

The role of big data analytics in auditing financial statements with the improvement of audit quality in Vietnam

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Abstract

This study was conducted to examine the challenges and limitations in applying big data analysis in auditing financial statements with the improvement of audit quality in Vietnam. By qualitative research method, on the basis of direct content analysis from published articles and reports on the application of new technology in auditing to provide more clarity on the challenges for auditors and auditing companies. The results of the study show that some of the main challenges faced by auditors and auditing firms include: Data availability and quality; Data privacy and security; Limited technical expertise and resources; Outdated infrastructure and technology; Cost and return on investment; and Legal and ethical considerations. Based on the results of the study, some recommendations are made to help auditors improve the quality of audits, enhance risk assessment and increase efficiency. The application of big data analysis has the potential to revolutionize the auditing industry in Vietnam, contributing to the creation of more accurate and valuable financial statements.

Keywords: Audit quality; big data, Vietnam

1. Introduction

Auditing financial statements plays an important role in ensuring the reliability and accuracy of financial information reported by companies (Phạm, 2022). With the onset of the digital era, the audit profession in Vietnam is undergoing significant changes. The increasing complexity and volume of financial data, coupled with advances in technology, have created new challenges and opportunities for auditors. As companies generate and store large amounts of data, auditors must adapt their approaches to effectively assess risk, detect fraud, and provide assurances on audited financial statements (Huy & Hung, 2022), where big data analysis is considered to play an important role in this context.

Big data analysis offers great potential in improving the effectiveness and efficiency of financial statement audits in Vietnam. Traditional audit methods are often constrained by manual processes and limited sampling techniques, making it difficult to detect patterns, anomalies, and risks in large data sets. By leveraging big data analytics, auditors can harness the power of technology to process and analyze huge volumes of data quickly and accurately. This allows them to identify insights, trends, and potential risks that may not be evident with traditional audit methods.

Although the benefits of big data analysis in financial statement auditing have been widely acknowledged, it is still necessary to understand its specific applications and implications in the context of financial statement auditing in Vietnam. The research problem lies in understanding how auditors in Vietnam can effectively leverage data analysis tools and techniques to improve the quality of auditing and decision making. Furthermore, it is essential to identify the challenges and limitations associated with the application and implementation of big data analysis in financial statement audits in Vietnam.

Therefore, this study is aimed at exploring the potential of big data analysis in improving the effectiveness and efficiency of financial statement audits in Vietnam. Specifically, the study aims to:

- (i) Identify current practices and challenges of auditing financial statements in Vietnam.
- (ii) Consider the applications of big data analytics in the audit of financial statements and its impact on audit effectiveness and effectiveness.
- (iii) Analyze the challenges and limitations that auditors face in applying and implementing big data analysis in the audit of financial statements in Vietnam.
- (iv) Propose recommendations and guidance for auditors in Vietnam to effectively utilize big data analysis in their audit process.

2. Literature review

An overview of the world's studies on the role of big data analysis in auditing financial statements with the improvement of the quality of the audit, including some of the following studies:

Kend & Nguyen (2020) conducted a study to look at the impact of big data analysis on the quality of audits conducted by Big4 auditing firms in the United States. The results of the study show that the use of big data analysis in the audit of financial statements significantly improves the quality of audits. It enhances the identification of risks, improves the detection of material misstatements, and

increases the overall reliability of the financial statements. The study recommends that audit firms invest in training auditors in data analysis techniques, developing a robust data governance framework, and collaborating with information technology experts to effectively integrate big data analytics into the audit process.

The study by Moffitt et al., (2018) examines the implementation of big data analysis in financial statement audits among medium-sized audit firms in Germany. The results show that the use of big data analytics improves audit quality by facilitating a more comprehensive and accurate risk assessment, identifying anomalies in financial data, and enhancing fraud detection capabilities. The study proposes that audit firms should invest in advanced analytics tools, establish data quality controls, and promote a data-driven audit culture to maximize the benefits of big data analytics in improving audit quality.

Chen (2022) conducted a survey among auditors in Australia to examine the impact of big data analytics on audit quality. The results of the study found a positive relationship between the use of big data analytics and audit quality. Auditors using big data analysis techniques have reported improved accuracy, performance, and efficiency in auditing financial statements. On the basis of the research results, the author proposes that auditing firms should invest in training programs to improve auditors' data analysis skills, establish data privacy and security protocols, and collaborate with technology providers to access advanced analysis tools and technologies.

According to Tan (2020), the application of big data analysis in auditing financial statements among auditing firms in Singapore, especially the integration of big data analysis in the audit process will improve the quality of audits by allowing a more thorough assessment of financial risks, enhancing the detection of anomalies and providing a higher level of assurance to stakeholders. Audit firms should develop a data-driven audit approach, invest in data visualization tools, and establish a robust data governance framework to maximize the benefits of big data analytics in improving audit quality.

Silva (2016) conducted a survey and interviewed auditors in Brazil to examine the effect of big data analysis on audit quality. The results of the study show that auditors using big data analysis techniques reported improved audit quality, including better risk assessment, improved detection of errors and frauds, and increased efficiency in the audit process. The study proposes that audit firms should invest in data analytics training programs, establish data governance policies, and collaborate with technology providers to obtain advanced analytics tools and platforms.

According to Yamamoto (2017) considering the implementation of big data analysis in auditing financial statements among auditing firms in Japan. The results of the study show that the application of big data analysis improves audit quality by allowing auditors to identify financial irregularities, assess risks more effectively, and provide a higher level of assurance to stakeholders. The study also recommends that audit firms should invest in data analysis infrastructure, develop data quality management processes, and enhance auditors' data analysis skills through training programs to maximize the impact of big data analysis on audit quality.

Wilson (2018) study conducted interviews and case studies with auditing firms in the UK to explore the impact of big data data analytics on audit quality. The results of the study show that the use of

big data analysis improves audit quality by allowing auditors to identify patterns, anomalies, and potential risks in financial data, resulting in more accurate and reliable financial reporting.

Thus, mentioning the role of big data analysis in auditing financial statements with improving the quality of audits is not only a concern of developed countries in particular but also a concern of all countries in the world. It can be seen that the studies on the role of big data analysis in auditing financial statements with the improvement of the quality of the audit are unanimous: The applications of big data analysis in auditing financial statements in Vietnam include risk assessment, fraud detection, analytical review, compliance, internal control assessment, continuous auditing and data-based decision making. The application of big data analytics enhances the efficiency and performance of financial statement audits by providing auditors with powerful tools to analyze large volumes of data, identify risks and anomalies, improve decision making, and streamline the audit process.

Therefore, studying the role of big data analysis in auditing financial statements with improving the quality of audits to improve the quality of audits, the honesty of financial statements and protect the interests of stakeholders is essential.

3. Research Method

This article uses a direct content analysis method from published articles and reports on the application of new technology in auditing to provide more clarity on the difficulties and challenges for the auditing profession, auditing companies and the audit process. 13 articles and 03 relevant reports were taken from Google Scholar's library database, reputable websites of Big 4 auditing companies and regulatory organizations and international accounting and auditing professional associations.

4. Research results

Based on the research of relevant documents, the author summarizes some results achieved, specifically as follows:

4.1. Current practices and challenges of auditing financial statements in Vietnam

Auditing financial statements in Viet Nam faces many challenges, including restrictions on the independence of auditors, limited audit quality, restrictions on the use of technology, complex legal environment, restrictive accounting and disclosure standards, detection of fraud and corruption risks, as well as professional development and talent retention, specifically as follows:

Complex legal environment: In Vietnam, the audit of financial statements is governed by the 2011 Law on Independent Audit, which outlines the legal framework and requirements for auditors and auditing firms. The Vietnam Association of Certified Public Accountants (VACPA) plays an important role in setting auditing standards and promoting professional development in the auditing industry. Audit firms must comply with these legal requirements to maintain licenses and conduct audits. The management and supervision of audit activities are carried out by many regulatory agencies overseeing different aspects of financial reporting, including the Ministry of Finance, the State Securities Commission and the State Bank of Vietnam. Each regulator may have different reporting requirements, adding to the complexity and creating challenges for auditors in understanding and complying with different regulations.

The independence of auditors is limited: One challenge in auditing financial statements in Vietnam is ensuring the independence of auditors. Auditors may face pressure from clients or have a close relationship with management, which may affect their objectivity and independence (Hung, 2022). This challenge highlights the importance of ethical standards and professional skepticism during the audit process.

The quality of auditing financial statements is not high: Ensuring the quality of auditing is very important to maintain the reliability of financial statements. However, in Vietnam, there have been cases where the quality of audits has been questioned. It is noteworthy that the situation of variable accounting data, the magic of financial information is quite common in enterprises, in all fields and in many economic sectors. Typically, the fact that Bach Tuyet Cotton Joint Stock Company (BBT stock code) in 2008 has become the focus of public attention is controversial, but the responsibility largely lies with the auditors in ensuring the reliability of the truthfulness - reasonableness of the information on the financial statements of the customer company. Or recently related to the Great Wall wood company in 2016; and the story that Eximbank suffered cumulative losses and the stock fell under the warning is still very hot in the market. The reason for falling under the warning is that Eximbank's profit in 2015 from profit of more than 114 billion VND was adjusted retrospectively to a loss of more than 817 billion VND. The highlight of the debate this time is the story of Eximbank's 2015 auditor, KPMG, which emphasized the accounting errors of Eximbank and the acceptance of other auditing firms. And the other auditor is E&Y – the auditor of Eximbank during 2010-2014. There is suspicion of an auditor dubbed Big4 in the field of auditing like E&Y. Is it really just a professional omission or are there negative things in the auditor's professional ethics? These challenges need to be addressed to improve the overall quality of the financial statements audit.

Limited application of technology in auditing: Traditional audit techniques and manual processes are still popular in Vietnam, limiting the effectiveness of auditing financial statements. Technology adoption, such as data analysis tools and software, is relatively low. Auditors often rely on manual sampling methods and lack the ability to analyze large volumes of data effectively. This challenge underscores the need for auditors to capture technological advances and leverage data analytics to improve audit processes and outcomes.

Incomplete accounting and auditing standards: Vietnam's accounting and information disclosure standards may not be fully consistent with international standards such as International Financial Reporting Standards (IFRS). This difference can pose challenges for auditors when auditing multinational companies or companies listed on international stock exchanges. The auditor must explore the differences between local and international standards, which can be time-consuming and require additional expertise.

Fraud and corruption detection risks: Vietnam faces challenges related to fraud and corruption, which may affect the accuracy of financial reporting. Auditors should be vigilant in detecting and dealing with fraudulent acts. However, identifying and investigating fraud can be challenging due to limited resources, lack of access to relevant information, and the possibility of objections from management.

Professional development and talent retention: Developing a skilled and competent audit workforce is critical to maintaining high quality financial statement audits. However, Vietnam faces challenges in attracting and retaining talented professionals in the auditing industry. Limited career development opportunities, low salaries, and public distrust of the audit profession may discourage individuals from pursuing the audit profession.

4.2. Applications of big data analysis in auditing financial statements and its impact on audit effectiveness and effectiveness

The impact of big data analysis on the effectiveness and effectiveness of financial statement audits in Vietnam is significant. By leveraging big data analytics, auditors can improve audit quality, enhance risk assessment and fraud detection, streamline the audit process, and provide valuable insights to stakeholders. The use of data analysis tools and techniques improves the efficiency of the audit process by automating data analysis, reducing manual effort, and accelerating the identification of patterns and anomalies. This ultimately leads to more accurate and timely financial reporting, increased confidence in financial reporting and improved stakeholder decision-making in Vietnam.

Risk assessment and fraud detection: Big data analysis allows auditors to conduct a comprehensive risk assessment by analyzing large volumes of data from a variety of sources. By leveraging advanced analysis techniques, auditors can identify patterns, anomalies, and potential risks more effectively. In Vietnam, where fraud and corruption risks are prevalent, big data analysis can help auditors detect fraudulent activities by analyzing transaction data, identifying unusual patterns, and noting suspicious transactions. This improves the effectiveness of fraud detection procedures and improves the overall quality of financial statement audits (Hung, 2023).

Analytical review and trend analysis: Big data analysis allows auditors to perform in-depth analytical review and trend analysis on financial data. By analyzing historical data, auditors can identify trends, correlations, and outliers that may indicate potential problems or areas for further investigation. For example, the auditor may analyze sales data to identify abnormal fluctuations in revenue or compare cost trends between periods and units. This analysis provides valuable insights into the financial performance and position of the audited entity, contributing to a more efficient and informed audit process.

Compliance and regulatory reporting: Big data analytics can assist auditors in ensuring compliance with regulatory requirements and reporting obligations. By analyzing financial data related to specific regulations, auditors can identify instances of non-compliance and assess the adequacy of internal controls. In Vietnam, where the regulatory environment can be complex, big data analytics can help auditors navigate through different reporting standards and requirements, facilitate compliance, and reduce the risk of regulatory penalties.

Evaluation of internal control: Big data analysis can enhance the evaluation of internal control by analyzing large volumes of data and identifying weaknesses or deviations in control. By evaluating transaction data, auditors can identify control gaps, potential errors, and process inefficiencies. This analysis allows the auditor to make valuable recommendations to strengthen internal controls, improve operational efficiency, and minimize risk.

Continuous inspection and monitoring: Big data analysis allows auditors to move towards a continuous inspection and monitoring approach. Instead of relying solely on periodic audits, auditors can use real-time data feeds and automated analysis tools to continuously monitor financial transactions, detect anomalies, and assess risks. This approach improves the efficiency of the audit process by reducing reliance on manual sampling and inspection methods.

Data-driven decision making: Big data analysis provides auditors with access to large amounts of data that can support data-driven decision making. By leveraging data analysis tools, auditors can generate actionable insights and make informed decisions based on objective and evidence-based analysis. This enhances the overall effectiveness and performance of the audit of financial statements by reducing reliance on subjective judgment and intuition.

4.3. Challenges and limitations that auditors face in applying and implementing big data analysis in auditing financial statements in Vietnam

The challenges and limitations that auditors face when applying and implementing big data analysis in auditing financial statements in Vietnam can be analyzed as follows:

Data availability and quality: One of the main challenges in applying big data analytics in financial statement audits is the availability and quality of the data. Auditors may have difficulty accessing relevant and reliable data from a variety of sources. In Vietnam, where data infrastructure and data governance practices may be less developed than in developed countries in the region and the world, auditors may encounter limitations in collecting comprehensive and standardized data sets. Inconsistent data formats, incomplete data, and differences in data between systems can pose challenges for auditors when conducting data analysis.

Data privacy and security: Auditors must navigate data privacy and security regulations when using big data analysis techniques. In Vietnam, as in many jurisdictions, there are strict regulations on the collection, use and storage of personal and sensitive data. Auditors should ensure compliance with these regulations, especially when accessing and analyzing large volumes of data that may contain confidential information. Maintaining data privacy and security while conducting data analysis can be complex and require strong data protection measures.

Technical expertise and resources: The application of big data analysis in financial statement audits requires specialized technical expertise and resources. Auditors need to possess the necessary skills and knowledge to effectively use data analysis tools, interpret results, and derive meaningful insights. However, there may be a shortage of professionals with advanced data analysis skills in Vietnam. Training and developing the technical competence of auditors as well as providing access to related tools and technologies poses challenges in implementing big data analytics effectively.

Infrastructure and technology constraints: Effective implementation of big data analytics depends on robust infrastructure and advanced technology. However, in Vietnam there may still be limitations in technology infrastructure, data storage capacity and access to advanced analysis tools. Slow or unreliable internet connections, inadequate data storage facilities, and outdated software can hamper auditors' ability to leverage big data analytics effectively. Addressing these infrastructure and technology constraints requires investment and collaboration among auditing firms, regulators, and technology providers.

Data interpretation and validation: Interpreting and validating the results of big data analysis can be challenging for auditors. Big data analysis often generates large amounts of information and insight, prompting the auditor to identify meaningful anomalies and patterns. It is essential to distinguish between random variations and important trends or risks that require further investigation. In addition, the auditor must confirm the accuracy and reliability of the analysis results to ensure the integrity of the audit process. These tasks require auditors to exercise professional judgment and skepticism when working with complex data sets.

Legal and ethical considerations: Implementing big data analysis in financial statement audits requires auditors to navigate legal and ethical considerations. In Vietnam, auditors need to comply with laws and regulations related to data privacy, intellectual property and the use of third-party data sources. Ensuring that the analysis is conducted in an ethical manner and in compliance with the relevant laws is important. The auditor must consider the impact of data ownership, data sharing agreements, and potential risks associated with a data breach or misuse.

Cost and return on investment: Implementing big data analytics in financial statement audits can be costly, especially in terms of technology investment, training, and infrastructure development. Auditing firms in Vietnam may face challenges in justifying these costs and assessing the return on investment. Determining the cost effectiveness and long-term benefits of implementing big data analytics can be a challenge, especially for smaller companies with limited resources.

5. Conclusion and recommendation

Although auditors in Vietnam face a number of challenges and limitations in the application and implementation of big data analysis in auditing financial statements, there are compelling arguments for their effective use. The benefits of big data analytics, such as improved audit quality, enhanced risk assessment, and increased efficiency, far outweigh the obstacles encountered.

By developing a data strategy, enhancing technical expertise, establishing a strong data governance framework, collaborating with data and IT professionals, investing in infrastructure and technology, and promoting collaboration and knowledge sharing, auditors can overcome these challenges and successfully leverage big data analytics. Moreover, keeping up to date with regulatory and technological developments, engaging with customers and stakeholders, and continually evaluating and improving processes will ensure a sustainable and effective application of big data analytics in financial statement audits. Finally, the application of big data analysis has the potential to revolutionize the audit profession in Vietnam, allowing auditors to provide more accurate and valuable insights to stakeholders, while contributing to the overall integrity of the financial statements, specifically as follows:

Develop a data strategy: Auditors should develop a comprehensive data strategy that outlines the objectives, scope, and approaches for leveraging big data analytics in their audit process. The strategy should include considerations such as data availability, data storage and management, data quality, and legal and ethical considerations. This strategy will provide a pathway for auditors to effectively integrate big data analytics into their audit process.

Enhancing technical expertise: Invest in training and professional development programs to enhance the auditor's technical skills in data analysis. This may include training in data manipulation, statistical analysis, data visualization, and the use of relevant analytics tools and software. Developing a team of auditors with strong data analytics capabilities will enable companies to effectively leverage big data in their audit processes.

Establish a Data Governance Framework: Implement a robust data governance framework to ensure data integrity, privacy, and security. This framework must include policies and procedures for data collection, storage, access, and use. Auditors should also establish controls to protect sensitive information and comply with relevant laws and regulations related to data privacy and security.

Collaborate with IT and data professionals: Enhance collaboration and collaboration with IT and data professionals. This partnership can help auditors effectively access and analyze data, leverage advanced analysis tools, and address technical challenges. IT professionals can provide guidance on the data extraction, conversion, and loading (ETL) process, while data professionals can assist auditors in manipulating, analyzing, and interpreting data.

Investment in infrastructure and technology: Allocate resources to invest in the infrastructure and technology needed for big data analytics. This may include upgrading hardware, improving internet connectivity, and applying advanced analytics tools and software. Investing in a robust technology infrastructure will enable auditors to process and analyze large volumes of data efficiently.

Enhanced data quality management: Implement robust data quality management processes to ensure the accuracy, completeness, and consistency of data used in big data analytics. This may involve procedures for cleaning, validating, and verifying data. Auditors should also establish data quality metrics and perform regular audits to monitor and improve data quality over time.

Promote collaboration and knowledge sharing: Encourage collaboration and knowledge sharing between auditors within the company and across the industry. Establish forums, workshops, and communities of practice where auditors can share experiences, best practices, and lessons learned in leveraging big data analytics. This collaborative approach will foster innovation and continuous improvement in the use of big data analytics in the audit process.

Pilot Projects and Ongoing Assessments: Start with pilot projects to test and improve the use of big data analytics in the audit process. These pilot projects can help auditors identify challenges, refine methods, and measure the effectiveness and effectiveness of big data analysis in the audit process. Ongoing rounds of evaluation and feedback will allow the auditor to learn from their experience and make the necessary adjustments to improve the application of big data analytics.

Stay on top of regulatory and technological developments: Stay on top of regulatory changes and technological advances related to big data analytics. Regularly monitor updates from regulators, industry associations, and technology providers to ensure compliance with changing regulations and take advantage of new tools and techniques effectively.

Engage with customers and stakeholders: Engage with customers and stakeholders to understand their expectations and requirements. Collaborate with customers to access relevant data sources

and establish data sharing agreements. Communicate the benefits and value of big data analytics during audits to customers and stakeholders to build trust and support the use of these techniques.

By following these recommendations and guidelines, auditors in Vietnam can effectively leverage the analysis of big data in the audit process, improving the quality, efficiency and effectiveness of the audit of financial statements.

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