Exploring Big Data Analytics Adoption in External Auditing

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Abstract

This paper assesses the relationships between external audit and big data analytics (BDA) during the COVID-19 crisis in the United Arab Emirates emerging market. This exploratory paper uses semi-structured interviews to collect the study data set. The content analysis shows that big data analytics enhances external auditors' performance in terms of profitability and efficiency during the COVID-19 crisis. However, the pandemic has a mixed impact on BDA adoption. This paper provides useful guidelines for external auditors and regulators to improve the profession during crises.

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1. Introduction

Previous studies show the impact of BDA on several issues, such as external auditors' performance (Alsahli & Kandeh, 2020), remote auditing (Castka et al., 2020), the relationship between auditors and their clients, and the conduct of audit engagements (Salijeni et al., 2019); firms' financial reporting practices (El-Mousawi & Kanso, 2020); and enhancement of the auditing process (Balios et al., 2020). This paper extends previous studies by focusing on the BDA on audit performance during the COVID-19 pandemic. This paper adds essential information to previous literature by showing how to benefit from BDA in overcoming external audits' work pressure during the COVID-19 pandemic. This paper's findings show that BDA enhances external auditors' profitability and efficiency during the COVID-19 pandemic. However, the COVID-19 pandemic has had a mixed impact on BDA adoption. The remainder of the paper is structured as follows. Section 2 presents the literature review. Section 3 shows the research methodology. Section 4 reports empirical findings and discussions. Finally, section 5 provides conclusions.

2. Literature Review

Some studies highlight the influence of BDA on accounting and auditing performance. For example, A survey by the American Institute of Certified Public Accountants (AICPA) (2012) shows that practitioners rarely implement continuous auditing approaches due to the high-cost complexity (Kiesow et al., 2014). Computer-assisted audit tools and techniques should empower auditors to gain practical and efficient assurance, but there are still some limitations concerning processes' reorganization costs and effort (*ibid*). Furthermore, big data will influence auditors' skills regarding information processing restrictions, providing more accurate and relevant information (*ibid*). More recently, Alsahli and Kandeh (2020) found that BDA improves auditors' efficiency and visualization ability to analyze audit evidence, as auditors have difficulty recognizing patterns in significant data perceptions when presented before more traditional audit evidence. Handoko et al. (2020) find that companies increase their data investments, making the auditors' use of conventional sampling methods no longer effective in analyzing vast

amounts of data. They conclude that BDA integration in auditing represents the latest link in the development of audit technology.

While there is a shortage of previous studies exploring the impact of the pandemic on BDA, few scholars have investigated audit performance during the COVID-19 crisis (AlSuwaidi et al., 2024). For example, Albitar et al. (2020) review shows that COVID-19 can primarily affect audit quality. While El-Mousawi and Kanso (2020) examine the impact of the novel COVID-19 outbreak on firms' financial reporting using surveys in Lebanon. This paper utilizes the Contingency theory predictions to explain the influence of the COVID-19 pandemic on the relationship between BDA and external audit performance. This theory predicts that several internal and external situational factors influence the organization's behavior (ElKelish et al., 2024). The Contingency theory provides a dynamic framework for innovative business solutions based on specific circumstances (ElKelish & Rickards, 2018), allows managers to improve their technical expertise (Carungu et al., 2021), and provides explanations for corporate information decision systems (Castka et al., 2022).

3. Methodology

This paper uses the qualitative exploratory research approach that helps create an infrastructure for studying the topic (e.g., Irsyadillah et al., 2023). Approaching and interviewing the most influential experts in the United Arab Emirates auditing profession will enhance ideas on the primary research questions (Lawal et al., 2022; Solaimani et al., 2020; AlMarzooqi et al., 2024), in contrast to other data collection techniques such as surveys or secondary sources (Alshehhi et al., 2023; ElKelish, 2021; Hussain et al., 2022). This paper relies on primary data collection using ten semi-structured interviews. The data set was analyzed using the thematic content analysis technique.

4. Findings and Discussions

4.1 Big Data Analytics and External Auditing Performance

The findings indicate that BDA improves external auditing profitability due to high technological capabilities, conditional on some constraints such as data delivery time delay. For example, the interviewer (No. 3) explains, "The high capabilities of BDA techniques,

such as sharing interactive charts, converting data to other formats and other features, sharing analyses and improving risk detection better and easier, which leads to improved profitability of the external auditing."

Interviewees indicate that BDA increased auditing efficiency during the COVID-19 pandemic for several reasons. For example, Interviewee (No. 3) says, "The efficiency of the external auditor has increased due to the better tools for BDA such as Skytree, Splice Machine, and Talend, which led to an increase in the efficiency of the external auditor in reducing and carrying out rapid treatment and also providing support for advanced analyzes, especially during the pandemic period." This finding is consistent with previous empirical studies, which suggest that BDA should stimulate effective and efficient assurance (Alsahli & Kandeh, 2020; Kiesow et al., 2014) and external auditors' advanced predictive ability (Appelbaum et al., 2017).

4.2 COVID-19 Crisis and Big Data Analytics

The findings show that interviewees perceive that the COVID-19 pandemic will undermine the adoption of fraud detection techniques for several reasons. For example, interviewee (No. 10) explains, "COVID-19 has brought in higher requirements for fraud detection techniques because the remote working environment has made the common physical controls (such as physical sign-offs) harder to implement. This working from home practice increased the opportunity to commit fraud, requiring more detection techniques such as built-in controls in accounting software, more detailed and frequent reviews of reconciliations and journal entries, and reports in a different area." In addition, Interviewees indicate that the COVID-19 pandemic increases the opportunities for data-mining techniques adoption. As stated by the interviewee (No. 2), "Once we clean the data, it will save the time of the external auditor, especially when it comes to large companies that have tight deadlines that it should meet, and at the same, this will help the auditor in detecting any fraud occurring within the transactions in the company."

5. Conclusion

The overall findings in this paper indicate that BDA enhances external audit performance in terms of profitability and efficiency. The favorable impact of BDA on external audit performance is subject to several contingent factors. In addition, the findings show that the COVID-19 pandemic has had a mixed impact on adopting BDA techniques depending on some situational factors. This paper provides useful guidelines for external auditors and regulators to improve the profession during crises.

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