# A CASE STUDY OF INFLUENCING FACTORS OF AUDIT QUALITY FOR BEIJING ACCOUNTING FIRMS

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This Independent Study has been Approved as a Partial Fulfillment of the Requirement of International Master of Business Administration

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## ABSTRACT

In recent years, accounting firms have been punished more frequently for inadequate execution of audit procedures and issuing of inappropriate audit reports, indicating a decline in audit quality. Accounting firms urgently need to address the decline in audit quality in order to comply with audit standards and avoid penalties. Based on risk management theory and system control theory, this paper aims to study the influencing factors of audit quality from the perspective of internal control.

The objectives of the study were: 1) To examine whether internal control positively influences audit quality in Beijing accounting firms; 2) To examine whether informatization positively influences audit quality in Beijing accounting firms; and 3) To examine whether quality of auditors positively influences audit quality in Beijing accounting firms.

This study selected accounting firms in Beijing as the research population. This study adopted the quantitative research method, with 384 questionnaires distributed to auditors from accounting companies in Beijing, and 330 valid questionnaires recovered, with a recovery rate of 85.94%. Combined with risk management theory and system control theory, this study found that: 1) Internal control has a significant positive effect on audit quality in Beijing accounting firms; 2) Informatization has a significant positive effect on audit quality in Beijing accounting firms; and 3) Quality of auditors has a significant positive effect on audit quality in Beijing accounting firms. Recommendations for audit quality in Beijing accounting firms focus on the following aspects: 1) Enhance internal control activities; 2) Prioritize informatization; 3)

Strengthen the quality of auditors.

**Keywords:** internal control, informatization, quality of auditors, audit quality

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# DECLARATION

*I, LIU ZHANWEN, at this moment certify that the work embodied in this independent study entitled "A Case Study of Influencing Factors of Audit Quality for Beijing Accounting Firms" is the result of original research and has not been submitted for a higher degree to any other university or institution.*

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LIU ZHANWEN

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# Chapter 1 Introduction

## 1.1 Background of the Study

China's Certified Public Accountant (CPA) industry was restructured in 1981 and has developed for 40 years. The entire industry grew in size during this period, and its professional level gradually improved. With the help of national policies, the interests of investors have been protected. Its role as a market supervisor is also increasingly important. Based on the statistics of penalties from 2019 to 2021 (see Table 1.1), R&D found that the fines imposed on accounting firms have increased year by year, especially reaching 336 times in 2020, indicating problems with the audit quality of accounting firms. There are problems with the audit quality, which also proves that there are problems with the internal control of the accounting firm.

Table1.1 Administrative Penalties and Regulatory

| Year | Administrative Penalties (times) | Administrative regulatory measures(times) | Total (times) |
|---|---|---|---|
| 2019 | 5 | 62 | 67 |
| 2020 | 19 | 317 | 336 |
| 2021 | 33 | 278 | 311 |

Data source: China Securities Regulatory Commission, compiled by the author.

In September 2020, the Ministry of Finance of China, the State-owned Assets Supervision and Administration Commission of the State Council, and the China Banking and Insurance Regulatory Commission jointly issued the "Implementation Opinions on Strengthening the Practice Management of Accounting Firms and Effectively Improving Audit Quality," It is proposed to establish the principle of giving priority to quality, and to focus on the audit of public interest entities such as listed companies, state-owned enterprises, and financial enterprises as the focus of supervision. On August 23, 2021, the General Office of the State Council announced the "Opinions on Further Standardizing the Order of Financial Auditing and Promoting the Healthy Development of the Certified Public Accountants Industry." This is a crucial step at the national level to guide the healthy development of the Chinese Institute of Certified Public Accountants (CICPA). The document fully reflects the international emphasis on the healthy development of the CPA profession in the new stage. Therefore, in the new era, CPAs must be more conscientious, adhere to professional ethics, and indeed assume the responsibility of "guardians" of the capital market. To solve this problem, in addition to strengthening the supervision of accounting firms, we also need to start from within the accounting firm, maintain the quality of the internal control of the accounting firm, and continuously optimize and improve the quality of the internal control of the accounting firms (Qi, 2013).

Internal control is indispensable in accounting firms' actual operation and

management process. We can improve the quality of audits by strengthening internal control. With the development of China's capital market, accounting firms have been subject to more and more penalties and investigation notices. For example, accounting firms issued false audit reports in the Kangmei Pharmaceutical and Luckin Coffee incidents. In these cases, accounting firms failed to perform their role and functions fully as a third party for independent auditing. The exposure of these scandals fully demonstrated considerable deficiencies in accounting firms' internal control. According to statistics, 76.67% of the 30 typical listed companies punished by the China Securities Regulatory Commission for financial fraud in 2020 still had their auditors issue standard unqualified opinions in the year of the scam, and the gap in audit expectations is still challenging to make up (Ye et al., 2021). Dan (2023) analyzed that many audit failure cases can be traced to the lack of professional ethics and independence of certified public accountants. The key to the audit work of CPAs is to effectively collect and analyze data and convert various raw data into helpful audit evidence. While improving audit efficiency, we must also ensure audit quality, which relies on the informatization construction of the audit work of accounting firms (Lan, 2021).

They are starting from the aspect of internal control management. Through the influence of internal control, we can have a deeper understanding of the characteristics of the internal control system. Many scholars have proven that effective corporate governance can ensure the realization of corporate internal control objectives, and sound internal control will promote improving corporate governance efficiency (Shleifer & Vishny, 1997; Cheng, 2004). Accounting firms can conduct classified investigations concerning the five dimensions of this study to help managers discover weak links in internal controls and then contribute to adjusting or improving the original internal control system; to help managers of accounting firms find redundant internal controls Control links, reduce control links, make the internal control operation of the accounting firm more efficient, thereby improving the management level of the accounting firm.

They are starting from the aspect of informatization management. With the revolutionary development of information technology, computer-aided audit technology has played a vital role in improving the work efficiency of accounting firms. In recent years, the application of blockchain technology, AI technology applications, and the development of financial intelligence have made accounting firms pay more attention to information investment (Lan, 2021), which is also a good opportunity for innovation and growth for accounting firms. How many resources different accounting firms should invest in informatization has become a question that managers need to consider, and from which dimensions is it more effective to support? This provides a reference basis for accounting firms to choose the best solution for information investment resources. The investigation and analysis of accounting firms in Beijing provide support for developing the informatization management theory of accounting firms.

Quality of auditors should be a comprehensive and diversified concept that

requires professional knowledge, professional skills, and teamwork. Many scholars have studied that different audit CPA personal characteristics will affect audit results (Libby & Frederick, 1990; Qiu, 2023; Yan, 2015, etc.). Through the analysis and research on the auditor of quality, we guide accounting firms to change the way they train auditors, from the traditional focus on professional training to the comprehensive training of information technology and professional skills, thereby improving the work efficiency and performance of the accounting firm, and providing managers with Provide a reference for decision-making.

Therefore, studying the relationship between internal control, informatization, quality of auditor, and audit quality of accounting firms is an important topic, and it can also provide a better scientific basis for management decisions of accounting firms.

## 1.2 Problems of the Study

In the 21st century, a series of accounting scandals and audit cases involving famous companies such as Enron, WorldCom, and Xerox have erupted in the United States. The world's top five accounting firms, Andersen and Marvel, have also been implicated, constantly embroiled in false accounting scandals, triggering a serious audit credit crisis and exposing issues with audit quality. Alomari et al. (2018) found that the reason for audit failures is the failure of internal controls in accounting firms, which leads to the loss of independence in economic interests. Asthana&Boone (2012) found that it plays an important role in information system auditing and also has a significant impact on audit failure.

In recent years, there have been audit failure cases in China, such as Kangmei Pharmaceutical, Kangdexin, Zhangzidao, etc. Each accounting firm involved in these cases has been punished by the China Securities Regulatory Commission. After an investigation by the China Securities Regulatory Commission, it was found that the internal controls of accounting firms were ineffective, the professional abilities of auditors were insufficient, and some audit procedures were not executed, resulting in low audit quality (audit failure) (Zhao, 2021).

The Ministry of Finance of China issued the first quality management standards for certified public accountants in 1996. Since then, it has been revised four times. The formulation and continuous revision of quality management standards is to guide and constrain the behavior of firms and certified public accountants in their practice, with the ultimate goal of ensuring audit quality.

As a third-party independent auditing agency, accounting firms were supposed to audit the financial statements of enterprises, identify misstatements in the audited units, and issue truthful and objective audit reports. However, due to defects in audit quality, financial fraud in the audited units was not detected, indicating problems in internal

control and the quality of auditors (Dan, 2023).

Based on the above-mentioned learner research, this paper takes internal control, quality of auditors, and informatization as the research objects among the factors affecting audit quality, explores measures to improve audit quality, and proposes the following questions of the study:

1. Does internal control positively influence audit quality in Beijing accounting firms?

2. Does informatization positively influence audit quality in Beijing accounting firms?

3. Does quality of auditors positively influence audit quality in Beijing accounting firms?

## 1.3 Objectives of the Study

The main goals of the research on internal control and information management of accounting firms are to ensure the accuracy, effectiveness, and safety of audit work, reduce audit risks, improve work efficiency and accuracy, and strengthen personnel training and management to ensure that all personnel can abide by internal control and information technology policies, thereby improving the quality of audit. Therefore, the main objectives of this study are proposed as follows:

1. To examine whether internal control positively influences audit quality in Beijing accounting firms.

2. To examine whether informatization positively influences audit quality in Beijing accounting firms.

3. To examine whether quality of auditors positively influences audit quality in Beijing accounting firms.

## 1.4 Scope of the Study

The research object of this article is accounting firms in Beijing. Accounting firms outside Beijing are not included in the scope of the study. Forty accounting firms in Beijing were selected for research. There were both large and small and medium-sized accounting firms when choosing accounting firms.

Questionnaires were distributed to current employees of Beijing accounting firms, there was no age limit for employees. Administrative levels include partners, senior

employees, mid-level employees, and junior employees of accounting firms. The survey contents include four research areas: internal control of accounting firms, informatization, auditor quality, and audit quality. To ensure the scientific nature of the research, a sampling survey method and an online survey were used.

## 1.5 Significance of the Study

### 1.5.1 Practical Significance

First, it is helpful to improve the internal control effectiveness of accounting firms. By studying the impact of internal control on audit quality, we can gain a deeper understanding of the characteristics of the internal control system and provide support and guidance for firms to formulate more reasonable and practical internal control measures.

Secondly, it is helpful to improve the information management level of the office. Studying the impact of firm information management on audit quality will help to deeply understand the role and mechanism of information technology in firms and provide more effective theoretical guidance and practical support for firms to carry out information management.

Finally, it will help promote innovation in firm management. Studying the impact of quality of auditor and audit quality will help to deeply understand the nature and laws of personnel management and provide support and guidance for firms to explore new management models and methods.

### 1.5.2 Theoretical Significance

First, it enriches the theoretical, empirical cases of internal control. Chinese and foreign academic circles mainly focus on the internal control of listed companies. The prominent representatives include Lobo et al. (2020), Skaife et al. (2013), Ye & Huang (2023), etc. There is little research on the internal control mechanism of accounting firms. This study tries to offer more practical cases for improving and developing internal control theory.

Secondly, it expands the research field of information management theory. With the continuous development of information technology, the importance of information management has received more and more attention. Studying the impact of accounting firm information management on outreach quality will help expand the research field of information management theory and provide new ideas and methods for the development of information management.

Finally, studying the influencing factors of accounting firm audit quality will help broaden the research horizons of audit quality and deepen the understanding of the impact of various aspects on audit quality.

## 1.6 Limitation of the Study

This article takes Beijing accounting firms as the research object to analyze the impact of internal control, informatization, and quality of auditor on audit quality. In the process of writing, given the difficulty of data collection due to my limited level, the research of this article has certain limitations. I hope that it can be improved through continued study and research in the future. The limitations of this study mainly include the following two points:

Regarding research samples, only taking accounting firms in Beijing as the research object cannot fully reflect the situation of the entire Chinese accounting firm industry.

In terms of variable selection, there are various audit quality measurement indicators. At present, the academic sector has not yet reached a consensus. Each method has its advantages and disadvantages. Different measurement methods may have specific detailed differences in the research results.

# Chapter 2 Literature Review

## 2.1 Introduction

This study will elaborate on the definition, connotation, measurement dimensions, influencing factors, and related research of internal control, informatization, quality of auditor, and audit quality. The relevant content of risk management theory and system control theory will be sorted out as research support. A structural model was constructed by combining the literature to clarify the relationship between variables. Through research on accounting firms in Beijing, the factors affecting audit quality are analyzed, and suggestions for improving audit quality are put forward.

## 2.2 Literature Review

### 2.2.1 Audit Quality

#### 2.2.1.1 The Connotation of Audit Quality

The definition of audit quality is a controversial topic both at home and abroad. Generally speaking, domestic and foreign scholars consider the connotation of audit quality from the quality of the audit process and the quality of the audit results.

Foreign scholar DeAngelo (1981a) defined audit quality as the auditor's ability to discover significant misstatements in the client's financial statements and to disclose the misstatements. Many factors influence audit quality, and audit quality cannot be quantitatively evaluated. Therefore, it is necessary to find alternative audit quality indicators for measurement. After continuous exploration by academic scholars, the main alternative indicators of audit quality include audit fees, types of audit opinions, the concentration of CPA signatures, and the number of administrative penalties for a firm. Palmrose's (1988) point of view is similar to the above, but the difference is that the probability of no material misstatement or omission replaces the guaranteed level of no material misstatement or omission. Krishnan & Schauer (2001), based on the role of audit work in practice, define audit quality as the degree to which audit work conforms to auditing standards. For the convenience of research, this study adopts DeAngelo's perspective.

In the research of scholars, Zhang (1995) believed that audit quality is more reflected in the audit results. He proposed that the core of audit quality lies in the reliability of accounting statements and explained audit quality as the quality of audit work. The quality of the audit work is reflected explicitly in the quality of the auditors participating in the audit and the quality of the practice process. It is ultimately reflected in the audit report. Sun (2008) summarized the meaning of audit quality and explained audit quality from two perspectives: broad and narrow. In the little sense, it only

emphasizes whether the audit conclusion is consistent with the actual situation of the audited unit, while in the broad sense, audit quality, compared with the narrow sense, adds the indicator of the degree of satisfaction of audit needs, measuring audit quality from two aspects. Nie (2009) redefined audit quality and advocated that the audit process and audit results should be viewed as a whole and jointly determine audit quality, and cannot be artificially divided into two parts for analysis.

#### 2.2.1.2 Factors Affecting Audit Quality

CICPA 's current "Trial Measures for Comprehensive Evaluation of Accounting Firms" has set comprehensive factor evaluation indicators and auxiliary factor indicators, such as the total income of the firm, the number of certified public accountants, information technology personnel, penalties, and disciplinary situations, etc. "several firms," "several employees," "several partners and shareholders," membership in international organizations and other auxiliary indicators.

Ghosh & Moon (2005) studied the factors that affect the audit quality of accounting firms from the perspective of empirical analysis. By constructing a practical analysis model, they found that firm size and cost will have a more significant impact on the audit quality of accounting firms. Francis et al. (2013) studied the audit quality of accounting firms. They proposed that the size, industry expertise, and internal control system of the accounting firm will affect its audit quality.

DeFond & Lennox (2011) studied the impact of reputation on the audit quality of a firm. He believed that once the reputation of an accounting firm is damaged, it will hurt subsequent business undertakings and, to a certain extent, the firm's clients. The stock price has an impact, and this contagion effect will spread to every auditor and even the firm's clients. Some scholars believe that too high or too low audit fees will damage audit quality (Xie et al., 2010; Asthana & Boone, 2012).

Strengthening the legal penalties for auditors will increase auditor investment and thus help improve audit quality (King & Schwartz, 1999). However, increasing it without restrictions will not effectively enhance the quality of the audit (Dopuch & King, 1991). Existing literature on government regulation mainly focuses on the CSRC's administrative penalties on accounting firms and supervision of audit quality (Firth et al., 2014; Ge & Zhang, 2020).

Turley & Zaman (2004) all believe that improving the level of corporate governance will help enhance auditor independence and audit quality. Independence is the soul of audit quality elements. Audit quality is mainly affected by two aspects: formal independence elements and actual independence elements. Both traditional audit elements and fundamental audit elements include two main aspects: independence and competency. Yu & Liu (2007) used dual listing or not as a proxy variable for high-quality corporate governance systems and found that corporate governance can improve

audit quality, especially the inhibitory effect on positive earnings management. Jenkins et al. (2008) pointed out that quality supervision can be divided into three parts according to the chronological order of audit matters: quality supervision before the audit, quality supervision during the audit process, and quality supervision after the audit is completed.

### 2.2.2 Risk Management Theory

#### 2.2.2.1 The Meaning of Risk Management

Risk management shows a significant influence on audit quality (Mardian & Avianti, 2019).

The American Institute of Certified Public Accountants (AICPA) believes that knowledge, technology, and interpersonal skills constitute the Quality of Auditors; IFAC proposes that technical knowledge, behavioral skills, attitudes, values, and ethics constitute the quality of an auditor's professional competency. China has also defined the professional competence of auditors based on learning from relevant foreign research. CICPA issued the "Competency Guidelines for Chinese Certified Public Accountants" in 2007, which clearly outlines the components of quality of auditors' professional competencies, which are the primary connotations of professional knowledge, professional skills, professional values, ethics, and attitudes. CICPA revised the "Competency Guidelines for Chinese Certified Public Accountants" in December 2022. The unmistakable quality of auditors' competencies in the guide includes political abilities, professional ethics, professional competencies, practical experience, and internationalization capabilities.

Risk management theory refers to principles, methods, and techniques for identifying, assessing, monitoring, and controlling risks. The main contents of risk management theory include risk identification and classification, risk assessment and quantification, risk management strategies and measures, risk monitoring and feedback, and risk culture construction. These contents together constitute a complete risk management system.

#### 2.2.2.2 Objectives of Risk Management

Control and reduce losses to obtain maximum safety guarantee at the minimum cost; safety guarantee refers to both the reduction of expected losses and adequate compensation for losses. To a certain extent, it should also ensure that enterprises obtain stable investment and operating benefits. This constitutes the objectives of risk management.

### 2.2.3 Internal Control

#### 2.2.3.1 Definition of Internal Control

The Sponsor Committee of the United States Council Against False Financial Reporting (from now on referred to as " COSO") proposed the "five elements" view in the "Internal Control Framework" released in 1992, stating: "Internal control is formulated by corporate managers and is determined by management. "Control activities carried out jointly by personnel and subordinates to ensure the operating results of the enterprise, comply with corresponding national regulatory regulations, and ensure the accuracy and reliability of financial statements." In 2002, COSO further proposed the "eight elements" perspective, refining the five elements, and internal control was continued and developed to better adapt to management needs.

The Financial Accounting Standards Board (FASB) of the United States proposes that internal control is a combination of policies and procedures adopted by an organization to protect its assets, maintain the accuracy and reliability of financial reports, and promote effective operations. The International Auditing and Assurance Standards Board (IAASB) proposes that internal controls refer to an organization's measures to reduce the adverse impact of unexpected events on financial reports, assets, and operations when achieving its business objectives. The Sarbanes-Oxley Act proposes that internal controls are the policies and procedures implemented by a company to protect investors from fraudulent behavior by the company and management Cohen et al. (2008). The International Financial Reporting Interpretations Committee (IFRIC) proposes that internal controls refer to the policies and procedures adopted by an organization to reduce risks that may affect the accuracy and reliability of financial reports when achieving its business objectives. Overall, internal controls are the set of measures and policies an organization adopts to protect the accuracy, safety, and sustainability of its financial reporting, assets, and operations.

#### 2.2.3.2 Elements of Internal Control of Accounting Firms

The critical elements of internal control of an accounting firm include governance and management, risk assessment, control activities, information and communication, supervision, and improvement (Bai et al., 2020). Their implementation and maintenance can improve the effectiveness of internal controls and the efficiency of business operations of accounting firms.

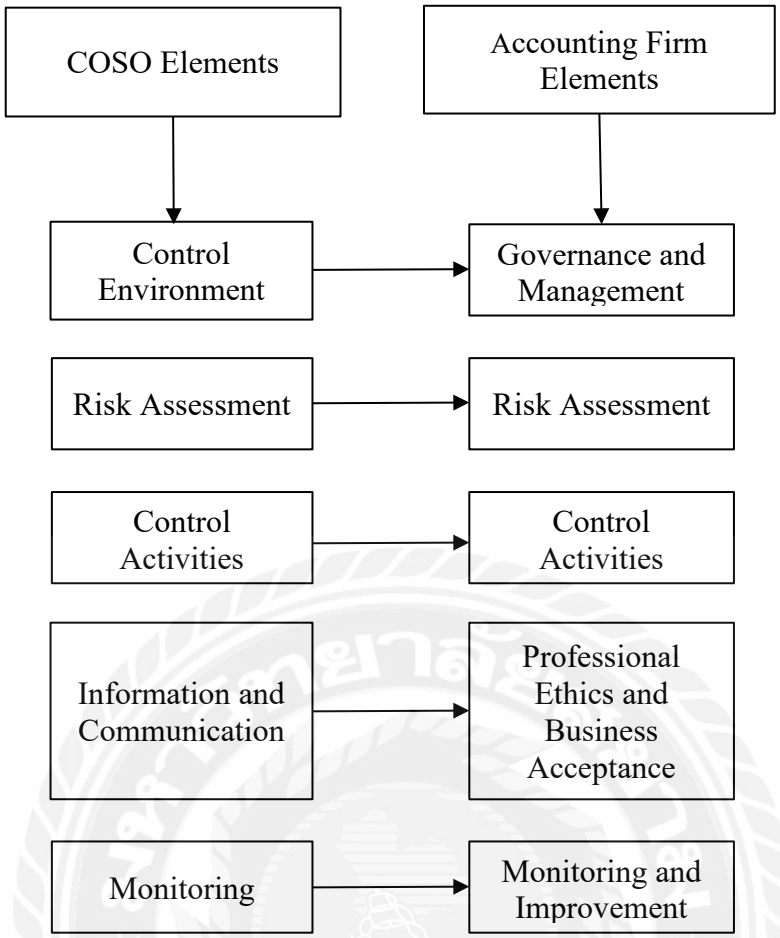


Figure2. 1 Internal control elements and accounting firm elements

(1) Governance and Management

The management of an accounting firm should be responsible for the effectiveness of internal controls while developing, implementing, and maintaining internal control systems. Management should formulate an internal control system, supervise its implementation, and take timely and effective corrective measures for problems in internal control. Chang et al. (2020) conducted an empirical study on the construction of internal control systems of accounting firms in China and concluded that management plays a vital role in internal control.

(2) Risk Assessment

The risk-based internal control method points out that accounting firms should conduct risk assessments based on their characteristics and business conditions and formulate corresponding internal control measures to reduce the impact of risks on the business. Scholars have proposed risk assessment methods for internal control of accounting firms and discussed prevention and control strategies for internal control of accounting firms. Yan (2022) Based on the problem of internal control optimization of

accounting firms based on risk control, scholars proposed internal control measures for different risk types and established an internal control evaluation index system based on the actual situation to monitor and evaluate the effect of internal control.

(3) Control Activities

Accounting firms should design and implement appropriate control activities, including control activities in auditing systems, accounting systems and procedures, risk management, information technology security, etc. In their studies, some scholars have proposed a set of evaluation indicators for internal control activities to help accounting firms effectively monitor and evaluate internal control activities. There are risks in the internal control activities of accounting firms, and risk control requires corresponding countermeasures to ensure the effectiveness and stability of internal control activities.

(4) Professional Ethics and Business Acceptance

Accounting firms should require all organizations or members bound by relevant professional ethics to perform their responsibilities and obligations strictly, rotate relevant partners regularly, and ensure that the rotation mechanism is implemented in place to ensure independence. At the same time, employees should sign a written document confirming their independence requirements at least once a year to ensure they understand the connotation of their professional ethics requirements. When undertaking specific business, the firm should consider whether it fully understands the situation of the entity being audited and whether the firm itself has professional competence.

(5) Monitoring and Improvement

Supervision is a decisive factor in the functioning of internal control. Many companies have built internal control systems, but they are ineffective. This is because the lack of supervision results in internal control defects not being discovered in time. The main content of internal supervision is divided into two parts: daily supervision and information feedback. The purpose of supervision is to promptly find deficiencies in internal control, including blind spots in the scope of internal control, system defects, executive negligence, dereliction of duty, and even fraud. The internal control of an enterprise is a dynamic process of continuous adjustment, gradual improvement, and continuous optimization Yakubu & Williams (2020).

### 2.2.4 Quality of Auditors

#### 2.2.4.1 The Connotation of Quality of Auditors

The American Institute of Certified Public Accountants (AICPA) believes that knowledge, technology, and interpersonal skills constitute the Quality of Auditors; FAC proposes that technical knowledge, behavioral skills, attitudes, values, and ethics include the quality of an auditor's professional competency. China has also defined the professional competence of auditors based on learning from relevant foreign research. CICPA issued the "Competency Guidelines for Chinese Certified Public Accountants" in 2007, which clearly outlines the components of quality of auditors' professional competencies, which are the primary connotations of professional knowledge, professional skills, professional values, ethics, and attitudes. CICPA revised the "Competency Guidelines for Chinese Certified Public Accountants" in December 2022. The unmistakable quality of auditors' competencies in the guide includes political abilities, professional ethics, professional competencies, practical experience, and internationalization capabilities.

#### 2.2.4.2 Elements of Quality of Auditors

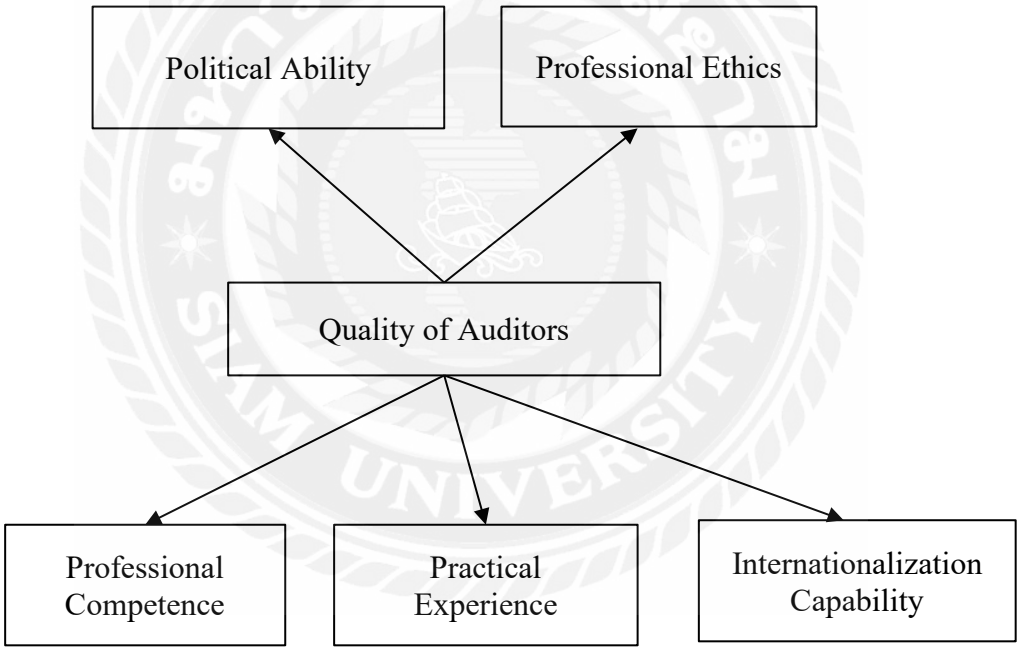


Figure2. 2 Quality of Auditors Elements

(1) Political ability is the talent ability of the CPA industry in the new era. The first requirement is the fundamental guarantee to maintain the correct development direction of China's CPA industry. The basic requirements for the political ability of talents in China's CPA profession in the new era are to adhere to the basic theory, primary line, and basic strategy of the Communist Party of China, firmly support the leadership of the Communist Party of China, firmly endorse the socialist system, and firmly support reform and opening up, and always maintain political stance, The Party Central Committee is consistent in political direction, political principles and political path.

(2) Professional ethics refers to the professional behaviors and characteristics unique to talents in the CPA industry. Specifically, they include professional skepticism and professional judgment, professional ethics codes and related norms, and safeguarding the interests of the public. Professional ethics is an important symbol that distinguishes talents in the CPA industry from talents in other sectors.

(3) Professional competence refers to the ability of certified public accountant professionals to engage in professional activities according to relevant laws and regulations, including technical competence, professional skills, and management abilities.

(4) Practical experience refers to the daily work and other activities in which talents in the CPA industry can enhance their competence based on the general education and vocational education they have received.

(5) Internationalization capability refers to the international training of talents in the CPA industry. The ability to think internationally, face the international market and serve Chinese enterprises to go global and overseas enterprises to come, including technical competencies, professional skills, management capabilities, and practical experience to adapt to international development.

### 2.2.5 System Control Theory

#### 2.2.5.1 The Connotation of System Control Theory

Nus (2020) The results that implementing an effective Information Systems Audit has a positive impact on Internal Control, which means that implementing an effective Information System Audit will affect improving the quality of Internal Control.

System control theory can be traced back to the 1940s and 1950s. Norbert Wiener proposed the concept of adaptive control in his book " Cybernetics " published in 1948 and presented the basic principles and methods of control theory.

Implementing system cybernetics in audit quality management requires accounting firms to build an audit quality management system, emphasize the integrity, relevance, and coordination of the system when considering top-level strategic design, and evaluate internal factors and external environmental influences. The main internal ecological factors include accounting firm project audit quality management, project team resource allocation, certified public accountant's professional experience and personal ability, audit fee, etc.; human control factors such as system design procedures, supervision, rectification, feedback, and incentive implementation effects. The main influencing factors of the external environment are industry changes, changes in

accounting standards, changes in auditing standards, the intensity of external competition, macroeconomic conditions, etc.

#### 2.2.5.2 Accounting Firm Control Link

When the control theory is applied to the accounting firm industry, the audit work can be divided into three links beforehand, during the process, and after the event, requiring quality control in every link of the audit work.

The ex-ante quality control of accounting firms means that when undertaking audit work, the firm will first understand the auditee to ensure the risks of undertaking the audit work and formulate a good risk management plan. The in-process quality control of an accounting firm means that the firm also has strict quality control guidelines for the audit process. The firm will work strictly by the quality control guidelines, effectively implement risk-oriented audit requirements, and ensure the quality of the audit work. Complying with the requirements of independent auditing standards also ensures audit quality.

The post-event quality control of accounting firms refers to the multi-level review of audit drafts after they are formed, and the implementation of a project review system to ensure no problems with the audit results.

The reasonable application of process quality control theory by an accounting firm can ensure the audit quality of the accounting firm during the audit process and thus issue appropriate audit reports.

### 2.2.6 Informatization

#### 2.2.6.1 Informatization Connotation

The informatization of accounting firms refers to the use of information technology to change the business model and management methods of accounting firms, improve service quality and efficiency, and thereby enhance the overall competitiveness of accounting firms Chambers (2011). It mainly includes information infrastructure construction, information management platform construction, business information application, information talent training, information strategic planning, information risk management, etc. Accounting firms can improve efficiency, reduce costs, improve quality, expand service scope, enhance competitiveness, better meet customer needs, and adapt to market development requirements through information construction.

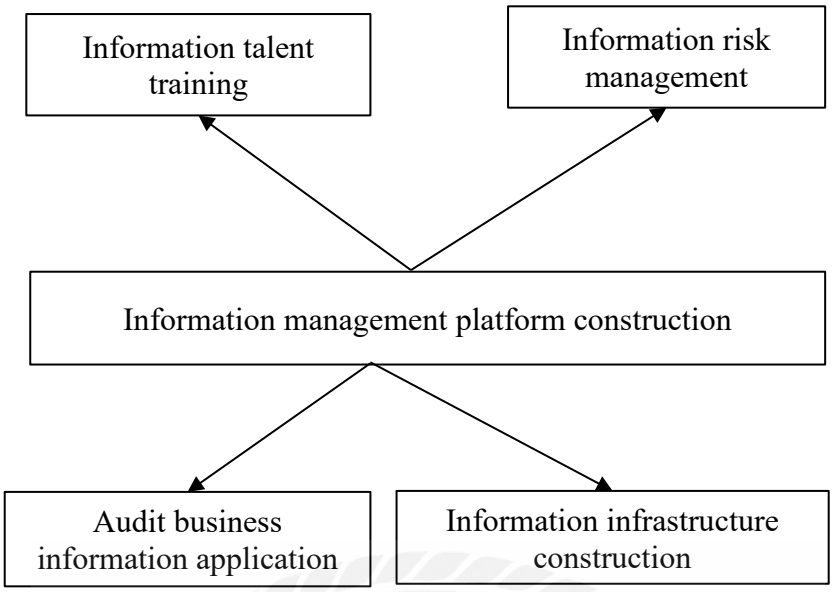


Figure2. 3 Accounting firm information construction

First, the construction of an accounting firm's information infrastructure. Accounting firm information infrastructure construction focuses on investment in hardware equipment, network equipment, information systems, information security, and guarantee facilities.

Second, the construction of accounting firms' business informatization. The business information application of accounting firms focuses on the information application of financial direction, regular audit business, particular audit business, consulting, and other business information applications.

Third, informatization talents are cultivated in accounting firms. Accounting firms focus on developing professionals with information technology skills and abilities to cope with the challenges of the information age. Improve the information professional quality of auditors and provide corresponding career development opportunities to attract and retain talents.

Fourth, information risk management of accounting firms includes information security risk management and business risk management.

#### 2.2.6.2 Development of Accounting Firm Information Construction

The development of information construction by accounting firms is integral to developing enterprise information. It is necessary to strengthen the construction of management systems, promote the application and innovation of information technology, and strengthen the training and introduction of information talents to improve the information quality of enterprises—level and service capabilities. The

informatization construction of accounting firms can be traced back to the late 1980s. Information technology had just become popular, and few institutions used it for financial and accounting operations. As time goes by, more and more scholars and companies have begun to pay attention to the development of accounting firms' information construction. In 1989, it was first proposed that information technology can improve the efficiency and accuracy of accounting work, reduce costs, improve the quality of financial reports, and thereby promote the development of enterprises to the ERP system proposed in 2012. Then enter the application of new technologies such as cloud computing, big data, artificial intelligence, and blockchain in 2017, and digital and intelligent construction in 2020. The information construction of accounting firms continues to develop. The development trends of information construction of accounting firms mainly include strengthening the application of business information, responding to the challenges and opportunities of new technologies, and developing digitization, intelligence, and security.

## 2.3 Research Relevant

### 2.3.1 Audit Quality and Internal Control

Existing literature has conducted many studies on the relationship between internal governance and audit quality, and believes that internal governance has an essential impact on audit quality. Doyle et al. (2007) found that the quality of internal control is significantly positively related to the quality of accruals, and the disclosure of major internal control defects at the company level will strengthen this positive correlation, while auditors easily discover internal control defects such as specific account types. But it has no strengthening effect. Some scholars have studied the relationship between internal control quality, accounting firm selection, and audit quality in their research, and pointed out that internal control quality and accounting firm selection significantly impact audit quality. Lan's (2021) research believes that the effective way to control audit quality is to implement total quality management for accounting firms. We closely follow the audit process and execute it from four aspects, including planning of the audit plan, strict implementation of audit procedures, post-event discussion and supervision, and having a beneficial impact on audit quality through the analysis of specific cases.

From an integrated perspective, the integrated management of accounting firms helps to allocate internal resources effectively and control the quality of audit work. The branch's business growth must be based on sacrificing part of the audit quality to a certain extent. Through further research, we found this phenomenon particularly strong in many firms that do not carry out integrated management or where integrated management shows poor results. At the same time, in some areas with high customer concentration, the side effects of such a negative correlation will be more obvious. A

significant element of internal governance is the construction of relevant systems.

### 2.3.2 Audit Quality and Quality of Auditors

Arruñada (2000) believes that the auditor's quality is a crucial factor affecting audit quality. A positive correlation exists between the accounting firm's human capital development layout and its operating performance. It is mainly reflected in three situations. First, the higher the education level of employees in a firm, the higher their salary level will be, and the business performance of the firm will also improve; second, the longer the employees have worked in the firm, the higher their salary level will be, and the business performance of the firm will be improved accordingly. The performance of the business will also increase; thirdly, the higher the requirements of employees for themselves, the more they will invest in self-improvement, the situation will be more positive in terms of salary measurement, and there will be some increase in firm performance.

From the perspective of training and promotion, full-time training plays a vital role in transforming and forming a company's human capital, and relevant training helps companies develop targeted human resources guarantees. Krauß et al. (2015) used relevant data and empirical analysis methods to demonstrate the correlation between audit quality and auditors. The results showed that certified public accountants are a significant influencing factor. Therefore, they believe that the focus of research on audit quality control should gradually shift to the management of audit work performed by auditors, including that firms should pay more attention to the construction of internal culture and the continuing education of employees. Knechel (2016) studied that auditors' professional ability and independence affect audit quality to a certain extent. For accounting firms, human capital is the most essential part of their capital components, and it is connected with audit quality. In general, the optimization of human resources can improve audit quality Zhou (2023).

### 2.3.3 Audit Quality and Informatization

With the advent of the significant data era, technology can be applied to a broader range of applications. Existing research shows that firms' technology resources can improve audit efficiency, save time and costs, and thereby improve audit quality. Masli et al.'s (2010) research shows that the implementation of internal control supervision has a positive effect on improving the quality of internal control and can also increase audit efficiency and timeliness of audit reports. Brandas (2013) believes that accounting firms should keep up with the pace of the times, attach importance to the role of science and technology, and use information technology within the firm to establish a company-wide information-sharing platform that can integrate various information of the audited unit. Register into the system to assess the possible risks of taking on customers. Alles & Gray (2016) believe that although big data has its place in auditing, its application in auditing is not as evident as in other fields (such as marketing and medical research).

Alomari et al. (2018) proposed that applying big data auditing is one of the essential tools to improve audit efficiency, quality, and optimize audit methods. In terms of the relationship between big data and audit quality, big data can be applied to audit work, thereby improving the efficiency and effectiveness of financial statement audits. Yu et al. (2018) believe that intelligent auditing based on blockchain integrates emerging digital technologies such as big data and artificial intelligence, effectively improving auditing efficiency and quality and reliability and audit data's security and reliability. Feng (2022) believes that the biggest problem in accounting firms is that audit quality cannot be effectively controlled. Improving the level of audit quality control requires improving the supervision mechanism of audit institutions and improving the application level of information technology in audit institutions.

## 2.4 Conceptual Framework

Based on the literature review and related research analysis, and based on risk management theory and system control theory, the model and hypotheses of this study are proposed. The accounting firm's internal control, informatization, and quality of auditors are independent, and audit quality is the dependent variable. Internal control includes five dimensions: internal governance, risk assessment, control activities, information and communication, and internal supervision. Informatization includes four dimensions: information infrastructure, data management, information security, and personnel training and management. The quality of auditors includes four dimensions: ability to work, professional ethics, teamwork, and creativity.

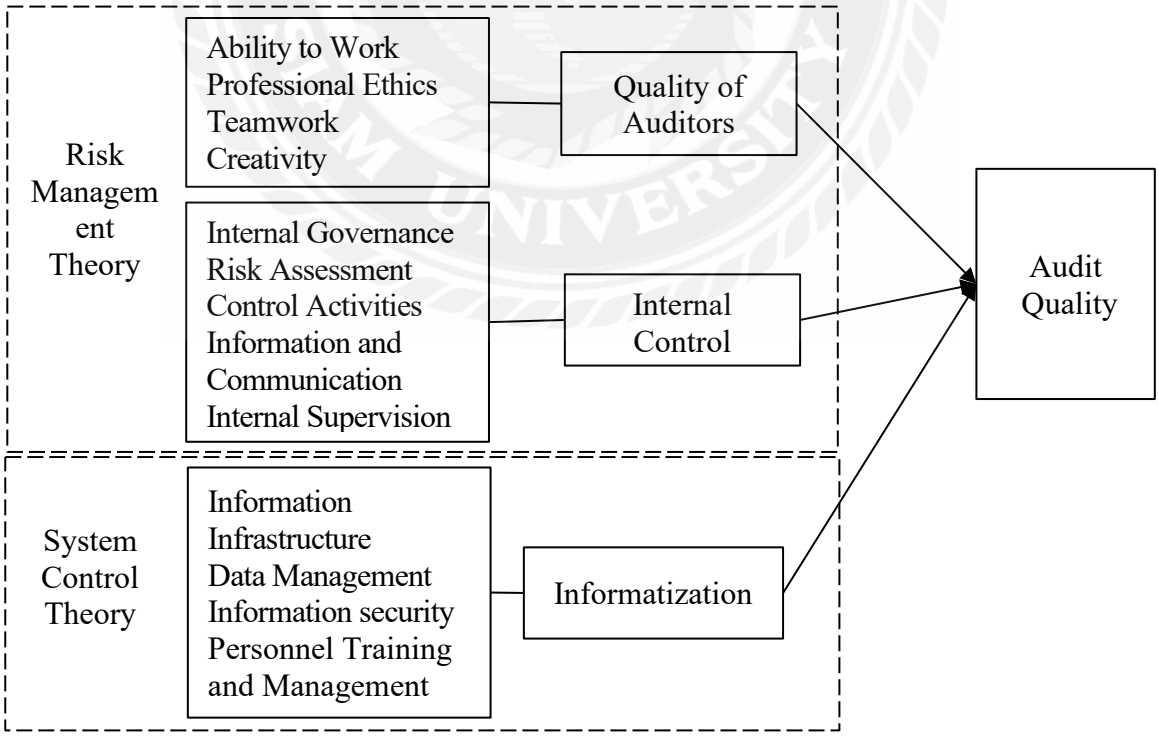


Figure2. 4 Conceptual Framework

# Chapter 3 Research Methodology

## 3.1 Introduction

This study sorts out the concepts of internal control, informatization, auditor quality, audit quality, four variables, influencing factors, research models, measurement dimensions, etc., of accounting firms. A research model and corresponding hypotheses are proposed based on risk management and system control theories. Internal control, informatization, and auditor quality are essential factors affecting audit quality. Internal control can help audit firms identify and manage risks and improve audit quality; informatization can enhance the efficiency and accuracy of the audit process; the quality of auditors is a critical factor in ensuring audit quality. This study uses quantitative research methods, taking accounting firms in Beijing as an example, to study the relationship between the four variables of internal control, informatization, quality of auditors, and audit quality. Use SPSS software to explore the interrelationships between variables. The questionnaire was determined based on the literature review, and the content of the research questionnaire was finally decided by analyzing classic scales and combining them with relevant theories. The questionnaire collection will use the questionnaire star line online collection method. The questionnaire design uses a 7-level Likert scale to assign values to the questionnaire and provide essential information for subsequent data analysis.

## 3.2 Research Design

### 3.2.1 Independent Variable

#### 3.2.1.1 Internal Control

According to the measurement scale proposed by Wang (2016) in his study on the interaction between internal control quality and audit risk, according to the research results of Yan (2022) and Qi (2020), the five primary elements required by the internal control standard system are Control environment, risk assessment, control activities, information and communication, internal supervision, etc., combined with the current development status of the accounting firm industry in Beijing. The internal control variable dimensions are internal governance, risk assessment, control activities, information and communication, and internal supervision. The logic of the design of internal governance issues is the institutional system, human resources, and salary assessment; the logic of the design of risk assessment issues is from goals, identification, process adjustment, and results; the logic of the design of control activity issues is before, during, and after the event; information and communication The logic of question design is method, timely and feedback; the logic of internal supervision question design is beforehand, during and after the fact, with a total of 17 questions.

Table3.1 Internal control measurement item

| Dimension | Measuring Item | NO. |
|---|---|---|
| Internal Governance | 1. The accounting firm has developed a complete internal control system that is suitable for itself. | IC1 |
| | 2. The staffing of the accounting firm should be consistent with the internal control system, and the employee turnover rate should be reasonably controlled. | IC2 |
| | 3. The accounting firm has established a complete performance appraisal system, and firm performance is closely linked to remuneration. | IC3 |
| Risk Assessment | 1. The adaptability of the accounting firm's risk assessment system to the set risk assessment objectives | IC4 |
| | 2. The risk assessment system of accounting firms is effective in identifying risks | IC5 |
| | 3. The accounting firm will make timely adjustments to quality objectives, quality risks, and response measures according to changes in circumstances. | IC6 |
| | 4. The degree of consistency between the risk assessment results prepared by the accounting firm and the actual risks. | IC7 |
| Control Activities | 1. The accounting firm formulates unified technical standards (such as practice guidelines, examples, manuscript templates, etc.) and quality objectives | IC8 |
| | 2. The accounting firm has formulated a reasonable project quality review system, which is effectively implemented. | IC9 |
| | 3. The accounting firm has established an accountability system for quality management accidents, and the system is effectively implemented. | IC10 |
| Information and Communication | 1. The accounting firm communicates with people at different levels according to business needs, and the communication methods and channels are effective. | IC11 |
| | 2. Internal and external information related to the accounting firm's business is disclosed promptly and is accurate and reliable. | IC12 |
| | 3. Based on feedback issues, the accounting firm adjusts the information and communication mechanism. | IC13 |
| Internal Supervision | 1. The firm will effectively carry out project budget management and personnel delegation management. | IC14 |
| | 2. Before issuing the audit report, assign a dedicated person to strictly implement project quality supervision (three-level review system). | IC15 |
| | 3. After the audit report is issued, the completed audit projects will be inspected regularly (inspection of manuscripts reports, and other information inspection). | IC16 |
| | 4. The accounting firm improves the deficiencies identified during supervision and inspection. | IC17 |

### 3.2.1.2 Informatization

According to Guang (2023) study, the measurement scale proposed in enterprise informatization, s un (2022) and Su et al. (2021), The measurement form for the survey on the current situation of information construction in the CPA industry, combined with the current situation of the development of Chinese accounting firms, was finally determined as four dimensions: information infrastructure, data management, information security, and personnel training and management, with a total of 15 questions.

Table3.2 Informatization Measurement Item

| Dimension | Measuring Item | NO. |
|---|---|---|
| IT Infrastructure | 1. Hardware facilities required for accounting firm's information investment | IN1 |
| | 2. The accounting firm is equipped with a professional technical department or a high-level computing team | IN2 |
| | 3. Accounting firms continue to invest in the improvement of information systems and the development of innovative audit tools | IN3 |
| | 4. The accounting firm has built a system based on tools such as Hadoop and AI technology to conduct audit work accordingly. | IN4 |
| Data Management | 1. Accounting firms' data management realizes informatization | IN5 |
| | 2. The daily work of accounting firms is highly informative | IN6 |
| | 3. Informatization improves the data management efficiency of accounting firms | IN7 |
| Information Security | 1. The informatization of accounting firms ensures the security of information management | IN8 |
| | 2. The accounting firm's information system has high security | IN9 |
| | 3. Informatization of accounting firms in a secure network environment | IN10 |
| | 4. Employees have a strong awareness of information security. | IN11 |
| Training and Management | 1. The accounting firm has established a systematic personnel information training and management system | IN12 |
| | 2. Accounting firms conduct informatization training for employees regularly or irregularly. | IN13 |
| | 3. The informatization and management of accounting firm positions is very high. | IN14 |
| | 4. Auditors have high information literacy. | IN15 |

### 3.2.1.3 Quality of Auditors

According to the measurement scale for the quality of auditors in accounting firms proposed by Yan (2015), combined with systemic risk management theory, the Quality of Auditors is divided into four dimensions: workability, professional ethics, teamwork ability, and innovation ability. Each dimension contains 4 questions, totaling 16 questions.

Table3.3 Quality of Auditors Measurement Item

| Dimension | Measuring Item | NO. |
|---|---|---|
| Work Ability | 1. Among employees, CPAs (including those who have passed the comprehensive examination, The Association of Chartered Certified Accountants (ACCA), and Chartered Global Management Accountant (CGMA) account for a relatively high proportion of auditors | QA1 |
| | 2. Auditors must have professional competence. | QA2 |
| | 3. Auditors have strong risk awareness | QA3 |
| | 4. Auditors have the learning ability to improve themselves continuously | QA4 |
| Professional Ethics | 1. The accounting firm will establish a mechanism to meet the requirements of professional ethics standards | QA5 |
| | 2. Accounting firms conduct regular and irregular professional ethics training for auditors | QA6 |
| | 3. Accounting firms should establish a mechanism to punish employees who violate professional ethics. | QA7 |
| | 4. Auditors can abide by professional ethics | QA8 |
| Teamwork Ability | 1. Accounting firm business is often completed in the form of a team | QA9 |
| | 2. Accounting firms have high requirements for the teamwork ability of auditors | QA10 |
| | 3. Auditors have good interpersonal communication skills | QA11 |
| | 4. Auditors can help each other and complete tasks together | QA12 |
| Innovation | 1. Accounting firms encourage employees to innovate | QA13 |
| | 2. Accounting firms often hold seminars on auditing | QA14 |
| | 3. Auditors continue to innovate working methods while adhering to professional standards. | QA15 |
| | 4. Auditors are willing to improve work efficiency through innovation | QA16 |

### 3.2.2 Dependent Variable

Audit quality is the level of assurance that there are no material misstatements or omissions in financial reports. High audit quality should be more reliable and include

fewer misstatements and omissions of a subjective nature (DeAngelo, 1981b; Palmrose, 1988). However, due to the high concealment of the audit process, the instability of the audit environment, the standardization of audit results, and the unobservable professional experience and efforts of auditors, audit quality is challenging to measure directly. It can only be indirectly replaced (DeAngelo, 1981a). The main attributes of audit quality include independence, audit quality satisfaction, types of audit opinions, audit fees, industry supervision and management, market environment, etc. According to Li (2023) and Wang (2022) studied audit quality and proposed a research scale, and set the scale of this study to 5 questions.

Table3.4 Audit Quality Measurement Item

| Dimension | Measuring Item | NO. |
|---|---|---|
| Audit Quality | 1. The audit fees charged by the accounting firm are reasonable | AQ1 |
| | 2. The degree to which the audit process of accounting firms is subject to industry supervision | AQ2 |
| | 3. The quality of auditors in an accounting firm can ensure audit quality | AQ3 |
| | 4. The accounting firm effectively implements the three-level review process of audit reports and drafts. | AQ4 |
| | 5. The accounting firm will promptly handle the deficiencies identified during supervision and inspection and propose improvement measures. | AQ5 |

### 3.2.3 Control Variable

By combining the literature, the control variables of the study are proposed from the individual level of the auditors of Beijing accounting firms, including employees' age, gender, education level, job position, working years, etc.

## 3.3 Hypotheses

the relationship between Internal Control, Informatization, Quality of Auditors, and Audit Quality variables is clarified. Hypotheses are proposed regarding the relevant relationships.

We expect that weak links in internal control will lead to a decline in audit quality. These weak links may be reflected in internal governance, risk assessment, poor communication, etc., leading to inadequate implementation of audit procedures and affecting audit quality. This leads to our first hypothesis:

H1: The internal control of accounting firms positively impacts audit quality.

Previous research found that increased informatization investment is necessary to

fully accommodate multiple audit objectives (Salvato and Rerup 2018). However, audit firms often determine the nature, timing, and extent of testing in an audit, creating a rigid routine that can impact productivity. We predict that accounting firms can improve audit efficiency, discover routine problems, and reduce audit risks by investing in IT hardware and software. Improve data analysis capabilities with the help of big data management. The skills of IT people will have a more significant positive impact on providing effective audit procedures to help detect fraud. This leads to our second hypothesis:

H2: The informatization of accounting firms positively impacts audit quality.

The quality of auditors is an essential factor in promoting the audit business, so they have more robust professional competence. A large number of research results show that the industry expertise of accounting firms is an essential factor affecting their audit quality, and firms will make targeted investments in employee education and professional skills to help them improve their audit quality (Yan, 2015). Chinese scholars used Chinese-listed companies as research samples. For example, Cai Liu （2008） and other scholars found that in China's local audit market, it positively affects and improves audit quality.

H3: The quality of auditors of accounting firms positively impacts audit quality.

Therefore, the relevant assumptions of the conceptual model are summarized as follows:

Table3.5 The Summary of Hypotheses

| NO. | Hypothesis |
|---|---|
| H1 | The internal control of accounting firms has a positive impact on audit quality. |
| H2 | The informatization of accounting firms has a positive impact on audit quality. |
| H3 | The quality of auditors of accounting firms positively impacts audit quality. |

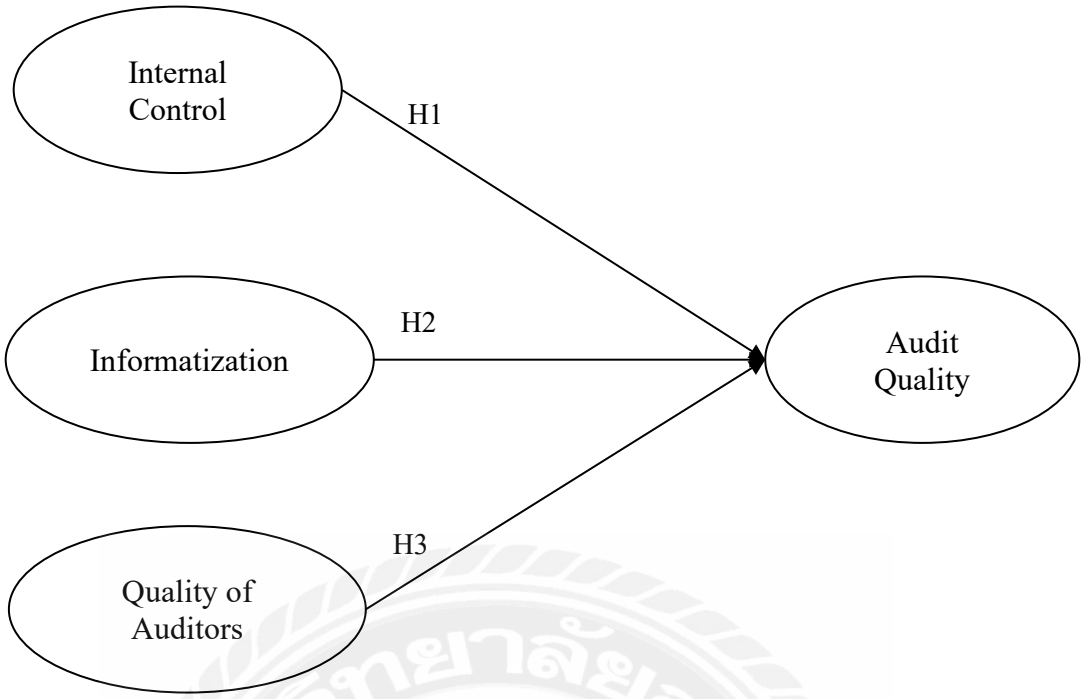


Figure3. 5 Hypotheses

## 3.4 Population and Sampling

To achieve the three objectives of this study, the questionnaire method was considered the most appropriate as it provides the most efficient way to collect data in a standardized form over a large number of units of analysis. In addition, the amount of data collected by Beijing accounting firms is quite large, and in this case, the survey method is the most appropriate choice. The research subjects are full-time employees of accounting firms in Beijing.

Based on the analysis, a random sampling survey method calculates the number of random sampling samples.

$$\mathrm{n} = \frac{s^2 * p^2}{E^2}$$

The n=sample size and the s value are the quantiles of the standard normal distribution. The general value for the confidence level is 95%, at which time Z=1.96. p is the sample standard deviation. The estimated value of the sample standard deviation is generally 0.5. Determine the error tolerance E (the maximum allowable value of the difference between the sample mean and the population mean), E=0.05. The calculated result is 384 samples. The data from the questionnaire was analyzed using the SPSS program.

## 3.5 Data Collection

This article sorted out and studied the literature, found the relevant literature on the variables involved in this study, conducted comparative analysis and summary, and based on the content of this study, appropriate adjustments and improvements were made to summarize the questionnaire items used in this study. This survey questionnaire will be distributed and collected through the questionnaire Star system. The returned data were coded, tabulated, and analyzed to test the hypotheses proposed for the study.,

The questionnaire for this study includes four contents: title, introduction, basic information, and variables involved in the study. During the survey period, a total of 384 questionnaires were distributed, 360 questionnaires were recovered, 30 were incomplete, and 330 were qualified and valid, with an effective rate of 91.67%.

## 3.6 Reliability and Validity

### 3.6.1 Reliability Testing

Reliability refers to the reliability of the measurement results of the scale. The higher the repeatability and reliability of the scale, the less it will be affected by time, place, and other environments, and the test results will be more stable. The internal consistency and reliability of the scale were tested by examining the Cronbach's α coefficient of each scale. Cronbach's alpha coefficient value range and reliability effect: 0.80~0.90 very good 0.70~0.80 quite good; 0.65~0.70 minimum acceptable value; 0.60~0.65 best not; generally speaking, Cronbach's alpha coefficient is more significant than 0.7 all are acceptable. Internal Control is 0.912, Informatization is 0.912, Quality of Auditors is 0.914, and Audit Quality is 0.893, indicating the questionnaire has high credibility.

Table3.6 Variate Reliability Test

| Variate | Sample | Cronbach's Alpha | N of Items |
|---|---|---|---|
| Internal Control | 330 | 0.912 | 17 |
| Informatization | 330 | 0.912 | 15 |
| Quality of Auditors | 330 | 0.914 | 16 |
| Audit Quality | 330 | 0.893 | 5 |

### 3.6.2 Validity Testing

KMO test and Bartlett's test of sphericity are required before conducting factor analysis in the study. Only when the KMO test value is greater than 0.6 and the Sig. Value is significant, meaning the scale is suitable for factor analysis. Therefore, this

study conducted the KMO and Bartlett's sphericity test on the collected data. Through these tests and analyses, it is ensured that the validity of the research scale meets the requirements.

### 3.6.2.1 Internal Control Validity Testing and Factor Analysis

Table3.7 Internal Control KMO and Bartlett's Test

| KMO and Bartlett's Test | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.880 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 2885.071 |
| | df | 136 |
| | Sig. | 0.000 |

Through SPSS27 analysis, the KMO value of internal control is 0.88>0.7, indicating high validity. Bartlett's Test Sig.<0.05 shows that the questionnaire data is suitable for factor analysis. Therefore, confirmatory factor analysis was conducted on Internal Control, and the five dimensions obtained are shown in Table 3.8 and Table 3.9.

Table3.8 Internal Control Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative% | Total | % of Variance | Cumulative% | Total | % of Variance | Cumulative% |
| 1 | 7.071 | 41.594 | 41.594 | 7.071 | 41.594 | 41.594 | 2.854 | 16.789 | 16.789 |
| 2 | 1.535 | 9.030 | 50.624 | 1.535 | 9.030 | 50.624 | 2.746 | 16.151 | 32.940 |
| 3 | 1.382 | 8.129 | 58.753 | 1.382 | 8.129 | 58.753 | 2.293 | 13.487 | 46.427 |
| 4 | 1.329 | 7.816 | 66.570 | 1.329 | 7.816 | 66.570 | 2.274 | 13.377 | 59.803 |
| 5 | 1.074 | 6.315 | 72.884 | 1.074 | 6.315 | 72.884 | 2.224 | 13.081 | 72.884 |
| 6 | 0.540 | 3.179 | 76.063 | | | | | | |

The number of common factors extracted by default is to extract eigenvalues greater than 1, and generally higher than 50% is acceptable. As can be seen from the above table, the first five terms are more significant than 1, so the first five common factors are extracted. Through SPSS27 analysis, Internal Governance, Risk Assessment, Control Activities, Information and Communication, and Internal Supervision, the cumulative contribution rate of the five dimensions is 72.884%. It exceeds 50%, indicating that the validity of each dimension is relatively good.

Table3.9 Internal Control Rotated Component Matrix [a]

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| IC1 | 0.186 | 0.211 | 0.205 | 0.229 | 0.781 |
| IC2 | 0.183 | 0.121 | 0.200 | 0.165 | 0.808 |
| IC3 | 0.187 | 0.334 | 0.152 | 0.160 | 0.747 |
| IC4 | 0.740 | 0.144 | 0.198 | 0.133 | 0.160 |
| IC5 | 0.784 | 0.145 | 0.164 | 0.209 | 0.131 |
| IC6 | 0.814 | 0.102 | 0.102 | 0.133 | 0.220 |
| IC7 | 0.788 | 0.282 | 0.116 | 0.102 | 0.102 |
| IC8 | 0.165 | 0.149 | 0.799 | 0.125 | 0.212 |
| IC9 | 0.146 | 0.164 | 0.801 | 0.133 | 0.120 |
| IC10 | 0.157 | 0.173 | 0.804 | 0.142 | 0.164 |
| IC11 | 0.102 | 0.194 | 0.166 | 0.781 | 0.197 |
| IC12 | 0.216 | 0.102 | 0.181 | 0.834 | 0.145 |
| IC13 | 0.209 | 0.218 | | 0.776 | 0.159 |
| IC14 | 0.164 | 0.742 | 0.150 | 0.196 | 0.199 |
| IC15 | 0.266 | 0.702 | 0.232 | 0.140 | 0.134 |
| IC16 | 0.153 | 0.673 | 0.165 | 0.238 | 0.260 |
| IC17 | 0.120 | 0.880 | 0.102 | 0.102 | 0.108 |

The rotated Component Matrix represents the amount of information each factor contains on each question. The final display result of better questionnaire data is that each factor will represent a dimension, and this dimension is consistent with the manual dimension division. Through SPSS27 analysis, the factor analysis showed that the five dimensions are compatible with the dimension division of the questionnaire, indicating that the questionnaire has good validity.

### 3.6.2.2 Informatization Validity Testing and Factor Analysis

Table3.10 Informatization KMO and Bartlett's Test

| **KMO and Bartlett's Test** | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.894 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 2803.858 |
| | df | 105 |
| | Sig. | 0.000 |

Through SPSS27 analysis, the KMO value of Informatization is 0.894>0.7, and Bartlett's Test Sig. Significantly indicates that confirmatory factor analysis can be performed. Therefore, confirmatory factor analysis was performed on Informatization, and the four dimensions obtained are shown in Table 3.1.11 and Table 3.12. The cumulative contribution rate of the four dimensions of IT Infrastructure, Data Management, Information Security, and Training and Management is 73.407% and exceeds 50%, indicating that each dimension has good validity.

Table3.11 Informatization Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative% | Total | % of Variance | Cumulative% | Total | % of Variance | Cumulative% |
| 1 | 6.735 | 44.899 | 44.899 | 6.735 | 44.899 | 44.899 | 3.043 | 20.286 | 20.286 |
| 2 | 1.644 | 10.959 | 55.857 | 1.644 | 10.959 | 55.857 | 2.889 | 19.260 | 39.546 |
| 3 | 1.457 | 9.711 | 65.568 | 1.457 | 9.711 | 65.568 | 2.868 | 19.123 | 58.670 |
| 4 | 1.176 | 7.838 | 73.407 | 1.176 | 7.838 | 73.407 | 2.211 | 14.737 | 73.407 |
| 5 | 0.530 | 3.534 | 76.941 | | | | | | |

The number of common factors extracted by default is to extract eigenvalues greater than 1, and generally higher than 50% is acceptable. As can be seen from the above table, the first four terms are more significant than 1, so the first four common factors are extracted. Analysis through SPSS27, IT Infrastructure, Data Management, information security, training, and management, the cumulative contribution rate of the four dimensions is 73.407% and more than 50%, indicating that the validity of each dimension is relatively good.

Table3.12 Informatization Rotated Component Matrix [a]

| | Component | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| IN1 | 0.205 | 0.826 | 0.164 | 0.130 |
| IN2 | 0.196 | 0.736 | 0.238 | 0.178 |
| IN3 | 0.182 | 0.808 | 0.198 | 0.126 |
| IN4 | 0.157 | 0.781 | 0.139 | 0.243 |
| IN5 | 0.302 | 0.256 | 0.231 | 0.725 |
| IN6 | 0.209 | 0.212 | 0.258 | 0.782 |
| IN7 | 0.152 | 0.166 | 0.134 | 0.851 |
| IN8 | 0.852 | 0.175 | 0.220 | 0.102 |
| IN9 | 0.800 | 0.225 | 0.171 | 0.199 |
| IN10 | 0.804 | 0.162 | 0.111 | 0.215 |
| IN11 | 0.796 | 0.184 | 0.157 | 0.178 |
| IN12 | 0.161 | 0.194 | 0.770 | 0.203 |
| IN13 | 0.118 | 0.146 | 0.804 | 0.132 |
| IN14 | 0.173 | 0.183 | 0.792 | 0.136 |
| IN15 | 0.173 | 0.177 | 0.780 | 0.150 |

The rotated Component Matrix represents the amount of information each factor contains on each question. The final display result of better questionnaire data is that each factor will represent a dimension, and this dimension is consistent with the manual dimension division. Through SPSS27 analysis, the factor analysis showed that the four dimensions are compatible with the dimension division of the questionnaire, indicating

that the questionnaire has good validity.

### 3.6.2.3 Quality of Auditors Validity Testing and Factor Analysis

Table3.13 Quality of Auditors KMO and Bartlett's Test

| KMO and Bartlett's Test | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.901 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 3117.271 |
| | df | 120 |
| | Sig. | 0.000 |

Through SPSS27 analysis, the KMO value of the quality of auditors is 0.901> 0.7, indicating high validity. Bartlett's Test Sig.<0.05 indicates that the questionnaire data is suitable for factor analysis. Therefore, confirmatory factor analysis was performed on the quality of auditors, and the four dimensions obtained are shown in Table Table3.14 and Table 3.15. Workability, professional ethics, teamwork ability, and innovation, the cumulative contribution rate of the four dimensions is 73.344% and exceeds 50%, indicating that each dimension has good validity.

Table3.14 Quality of Auditors Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative% | Total | % of Variance | Cumulative% | Total | % of Variance | Cumulative% |
| 1 | 7.017 | 43.859 | 43.859 | 7.017 | 43.859 | 43.859 | 3.079 | 19.247 | 19.247 |
| 2 | 1.731 | 10.817 | 54.676 | 1.731 | 10.817 | 54.676 | 2.939 | 18.368 | 37.615 |
| 3 | 1.573 | 9.828 | 64.504 | 1.573 | 9.828 | 64.504 | 2.917 | 18.229 | 55.844 |
| 4 | 1.414 | 8.839 | 73.344 | 1.414 | 8.839 | 73.344 | 2.800 | 17.499 | 73.344 |
| 5 | 0.569 | 3.554 | 76.898 | | | | | | |

The number of common factors extracted by default is to extract eigenvalues greater than 1, and generally higher than 50% is acceptable. As can be seen from the above table, the first four terms are more significant than 1, so the first four common factors are extracted. Through SPSS27 analysis, the cumulative contribution rate of the four dimensions of Workability, professional ethics, teamwork ability, and innovation is 73.344%, which exceeds 50%, indicating that the validity of each dimension is relatively good.

Table3.15 Quality of Auditors Rotated Component Matrix [a]

| | Component | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| QA1 | 0.203 | 0.200 | 0.238 | 0.760 |
| QA2 | 0.155 | 0.177 | 0.260 | 0.730 |
| QA3 | 0.197 | 0.180 | | 0.757 |
| QA4 | 0.165 | 0.137 | 0.104 | 0.865 |
| QA5 | 0.821 | 0.189 | 0.204 | 0.180 |
| QA6 | 0.852 | 0.177 | 0.173 | 0.208 |
| QA7 | 0.785 | 0.150 | 0.203 | 0.240 |
| QA8 | 0.832 | 0.147 | 0.144 | 0.130 |
| QA9 | 0.140 | 0.794 | 0.123 | 0.218 |
| QA10 | 0.133 | 0.843 | 0.223 | 0.139 |
| QA11 | 0.214 | 0.783 | 0.220 | 0.165 |
| QA12 | 0.172 | 0.779 | 0.219 | 0.181 |
| QA13 | 0.208 | 0.215 | 0.771 | 0.131 |
| QA14 | 0.133 | 0.171 | 0.808 | 0.155 |
| QA15 | 0.139 | 0.202 | 0.814 | 0.170 |
| QA16 | 0.217 | 0.168 | 0.758 | 0.142 |

The rotated Component Matrix represents the amount of information each factor contains on each question. The final display result of better questionnaire data is that each factor will represent a dimension, and this dimension is consistent with the manual dimension division. Through SPSS27 analysis, the factor analysis showed that the four dimensions are compatible with the dimension division of the questionnaire, indicating that the questionnaire has good validity.

# Chapter 4 Findings

## 4.1 Introduction

Through the literature review, the influencing factors of internal control, informatization, and auditor quality were sorted out. Quantitative research methods were used to analyze the data reliability and validity of the collected questionnaires to ensure the collected data was valid. Descriptive statistical analysis, correlation analysis, and regression analysis were conducted on the data to further understand the relationship between various variables. The mutual influence relationship between internal control and audit quality variables is clarified through analysis and verification of hypotheses. The analysis shows that internal control, informatization, and quality of auditors significantly impact audit quality.

## 4.2 Statistical Description of Variables

The first part of the questionnaire serves as a sample for statistical purposes, mainly to ensure the authenticity and accuracy of the sample data. To ensure that the sample data is representative, the main demographic characteristics variables include gender, certification certificate, age, education level, working years, employee level, etc., see Table 4.1.

Table4.1 Demographics

| Item | Options | Frequency | Percent |
|---|---|---|---|
| GEN | Male | 101 | 30.61 |
| | Female | 229 | 69.39 |
| Certified | Yes | 149 | 45.15 |
| | No | 181 | 54.85 |
| AGE | under 25 years | 40 | 12.12 |
| | 25-30 years old | 75 | 22.73 |
| | 31-35 years old | 101 | 30.61 |
| | 36-41 years old | 97 | 29.39 |
| | over 41 years old | 17 | 5.15 |
| EDU | College and below | 81 | 24.55 |
| | Bachelor's degree | 193 | 58.48 |
| | Master's degree | 50 | 15.15 |
| | Doctoral Degree | 6 | 1.82 |
| EXP | within 1-year | 54 | 16.36 |
| | 1-3 years | 81 | 24.55 |
| | 4-6 years | 64 | 19.39 |
| | 7-10 years | 42 | 12.73 |
| | more than 10 years | 89 | 26.97 |
| POS | Junior staff | 81 | 24.55 |

| Item | Options | Frequency | Percent |
|---|---|---|---|
| | Intermediate staff | 113 | 34.24 |
| | Senior staff | 102 | 30.91 |
| | Salaried partner | 13 | 3.94 |
| | Equity partner | 21 | 6.36 |

To understand the overall distribution of the sample data collected in this survey and whether there are any outliers, statistical analysis was performed on all items through SPSS27. As shown in Table 4.2, the total number of samples is 330, and the mean distribution of all measurement questions is Between 4.68~5.01. There are no missing values and outliers. It can be seen that the sample data collected this time are reasonably distributed, and the mean and standard deviation are within the required reasonable range.

Table4.2 Statistical Description of Variables

| | Item | Min | Max | Average | STD |
|---|---|---|---|---|---|
| Internal Control | internal governance | 1.00 | 7.00 | 4.72 | 1.55 |
| | risk assessment | 1.00 | 7.00 | 4.74 | 1.46 |
| | control activities | 1.00 | 7.00 | 4.85 | 1.49 |
| | Information and communication | 1.00 | 7.00 | 4.82 | 1.53 |
| | internal supervision | 1.00 | 7.00 | 4.79 | 1.50 |
| Informatization | Information infrastructure | 1.00 | 7.00 | 4.69 | 1.55 |
| | Data management | 1.00 | 7.00 | 4.72 | 1.55 |
| | information security | 1.00 | 7.00 | 4.84 | 1.52 |
| | Personnel training and management | 1.00 | 7.00 | 4.68 | 1.52 |
| Quality of Auditors | Ability to work | 1.00 | 7.00 | 4.91 | 1.48 |
| | Professional ethics | 1.00 | 7.00 | 4.96 | 1.53 |
| | Teamwork | 1.00 | 7.00 | 4.97 | 1.55 |
| | Creativity | 1.00 | 7.00 | 4.88 | 1.52 |
| Audit Quality | Audit Quality | 1.00 | 7.00 | 5.01 | 1.51 |

Descriptive statistical analysis found that the proportion of the surveyed people was reasonable, and their academic qualifications were evenly distributed. Therefore, reliability and validity analysis, correlation analysis, and regression hypothesis testing could be carried out.

## 4.3 Correlation Analysis

The analysis of whether there is a correlation between variables is tested through

the Pearson correlation coefficient (r), which ranges from -1 to 1. The closer the r value is to 1 or -1, the stronger the correlation, and the closer to 0., indicating that the correlation is weaker. According to Table 4.3, it can be seen that the correlation coefficient r values are all between 0 and 1 and are significantly correlated at the 0.01 level. There is a significant correlation between variables (P<0.01).

Table4.3 Correlation analysis

| | Internal Control | Informatization | Quality of Auditors | Audit Quality |
|---|---|---|---|---|
| Internal Control | 1 | | | |
| Informatization | .439 ** | 1 | | |
| Quality of Auditors | .314 ** | .396 ** | 1 | |
| Audit Quality | .535 ** | .563 ** | .495 ** | 1 |

NOT: *p<0.05 **p<0.01

According to the correlation analysis in the above table, we can see that there is a correlation between each variable of internal control, informatization, quality of auditors, and audit quality, and they are all significant, indicating that there is a correlation between each variable. The correlation coefficient does not exceed 0.9. It shows that there is a correlation but no collinearity.

## 4.4 Regression Analysis

According to the model analysis, R, R Square need more significant than 0.5, indicating that the independent variable's ability to explain the dependent variable exceeds 50%. The Durbin-Watson test value must be less than 2, meaning that the data analysis meets the requirements, and the regression analysis is effective.

Table4.4 Model Summary

**Model Summary [b]**

| R | R Square | Adjusted R Square | Std. Error of the Estimate | R Square Change | F Change | df1 | df2 | Sig. F Change | Durbin-Watson |
|---|---|---|---|---|---|---|---|---|---|
| .692 | 0.479 | 0.475 | 0.9171 | 0.479 | 100.09 | 3 | 326 | 0.000 | 1.857 |

According to the model analysis, $R^2$ is 0.479, which is close to 0.5, indicating that the explanatory power of the independent variable on the dependent variable is close to 50%. The Durbin-Watson test value is 1.857<2.00. In reality, many factors affect audit

quality. Three variables can reach 0.479, indicating that the data analysis is acceptable, and the regression analysis is valid.

Table4.5 ANOVA

| ANOVA[a] | | | | | |
|---|---|---|---|---|---|
| | Sum of Squares | df | Mean Square | F | Sig. |
| Regression | 252.575 | 3 | 84.192 | 100.096 | .000 |
| Residual | 274.201 | 326 | 0.841 | | |
| Total | 526.776 | 329 | | | |

From the table above, a one-way analysis of variance tells us that the significance level of the F test is 0.05. That is to say when the null hypothesis of one-way analysis of variance "the means of each category in the population are equal" is true, the F value of the probability of 100.096 appearing is 0.05, which is a small probability event.

Table4.6 Coefficients

| **Coefficients [a]** | | | | | | |
|---|---|---|---|---|---|---|
| | Unstandardized B | Coefficients Std. Error | Standardized Coefficients Beta | t | Sig. | VIF |
| (Constant) | 0.470 | 0.323 | | 2.454 | 0.001 | |
| Internal Control | 0.404 | 0.059 | 0.309 | 6.852 | 0.000 | 1.275 |
| Informatization | 0.395 | 0.058 | 0.320 | 6.852 | 0.000 | 1.363 |
| Quality of Auditors | 0.342 | 0.056 | 0.271 | 6.143 | 0.000 | 1.221 |

Note: The dependent variable is audit quality

In regression analysis, Internal Control, Informatization, and Quality of Auditors, the Sig. Values are all significant; the t values in the t-test exceed 1.96, indicating that the t-test is passed; Unstandardized B is all positive; after verification, the research hypothesis is established.

According to the analysis results, the regression formula of factors affecting internal control, informatization, quality of auditors, and audit quality can be derived:

$$\text{Audit Quality} = 0.470 + 0.404IC + 0.395IN + 0.342QA$$

# Chapter 5 Conclusion and Recommendation

## 5.1 Conclusion

This research is mainly based on internal control, informatization, and quality of auditors, analyzing and studying the influencing factors of audit quality. The conclusions of this study are as follows: Internal control, informatization, and the quality of auditors have a significant positive impact on Audit Quality, which verifies that H1, H2, and H3 are established. Through analysis and summary, it can be concluded that internal control, informatization, and quality of auditors have varying degrees of impact on audit quality, that is, by improving the professional level of auditors, establishing and improving internal controls, increasing informatization resource investment, and improving the level of informatization application. Audit quality can be enhanced through these approaches.

### 5.1.1 Internal Control Has a Significant Positive Effect on Audit Quality in Beijing Accounting Firms

Regression analysis and correlation analysis conclude that the influencing factors of the audit quality of Beijing Accounting Firms include internal control, informatization, and quality of auditors. The Pearson correlation coefficient between internal control and audit quality is 0.535, with a p-value of less than 0.01, which indicates a statistically significant correlation. The correlation coefficient of 0.535 indicates a moderate positive correlation between internal control and audit quality, i.e., as the quality of internal control improves, the quality of audit improves and vice versa.

In contrast, a p-value of less than 0.01 suggests that it is statistically unlikely that this correlation is a result of chance due to sampling error. Generally, when the p-value is less than 0.05, we consider this correlation to be significant, but in this case, the p-value of less than 0.01 emphasizes even more the significance of the correlation between internal control and audit quality. Therefore, this interpretation indicates that the statistical results found by the study show that there is a reliable statistical correlation between internal control quality and audit quality, and that this correlation may be important in practice, for example, as a basis for guiding auditing and internal control improvement.

### 5.1.2 Informatization Has a Significant Positive Effect on Audit Quality in Beijing Accounting Firms

The Pearson correlation coefficient between informatization and audit quality is 0.563 with a p-value of less than 0.01, which indicates a statistically significant correlation. The correlation coefficient of 0.563 indicates a moderate positive correlation between informatization and audit quality, i.e., as the level of informatization increased, the quality of

audits also increased and vice versa.

In contrast Generally, when the p-value is less than 0.05, we consider this correlation as significant, but in this case, the p-value of less than 0.01 emphasizes even more the significance of the correlation between informatization and audit quality. Therefore, this interpretation indicates that the statistical results found by the study show that there is a reliable statistical correlation between the level of informatization and audit quality. This correlation may have important implications in practice, for example, it can be used as a basis for guiding the improvement of auditing and informatization.

### 5.1.3 Quality of Auditors Has a Significant Positive Effect on Audit Quality in Beijing Accounting Firms

The Pearson correlation coefficient between the quality of auditors and audit quality is 0.495, with a p-value of less than 0.01, which indicates a statistically significant correlation. The correlation coefficient of 0.495 indicates a moderate positive correlation between auditor quality and audit quality, i.e., as auditor quality improves, audit quality improves and vice versa.

Therefore, this interpretation indicates that the statistical results found by the study show that there is a reliable statistical correlation between auditor quality and audit quality. This correlation may have important implications in practice, for example, it can be used as a basis for guiding auditor training and upgrading their quality to improve audit quality. According to the correlation analysis in the above table, we can see that there is a correlation between each variable of internal control, informatization, quality of auditors, and audit quality, and they are all significant, indicating that there is a correlation between each variable. The correlation coefficient does not exceed 0.9. It shows that there is a correlation but no collinearity.

According to the model analysis, R2 is 0.479, which is close to 0.5, indicating that the explanatory power of the independent variable on the dependent variable is close to 50%. The Durbin-Watson test value is 1.857<2.00. In reality, many factors affect audit quality. Three variables can reach 0.479, indicating that the data analysis is acceptable, and the regression analysis is valid. The F value of the probability of 100.096 appearing is 0.05, which is a small probability event. In regression analysis, Internal Control, Informatization, and Quality of Auditors, the Sig. Values are all significant; the t values in the t-test exceed 1.96, indicating that the t-test is passed; Unstandardized B is all positive; after verification, the research hypothesis is established. This indicates that internal control, informatization, and quality of auditors have a positive effect on audit quality.

Table 5.1 Hypothesis Testing

| NO. | Hypothesis | Result |
|---|---|---|
| H1 | The internal control of accounting firms has a positive impact on audit quality. | Established |
| H2 | The informatization of accounting firms has a positive impact on audit quality. | Established |
| H3 | The quality of auditors of accounting firms positively impacts audit quality. | Established |

## 5.2 Discussion

### 5.2.1 Internal Control and Audit Quality

Combined with statistical analysis, the overall average value of internal control is 4.72~4.85, and the impact on audit quality is 0.535, indicating a significant positive correlation between internal control and audit quality. Still, the overall score of internal control governance is not high. Although the regulatory authorities have issued a series of internal control requirements and guidelines, there are specific differences in the business types and scales of accounting firms, and some problems will still arise during the implementation process. Judging from the current situation, although most accounting firms have strengthened the construction of internal control systems, there are still some problems in the process. The firms can only conduct a more comprehensive and careful analysis, and propose more effective solutions, and only by ensuring the effective implementation of solution strategies can internal control work play its due role and achieve more long-term and stable development (Zhao, 2021). From an external perspective, with the promulgation of China's basic internal control norms and supporting guidelines, all sectors of society have enthusiastically discussed internal control-related issues. However, most of the topics discussed are relatively abstract and not tailored to each enterprise. It is not accompanied by actual operation flow charts that conform to the enterprise's business processes, resulting in a certain degree of disconnect between theory and practice (Wang, 2022). According to the analysis of the surveyed data, the main reason is that the accounting firm's staffing and internal control system is flawed, and the employee turnover rate is relatively high.

Audit quality is the foundation for an accounting firm to grow bigger and stronger. Facing the current fierce competition in the accounting firm industry, audit quality has become the foundation and bottom line for the firm's development. At the same time, audit quality is also an essential proof of the firm's credibility and reputation. If accounting firms do not pay attention to audit quality, they will fall behind in the fierce competition. Therefore, accounting firms need to build a complete internal control system and maintain high audit quality through continuous improvement of internal controls, thereby reducing audit risks.

### 5.2.2 Informatization and Audit Quality

Combined with statistical analysis, it is found that the overall average value of informatization is 4.69~4.84, and its impact on audit quality is 0.563, which has a significant positive correlation. Guang's (2023) research shows that the audit charging standards of Chinese firms are relatively confusing, and accounting firms with lower quotations will be favored by more customers, which prompts accounting firms to expand their customer base by adopting low-price strategies. However, the construction of informatization requires a large amount of manpower and material resources, the cost is high, and it is challenging to see returns in the short term, thus limiting the pace of informatization infrastructure. Informatization construction is conducive to improving the quality of office work and reducing labor and time costs. However, information construction requires a large amount of manpower and capital investment, and this investment is long-term. It requires not only sufficient hardware support but also cooperation with software development institutions to purchase or customize information systems and maintain them. At the same time, professionals must be introduced, and auditors trained to use information systems. It is difficult to see a return on a large investment in the short term, and may still be lost. Because unskilled use of audit software affects the work process, this is also an essential reason for the lag in many informatization constructions. In the context of the continuous development of informatization in all walks of life, accounting firms must not be afraid of short-term setbacks, pursue long-term value, overcome all difficulties, and persist in the construction of audit informatization to improve audit quality and efficiency and achieve accounting firms keeping pace with the times—Sustainable development strategy.

The information technology personnel training and management system is imperfect; information technology construction requires professional and comprehensive talents. Accounting firms do not lack experienced auditors, but fewer talents are proficient in information technology knowledge. The information training of accounting firms lacks sufficient systematicity, and auditors cannot apply information technology in practice. Insufficient training in the use of software has resulted in many staff not having the ability to use the software, which has significantly reduced the usage rate of the software.

Some managers of accounting firms do not pay enough attention to the value and importance of information. They have a deep understanding of the CPA industry but have no experience in informatization construction. Many managers have long-term experience in the audit industry and have excellent work abilities but lack flexibility in their thinking. They have a natural repulsion towards new audit methods. Although some managers are aware of the necessity of information construction, they cannot fully use information technology in audit work because their understanding of this field is highly superficial, and they lack practical experience.

### 5.2.3 Quality of Auditors and Audit Quality

Combined with statistical analysis, it is concluded that the overall average value of the quality of auditors is 4.88~4.97, and the impact on audit quality is 0.495, which has a significant positive correlation. An audit failure occurs when a certified public accountant of an accounting firm fails to perform their duties diligently due to gross negligence. Li (2023) believes that the professional ethics requirements of certified public accountants are the top priority of audit quality management, and the personal ability and professional quality level of certified public accountants play a decisive role in the final audit results. Through questionnaire analysis, the workability and professional ethics scores were not high.

Auditors have specific deficiencies in professional competence, professional skepticism, and sensitivity to significant matters. At the same time, imperfect implementation of audit procedures and blind expansion of accounting firms have also led to a decline in audit quality—the main reason (Kong, 2020). The lack of professional competence of certified public accountants and the failure to fully implement audit procedures during the execution of audit engagements are the main internal factors that cause the decline in the audit quality of firms (Firth et al., 2014). The impact of firm tenure on internal control audit quality depends on the balance between reduced independence and increased professional capabilities. The conceptual framework of professional ethics constructed by the accounting firms under investigation is incomplete, the importance and independence of professional ethics construction of CPAs are not high, and the level of professional ethics of CPAs is not highly valued.

## 5.3 Recommendations

### 5.3.1 Enhance Internal Control Activities

The accounting firm should have designed a series of control activities for its audit business processes but failed to implement them according to the regulations during the project process, which significantly affects quality control. The accounting firm should standardize the control activities. (1) Control activities should be refined to solve the problem of vague process descriptions to help practitioners understand and execute according to the system (Feng, 2020). (2) More experienced certified public accountants should be dispatched to perform key control activities, such as back-checking of the audited company during the project undertaking stage, summarizing and giving feedback on problems during the project process, etc. Auditors with less experience should be avoided. Personnel are responsible for preventing the risk of incomplete or even missing audit procedures. (3) The implementation effect of control activities should be supervised, which can be combined with a separate post and an accountability system. In the project team, in addition to the project leader, another

certified public accountant in the team should be given supervisory functions, and he should work with the project persons in charge to share responsibility to improve the effectiveness of control activities and thereby improve audit quality.

As an intermediary service organization, accounting firms have auditors' professional qualities and human resources management models that significantly affect the quality of project services. Therefore, a sound human resources management model should be developed with the firm's strategic goals. The investigation found that the recruitment process of some accounting firms is too simple, has low requirements for new employees, and does not have a reasonably designed comprehensive strength evaluation system. Suggestions for improvement include:

(1) Based on external introduction and internal training of information professional talents, accounting firms must also pay attention to the company's talent incentive mechanism to attract and retain talents. Reasonable remuneration is an important bargaining chip for recruiting outstanding talents. First, employees can be motivated to work by adjusting the salary structure and adding more spiritual recognition to the original salary model of monetary remuneration. Increase team building, deepen the promotion of corporate culture, and increase employees' sense of identification with the accounting firm.

(2) Improve the employee assessment mechanism and conduct multiple inspections during the employee performance evaluation process, such as examining employees' work attitudes, self-learning abilities, informatization, corporate culture, etc., and develop a special assessment and evaluation system to evaluate employees' performance. The assessment and evaluation process and results should be kept in written records, and a scientific and efficient assessment and evaluation system should be improved so that employees know what to do and what not to do.

To sum up, accounting firms have strict entry standards for company employees, strengthened employee training, comprehensively detailed assessment and reward methods, use assessment results as an essential factor in promotions and salary increases, and reward and encourage outstanding talents.

### 5.3.2 Prioritize Informatization

The intelligence and automation of the audit operating system greatly benefit from improving audit efficiency, allowing auditors to perform only professional judgment work instead of being trapped in complex and repetitive work. At this stage, the audit software circulating on the market has been able to complete basic audit work initially. Small and medium-sized accounting firms can directly purchase relatively mature audit information systems; large accounting firms should try to use modern intelligent audit tools instead. The traditional manual audit method gradually builds an audit information sharing center to conduct fine division of audit work. Reducing costs and improving

efficiency is one of the business goals of accounting firms. Based on the theoretical basis of economies of scale, the audit information sharing center can share audit data, procedures, and some high-end businesses among various departments and project teams. Centralized processing can reduce the information reconstruction costs of each branch and department and dilute fixed costs with a larger business volume. Therefore, regardless of the size of accounting firms, investment in informatization can simultaneously improve audit work efficiency and quality and reduce audit risks.

In continuously introducing information technology talents, accounting firms must also pay attention to talent training and management work to ensure that the firm always has a high-quality information technology team in its sustainable development. (1) It is necessary to strengthen the professional training of audit informatization personnel, provide professional guidance through external experts, mainly focus on training auditors with information technology skills, and establish an information technology talent team that aligns with the current development status of accounting firms. (2) Strengthen the understanding of information-related knowledge and platforms among all auditors in the firm. Professionals can be regularly invited to hold lectures to explain the application of current popular information technologies in audit work and relevant articles and explanation videos can be published on the Internet and videos to encourage auditors to proactively understand and apply modern information technology in audit work and have a strong understanding of information technology. Employees are given more rewards and promotion opportunities. (3) Firm managers should take the lead, pay attention to the application of modern technologies such as artificial intelligence and big data in practical work, understand new information technologies used in audit work, and reasonably allocate firm income and expense arrangements. Pay attention to information resource investment.

### 5.3.3 Strengthen the Quality of Auditors

CICPA provides continuous guidance to help accounting firms build a complete quality management system. At the same time, it should also continuously revise the accountant's professional ethics code and optimize the industry environment. For example, CICPA continues to change the Competency Guidelines for Certified Public Accountants and constantly improves the continuing education system for accountants.

Accounting firms should hold multiple professional knowledge training courses tomorrow, including online video course training, on-site centralized training, business observation meetings, experience exchange meetings, etc. The training content helps auditors become familiar with relevant laws, regulations, and policy documents, and master the basic principles and methods of audit work, including audit work processes, audit report writing, etc. Improve the level of re-education and management of auditors, from the previous study-only format to a more rigorous study + examination format, improve the effect of continued learning, and ultimately improve the audit quality of the entire industry.

" Show/teach new staff the ropes" is one of the essential means to promote the rapid growth of young auditors (Qiu, 2023). It can help young auditors improve their workability and level as soon as possible. Experienced auditors can pass on the experience, knowledge, and skills accumulated over many years of work to young auditors so that they can integrate into the role as soon as possible, become familiar with audit work faster, master business skills, and accelerate growth.

Accounting firms attach great importance to professional ethics management and enhance auditors' awareness of strictly observing professional ethics. Audit quality management ultimately relies on each auditor to complete, so auditors must strictly abide by professional ethics and use their actions to maintain the order of the CPA industry. Professional ethics is the moral standard for certified public accountants. Therefore, certified public accountants must adhere to the principles of independence, integrity, objectivity, and impartiality, maintain professional skepticism, strictly abide by auditing standards, be diligent and conscientious, avoid deficiencies in audit procedures, and ultimately improve the audit quality of the entire industry.

## 5.4 Further Study

This study chose Beijing Accounting Firm as a representative to verify the relationship between internal control, informatization, auditor quality, and audit quality of accounting firms and put forward optimization suggestions. However, the research in this article still has certain deficiencies, which need to be done in the future. Conduct more in-depth analysis and research on the internal control issues of accounting firms, mainly including:

Beijing accounting firms were chosen as a case study in this study. Although Beijing accounting firms are representative to a certain extent, they also have certain limitations. Therefore, future research on accounting firms needs to expand the research scope further and improve the generalizability of the research results.

There are currently various methods for internal control, informatization, auditor quality, and audit quality in accounting firms. The researchers are mainly scholars, but there are few frontline workers in accounting firms. It is hoped that more accounting experts can participate to some extent and come up with more pragmatic solutions for accounting firms to improve audit quality, reduce audit errors, and contribute to the long-term and stable development of accounting firms.

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