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The influence of the COVID-19 pandemic on audit fees and audit report timeliness of listed firms in Ghana

Alhassan Musah^{1*}, Bismark Okyere² and Isaac Osei-Bonsu³

Abstract: The objective of the study is to examine the effect of the COVID-19 pandemic on audit fees and delays in the release of audit reports among the publicly listed entities in Ghana. The study sampled 35 listed firms over 5 years from 2017 to 2021 by extracting data from the annual report of the firms. The study relied on a panel regression model to estimate the extent to which COVID-19 predicts changes in audit fees and audit report timeliness among listed firms in Ghana. The analysis of the results revealed a positive coefficient between COVID-19 pandemic and audit fees and the positive coefficient was also statistically significant. The study also found a positive and statistically significant association between the COVID-19 pandemic and audit report timeliness which suggest that the pandemic resulted in the delay in the release of audit report among listed entities in Ghana. The combined effect of the two key findings is that the COVID-19 pandemic had a significant influence on audit quality among listed firms in Ghana. The result has significant policy implications especially from the perspective of the Institute of Chartered Accountants Ghana in terms of drawing auditors' attention to the increased audit risk brought about as a result of the COVID-19 pandemic and the need to compensate for that with the high-quality audit.

Subjects: Economics; Finance; Business, Management and Accounting

Keywords: COVID-19 pandemic; audit fees; audit report timeliness; listed firms; Ghana

1. Introduction

The outbreak of the COVID-19 pandemic globally in 2020 did not only present a major health disaster to many countries but also presents a potential financial crisis that will affect all aspects of many economies (Albitar et al., 2020; Musah, Padi, & Ahmed, 2022). According to Albitar et al. (2020), the pandemic presents the toughest challenge to auditors since the 2007/2008 financial crisis even though the latter is yet to be officially declared a financial crisis. The turbulence experienced across various markets and the high level of uncertainty experienced have affected investor confidence which has also affected the financial performance of many organizations (Goodell, 2020; Musah, Padi, & Ahmed, 2022). The pandemic also disrupted normal work processes and procedures for which auditing was not spared (Levy, 2020). The question as to whether the turbulence and changes in work processes and system affected audit quality and fees as well as

the timeliness of audit reports remain unanswered in academic literature. Research has shown that the quality of the audit process has the potential to affect the ability of the auditor to detect material misstatements (Albitar et al., 2020; Alexeyeva & Svanström, 2015; Lenz & Hahn, 2015). The above can reduce shareholder confidence in the reported earnings which will affect investment risk and the cost of capital for the firm (Gerged et al., 2020). Research has also shown that as a result of the low investor confidence in a period like this, the earnings of companies tend to be more volatile and show decreasing patterns during turbulent times such as the COVID-19 pandemic period (Goodell, 2020; Murphy et al., 2020). Some countries in the west had their regulators issue caution to auditors to take additional measures in the times of COVID-19 to ensure the credibility and reliability of financial statements. The caution was based on the assumption that companies will be more tempted to manage earnings such that their performance does not go off tangent. It is not clear how companies in developing countries like Ghana responded by way of audit during the pandemic and how that could affect audit fees, audit quality and audit report timeliness.

In Ghana, the pandemic affected businesses and changed the way people worked because of the social distancing rules and lockdown directives (Musah, Padi, & Ahmed, 2022). The Institute of Chartered Accountants Ghana unlike in other jurisdiction did not issue any public statement on the consequence of the pandemic on audit. This means that audit firms had to use their discretion to evaluate the potential impact of the pandemic on their work and also whether that will affect audit pricing. A number of research questions can emerge from the above problem. First, did the increase in business risk affect audit pricing in Ghana? Second, did the social distancing rules affect audit work and hence delays in the release of audit report? Third, to what extent do changes in audit fees and delays reflect differences in auditor risk assessments and adjustments to audit plans during the pandemic. From an agency theory perspective, the owners of companies may want to ensure that management is acting in their best interests, which includes maintaining the integrity of the financial statements through a robust audit process. However, management may have incentives to reduce audit fees, which could lead to a lower quality of audit and potentially compromise the accuracy and reliability of financial reporting. In the context of the COVID-19 pandemic, it is possible that audit fees may have been impacted by conflicts of interest between company owners and management. Company owners may have wanted to maintain the quality of the audit, while management may have been more concerned with reducing costs. This could lead to negotiations around audit fees and potentially lower fees in some cases, which could have implications for the quality of the audit

Covid-19 was relatively new phenomenon and as such its impact on various aspects of life is now being examined both in developed and developing countries (Albitar et al., 2020). This notwithstanding, Albitar et al. (2020) argued that the effect of the pandemic on the audit process was anticipated by regulatory bodies in developed countries where auditors were advised to take extra caution to ensure that firms do not manage their earnings as a result of the effect of the pandemic on their operations. The above evidence points to the fact that audit risk was expected to increase as a result of the pandemic and that can translate into increased audit fees and delay in releasing audit reports. Research has already established that audit risk influences the pricing of audit work globally and even in the Ghanaian context (Coffie & Bedi, 2019; Musah et al., 2018; Musah, 2017; Musah, Padi, & Okyere, 2022).

Although several studies have examined the consequence of the COVID-19 pandemic, especially from the perspective of the social and economic impact of the pandemic, Goodell (2020) argues that there exist no studies on how its affected audit fees and audit report timeliness. Few studies in recent times examined the effect of the pandemic on audit quality but failed to include the issue of audit fees and audit report timeliness (Albitar et al., 2020; Akrimi, 2021). These few studies were conducted in developed and emerging economies such as Europe and Malaysia with no evidence of such studies in the African context. Albitar et al. (2021) in their study concluded that the pandemic affected audit pricing even though their study did not test this claim. The question as

to whether the above assertion is true is the subject of this study. This study seeks to evaluate the effect of the COVID-19 pandemic on audit fees and audit report timeliness in Ghana using a sample of listed firms in Ghana.

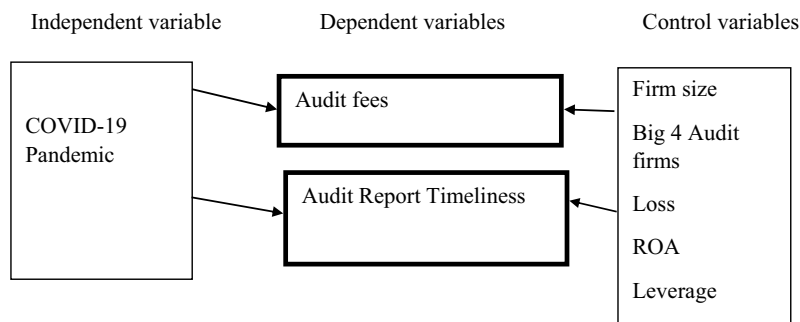
The study makes some important contributions to literature in the following ways. First, the study is among few studies that examined the effect of the COVID-19 pandemic on audits and as such contribute towards providing new evidence on factors that influence audit fees. Second, the study further provides evidence on how the pandemic affected audit reporting timeliness and audit fees which has not been examined in literature and most importantly in the context of developing countries. Third, the study shows the applicability of agency theory to explain audit fees and delays in the release of audit report in the context of a global pandemic. The outcome of this study will help firms understand how the pandemic affected the pricing of audit services by audit firms and allow them to make similar predictions in the future in case of another pandemic. The results will help regulators like the ICA-Ghana to adopt proactive measures to guide audit quality and audit report timeliness amid a pandemic.

2. Theoretical review-agency theory and audit fees

The conduct of external audits is part of measures to reduce agency problems by assuring shareholders and other users that the financial statement presented by management is a faithful representation of the company's financial performance and position (Musah et al., 2018; Musah, 2017; Sarhan et al., 2019). This means that the agency theory provides the right theoretical framework for explaining audit fees as it is seen as a major agency cost. The agency theory sees audit as a major intervention that helps to maintain cost-efficient contracting between managers and shareholders and increase the trust between management and external users of the accounting information (Agoglia et al., 2015; Musah, Padi, & Okyere, 2022). The conflict of interest as a result of agency problems increases when the level of information asymmetry is higher which will require a high-quality audit to assure shareholders that the financial statement is a faithful representation of the firm's performance (Verbruggen et al., 2015). This means where there is a higher agency problem, a higher audit fee is expected since there will be a demand for greater audit effort from shareholders (Coffie et al., 2018; Musah et al., 2018). The COVID-19 pandemic increased the audit risk associated with most businesses and hence the demand for higher audit quality is expected to increase which will translate into higher audit fees in line with the agency theory (Albitar et al., 2020). Based on how national regulators are predicted the possibility of increased audit risk and also possible manipulation of earnings to meet targets, it suggests that greater audit effort is a necessity even though most of the audit process was done remotely in many countries (Akrimi, 2021; Hall et al., 2021; Ritonga & Suyanto, 2021). Furthermore, the increased complexities as a result of the pandemic and the need to increase audit activities to gather more evidence to support their opinion will result in a delay in the issue of the audit report. So, in essence, shareholders' demand for higher-quality audits in line with the agency theory will increase audit report timeliness. Verbruggen et al. (2015) in their study concluded that the agency theory is the most appropriate theory to explain audit pricing as audit fees are an agency cost. The demand for quality audits will translate into higher audit fees which should reduce agency conflict. Agoglia et al. (2015) also showed that agency theory helps to explain the delay in issuing audit reports as increased expectation and demand for high-quality audits by shareholders will translate into higher audit team time and delay in the release of an audit report. In the context of audit fees during the COVID-19 pandemic, agency theory can provide insight into why audit fees may have been affected. The pandemic created a challenging economic environment, and companies may have been more motivated to cut costs to survive the crisis. This could lead to conflicts of interest between company owners and management, as owners may be more concerned with ensuring the accuracy and reliability of financial reporting through a thorough audit, while management may be more interested in reducing costs, including audit fees (Sarhan et al., 2019). In effect, the agency theory will predict high audit fees, higher reporting timeliness and high audit quality as a result of the COVID-19 pandemic.

2.1. Theoretical framework

Agency theory suggests that there may be conflicts of interest between the principals (shareholders) and agents (management) of a company. These conflicts may arise due to differences in risk preferences, information asymmetry, or incentives. In the context of covid-19, these conflicts may be exacerbated by the uncertainty and volatility of the pandemic's impact on the business environment. A conceptual framework linking COVID-19 and audit fees and audit report timeliness could be constructed as follows:



Overall, the framework suggests that the COVID-19 pandemic may increase the risks and uncertainties associated with financial reporting and create conflicts of interest between management and shareholders. Auditors may need to adjust their audit plans and procedures accordingly, which may result in higher audit fees and delayed audit reports. The framework also includes other variables that have been determined in literature to influence audit fees as control variables.

3. Empirical review and hypothesis development

3.1. COVID-19 and the audit process

The pandemic affected the analytical procedures that auditors were required to deploy in the conduct of the audit as a result of the social distancing rules which many countries adopted as part of measures to reduce the spread of the virus (Hall et al., 2021). Analytical procedures are critical in audit planning, fieldwork and the process towards reaching audit conclusions, evaluation and reporting (Chen et al., 2019; Noh et al., 2017). The risk the pandemic poses in terms of its effect on businesses and the incentive of managers to manipulate earnings and the requirement for high use of analytical procedures were very necessary (Albitar et al., 2020). Analytical procedures are believed to have lower costs as compared to other audit procedures and are also easy to conduct especially the use of some simple ratios and other calculations to conduct analytical procedures (Coffie et al., 2018; Rose et al., 2020). The use of analytical procedures during times like the pandemic period gave guidance to auditors as to which aspect of the financial statement to focus on gathering evidence to support their opinion (Akrimi, 2021). Analytical procedures in this context will include the necessary diagnostics that will reveal the cause of unexpected fluctuations in account balances and also the risk of major financial statement misstatement or even possible fraud in the cause of the audit plan (Rose et al., 2017, 2020).

In the consideration of fraud risk during the audit plan, if there are many explanations for fraud risk, there will be a potential threat to audit quality (Albitar et al., 2020; Musah, Padi, & Okyere, 2022). This is because, some studies argue that generating many alternative explanations does not allow for critical thinking and will give the opposite effect than intended (Chen et al. 2019; Bozec & Dia, 2017). Besides, auditors will rely on the use of analytical procedures that provide them with a broad and comprehensive understanding of the financial position of the entity. It will reduce the detailed test that will have to be carried out since it is more expensive to carry such detailed test

(Akinyomi & Joshua, 2022; Coffie et al., 2018; Musah et al., 2021). Also, it takes a longer time to carry out a detailed test, especially during the pandemic when most corporate communication was now reduced to electronic means.

Gathering quality audit evidence is very important in providing the right audit opinion that reflects the true statement of the entity's financial performance (Al-Ajmi, 2009; Rose et al., 2017). The financial markets were heavily dependent on auditors to conduct the necessary analytical procedures and tests to gather adequate evidence to support their opinion to help assure them that the financial statements presented are true and fair reflections of the entity's performance or not (Andon & Free, 2012). The quality of financial statement preparation has a direct impact on audit risk and has the potential to affect the auditors' ability to give the right audit opinion (Musah et al., 2018). The quality of audit evidence is also dependent on the source of the evidence (Albitar et al., 2020). The COVID-19 pandemic and its disruptions on work suggest that auditor was more likely going to depend on an external source for their evidence which is seen as more reliable for gathering objective evidence (Rose et al., 2020) example of such external source include customers, creditors, banks and other financial institutions, etc. it must, however, be noted that the extent of the quality of such evidence depends largely on the reliability of the client who the evidence was taken from. The pandemic also decreased the use of evidence from the source as a result of the restrictions and as such some original documents such as receipts and invoices supporting some transactions may not be physically verified (KPMG, 2020). In effect, social distancing and other workplace restrictions have the potential to limit auditors' access to certain primary documents but open up an opportunity for the use of external confirmations and increased analytical procedures to help reduce the risk of providing wrong audit opinion.

3.2. COVID-19 and audit fees

Studies have shown that audit complexity, audit risk and risk of material misstatement as well as increased audit effort will translate into higher audit fees (Chen et al., 2019; Coffie et al., 2018; Musah et al., 2018, 2021). The COVID-19 pandemic is believed to have increased the possibility of financial statement manipulations to meet earnings targets since most companies experienced serious setbacks as a result of the pandemic (Albitar et al., 2020). The possibility of these manipulations explains why most regulators issues warnings signals to auditors to be circumspect in the conduct of their audit during the pandemic (Akrimi, 2021). There is also the issue of the company's meeting creditors' contract conditions and trying everything possible to meet these conditions through earnings management (Khalid & Sarea, 2020). The increased risk and growing concern for possible manipulations to meet users' expectations and creditors' conditions will compel auditors to widen the scope of their audit procedures and audit work, especially in their attempt to evaluate the going concern of the firm (Albitar et al., 2020; Chen et al., 2019; Levy, 2020; Noh et al., 2017). In a pandemic, there is increased demand for assurance and also an increased risk of auditor litigation which has the potential to increase audit effort thereby increasing audit fees (Hategan et al., 2022; Karim et al., 2013). The pandemic also increased business risk which is expected to translate into higher audit effort and hence higher audit fees (Albitar et al., 2020). Contrary to the above claim, there is evidence from previous studies that firms tend to negotiate for lower audit fees during pandemics and financial crises (Chen et al., 2019; Chen et al. 2018; Bozec & Dia, 2017; Alexeyeva & Svanström, 2015). This means that the COVID-19 pandemic may not necessarily translate into higher fees but rather lower audit fees. The COVID-19 pandemic brought about the issue of social distancing and also working from home which could translate into increased working hours and increased audit effort and hence higher audit fees even though companies may use the pandemic as an excuse to ask for lower fees (Albitar et al., 2020; Chen et al., 2019). If auditors are to accept the plea of companies to charge lower fees because of the pandemic, Albitar et al. (2020) argue that they will reduce their audit effort thereby not only reducing audit fees but also audit quality as well. They further argue that the shock of the pandemic may compel businesses to appeal to auditors to lower their fees which should translate into lower audit fees. This will in effect affect audit quality. There is currently no empirical study testing the relationship between audit fees and COVID-19 pandemic but Albitar et al. (2020) review

paper concludes a higher audit fee is expected as a result of increased risk among businesses and increased audit effort, especially in the area of going concern assessment.

Even though some studies have suggested that the COVID-19 pandemic will affect audit fees because it will increase audit risk and also risk associated with businesses (Akrimi, 2021; Albitar et al., 2020), there is currently no empirical study that has tested this relationship using actual empirical data. Albitar et al. (2020) posit that the pandemic increased the risk of material misstatement in financial reporting which will require high audit effort to gather enough evidence to support their opinion. The study argued that social distancing as well as the need to verify documents in the audit process will increase the time required to gather adequate audit evidence to form an opinion. On the other hand, some studies believe that the pandemic could result in lower audit fees since companies will use the financial challenges they encountered as a means to argue for a lower fee. Businesses in Ghana like many parts of the world were severely affected by the pandemic, and it is likely they would use their financial situation to bargain for lower audit fees. The agency theory, on the other hand, expects higher audit fees as a result of shareholders' demand for higher-quality audit. A reduction in audit fees will suggest a reduction in audit quality which will not benefit shareholders. In line with the above argument and in line with the expectations of the agency theory, this study hypothesizes that;

H1: There is a positive relationship between COVID-19 pandemic and audit fees in Ghana

3.3. COVID-19 and audit report timeliness

The COVID-19 pandemic disrupted work resulting in employees having to work from home and also the issue of social distancing to help reduce the spread of the virus (Albitar et al., 2020). The above changes affected the way normal work was done, including audits. Employees of audit firms also had to work from home in most cases and only reported physically when the work demands that (Akrimi, 2021). There was a conscious effort by the government and local authorities and even corporations to reduce in-person office reporting by employees and also reduce the movement of employees in general (Hazaea et al., 2022; Levy, 2020). This above measure tends to reduce the ability of auditors to physically verify some critical source documents and inspects some assets to enable them to gather evidence to form their opinion (Albitar et al., 2020; Hategan et al., 2022; Student & HATEGAN, 2021). This has the potential to increase the timeframe within which the audit is to be conducted and hence the release of the audit report.

Also, there was increased business risk associated with many entities which called for additional analytical tests and perhaps substantive in the audit process, especially in the area of tests for going concerned (Akrimi, 2021). The International Federation of Accountants and other regulators issue alerts to auditors suggesting that they need to take additional measures to gather more evidence to support their opinion as the pandemic has created an opportunity for firms to manage earnings. Currently, there is no empirical evidence to indicate whether the pandemic affected audit report timeliness or not as previous studies on the effect of the pandemic have largely focused on audit quality. It is anticipated that social distancing rules and the need to inspect documents and even delays in communication as a result of the company's using electronic communication for reports and confirmations will increase the time required for the audit. Also, the increase in audit effort as a result of the pandemic because of the risk associated with financial reporting will increase audit complexities which will affect the time required to gather enough evidence to form an audit opinion. In effect, it can be deduced that the pandemic increased audit report timeliness.

Increased audit risk and audit effort as a result of the COVID-19 pandemic will likely affect the time that the audit report is released. The pandemic also increased information asymmetry between managers and owners which shareholders will demand high-quality audit to reduce the gap which will lead to delay in audit report in line with the agency theory. Some

researchers, however, argue that delay in the release of the audit report is a sign of a good audit report as that suggests more work is required to be done in terms of evidence gathering and other tests to gather enough evidence to support the audit opinion. There is evidence to the effect that regulatory changes in financial reporting such as the adoption of International Financial Reporting Standards (IFRS) increase audit report timeliness because of the complexities in the standards which increases audit effort. The COVID-19 pandemic did not only change the work environment which reduces auditors' access to documents and assets for verification, it also increased testing for going concerned and audit risk which means more audit procedures are required to ensure a correct audit opinion. The above argument suggests that the COVID-19 pandemic will increase audit report timeliness and as such the study hypothesizes that;

H2: There is a positive association between COVID-19 pandemic and audit report lag (timeliness) among listed firms in Ghana.

4. Research design

This study adopted the quantitative methods for some reasons. First, the study is based on post-positivist paradigm which assumes the pursuit of objective answers by trying to recognise and work with some of the biases with theories and knowledge that theorist develops. Second, the study tested the hypothesis that established the relationship between COVID-19 and audit fees and audit report timeliness using statistical tools such as correlation and regression which is quantitative. Third, the study used numerical data which was extracted from the financial statement of listed companies which is applicable in quantitative studies.

The population of the study includes all firms listed on the Ghana Stock Exchange as of the end of the 2021 financial year. Currently, there are 42 listed equities from 37 firms on the Ghana Stock Exchange (GSE) and this constitutes the population of the study (GSE, 2022). Since the study is a firm-level analysis, the population was restricted to 37 listed firms as some of the firms had two equities listed (preference shares and ordinary shares) A breakdown of the population of listed firms and the selected sample is presented below.

The study sampled 35 firms based on the availability of the data. This translates into 175 sample observations. The study excluded the Trust Bank of The Gambia because it was not a Ghanaian entity and also Maga African Capital because the researchers could not get access to the company's most recent financial statements. The study adopted a 5-year sample frame to allow for the measurement of pre-covid-19 and post COVID-19 in line with previous studies on audit fees in Ghana that also used regulatory changes or events to determine its impact on audit fees (Coffie & Bedi, 2019; Coffie et al., 2018; Musah et al., 2018; Musah, 2017). Since the COVID-19 pandemic started in 2020, the sample period for this study covered 2017 to 2021 to ensure that the periods before the pandemic is captured and the period after the pandemic is also captured. The study sampled listed firms that have been listed on the Ghana Stock exchange for the past 5 years and sampled 35 listed firms in all (See [Table 1](#)).

The study collected data from the annual report of listed firms in Ghana. The main source of data is a secondary source since the annual report of listed firms is publicly available data prepared by the firms themselves. The data were extracted from the annual report and coded into excel before being imported into Stata for data analysis. The use of publicly published annual reports ensured that the data collected are credible and reliable (See [Table 2](#)).

4.1. Empirical model estimation

The study adopted two empirical models for each of the three objectives

The first model examined the relationship between COVID-19 and audit fees and the model below shows the variables to be used and the estimated model.

$$\text{Audit fees}_{it} = \beta_0 + \beta_1 \text{Covid19 year}_{it} + \beta_2 \text{firm size}_{it} + \beta_3 \text{Big4}_{it} + \beta_4 \text{Loss}_{it} + \beta_5 \text{ROA}_{it} + \beta_6 \text{Lev}_{it} + \varepsilon_{it} \quad (1)$$

The second model examined the link between of COVID-19 and audit report timeliness which is presented below

$$\text{AuditReporttime}_{it} = \beta_0 + \beta_1 \text{Covid19 year}_{it} + \beta_2 \text{firm size}_{it} + \beta_3 \text{Big4}_{it} + \beta_4 \text{Loss}_{it} + \beta_5 \text{ROA}_{it} + \beta_6 \text{Lev}_{it} + \varepsilon_{it} \quad (2)$$

5. Empirical results and discussion

5.1. Descriptive statistics

The descriptive statistics show that mean scores for all the dependent and independent variables used for the study. The study used two dependent variables involving audit fees and audit report timeliness. The main independent variable in the study is COVID-19 as the study seeks to examine how COVID-19 influences audit fees and audit report timeliness. The control variables which previous studies have shown help to predict audit fees and audit report timeliness which include the size of the firm, the use of the big4 audit firm to conduct the audit, the profitability of the firm, the level of leverage and whether a firm reported a loss. All these variables have been found to predict audit fees among firms (Coffie & Bedi, 2019; Musah et al., 2018, 2021; Musah, 2017; Musah, Padi, & Okyere, 2022). The results of the descriptive analysis are shown in Table 3.

The first variable in the table measured audit fees which used the natural logarithm of audit fees collected from the firms over the study period. The mean score for the audit fees after taking the natural logarithm is 5.9 with the minimum score being 4.56 and the maximum score of 6.29. The second variable in Table 3 focused on audit report timeliness which is a measure of how long it takes audit firms to complete their audit work and issue an audit report. The average number of days auditors use in conducting the end-of-year audit is 105 days, a minimum of 52 days and a maximum of 312 days. The result of 105 days of audit report timeliness is higher than that reported by Alkhatib & Marji (2012) based on a sample of listed firms in Jordan which had a mean score of 41 and a maximum of 131 days. This shows that Ghanaian listed firms experience more delays in the issue of their audit report compared to their counterparts in Jordan. The next variable is the main independent variable in the study which focused on how the COVID-19 pandemic could affect the pricing of audit services as well as the delay in releasing audit reports. The mean score of 0.40 suggests that 40% of the data collected covered the period of the COVID-19 pandemic and the rest fall outside the pandemic period. The next variable firm size which is measured as the natural logarithm of total assets was included as a control variable based on the fact that previous studies in Ghana found firm size as a significant determinant of audit fees (Coffie et al., 2018;

Table 1. Sample distribution

Industry	Population	Sample
Finance/Insurance	13	11
Paper conversion/IT	5	5
Manufacturing/Trading	6	6
Agric/Agro-processing	4	4
Metals/Extractive	4	4
Pharmacy/Beverage	5	5
Total	37	35

Table 2. Variable measurement

Variable	Definition	Measurement
Dependent variables		
(1) Auditfees	Audit fees	Natural logarithm of audit fees
(2) Audit reporttime	Audit report timeliness	The number of days between reporting data and the audit report date
Independent variable		
(1) Covid-19	Covid-19	Dummy, 1 if its COVID-19 year, 0 otherwise
Control variables		
(1) Firmsize	Firm size	Natural logarithm of total assets
(2) Big4	Big 4 Audit firms	Dummy, 1 if a firm is audited by big4 audit firm, 0 otherwise
(3) LOSS	Net loss	Dummy, Net loss (or negative income) reported by a company in the current year is coded as 1 if the company suffers loss and 0 otherwise
(4) ROA	Return on Assets	The ratio of earnings before interest and tax to ending total assets
(5) LEV	Leverage	The ratio of total debts (total liabilities - deferred tax) to total assets

Table 3. Descriptive statistics

Variable	Mean	Std.Dev	Min	Max
Audit fees	5.9328	0.5666	4.5503	6.2967
Audit report timeliness	105.3557	52.3909	45	312
COVID-19	0.4037	0.4959	0	1
Firm size	8.8168	1.1189	6.5474	10.2615
Big4 Audit firm	0.75	0.43667	0	1
Loss	0.15	0.36008	0	1
Return on Assets	0.0411	0.0896	-0.1707	0.4578
Leverage	0.65408	0.28125	0.0859	1.0682

Musah et al., 2018). The results of the study showed that the average score for firm size is 8.82 with a minimum score of 6.54 and a maximum score of 10.26. The next control variable which has also been found to be a significant predictor of audit fees is the use of the big4 audit firms and how that affects audit pricing because of the quality of audits these firms conduct. The result of the study showed that 75% of the listed firms sampled for the study used the big4 audit firms as their auditors. The result suggests that listed firms in Ghana prefer using any of the big 4 audit firms because of their perceived quality audit. The result is similar to the findings of Musah, Padi, and Okyere (2022) who reported that 72% of listed firms used big4 audit firms based on a sample of listed firms in Ghana from 2010 to 2019. The next control variable is loss which focused on whether a firm reported a loss or not. Previous studies have argued that firms that report a net loss increase audit efforts since there is a higher probability of earnings management to avoid the loss or even reduce negative market reaction to the loss and this may result in higher audit fees (Musah, 2017). The result of the descriptive statistics in Table 3 shows that only 15% of the firms

sampled over the study period reported a net loss. Also, the profitability of the firm which is represented by return on assets had an average of 4% with a maximum return on assets of 46% and a minimum of negative 17%. The last control variable focused on how the level of leverage influences audit pricing and even the timely release of the audit report. The descriptive statistics on this variable show a debt-to-assets ratio of 65% which suggest that majority of listed firms' assets in Ghana are financed by debt capital as opposed to equity capital. Musah (2017) found that a high level of debt capital predicts audit fees among listed firms in Ghana, but the study reported a debt ratio of 80% which is higher than that reported by this study.

5.2. Correlation Analysis

The study conducted two correlation analyses based on the two models adopted for the study. The first correlation matrix focused on how the independent variables correlate with audit fees and the second model focused on how the various independent and control variables correlate with audit report timeliness. The main independent variable is COVID-19 pandemic with other control variables that predict audit fees and delays in the release of the audit report. The first correlation matrix focused on how COVID-19 pandemic is correlated with audit fees. The result of the above and other control variables is presented in Table 4

The results of the correlation analysis showed a positive correlation between COVID-19 pandemic and audit fees even though the correlation coefficient of 0.132 shows a weak correlation between the variables. As predicted, firm size and the use of big four audit firms have a strong positive correlation with audit fees

The correlation analysis in Table 5 shows that there is a weak positive correlation between COVID-19 pandemic and audit report timeliness.

5.3. Regression analysis

The correlation matrixes above were also used to determine the presence of multicollinearity where the rule of thumb suggests that if the correlation coefficient between two independent variables is 0.8 and above, those variables are multicollinear and hence one must be dropped (Kim, 2019).

The result as contained in both Tables 4 and 5 shows that there is no issue with multicollinearity. The study used the variance inflation factor to further test for the presence of multicollinearity. The results of the variance inflation factor test for the models showed no presence of multicollinearity since none of the variables had a VIF close to 5 to 10 as argued by Kim (2019). The variable with the highest VIF is the firm size in the first model which had a VIF of 2.98 which is nowhere close to 5 to 10. In the second model, firm size still had the highest VIF with a value of 2.56 which implies that there was no issue with multicollinearity in the second model as well.

In the estimation of equation one which is the first model that estimated the relationship between COVID-19 pandemic and audit fees, the assumption of cross-sectional independence of the error terms was highly violated and unrealistic as well. In addition to the above, the p-value of the Hausman test was statistically significant at a 10% significance level which suggests that the random effect model is not appropriate for this study. In this regard, the study executed the robust fixed effect panel regression by employing the panel corrected standard errors (PCSEs) which according to Coffie et al. (2018) can account for cross-sectional dependencies of the error term.

In the case of the second model that estimated the relationship between COVID-19 pandemic and audit report timeliness, the result of the Hausman test showed a p-value of more than 10% (27.53%) which implies that the random effect model was more appropriate. The study adopted the robust random effect model to account for cross-sectional heteroskedasticity. The results of the first regression model that estimated the influence of COVID-19 pandemic on audit fees are presented in Table 6 below

Table 4. Correlation matrix between audit fees and COVID-19 pandemic

Variables	1	2	3	4	5	6	7	8
1. AudFees	1.000							
2. AudReporttime	-0.502	1.000						
3. COVID-19	0.132	0.155	1.000					
4. SIZE	0.906	-0.415	0.099	1.000				
5. Big4	0.536	-0.162	0.008	0.570	1.000			
6. Loss	-0.436	0.322	0.033	-0.367	-0.185	1.000		
7. ROA	0.160	-0.490	0.042	0.068	0.136	-0.606	1.000	
8.LEV	0.366	0.115	0.117	0.343	-0.115	0.174	-0.532	1.000

Table 5. Correlation matrix between COVID-19 pandemic and audit report delays

Variables	1	2	3	4	5	6	7
1. Audit reporttime	1.000						
2. COVID-19	0.155	1.000					
3. SIZE	-0.412	0.098	1.000				
4. Big4	-0.162	0.008	0.570	1.000			
5. Loss	0.322	0.033	-0.367	-0.185	1.000		
6. ROA	-0.490	0.042	0.068	0.136	-0.606	1.000	
7. LEV	0.115	0.117	0.343	-0.115	0.174	-0.532	1.000

Table 6. Regression analysis on COVID-19 effect on audit fees in Ghana

Variable	Coefficient	Std- Err	Z
COVID-19	0.0415***	0.0166	2.5000
Firm size	0.3307***	0.0324	10.1900
Big4 Audit firm	0.1456***	0.0648	2.2500
Loss	-0.0153**	0.0796	-1.9200
Return on Assets	0.7638**	0.3614	2.1100
Leverage	0.4567***	0.0891	5.1300
CONS	2.4163***	0.2079	11.6200
R-Squared	0.8641		
Wild Chi2(7)	1256.7900		
Prob>Chi2	0.0000		

Note: *** means the variable is statistically significant at a 1% significance level, ** means the variable is statistically significant at a 5% significance level and * means the variable is statistically significant at a 10% significance level.

The adjusted R-squared for the first regression model is almost 86% which suggests that the independent variables can explain 86% of the variations in the dependent variable. The probability of the R-squared is statistically significant at a 1% significance level which implies that the model is well fit. The main independent variable for the study is the COVID-19 pandemic which revealed a positive coefficient with audit fees which implies that COVID-19 pandemic predicts an increase in audit fees. The positive coefficient between COVID-19 and audit fees is also statistically significant at a 1% significance level which implies that COVID-19 pandemic was a significant determinant of audit fees in Ghana. The result is consistent with the first hypothesis of the study which argues that COVID-19 pandemic increased audit risk on firms and increased audit effort as well which translated to higher audit fees. On the control variables, the study found that firm size, big four audit firm, a firm reporting a loss, firm profit and leverage are all significant determinants of audit fees in Ghana. While firm size, big four audit firm, profit and leverage are positively associated with audit fees, reporting a net loss is negatively associated with audit fees. These findings are consistent with previous studies on audit fees in Ghana (Coffie & Bedi, 2019; Musah et al., 2022; Musah et al., 2018, 2021).

The second regression model examined the influence of COVID-19 on delays in the release of the audit report. The COVID-19 pandemic changed the way many organizations worked whereby most people had to work from home because of restrictions that were geared towards reducing the spread of the virus through contacts. Furthermore, the pandemic also brought about additional risk, especially in the area of test for going concerns since several businesses were negatively affected by the pandemic. In addition to the above, the motivation to manage earnings was high

Table 7. Regression results between COVID-19 and audit report timeliness

Variable	Coefficient	Std- Err	Z
COVID-19	17.8618**	8.979	1.99
Firm size	-15.7237**	6.8279	-2.3
Big4 Audit firm	-18.3011	17.8843	1.02
Loss	77.1536***	25.504	2.71
Return on Assets	-82.9196	55.1053	-1.5
Leverage	11.2293	20.7153	0.54
CONS	207.5860	40.1307	5.17
R-Squared	0.6022		
Wild Chi2(7)	236.2400		
Prob>Chi2	0.0000		

*** means the variable is statistically significant at a 1% significance level, ** means the variable is statistically significant at a 5% significance level and * means the variable is statistically significant at a 10% significance level.

since many entities did not want to send a negative signal about their financial situation to the investor community and hence will more likely be motivated to manage earnings. These issues had the potential to increase the audit risk and also audit effort to ensure a high-quality audit and hence the need to delay the release of the audit report until all the necessary evidence had been gathered to support a particular audit opinion. The result of the regression analysis in this regard is presented in Table 7.

The regression results in Table 7 show that the adjusted R-squared is 60% which suggests that the independent variables are responsible for 60% of the variations in the dependent variable. The probability of the Chi-squared is also statistically significant which implies that the model is well fit.

The main independent variable for this model is COVID-19 pandemic and how it influences delays in the release of the audit report. The regression result revealed a positive coefficient between COVID-19 pandemic and audit report timeliness. The positive coefficient between COVID-19 pandemic and audit report timeliness is statistically significant at a 1% significance level which implies that COVID-19 pandemic is a significant determinant of audit report delays in Ghana. The result means that the pandemic increased the work of auditors as a result of the increased audit risk as well as the social distancing rules resulting in delays in the release of the final audit report. This result is consistent with the expectations of agency theory and confirms the fact that the pandemic resulted in delays in the release of the audit report. On the control variables, the study found that firm size and an entity reporting a net loss are significant determinants of delay in the release of the audit report. The use of big four audit firms, profitability and leverage do not significantly predict delays in the release of audit reports in Ghana.

5.4. Discussion of findings

The first objective of the study examined the effect of the COVID-19 pandemic on audit fees among listed firms in Ghana. The results of the regression analysis in Table 6 show that there is a positive and statistically significant association between COVID-19 pandemic and audit fees. The results imply that the pandemic has increased audit fees associated with listed firms in Ghana. The result of the study is consistent with the expectations of the first hypothesis as well as the agency theory which predicted a positive association between the COVID-19 pandemic and audit fees among public entities in Ghana. The result confirms the argument that COVID-19 increased business risk and audit risk thereby requiring greater audit effort which has to be compensated by higher audit fees. The result also confirms the argument from the agency theory point of view that the pandemic increased audit risk and information asymmetry and hence owners will require high-quality audit which will translate into higher audit fees. The increase in business risk and audit

complexities as a result of the pandemic increased information asymmetry between managers and shareholders which must be compensated by high-quality audits in line with agency theory. In effect, the result of the study is consistent with the expectations of the agency theory and also consistent with the conclusions of Albitar et al. (2020) who argued that the combined effect of the pandemic will result in increased audit fees.

The second objective focused on the effect of the COVID-19 pandemic on audit report timeliness or delay in the release of an audit report. The COVID-19 pandemic and its disruptions on work suggest that auditor was more likely going to depend on an external source for their evidence which is seen as more reliable for gathering objective evidence (Rose et al., 2020). Examples of such external sources include customers, creditors, banks and other financial institutions, etc. It must, however, be noted that the extent of the quality of such evidence depends largely on the reliability of the client from whom the evidence was taken from. The pandemic also decreased the use of evidence from this source as a result of the restrictions and as such some original documents such as receipts and invoices supporting some transactions may not be physically verified (KPMG, 2020). In effect, social distancing and other workplace restrictions have the potential to limit auditors' access to certain primary documents but open up an opportunity for the use of external confirmations and increased analytical procedures to help reduce the risk of providing wrong audit opinion. The above analysis shows that the pandemic will result in delays in issuing the final audit report. The results of the regression analysis in Table 7 show that there is a positive coefficient between COVID-19 pandemic and audit report timeliness and the result was also statistically significant. The result confirms the arguments raised above that the changing working environment as a result of the pandemic and the increased business and audit risk will translate into increased delays in the release of the audit report. The result also confirms the second hypothesis of the study and the agency theory which argued that the COVID-19 pandemic increased the delay in the release of the audit report.

5.4.1. Robustness check

We present a robustness check of our results by separating the sample into financial and non-financial samples. The rationale was that the financial sector in Ghana was the least affected by the COVID-19 pandemic at their profits were not affected (Musah, Padi, & Ahmed, 2022). This means that financial firms could not have argued that they did not have money to pay higher audit fees in line with increased audit risk posed by the pandemic. The results of the panel corrected regression analysis for both samples are presented in Table 8 below

The results for model 1 and 3 are the financial institution samples while that of 2 and 4 and non-financial samples. The results from Table 8 shows that COVID-19 pandemic positively associated with audit fees and delay in the release of audit report for all the samples. This result confirms the robustness of our results reported in Tables 6 and 7 which is also consistent with agency theory.

Table 8. Results of robustness check				
Variable	1	2	3	4
COVID-19	1.1415(3.1307) ***	0.2392(2.7019)**	0.1586(2.9970) ***	0.1338(3.8145)***
Firm size	0.6723 (12.9936)	0.4863(8.7212)	0.5020(13.1170)	0.0147(2.3412)
Big4 Audit firm	0.0707 (2.0916)	0.0971(1.7620)	0.1598(3.7443)	0.1211(2.1282)
Loss	0.1689(2.0709)	0.3458(0.7638)	0.1457(0.4265)	0.1007(2.2549)
Return on Assets	0.6400(0.9862)	0.0678(0.5585)	0.0025(0.0331)	0.0011(0.1403)
Leverage	0.8527(2.6372)	0.0217(0.3836)	0.0071(0.1656)	0.0600(0.9031)
CONS	0.6125(1.0036)	0.7878(1.1106)	0.5531(1.3744)	0.6649(2.5886)
R-Squared	0.556	0.6556	0.5745	0.4555
Wild Chi2(7)	113.452	115.672	114.345	108.673
Prob>Chi2	0.00000	0.00000	0.00000	0.00000

6. Summary and conclusion

The general objective of the study is to examine the influence of COVID-19 pandemic on audit fees and audit report timeliness which can also represent audit quality among listed entities in Ghana. The evidence from the regression analysis in Tables 6 and 7 showed that COVID-19 pandemic affected audits in Ghana as there was an increase in audit fees as well as an increase in audit report timeliness. The result of the study shows that the pandemic had a significant influence on audit pricing in Ghana. The results imply that the pandemic has increased audit fees associated with listed firms in Ghana. The result confirms the argument that COVID-19 increased business risk and audit risk thereby requiring greater audit effort which has to be compensated by higher audit fees. The other result confirms the arguments raised above that the changing working environment as a result of the pandemic and the increased business and audit risk will translate into increased delays in the release of the audit report. The effect of the results shows that COVID-19 pandemic has a significant influence on audit quality in the form of increased audit fees and audit report timeliness in Ghana.

There are several implications of the study that can be drawn from the results. First, the positive link between the COVID-19 pandemic and audit fees means increased costs for companies that are already facing financial challenges due to the pandemic. Companies may need to allocate more resources to cover these fees, which could strain their financial resources. On the other hand, higher audit fees could lead to higher audit quality, as auditors may be incentivized to provide more thorough and comprehensive audits in order to justify their fees. This could result in better financial reporting and more accurate financial statements. Second, auditors may need to adjust their audit procedures to address the impact of the pandemic on a company's operations, financial position and risks. This could involve additional procedures to assess the company's ability to continue as a going concern, the valuation of assets and liabilities and the adequacy of disclosures related to the pandemic. Third, regulators and standard-setting bodies may need to provide additional guidance on how auditors should address the impact of the pandemic on financial reporting and auditing. This could involve updates to existing auditing standards or the issuance of new guidance specific to the pandemic.

Also, the results of the study showed that the COVID-19 pandemic influenced audit fees, audit quality and audit report timeliness and as such the Institute of Chartered Accountant Ghana should encourage auditors to increase evidence gathering and analytical procedures to gather enough evidence to support their opinion to ensure improved audit quality. The study further recommends future studies to conduct a cross-country study to examine the influence of the COVID-19 pandemic on audit quality, audit fees and audit report timeliness. Future studies can further examine how the pandemic changes the work of the auditor and the audit environment going forward. The study does not address the issue of how the pandemic affected the work of the auditor even though that may be implied in the pricing and as such future studies can address this gap.

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