has a good fit (Schumacker & Lomax, 2016). The GFI statistic ranges from 0 to 1, and the values .90 or higher indicate a good model fit (Byrne, 1998). The SRMR ranges from 0 to 1, with a good fit obtaining values less than 0.05 (Byrne, 1998). In our model, the goodness of fit statistics values show that the model fits the data well (RMSEA = 0.08, CFI = 0.81, GFI = 0.75, and SRMR = 0.05).

Our predicted signs for *FIRMSIZE*, *ACQ*, and *IAFQ* are negative as we anticipated that the larger the *FIRMSIZE*, the greater impact on the *ACQ* and *IAFQ* and the lower income-increasing accruals. The path results show that *FIRMSIZE* is not significantly related to *ACQ*, which does not support our H1a. Moreover, our regression results show that *FIRMSIZE* is not significantly associated with *ACQ* (Table 5.10), which is inconsistent with earlier research. Meanwhile, the path findings indicate that *FIRMSIZE* is significant and positively correlated with *IAFQ*, with a *p*-value (coefficient) of < 0.05 (0.1247), which supports our H1b (Table 5.9). Similar findings emerge from the OLS model (Table 5.10). They indicate that *FIRMSIZE* is positively and significantly related to *IAFQ*, which means that a larger firm size is associated with a higher IAF quality. This result is consistent with the earlier research that highlighted the firm size effects on the IAF quality (Goodwin-Stewart & Kent, 2006; Sarens & Abdolmohammadi, 2011). Turning to the hypothesis concerning firm size and FRQ, support is found for hypothesis H1c, which suggests that a relationship exists between firm size and FRQ. The path results show that *FIRMSIZE* is significantly and negatively (positively) related to the *ABNACC* (FRQ), with a *p*-value (coefficient) of < 0.05 (-0.0101) (Table 5.9) and a *p*-value (coefficient) of < 0.05 (-0.0101) (Table 5.10). The results suggest that the firm size strongly affects financial

reporting quality. This result is consistent with the prior audit-related research (Abbott et al., 2016; Alzeban, 2019; Alzoubi, 2019; Gros et al., 2017; Johl et al., 2013; Mardessi, 2021; Prawitt et al., 2009).

Table 5.9 Results of path coefficient and hypotheses testing

Hypotheses	Relationships	Coefficients	Standard error	t-statistics
H1a	FIRMSIZE → ACQ	0.0170	0.0264	0.64
H1b	FIRMSIZE → IAFQ	0.1247	0.0372	3.03**
H1c	FIRMSIZE → FRQ	-0.0101	0.0034	-2.92**
H2a	ACQ → IAFQ	-0.0349	0.1572	-0.22
H2b	ACQ → FRQ	-0.0268	0.0140	-1.91*
H3a	IAFQ → FRQ	-0.0172	0.0092	-1.87*

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$, RMSEA = 0.08, CFI = 0.81, GFI = 0.75, SRMR = 0.05, $R^2 = .6662$

Table 5.10 Results of multiple regression analysis

Independent variables	Dependent variables					
	ACQ	IAFQ	FRQ	IAFQ	FRQ	FRQ
Intercept	3.9861*** (0.0288)	0.5615 (1.0106)	0.2742** (0.0851)	0.6121 (1.2520)	0.3812*** (0.1032)	0.2839*** (0.0841)
FIRMSIZE	-0.0243 (0.0445)	0.1247** (0.0439)	-0.0101** (0.0037)	0.1244** (0.0445)	-0.0107** (0.0036)	-0.0079** (0.0038)
ACQ				-0.0127 (0.1832)	-0.0268* (0.0150)	
IAFQ						-0.0172* (0.0099)
AGE	-0.0096* (0.0054)	-0.0011 (0.0083)	-0.0006 (0.0007)	-0.0012 (0.0085)	-0.0009 (0.0007)	-0.0006 (0.0006)
LEVERAGE	0.2369** (0.1031)	-0.0533 (0.1569)	0.0183 (0.0132)	-0.0503 (0.1639)	0.0247* (0.0135)	0.0174 (0.0130)
CFO	-0.1364 (0.6246)	-0.1169 (0.9507)	-0.6333*** (0.0801)	-0.1186 (0.9579)	-0.6369*** (0.0789)	-0.6353*** (0.0789)
SGROWTH	0.6982** (0.2167)	0.2609 (0.3299)	-0.0053 (0.0278)	0.2698 (0.3560)	0.0133 (0.0293)	-0.0008 (0.0275)
COFVOL	0.0974* (0.0577)	-0.0389 (0.0878)	0.0044 (0.0074)	-0.0376 (0.0902)	0.0070 (0.0074)	0.0037 (0.0073)
LOSS	-0.2362 (0.1758)	0.6331* (0.2676)	-0.0288 (0.0225)	0.6301* (0.2729)	-0.0352 (0.0224)	-0.0179 (0.0231)
ROA	-0.3675 (0.5226)	1.2972 (0.7955)	0.5295*** (0.0670)	1.2925 (0.8040)	0.5197*** (0.0662)	0.5520*** (0.0673)
BINDP	-0.6236** (0.2844)	-0.6109 (0.4330)	0.0334 (0.0364)	-0.6030 (0.4508)	0.0502 (0.0371)	0.0229 (0.0364)
<i>Model</i>						
R^2	0.2328	0.6154	0.6316	0.1655	0.6478	0.6471
<i>Adjusted R²</i>	0.1342	0.581	0.5843	0.0446	0.5967	0.596
<i>N</i>	80	80	80	80	80	80

Statistical significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$, Standard errors values report in parentheses
Variables are defined in Table 5.4

The multivariate results related to the relationship between AC quality and IAF quality reflect that *ACQ* is not significantly associated with the *IAFQ*. The findings indicate that AC quality does not play a vital role in improving IAF quality and thus does not support our H2a. The results are consistent with the earlier AC-related studies (Gebrayel et al., 2018). However, they are contrary to those obtained by Phornlaphatrachakorn (2020). The reason could be related to countries' differing contextual factors or the distinct constructs used for the IAF quality and AC effectiveness estimation in the earlier literature. Moreover, the lack of coordination between the AC and the internal audit department might be among other potential reasons for the insignificant outcomes. Overall, our results suggest that the AC is likely to have a limited capacity in the scope of work enhancing the IAF's quality in the Bangladeshi context.

On the other hand, the path and OLS results show that *ACQ* is significantly and negatively (positively) related to *ABNACC* (FRQ), with a *p*-value (coefficient) of < 0.1 (-0.0268) (Table 5.9) and a *p*-value (coefficient) of < 0.1 (-0.0268) (Table 5.10), which support H2b. The results indicate that the AC quality plays an important role in producing better financial reporting. The results are consistent with the prior literature focusing on the AC effectiveness, indicating that it can improve financial reporting monitoring and enhance the level of corporate disclosure by decreasing abnormal accruals and limiting earnings management in the financial reports, thereby mitigating agency problems (Akhtaruddin & Haron, 2010; Phornlaphatrachakorn, 2020).

Tables 5.9 and 5.10 report the results concerning the relationship between IAF quality and FRQ. The findings reveal that *IAFQ* has a significant and negative (positive) effect on *ABNACC* (FRQ), with a *p*-values (coefficients) of < 0.1 (-0.0172) (Table 5.9) and < 0.1 (-0.0172) (Table 5.10), which support H3a. The results support the argument that the IAF quality has an important effect on FRQ, which suggests that higher IAF quality is associated with higher FRQ and is more likely to reduce *ABNACC*. Our results are consistent with the earlier IAF-related literature (Abbott et al., 2016; Gros et al., 2017; Prawitt et al., 2009).

We test the mediation effects of the AC quality and IAF quality in the relationship between firm size and FRQ. As mentioned earlier, the path analysis results show that there is no direct effect of the *FIRMSIZE* on *ACQ*, and the relationship is not significant, while the findings of the direct effect of *ACQ* on FRQ are significant (Table 5.9). Thus, the path analysis's indirect effects results show that

the *ACQ* has no significant mediation effect on the relationship between *FIRMSIZE* and *ABNACC*, which does not support our H2c. The result is contrary to the observation of the study by Xie et al. (2003), who noted that firm size affects AC effectiveness and thereby leads to a better FRQ. However, the IAF quality is considered to be a mediator of the firm size and FRQ. The path direct effect results show that the *FIRMSIZE* is positive and significantly related to *IAFQ*, with a *p*-value (coefficient) of < 0.05 (-0.1247), and *IAFQ* is negative (positive) and significantly correlated with *ABNACC* (FRQ), with a *p*-value (coefficient) of < 0.05 (-0.0172) (Table 5.9). Hence, the path indirect effect results reveal that *IAFQ* has a significant mediation effect on the relationship between *FIRMSIZE* and *ABNACC*, with a *p*-value (coefficient) of < 0.1 (-0.0027). The results suggest that firm size has a positive effect on IAF quality, which leads to high-quality financial reporting, a result that is consistent with the earlier literature (Abbott et al., 2016; Gros et al., 2017).

Table 5.11 presents a summary of the hypotheses' results, which show that the firm size is positively and significantly related to IAF quality; however, it is not related to AC quality. Meanwhile, AC quality and IAF quality are positively and significantly associated with FRQ. The results also indicate that the IAF quality mediates the relationship between the firm size and FRQ.

Table 5.11 A summary of hypotheses testing

Hypotheses	Relationships	Results
H1a	Firm size is positively associated with AC quality	Not supported
H1b	Firm size is positively associated with IAF quality	Supported
H1c	Firm size is positively associated with FRQ	Supported
H2a	AC quality is positively related to IAF quality	Not supported
H2b	AC quality is positively associated with FRQ	Supported
H2c	AC quality mediates the relationship between firm size-FRQ	Not supported
H3a	IAF quality is positively related to FRQ	Supported
H3b	IAF quality mediates the relationship between firm size-FRQ	Supported

5.5 Conclusion

Due to the expansion of the business operations and numerous cases of financial frauds, there is an urgent need for effective internal monitoring mechanisms (e.g., AC and IAF) to enhance the overseeing of the financial reporting process. The extent literature has discussed the importance of the IAF and AC factors in maintaining FRQ (Kotb et al., 2020; Roussy & Perron, 2018). In this study, we examine the association between firm size, AC quality, and IAF quality and FRQ.

The analysis is performed using a unique data set of survey responses and archival data from the Bangladeshi perspective. Firms' size is computed using their total assets. We developed AC and IAF quality scores by applying a quartile technique. The IAFQ score is constructed using IAF quality attributes, such as internal auditor work experience, professional certification, average annual training days, IAF independence, and IAF work performance, while the ACQ score is computed utilizing AC characteristics, for instance AC size, meeting, independence, and financial expertise. Both constructs are developed following survey responses. Our analysis shows that firm size is significantly and positively related to IAF quality, while the firm size relationship with AC quality is not significant. The results also reflect that AC quality is negatively and significantly related to ABNACC and plays a distinct role in the effective monitoring and enhancing of FRQ. However, the findings do support the relationship between AC quality and IAF quality. Relating to the relationship between IAF quality and FRQ, the results indicate that IAF quality has a significant and positive effect on ABNACC. This outcome suggests that higher IAF quality is likely to reduce abnormal accruals (earnings management) and thereby enhance FRQ. In addition, our empirical results show that AC quality has no mediation effect on the relationship between firm size and FRQ. However, IAF quality mediates the firm size and FRQ relationship. These findings support the agency theory assumption that firm size, AC quality, and IAF quality to contribute to mitigating the agency conflict between the management and the shareholders of a company by overseeing the overall financial reporting process.

This study contributes to the AC- and IAF-related literature by offering insights into the relationship between firm size and FRQ with the presence of AC quality and IAF quality. Our findings complement the earlier literature by addressing the effects of AC quality and IAF quality on the interaction between firm size and FRQ. In this vein, Phornlaphatrachakorn (2020) examined the

relationship between AC effectiveness and organisational success with the mediation effects of the IAF quality and FRQ using different constructs. In our study, we develop composite scores for the AC quality and IAF quality to explore the relationship between firm size and FRQ, thus making a distinct contribution to the existing literature. Moreover, this paper's findings offer further empirical confirmation that AC quality and IAF quality are important antecedents to high-quality financial reporting. Our findings also reveal that IAF quality mediates the relationship between firm size and FRQ. These results will be relevant to professionals and policymakers to making regulatory reforms and revising existing policies to improve work performance. Additionally, the outcomes of this study could be useful for other similar institutional and economic settings. Eventually, in response to the lack of empirical evidence in this vein of the research area, we attempt to focus on providing a better explanation for the relationship between firm size, AC quality and IAF quality, and FRQ.

In our study, we encounter several caveats. First, like other survey-based studies, the accuracy of the data relies on the response of the survey participants. Second, the study is restricted to the survey questions that cover limited details of several areas of the AC and IAF. Third, our sample selection focuses on relatively big industries in terms of the number of firms and omits small sectors. Fourth, this study considers companies' economic samples prior to the COVID pandemic, and the findings may not be generalizable in the post-COVID period. Based on our overall observations, we offer some future research gaps that may be considered for further research. Firstly, further study may examine the mediation effects of board executives in the relationship between AC quality, IAF quality, and FRQ from other countries' perspectives. Secondly, it could be interesting to investigate the role of the AC and IAF quality in protecting the information system. Thirdly, future research could address the effects of AC diversity on FRQ.

CHAPTER FIVE

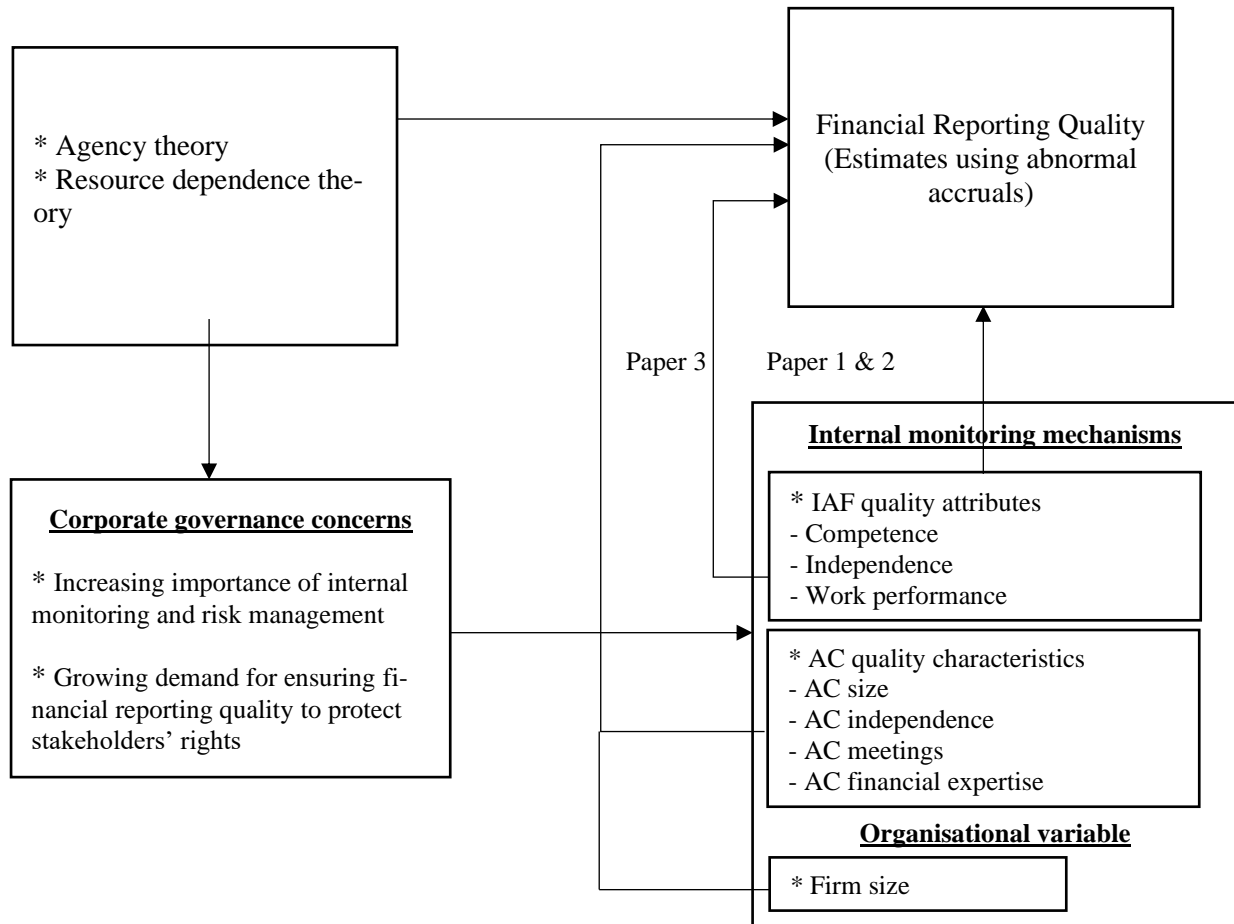
SUMMARY AND CONCLUSION

This study principally contains three chapters related to three research objectives. The second chapter consists of systematic literature regarding the IAF and FRQ to extend understanding and determine the knowledge gaps in what IAF research has investigated. The fourth chapter presents the relative importance of the IAF quality determinants (competence, independence, and work performance) in enhancing FRQ. The fifth chapter address the impact of the firm size, AC quality, and IAF quality on FRQ. Meanwhile, the third chapter demonstrates the research methodology used to conduct this study.

This dissertation contributes to the existing literature by considering IAF as a crucial CG mechanism for high-quality financial reporting. In the last two decades, CG and governance mechanisms gained significant focus due to the several high-profile corporate financial scandals, for which many merely blamed the poor or non-existent structured CG. Therefore, universally it has demanded an active and stronger governance mechanism to prevent unexpected corporate losses and enhance external transparency. IAF has been identified as a valuable monitoring mechanism for improving internal controls and FRQ. Hence, the role of internal audit has been changing with its importance and new challenges. In the Bangladeshi context, internal audit is still at the development stage, and CG guidelines are less stringent than in the developed economy. Thus, an updated study related to the internal audit and FRQ would be helpful for the decision makers.

This study primarily investigates the impact of the IAF quality attributes on FRQ. Mixed theories and research approaches were applied to understand well the role of IAF in internal monitoring mechanisms and FRQ, as shown in Figure 6.1. More specifically, a structured literature review approach was used in the first paper (systematic literature review) to ascertain the research objectives, search for articles, organise articles' findings, and develop future research opportunities. On the other hand, agency and resource dependence theories were employed in the empirical paper one and two to enhance the understanding of the concept and explain the cause of the imperfect relationship or agency conflict between the principal (shareholders) and agent (management), as shown in Figure 6.1. Overall, to find a clear picture of the relationship between IAF quality and FRQ, a balanced combination of the qualitative and quantitative data was used to determine a sound and well-established conclusion.

Figure 6. 1: Overview of the key constructs



This study examines the role of the IAF quality for FRQ from the agency theory approach. Agency theory validates that the IAF is an important CG mechanism in decreasing information asymmetries and adverse selection from the separation of agent and principles, which is the agency conflict. IAF plays a decisive role in reducing agency conflict through decreasing information asymmetry between stakeholders and management. More specifically, IAF quality is likely to be positively related to better reporting levels within the firm and enhance FRQ. This study explores the role of IAF quality attributes in reducing earnings management and increasing FRQ from the context of a developing country, specifically Bangladesh.

The first paper (second chapter) analyses the existing literature concerning the IAF and FRQ to extend understanding and determine the knowledge gaps in the IAF research that has already been carried out. Literature synthesis is categorised into three themes: the role of IAF quality attributes in FRQ, the role of other IMMs, and country-specific literature on the IAF and FRQ. This stage also identifies possible research directions that may fill the research gaps. A structured literature review

approach ascertains the research objectives, searches for articles, organises articles' findings, and develops future research opportunities for the period 2004 to 2020. The review proposes research avenues to fill the gaps. (I) The prior literature relevant to the IAF is dominated by external auditors' perspectives and lacks internal auditors' viewpoints, leading to a misunderstanding about the relative importance and estimation method of IAF quality determinants. (II) Earlier research outcomes are contradictory regarding the role of the IAF and IMMs, requiring further investigation of the extent to which the IAF and AC perform monitoring in an organisation. (III) The country-specific literature on the IAF setting and its role in preparing high-quality financial reports is minimal. Thus, the area still lacks examination of undocumented countries.

The fourth and fifth chapters are empirical chapters, in which data are collected from primary (survey questionnaire) and secondary (archival data) sources to examine research objectives. The questionnaire survey, conducted with all the non-financial firms listed on the Dhaka Stock Exchange (DSE), receives a total of 80 useable responses from the heads of the internal auditors, chief financial officers (CFOs), and AC members. The archival data are collected from secondary sources (e.g., annual reports, DataStream, and the DSE website) for the fiscal year 2018 to 2020. To measure FRQ, the modified Jones model (Dechow et al., 1996) estimates abnormal accruals, as described by Kothari et al. (2005).

The fourth chapter examines the relationship between IAF quality and FRQ and IAF quality attributes' (e.g., IAF competence, independence, and work performance) relative importance for FRQ. The IAF quality score is computed using IAF quality components (e.g., internal auditor work experience, certification, training, IAF independence, and IAF work performance). A quartile scoring scheme applies to all five IAF quality attributes to compute a composite score of IAF quality. The quartile scores of internal audit employee work experience, professional certification, annual training, IAF independence, and IAF work performance are accumulated to measure IAFQ scores. The empirical results show that IAF quality is negatively (positively) and significantly associated with abnormal accruals (FRQ). Concerning the IAF individual components, our results show that IAF competence, independence, and work performance are negatively (positively) and significantly associated with abnormal accruals (FRQ). The results also indicate that the interaction between IAF quality attributes

positively and significantly affect FRQ. More specifically, the combined presence of the IAF competence, independence, and work performance strengthens each other, thereby improving FRQ.

The fifth chapter investigates the likelihood of the mediation effect of the AC quality and IAF quality on the relationship between firm size and FRQ. AC quality is calculated using quartile scores on all AC components (e.g., AC size, meetings, independence, and financial expertise) to construct an AC quality score. Meanwhile, the IAF quality score is computed using IAF quality attributes (internal auditor work experience, certification, training, IAF independence, and IAF work performance). A quartile scoring scheme applies to all five IAF quality attributes to compute a composite score of IAF quality. The results show that the firm size is positively and significantly related to IAF quality; however, AC quality is found not to be significant, while AC quality and IAF quality both are positively and significantly associated with FRQ. The results also indicate that the IAF quality mediates the relationship between the firm size and FRQ; however, AC quality is found not to mediate the relationship between firm size and FRQ.

The outcomes of the thesis make several contributions to the existing literature and in practice. It was previously mentioned that the first research objective is to review the prior literature to identify the knowledge gaps for further study. Several research gaps are identified based on the earlier literature review and IAF's contemporary challenges that are likely to be fruitful for future research investigation. Moreover, this systematic literature review comprehensively and critically analyses all the relevant issues related to the internal audit, IAF quality attributes, and other internal monitoring mechanisms. For instance, how internal audit research scenarios have changed across time and geographical location, *where* and *how* the internal audit research has been performed, the role of IMMs, and *how* it affects organisational performance. Thus, these could be potential guidelines for future studies to determine research problems. The findings of the review are also relevant to academics, auditors, and other stakeholders. Considering the growing global attempts to enhance internal audits, an updated literature review from the global perspective is imperative for IA advancement.

Concerning empirical papers, paper two (chapter four) extends prior literature by examining the role of IAF quality attributes and their relative importance for FRQ. Specifically, this paper explores the significance of the IAF quality and its quality attributes for ensuring FRQ from the perspective of a developing country; in this case, Bangladesh. Empirical paper three (chapter five) addresses the

relationship between firm size and FRQ with the mediation effect of IAF quality and AC quality. These issues urge a holistic and comprehensive empirical investigation from the developing country's perspective to determine to what extent the internal monitoring mechanisms (IAF and AC) effectiveness is crucial for overall CG performance. Based on the above, this thesis significantly contributes to the internal audit literature by addressing the association between IAF quality attributes and AC quality characteristics with FRQ. Secondly, a unique method is used to construct the IAF quality and AC quality scores to examine their relationship with FRQ, which is relatively new in the audit-related literature. Previously only two studies highlighted the importance of the IAF quality for FRQ by (Prawitt et al., 2009; Gros et al., 2017) in the US market and German context, respectively, and these results may not be generalisable to a developing market where the legal system is far from being strong. Thus, our findings could have significant importance in the developing country context. Thirdly, the findings of the thesis are consistent with the previous literature that the IAF quality and AC quality are crucial factors for developing high-quality financial reporting. Fourth, the second empirical paper addresses the relationship between firm size and FRQ with the mediation effect of AC quality and IAF quality, which is relatively new in audit-related studies. Earlier studies primarily examine the relationship between AC and FRQ, or IAF and FRQ. Thus, the findings would be worthwhile for the entity, investors, and regulators in their decision-making. Fifth, Bangladeshi regulations, particularly the CG code, are still developing. Thus, the findings, especially concerning the role of IAF quality and AC quality, provide valuable insights for regulators and could be useful input to assess the current policies and consider future governance reform to enhance the financial reporting process. Sixth, the findings regarding IAF quality attributes and AC quality characteristics contribute to the literature on IAF quality and AC quality effectiveness and further support the conclusions made by three earlier studies (Abbott et al., 2016; Gros et al., 2017; Prawitt et al., 2009). Seventh, the empirical evidence documented by this thesis should be valuable to audit researchers interested in linking it to the international empirical findings of this research issue witnessed in other markets. Seventh, these results are relevant to similar economic settings in decision-making related to internal monitoring mechanisms.

Despite the several contributions of the study, some limitations are encountered when interpreting the results of this study. These limitations could be opportunities for future research. The first

limitation is the smaller sample size, which is smaller than many recent studies (Abbott et al., 2016; Alzeban, 2018a); however, a greater sample size would have been desirable for more convincing results of the study. Second, like other survey-based research, the accuracy of the survey answers relies on the responses of the survey participants. Moreover, the survey participants may have clarity problems with the questionnaire, which may cause the participants to interpret some questions differently, even though the questionnaire underwent a thorough pilot study. Third, the survey questionnaire covers limited details of several areas of AC and IAF-related issues due to the limitation in the number of questions on the questionnaire. Fourth, the sample selection focuses on relatively big industries in terms of the number of firms and omits small sectors for better estimation results of the abnormal accruals. Johl et al. (2013) posit that a minimum of four companies or ten firms' observations per year per industry is required to measure the abnormal accruals. Fifth, this thesis examines the relationship between IAF quality, AC quality, and FRQ using unique constructs for the IAF and AC quality scores and their quality attributes. The measurement process of these constructs may be reconsidered when the results are generalised and applied in another similar context. Sixth, some of the IAF quality determinants (e.g., IAF independence, work performance) and AC quality characteristics (AC size, independence, financial expertise) results show a negative relationship with FRQ; however, the results should be positively associated with FRQ, according to theory assumptions. Seventh, FRQ is estimated using an abnormal accruals modified Jones model (Dechow et al., 1996) as described by Kothari et al. (2005). Other earnings quality measurement methods (real earnings management) and models (discretionary accruals model) may be used to generalise the findings of the study. Finally, this study relies on the questionnaire responses and companies' annual reports; however, the nature of desk research does allow an understanding of the actual performance of the internal auditors. These limitations are acknowledged but do not reduce the strength of the research and the importance of its results. The limitations are mentioned merely for future research opportunities.

Based on the above, several future research avenues are identified relevant to the IAF, IAF quality, AC quality, and FRQ. First, future research may reinvestigate the IAF quality relationship with FRQ in other economic settings using different constructs for IAF quality measurement and FRQ with a large sample size. Since IAF quality measurement methods are still puzzling; they require more investigation to establish a measurement technique. Second, the current study findings are not

significant for the IAF individual quality attributes (independence and work performance) with FRQ. Thus, further research may re-examine these issues in other economic settings using distinct research methods for better outcomes. Third, it is important to understand whether governance mechanisms (e.g., AC and internal control systems) affect IAF quality attributes. Fourth, little is known about the IAF quality attributes' effectiveness, such as *what* factors affect IAF quality determinants, *how* to improve their effectiveness, and *if* governance mechanisms influence IAF quality factors. Further research is also needed to determine how the researcher can potentially demonstrate and quantify the IAF quality determinants. Fifth, future research may extend this study by performing a comparative analysis between in other developing countries to ascertain and compare their IAF performance, and thus more broad and substantial results from the developing country context would be established. Sixth, most of the firms' board of directors have a family-ownership influence in Bangladesh. Thus, it would be a fruitful avenue for future research to discuss how family ownership affects IAF quality in the listed companies in Bangladesh. Seventh, internal auditors use a wide range of emerging technological instruments to perform their audit works. Therefore, it would be interesting to examine the role of IT in the development of the IAF quality and its quality components. Similarly, IAF can play a significant role in shielding cyber security; thus, further research may explore the effects of IAF quality in enhancing cyber security.

Concerning the AC and IAF quality components, some possible future research issues are identified based on the current study's limitations. For instance, the evidence in this study shows the relationship between AC quality and IAF quality with FRQ as non-significant, while theoretically, both incorporate each other to enhance the governance monitoring system. Hence, future studies may address this issue using different sample sizes from a distinct country perspective. Moreover, existing studies predominantly examine the relationship between IAF, AC, and FRQ; however, the literature is almost silent about the role of AC characteristics in the development of IAF quality attributes. Further studies may highlight the role of AC characteristics in the improvement of IAF quality attributes.

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Appendix 1: Cover letter for survey questionnaire

February 20, 2021

Dear Sir/Madam,

Subject: Ph.D. Research on Internal Audit Function and Financial Reporting Quality in Bangladesh

I am pursuing my Ph.D. at the Universitat Autònoma de Barcelona (UAB) and performing my dissertation on the relationship between **Internal Audit Function (IAF) and Financial Reporting Quality (FRQ)**. Specifically, the effects of the internal audit function quality attribute on financial reporting quality of non-financial listed firms in Bangladesh. The study findings expect to be useful in strengthening corporate governance mechanisms, particularly internal audit practice in Bangladesh.

At this stage of my research, I am conducting a questionnaire survey on the target companies to collect information concerning the related issues. Thus, I would request to participate in this questionnaire survey. This survey is an important part of the research, and your valuable cooperation and participation in answering the questionnaire will be highly appreciated. Please find the two endorsement letters produced by the UAB doctoral supervisor ([weblink](#)) and The Institute of Internal Auditors Bangladesh (IIAB) ([weblink](#)).

I would, therefore, be most grateful if you could spare approximately 10 minutes to complete the questionnaire by following the [web link](#). I can assure you that all responses will be used for research purposes only and will be treated with the strictest confidence and anonymity. Results relating to individual organisations will not be tabulated in the research report. Please note that a summary of the research findings will be dispatched to all the participants in the study who wish to receive it.

If you have any queries in these regards, please feel free to contact me at the voice: (+34) 692560024, e-mail – manirul.islam@e-campus.uab.cat or manirul70@yahoo.co.uk

Or

Mohammed J. Munir (Additional Director, Institutional Quality Assurance Cell, United International University, Bangladesh), contact no: +8801720044444, e-mail – munir@iqac.uiu.ac.bd

Thank you for your kind diligence and cooperation.

Yours sincerely,

Manirul Islam

Ph.D. Candidate

Universitat Autònoma de Barcelona, Spain

Appendix 2: Supporting letter from the IIA Bangladesh



February 14, 2021

Dear Participants,

LETTER OF ENDORSEMENT – Ph.D. SURVEY ON BANGLADESHI INTERNAL
AUDIT FUNCTION

Mr. Manirul Islam is a former lecturer at the University of Business and Technology (UBT) in Jeddah, Saudi Arabia, and a Ph.D. candidate of Universitat Autònoma de Barcelona (UAB). He is currently pursuing his Ph.D. in the area of internal audit and financial reporting quality of Bangladesh. IIA Bangladesh endorses his project and would like to encourage you to participate in a survey being conducted by him as part of his Ph.D. studies.

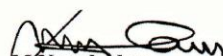
This survey is relevant to the understanding of the relationships of corporate governance mechanism (e.g., internal audit function) and financial reporting quality. The focal interest of this study is to investigate the effects of internal corporate governance mechanisms such as internal audit function quality determinants on financial reporting quality.

We would appreciate it if you could spare a few minutes of your valuable time to complete the questionnaire.

Thank you

For and on behalf of

THE INSTITUTE OF INTERNAL AUDITORS BANGLADESH



M Nurul Alam
Secretary General

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Appendix 3: Survey questionnaire



Questionnaire survey on – The internal audit function and financial reporting quality of Bangladesh

Section one – General information of the respondents

1. Name of the organisation or Trade ID _____
2. Please identify the position that you hold in your company
 - Chairman of the supervisory board (or similar)
 - Chairman of the audit committee
 - Other supervisory board members (or similar)
 - Other management board member (or similar)
 - CEO (or similar)
 - CFO (or similar)
 - Other
 - Audit committee member
3. Your professional designation/s
 - CPA
 - CIA
 - ACCA
 - Other (Please specify) _____
4. Please indicate how many years of work experience you have as: an internal auditor _____?
5. What was the total internal audit department budget (including outsourcing activities) in financial 2019-20? _____
6. Is your external auditor Big 4 (PWC, KPMG, Ernst & Young, Deloitte)?
 - Yes
 - No

Section two – Internal audit function quality attributes

7. Has your internal audit function been certified by an external quality certification?
 - Yes
 - No
8. Please identify the total number of audit professionals in your internal audit section/unit.

9. How many have professional experience of more than **three** years with external or internal audits? _____
10. How many have an internal audit-related certification (e.g., Certified Internal Auditor)?

11. How many days did the internal audit department employees on average take part in training in the financial year 2019 – 20? _____
12. To whom does the Head of Internal audit department report functionally? Please Tick (/)
 - Board of Directors
 - Chief Financial Officer
 - Audit Committee
 - General Manager
 - Chief Executive Director
 - Others (Please specify): _____
13. Please indicate your level of agreement with the following statements:
(Completely disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, and Completely agree = 5)

	1	2	3	4	5
a- There is no role for the CFO and the Audit Committee in the preparation of the internal audit department's annual budget					
b- Internal auditors rarely face interference by management while they conduct their work					
c- There is no influence of the CFO or the Audit Committee on the appointment and termination of the head of intern audit					
d- Internal audit staff has free access to all departments and employees in the organisation					
e- Internal audit staff are not requested to perform non-audit functions					

14. Who is responsible for the preparation of the internal audit plan? _____
15. Please indicate the extent to which you agree or disagree with the following statement about the internal audit department. (Please tick one box for each statement based on the following: strongly disagree = 1, disagree = 2, undecided = 3, agree = 4, and strongly agree = 5)

	1	2	3	4	5
a- Internal audit work regular assessment ensures the quality of internal audit performance					
b- Internal audit department does not follow a set of Code of Ethics and Standards to perform audit relevant works					
c- External auditor feedback is valuable to evaluate internal auditors' performance					
d- It is important to get work done rather than strictly following the code of ethics and standards to perform audit-relevant work					
e- Internal audit department has specified the duties and responsibilities of internal auditors					

Section three – Audit committee characteristics

16. Does an audit committee exist in your company? If not, please skip the remaining questions.
- Yes
 - No
17. In the financial year 2019–20, how many members composed in your audit committee? Please specify number _____
18. How many of the members were non-executive directors? _____
19. Please Tick (✓) the appropriate response (you can tick (✓) more than one with respect to the audit committees' experiences and qualification in your organisation)
- At least one of the audit committee members has senior executive experience
 - At least one of the audit committee members has experience serving on other audit committees
20. How many of the audit committee members in your organisation have professional designations in accounting, finance, or auditing _____
21. Financial year 2019–20, audit committee met _____ times.
22. The length of the audit committee meeting was, on average, about _____ minutes.
23. How many times does the CEO meet with the audit committee in financial 2019–20?