“Impact of the Fair Value Measurements Risks on the Audit Quality” “an applied study”

An extract from PhD thesis in accounting titled

“The Effect of the Fair value measurements risks on Auditor’s opinion and its impact on the audit quality - An Applied Study”

Prepared by

Asmaa Sayed Hussein

PhD Researcher, Faculty of commerce- Cairo University

Asmaahussin10@gmail.com

Prof.Dr. Sadek Hamed

Professor of Accounting
Faculty of Commerce
Cairo University

Dr. Dina El Sayed

Lecturer of Accounting
Faculty of Commerce
Cairo University

Abstract

Purpose: This research aims to examine the effect of fair value measurements risks concerning financial instruments and goodwill on the audit quality.

Design/methodology: the researcher run applied study by utilizing a sample of 30 firms subjected to business combinations, thus goodwill was recorded in their financial statement from 2018 to 2022.

Findings: the statistical findings reveal the significant effect of fair value measurements risks related to financial instruments and goodwill on audit quality. Furthermore, the proposed models reveal that fair value helps to overvalue assets, particularly financial instruments. Furthermore, most firms in the sample did not comply with the required goodwill impairment test.

Originality/value: Fair value accounting constitutes challenges and risks in the audit process that significantly affect the audit quality. Fair value measurement is classified into three levels. Level 3 mostly constitutes a challenge due to reliance on unobservable inputs, which can lead to personal judgments, hence opening the manipulation of the financial instruments. Goodwill also constitutes challenges because the goodwill impairment test is costly, complicated, and time-consuming. Hence, management exploits these issues to enhance its image in the market by affecting its financial position.

Therefore, this research introduces models to determine the fair value measurement risks associated with financial instruments and goodwill, assisting auditors in evaluating financial instruments and the outcomes of goodwill impairment tests. Additionally, these models can support standard-setters and financial statement preparers in determining the value of financial instruments and quantifying goodwill impairment losses, thereby enhancing audit quality.

Keywords: Fair Value Measurements Risks; Financial Instruments; Goodwill; Audit Quality.

1. Introduction

In the evolving landscape of financial reporting, fair value accounting has emerged as a cornerstone, providing stakeholders with a more dynamic and market-reflective valuation of assets and liabilities. However, the subjectivity and complexity inherent in fair value measurements, particularly at Level 3, introduce significant challenges and risks. Level 3 fair value measurements rely on unobservable inputs, often leaving room for managerial discretion and potential manipulation.

Hence, this discretionary power can be leveraged to present an enhanced financial position, leading to questions about transparency and reliability (Fortin et al., 2021).

Financial instruments are often at the forefront of fair value discussions, given their susceptibility to misstatements arising from complex valuation models. Similarly, goodwill, arising from mergers or acquisitions, presents its own set of challenges. The goodwill impairment test is not only intricate and time-intensive but is also prone to managerial resistance due to the implications of recognizing impairment losses. This test, governed by accounting standards, often lacks the precision required to mitigate risks, further complicating the auditor's role (Chang et al., 2021& Ziye et al., 2021).

Ciurdas, (2024) confirmed that the difficulty and complexity of applying fair value accounting standards, estimation, and personal judgment when implementing, fair value measurements may provide inaccurate and uncertain financial information that increases audit risk, confuses investors, and leads them to incorrect decisions. Hence, there is a necessity for stronger regulatory frameworks and improved auditing standards to enhance audit quality and mitigate the risks posed by fair value accounting practices.

The researcher emphasizes that the research problem crystallizes around the impact of risks of fair value measurements on audit quality. Audit quality, as a critical element of financial accountability, is profoundly affected by these risks. Auditors frequently face limitations in their ability to assess fair value measurements comprehensively. These limitations stem from difficulty in applying the fair value measurement, a lack of robust valuation methodologies, and the complexities inherent in interpreting Level 3 inputs. Moreover, auditors are often constrained by time and resources,

which can hinder their ability to effectively address the intricacies of financial instruments and goodwill assessments.

All these issues affect the audit quality if the auditor cannot discover errors and if there is manipulation in these measurements cannot discover. Hence, the auditors do their best to verify these accounting measurements to not significantly affect the audit quality. Therefore, the presence of these risks emphasizes a need for robust auditing practices and practical models, such as those proposed in this research, to ensure the integrity of financial reporting.

Therefore, the research focuses on examining the effect of fair value measurements risks about the financial instruments and goodwill on the audit quality.

Therefore, the researcher can summarize the research problem in the following questions:

- Is there a significant impact of fair value measurement risks about financial instruments on the audit quality?
- Is there a significant impact of fair value measurement risks about goodwill on the audit quality?

Due to this, this research aims to examine the risks associated with fair value measurements of financial instruments and goodwill on audit quality. By analyzing a sample of 30 companies engaged in mergers or acquisitions between 2018 and 2022, the research sheds light on how these risks manifest in practice by the proposed models.

The research aims to introduce these proposed models to determine the risks of fair value measurements through the variance between the actual and the predicted value. Hence, this research also aims to reduce manipulation risks and enhance the overall reliability of financial statements by introducing models as an alternative approach to measurement in cases where fair value's deficiencies outweigh its advantages or where there is difficulty in applying the required accounting standards, contributing to improved financial reporting practices and greater stakeholder trust. As well as, these models aim to simplify the audit process, hence, improving the audit quality when evaluating fair value measurements.

The remainder of this research is organized as follows: section 2 shows a theoretical background of research variables. Section 3 shows a

literature review and hypotheses development. Section 4 shows the research methodology, discusses the results, and summarizes them. Finally, Section 5 shows the research conclusion.

2. Theoretical Background

Fair value measurement is classified into three levels based on the observability of inputs used in valuation techniques. Level one contains observable inputs derived from active market prices for assets or liabilities. Level two contains observable inputs for similar assets or liabilities, including market-based inputs or those derived from market data. Level three contains unobservable inputs based on management's assumptions and significant judgment. Level three fair value measurements constitute unique challenges to the auditors, due to this level increase the risks of misstatements in the financial statements (Thesing and Velte, 2021).

The increased complexity of the audit process may lead to increase audit fees because of the additional effort required to verify kevel3 fair value measurements (Sangchan et al., 2020). Furthermore, the auditors may struggle to evaluate the validity of the financial statement, particularly when management's assumptions are opaque (Lu et al., 2023). Level 3 inputs provide management with significant discretion, leading to potential biases in financial reporting.

Rajgopal et al., (2021) show that firms may use Level 3 valuations to smooth earnings or enhance their financial position by overstating asset values, particularly during financial downturns. This practice undermines the reliability of financial statements and creates significant challenges for auditors, they must exercise professional skepticism and employ advanced audit techniques to detect and address potential biases (Rajgopal et al., 2021).

Potential management biases such as: Inflating asset values to present a stronger financial position and attract investors or secure favorable loan terms; minimizing liabilities to reduce the perceived financial risk; adjusting inputs to achieve consistent financial performance over time. These challenges highlight the critical need for robust auditing standards and enhanced training to safeguard audit quality (Griffith et al., 2015).

Muydinov and Mamazhonov, (2021) emphasize that the reliance on unobservable inputs in Level 3 fair value measurements poses a direct risk to audit quality. Auditors often lack standardized frameworks to evaluate

these complex measurements, which increases the likelihood of undetected misstatements. Furthermore, the high subjectivity associated with Level 3 inputs leads to inconsistencies in audit outcomes, particularly in sectors with high exposure to fair value measurements (Walker, 2023).

This issue in audit quality calls for enhanced training, more stringent audit procedures, and better alignment of auditing standards with the complexities of fair value measurements. The subjective nature and complexity of Level 3 fair value measurements amplify risks in financial reporting and audits, requiring auditors to adopt more robust approaches to mitigate these challenges effectively (Hosseinniakani et al., 2014 & AL Qatamin and Salleh, 2022).

2.2. Fair Value Measurement Risks

Fair value measurements, particularly in financial instruments and goodwill, pose significant risks due to their reliance on subjective judgment, unobservable inputs, and complex valuation models. These risks directly affect the reliability of financial statements and audit quality.

2.2.1. Risks of Financial Instruments

A financial instrument is a contract creating a financial asset for an economic entity and, at the same time, creating a financial liability or an equity instrument for another economic entity (IAS 32, 2014). Financial instruments, like derivatives, debt securities, and available-for-sale assets, are highly susceptible to fair value measurement risks due to their market dependence and inherent valuation complexities (McDonough et al., 2020).

Financial instruments are heavily reliant on fair value accounting. These instruments can be subjected to substantial fluctuations in value based on market conditions, interest rates, and credit risks. Furthermore, changes in the fair value of these instruments directly affect the financial results, hence, greater volatility in the income statement (David, 2012).

Fair value measurements of financial instruments also can be exploited to manipulate financial position. Managers may overvalue assets to enhance the organization’s financial position, especially during financial distress or to meet specific earnings targets. For example, in the Chinese market, available-for-sale securities were used to smooth earnings and inflate asset values, highlighting the risks of management discretion in valuation (Lu et al., 2023).

Furthermore, financial instruments are sensitive to market conditions and economic fluctuations due to the valuation models relying on assumptions about market trends, which may lead to significant volatility.

These unpredictable changes pose challenges for auditors, as verifying the accuracy of assumptions and estimates becomes difficult (Walker, 2023). Therefore, effective regulation and stringent auditing processes are necessary to ensure that financial instruments are accurately reported, and any risks associated with their valuation are disclosed adequately (Weirich and Churyk, 2021).

2.2.2. Risks of Goodwill

Goodwill arises from business combinations and is measured as the excess of the purchase price over the fair value of net assets and liabilities acquired (Hussein, 2018).

Starting from 2001, goodwill was not amortized, but it must be tested for impairment at least annually or more due to the circumstances (IASB, IAS36, 2010). Fair value is used in the goodwill impairment testing, which standards setters (in the first step) require to compare the carrying amount of goodwill with its fair value (FASB, SFAS142, 2007). This action is very complicated to implement. Hence, this action contains estimation and subjectivity, and so increasing the potential for misjudgment and manipulation.

Furthermore, the goodwill impairment testing (in the second step) often involves significant estimation and judgment. This step can lead to challenges in assessing whether goodwill is impaired, potentially resulting in under- or over-reporting of goodwill impairments (Hussein, 2018).

Many managers prefer not to recognize goodwill impairment losses to avoid negatively affecting the perception of merger or acquisition decisions. This is because goodwill impairment losses are recognized as expenses, which can significantly impact a company’s earnings. Additionally, the goodwill impairment test can greatly influence financial results, potentially distorting short-term performance. This makes it more difficult for investors and analysts to assess the ongoing profitability of the business (Ziye et al, 2021).

Given the subjectivity involved in measuring goodwill, management may manipulate when implementing the goodwill impairment test to achieve

desired financial outcomes. Therefore, auditors and regulators must ensure that goodwill impairment testing is conducted accurately and in compliance with relevant standards.

The growing scrutiny of goodwill, particularly after the 2008 financial crisis, has led to increased regulatory focus on ensuring that goodwill impairments are properly recognized and disclosed. Regulatory bodies have issued guidance and standards to ensure consistency and transparency in goodwill reporting, but the goodwill impairment test still constitutes problems in the audit process (McDonough et al., 2020).

2.3. Challenges of Auditing Fair Value Measurements

The subjective nature of fair value measurements often provides opportunities for management to bias valuations in their favor. This is particularly evident in financial instruments and goodwill impairment tests that are difficult for auditors to assess and compare (Thesing & Velte, 2021).

In financial instruments, the lack of a clear framework for addressing subjective inputs and assumptions in fair value accounting increases the likelihood of errors or misstatements (Salih & Flayyih, 2020). In addition, many auditors lack the technical expertise required to evaluate advanced valuation models, particularly for Level 3 assets. Fair value measurements introduce various challenges to the audit process. Auditors face significant hurdles in assessing the complex valuation techniques often employed in fair value measurements. These techniques depend on subjective assumptions and varying levels of observability, such as challenges pronounced at Level 3 measurements, which rely on unobservable inputs in areas like financial instruments. These complex valuation techniques for assets and liabilities measured by level 3 require great evaluation expertise due to different organizations adopting varying methodologies for valuation. Thus, all these issues lead to inconsistencies and difficulties in verifying the appropriateness of management's assumptions and estimates (Krasodomska et al., 2021).

In goodwill accounting, managers may deliberately avoid conducting the goodwill impairment test to skip recognizing losses, thereby compromising the reliability of financial statements (Chen et al., 2024). Implementing the goodwill impairment test is highly complicated. Furthermore, the test needs for specialized expertise and additional procedures often increase the cost of audits involving the goodwill impairment test. Furthermore, the time required to perform detailed reviews

may be constrained due to tight reporting deadlines, impacting the quality of the audit process (Napier & Stadler, 2020). Hence, the aforementioned challenges have a direct and significant impact on audit quality. The inability to verify the accuracy of assumptions or detect manipulations reduces the reliability of the auditor's opinion.

The challenges posed by fair value measurements in the audit process highlight the need for improved standards, better training for auditors, and greater transparency in valuation methodologies. Addressing these issues is essential for ensuring the reliability of financial statements and maintaining the credibility of the auditing profession.

The auditing standards often provide insufficient guidance for the assessment of complex fair value measurements, making it challenging for auditors to evaluate management's assumptions and models effectively. The auditing of fair value measurements is resource-intensive, requiring substantial time to assess complex models, review inputs, and validate assumptions (Muydinov & Mamazhonov, 2021).

3. Literature Review and Hypotheses Development

Fair value applies to elements of financial statements such as financial assets and financial liabilities. Due to these, fair value measurement can be applied to financial instruments and goodwill. Fair value accounting constitutes risks in financial reporting due to its reliance on subjective assumptions and complex valuation techniques that have introduced significant challenges to audit quality. Financial standards contextually developed the fair value measurements. However, the fair value measurements still constitute risks (Oyewo., 2020). Therefore, the researcher presents prior studies on the impact of the fair value measurement risks about financial instruments and goodwill on the audit quality.

3.1. The Risks of Fair Value Measurement of Financial Instruments

Keshk et al. (2020) examined both the effect of financial instruments measured by fair value level three and its impact on the audit quality and the extent of compliance with FASB's requirements on Level 3 fair value disclosures. This study examined the 2014 annual financial statements of 106 U.S. banks holding level 3 assets/liabilities. The study reveals widespread noncompliance with Level 3 disclosure requirements: Over 40% of banks failed to provide quantitative input tables for Level 3 valuations. A majority

omitted detailed validation processes for internally or third-party-developed fair value estimates. Many banks lacked qualitative sensitivity disclosures explaining how changes in unobservable inputs affect fair values. The study concluded that the fair value level three constitutes challenges that significantly affect the audit quality.

Oyewo (2020) investigated challenges in the audit of fair value measurement and accounting estimates after the implementation of IFRS13 in Nigeria by conducting a questionnaire on 277 auditors. The study indicated that the biggest challenges of auditing fair value measurements are the tendency of managers to manipulate earnings and accounting estimates due to the auditor's inability to effectively test fair value estimates and the difficulty of testing unobservable inputs. The study concluded that there are more challenges in fair value accounting, particularly financial instruments. Stakeholders suffered from these challenges, as the inability of auditors to accurately verify fair value estimates may jeopardize fair value measurements, which affects financial reporting quality and significantly affects audit quality.

Sangchan et al. (2020) examined the effect of fair value accounting on audit fees where an active market is unavailable. The study also examined the source of inputs used in fair value estimates and the source of appraisers conducting the valuation. It used a sample of Australian real estate firms from 2007 to 2015. The study found that fair value measurements constitute risks overall, especially when an active market is not available. Furthermore, using Level 3 inputs in fair value estimates does not increase audit fees if the auditors are professional in auditing fair values; hence, the professional auditors only could not badly affect the audit quality. The study indicated that verification of the carrying amount of high-volume financial instruments is very complicated. Furthermore, risks associated with fair value measurements of financial instruments increase audit effort and fees, reflecting the challenges auditors face in verifying subjective valuations. These risks compromise audit quality by introducing estimation uncertainty.

Hamo and Hamdan (2023) investigated the level of understanding of the general framework of financial instruments and audit procedures under international auditing standards, with a theoretical focus on Iraq. The study concluded that auditors must obtain reasonable assurance regarding whether financial statements are free from material misstatements. Among the key findings was that the auditing of accounts, such as financial instruments,

often did not comply with applicable accounting standards. To address these issues, the study recommended organizing workshops, training courses, conferences, and seminars related to international accounting and auditing standards to enhance their application in Iraq and improve audit quality. Additionally, the study proposed the development of an auditing program to guide external auditors in auditing financial assets and expected credit losses effectively.

Overall, these studies reveal complexity when auditing fair value measurements, particularly the financial instruments measured by level three. In addition, there is a difference in valuation techniques used for financial instruments in the absence of an active market. Thus, these issues constitute risks for the audit quality. The studies concluded that the auditors lack the appropriate evaluation methods. Auditors often face issues in evaluating complex financial instruments due to the lack of standardization in valuation techniques. Additionally, the absence of detailed guidance in auditing standards for such measurements increases the likelihood of misstatements, which reduces the audit quality.

Based on the aforementioned, the following hypothesis can be formulated as follows:

H1: There is a significant impact of the risks of measuring financial instruments by fair value on the audit quality.

3.2. The Risks of Fair Value Measurement of Goodwill

Thesing and Velte, (2021) examined the effect of fair value measurements on earnings quality and moderating corporate governance through 48 archival studies. The study indicated most companies do not recognize the goodwill impairment losses to not badly affect their financial positions; this action backs to the deficiencies of implementing of goodwill impairment test. Hence, this action badly affects the audit quality.

Ziye et al. (2021) investigated whether auditors can identify the information hazards associated with goodwill impairments and address their concerns over the quality of financial reporting. The study also examined the correlation between goodwill impairments and auditors' opinions received during the same financial period. Using a sample from 2007 to 2017 of firms listed in China. The study concluded that using the fair value in implementing the goodwill impairment test allowed manipulation and

estimations. Auditors cannot determine the goodwill impairment losses due to the difficulty of implementing the test. Auditors perceive goodwill impairments as a signal for risks. Hence, modified opinions are increasing due to fear of litigation by investors.

Ranga and Pathak (2022) examined the extent to which companies listed in Indian compliance with goodwill disclosures and their relation with audit quality. The study covered the period from 2017 to 2020. The study concluded that the companies audited by Big Four firms demonstrate a higher likelihood of adhering to rigorous goodwill impairment testing, recognizing losses, and disclosing goodwill and its impairment. These practices contribute significantly to enhanced audit quality by ensuring transparency and compliance with accounting standards. Conversely, companies not audited by Big Four firms often exhibit lower compliance with such procedures, including inadequate testing, delayed loss recognition, and insufficient disclosure of goodwill impairment. This lack of adherence negatively impacts audit quality, potentially undermining stakeholder confidence and financial reporting reliability.

Wang and Li, (2022), examined the impact of the scale of goodwill impairment on the audit fees and how the goodwill impairment approach affects accounting information users. The study examines independent auditors' opinions about goodwill impairment. The study covered the period from 2014 to 2021 in the China Stock Exchange. The study concluded that examining the goodwill impairment increases the audit fees. When management does not recognize goodwill impairment, it badly affects the audit quality. Due to the low penalty cost, listed companies are still incentivized to manipulate earnings management through goodwill impairment. So, Wang and Li, mentioned that professional quality should be raised as the auditors can carefully examine listed companies' financial statements, determine whether they manipulate earnings through goodwill impairment, and protect them from significant misstatement risks. The goodwill impairment approach needs big improvement to make accounting information more accurate, strengthening the oversight of goodwill information disclosure. Therefore, the oversight of goodwill information dissemination still has much room for improvement.

Overall, these studies reveal a difficulty in applying and implementing the goodwill impairment test. In addition, the test is costly, complicated, and time-consuming. Hence, more financial statements

preparers implement the test without compliance with the guidance of standards. Hence, the auditor faces more difficulties when auditing the outcomes of the goodwill impairment test. Thus, the goodwill impairment test poses challenges impacting the audit quality.

Based on the aforementioned, the following hypothesis can be formulated as follows:

H2: There is a significant impact of the risks of measuring goodwill by fair value on the audit quality

4. Research Methodology

This section presents the sample selection, period, and data collection sources, followed by the different variables of the research and their measurements, and ultimately, testing the research hypotheses through different research models.

4.1. Sample Selection and Data Collection

The research sample contains firms listed on the EGX 100 index, representing 30 firms subjected to merger or acquisition process, thus goodwill recorded in their financial statement from 2018 to 2022, across 12 different sectors and a total of 150 firm-year observations. The firms are categorized by sectors, such as Food & Industry, Basic Resources, and Real Estate, among others, to provide diversity in analyzing how fair value measurement risks about financial instruments and goodwill impact audit quality across various sectors.

The research examines 2018-2022, a period marked by post-flotation inflation in Egypt, during which the Central Bank raised interest rates to stabilize the economy. This timeframe provides recent data reflecting current economic realities, crucial for analyzing fair value measurement (FVM) risks and their impact on audit quality amid inflation. The research questions whether FVM remains viable under inflationary pressures or necessitates alternative methods, potentially introducing a new model if FVM's drawbacks outweigh the advantages.

The practical framework concentrates on developing analytical statistical models and using real data to assess the effects and investigate the impact of fair value measurements risks of financial instruments and goodwill on audit quality. The data used in this research are quantitative data

gathered from the annual financial statements available on Mubasher and the firms' websites used in the research.

4.2. Measurement of Variables

This section shows the main independent variables are risks of fair value measurements of financial instruments and risks of fair value measurements of goodwill, measured through two models (CPI) inflation adjustments for nonmonetary assets (new_ INS _VAR_PER) and regression models by depending on operation revenue to predict the goodwill (new-var-Goodwill). The dependent variable is the audit quality. Control variables are (Firm size, ROA, Leverage, Specialization, Audit Tenure, and Audit Office Size).

4.2.1. Dependent Variable

The dependent variable is the audit quality that is measured by the Modified Jones model, as outlined in (Gros and Worret ,2014) through the following equation:-

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{it-1}}\right) + \beta_1\left(\frac{\Delta \text{Rit}}{A_{it-1}}\right) + \beta_2\left(\frac{PPE_{it}}{A_{it-1}}\right) + \varepsilon_{it}$$

Where:

TAit —— Total accruals in year t for firm i

A_(it-1) —— Total assets in year t–1 for firm i

Δ R it —— Account Receivable

PPE it —— Gross property, plant, equipment in year t of firm i

Ɛ_it ——Error term of company i in year t.

ABS–EM is the results and a proxy for the audit quality. When the number of ABS–EM is high, there is more earnings management, which leads to more manipulation and thus negatively affects the audit quality and vice versa.

4.2.2. Independent variables

4.2.2.1. Risks of Fair value measurements of Financial Instruments

Regarding the financial instrument, the research focused on available for sale because the data of this item is available in the sample used. The research used the adjusted inflation rate (CPI) (when re-measuring or

reevaluating the available-for-sale item (Nonmonetary). The beginning period should be multiplied by the inflation rate for revaluation to get the ending value. For example, the available-for-sale value of December 2017 is multiplied by the inflation rate of 2018 to get the available-for-sale value of December 2018. Then, the actual value of financial instruments should be compared with the predicted value of financial instruments to get the variance of financial instruments. The research indicates that the variance was measured by the actual minus the predicted value divided by the actual to get the percentage. After applying the model, the result was a positive value when the actual value was greater than the predicted value. Hence, it means that the firm manipulates through fair value accounting to increase the value of its financial instruments in the balance sheet; hence, it positively affects the investors' insight, vice versa, when the actual value was less than the predicted value, there was no manipulation, and the financial instrument was not valued higher than its value (Deegan & Unerman, 2006, p137).

4.2.2.2. Risks of Fair value measurements of Goodwill

Regarding goodwill, the impairment approach constitutes a problem for auditors because too many preparers of financial statements skip implementing the goodwill impairment test due to the test is costly, complicated, and time-consuming. In addition, managers do not prefer to recognize the goodwill impairment losses in the financial statement to protect their image in the market, attract more investors, and approve that the management decision is appreciated when completing a merger or acquisition process. Therefore, the researcher chose the following model to help the auditor detect the manipulation in implementing the goodwill impairment test and determining the goodwill impairment losses if found. Therefore, the researcher suggested the following model.

$$Y=a+b\,X+\text{Error}$$

Y: The recorded goodwill in the balance sheet.

a: The y-intercept.

b: The slope.

X: The operating revenue.

In this model, the researcher used regression analysis to predict goodwill by operating revenue through the above equation. Then, compare the current goodwill and the previous goodwill to determine if there are

goodwill impairment losses or not. Applying this model would avoid personal judgment. In addition, this model could easily solve the mentioned problem of the goodwill impairment test being costly and time-consuming because the financial statements preparers can be applied by Excel. Thus, this model can solve the complicated problem due to the preparers can implement the goodwill impairment test and predict the goodwill impairment losses by the regression model.

By this method, the researcher can compare the predicted goodwill with the actual goodwill to get the variance. The variance outcomes were between positive, zero, and negative values. The positive value means that the actual goodwill is higher than predicted; hence, there is manipulation not to record the goodwill impairment losses. So, there was a fraud that constituted a risk. The remaining results were zero when the actual goodwill in the balance sheet was equal to the predicted goodwill by the supposed model. The negative value means that the actual goodwill was less than the predicted goodwill. Hence, it was no fraud.

4.2.3. Control Variables

- Firm size is measured by the natural logarithm of total assets (Romanus, 2019).
- Return on assets (ROA) is measured by dividing net income by total assets. A higher ROA means a firm has more assets efficiency (Jokar and Daneshi, 2020).
- Leverage is measured by dividing the total debts by the shareholder‘s equity. When a financial leverage ratio is less than one, it is considered good by industry standards; conversely, when it is greater than one, lenders and potential investors consider the firm risky for investment (Qasem et al., 2020).
- Specialization is based on the percentage of clients that the auditor audits in the same industry. The auditor is a specialist if he audits more than 20% of firms in the same industry (Ocak et al, 2021).
- Audit tenure is measured based on the sample period. If the auditor audited three or more of the five years of the financial period, there is a risk. The longer the audit tenure, the more the risk (AL qatamin and Salleh, 2022).
- Audit Office Size is based on if the audit office is one of the Big Four, there is no risk, and vice versa (Li et al, 2018).

4.3. Research Models

The researcher used both the (CPI) model to get (new_ INS _VAR_PER) and regression models to get (new_VAR_ Goodwill PER). Linear regression analysis is used to examine the relationship between fair value measurement risks about financial instruments and goodwill and audit quality. Linear regression tests the impact of independent variables on the dependent variable (audit quality) and provides precise measurements of the effects.

4.4. Descriptive Statistics

Descriptive statistics are analyzed for the research‘s variables, including the means and standards deviations. This analysis aids in understanding the nature and distribution of fair value measurement risks and the relation of these risks to factors such as firm size, return on assets, and leverage. Statistical tables will be provided to show the frequency distribution of industry specialization, audit tenure, and audit office size, examined to assess other influencing factors.

Descriptive statistics of the variables represent this stage as follows: -

Table No (1), Descriptive Statistics

Variables	Mean	Std. Dev.	Min	Max
ABS EM	.059	.058	0	.235
new INS VAR PER	.358	.678	-.977	1.057
new VAR Goodwill PER	.02	.379	-.91	.659
SIZE	20.838	4.209	6.45	27.31
ROA	.024	.063	-.104	.116
Leverage	1.64	.893	.723	2.914

Table No (1) presents the descriptive statistics for the main variables related to the research hypotheses, showing the central tendencies, variability, and ranges of the variables under study. These descriptive statistics are essential for understanding the characteristics of the sample of each variable:

Dependent Variable is the audit quality. (ABS EM) is the Absolute Earnings Management that is a proxy for audit quality.

The mean for ABS EM is 5.9%, indicating that earnings management among the sample firms averages 5.9%.

The standard deviation is 5.8%, reflecting moderate variability in earnings management practices across the firms.

Values range from 0% (no earnings management) to a maximum of 23.5%, resulting in a variance of 23.5%.

This disparity highlights the extent of earnings management within the sample, with higher ABS EM values reflecting greater practices of earnings manipulation. This measure serves as a proxy for audit quality, where increased ABS EM suggests diminished audit quality due to heightened manipulation.

Independent Variable is Fair Value Measurements Risks of Financial Instruments, new INS VAR PER (Instruments Variance Percentage):

The mean for new INS VAR PER is 35.8%, suggesting significant variance in the valuation of financial instruments, which may indicate manipulation risks.

The standard deviation of 67.8% reflects substantial variability among firms in how financial instruments are valued.

Values range from -97.7% to 105.7%, illustrating a wide gap, which suggests significant differences in accounting practices related to financial instruments.

Independent Variable is fair Value Measurements Risks of Goodwill, new VAR Goodwill PER, (Goodwill Variance Percentage):

The mean for new VAR Goodwill PER is 2%, indicating relatively minimal manipulation in goodwill valuation on average.

The standard deviation of 37.9% suggests moderate variability among firms in goodwill variance.

The values range from -91% to 65.9%, reflecting a large gap that points to the potential for accounting manipulation in goodwill measurement.

Control Variables

Firm Size (SIZE):

The natural logarithm of total assets is used as a proxy for firm size, with a mean value of 20.838. This indicates that the sample consists predominantly of large firms.

The standard deviation of 4.209 highlights variability in firm size.

Values range from 6.45 to 27.31, showing significant diversity in firm sizes within the sample.

Return on Assets (ROA):

The mean ROA is 2.4%, indicating that firms generate modest returns on their assets.

The standard deviation is 6.3%, showing variation in profitability across the sample.

Values range from -10.4% to 11.6%, suggesting that some firms are unprofitable, while others achieve positive returns.

Leverage:

The mean leverage ratio is 1.64, indicating that firms generally rely on a mix of debt and equity, with a slight inclination toward debt.

The standard deviation of 0.893 suggests variability in firms' capital structures.

Values range from 0.723 to 2.914, showing significant disparities in firms' financing capabilities.

Dummy Variables

The remaining variables, including industrial specialization of the auditor, audit tenure, and audit office size, are binary (dummy) variables and provide categorical insights into the dataset.

The descriptive statistics highlight significant variability in key variables, particularly those related to fair value measurements (new INS VAR PER) and ABS EM. These results emphasize the diversity in accounting practices and potential manipulation risks, which are critical for understanding their impact on auditors' opinions. Control variables such as firm size, ROA, and leverage add further context to the financial and operational characteristics of the sample firms. This variability underscores the need for rigorous audit methodologies to ensure reliability and transparency in financial reporting.

Table No (2),Tabulation of Specialization		
Industrial specialization of the auditor	Freq.	Percent
0	93	62.00
1	57	38.00
Total	150	100.00

Table No (2) presents the distribution of industrial specialization among auditors in the sample of 150 firm-year observations. The "Industrial Specialization of the Auditor" variable is classified as "0" for non-specialized auditors (those without specific industry expertise) and "1" for specialized auditors (those with relevant industry knowledge).

Non-Specialized Auditors:

Frequency: 93 audits were conducted by non-specialized auditors.

Percentage: This group constitutes 62% of the sample, indicating that the majority of audits were performed by auditors without specific industry expertise.

The high proportion of non-specialized auditors suggests potential challenges in evaluating complex fair value measurements or industry-specific estimates.

Non-specialized auditors may lack the detailed insights required to navigate specialized industry practices, possibly affecting the depth and rigor of the audit.

Specialized Auditors:

Frequency: 57 audits were conducted by specialized auditors.

Percentage: This group accounts for 38% of the sample, indicating that a substantial minority of audits were carried out by auditors with specific knowledge and expertise in the client's industry.

Specialized auditors are likely to be better equipped to assess complex and nuanced financial reporting issues, particularly fair value measurements, due to their familiarity with industry-specific risks and standards.

Their presence in 38% of cases suggests a meaningful segment where specialized knowledge could enhance audit quality and reliability.

The distribution shows a predominance of non-specialized auditors (62%), which may highlight resource or availability constraints in accessing specialized auditors. However, the presence of specialized auditors in 38% of cases demonstrates that industry-specific knowledge is recognized as valuable for addressing complex fair value measurement issues.

This balance suggests a potential opportunity for improving audit quality by increasing the role of specialization, especially in industries with unique financial reporting requirements. Ensuring a greater proportion of specialized auditors could help mitigate risks and improve the reliability of financial statements.

Table No (3), Tabulation of Audit Tenure		
Audit Tenure	Freq.	Percent
0	10	6.67
1	140	93.33
Total	150	100.00

Table No (3) presents the distribution of audit tenure in the sample of 150 firm-year observations. The "Audit Tenure" variable is classified into two categories: "0" for short audit tenures (indicating a recent auditor-client relationship) and "1" for long audit tenures (indicating a longstanding auditor-client relationship).

Short Audit Tenure:

Frequency: Only 10 firm-year observations reflect short audit tenures.

Percentage: This group represents 6.67% of the sample, indicating that very few audit relationships are recent or short-term.

Short tenure audits often imply a fresh perspective from auditors, with greater independence and potentially higher professional skepticism.

However, the low percentage of short tenures suggests limited opportunities for auditors to apply such advantages, as most relationships are long-term.

Long Audit Tenure:

Frequency: A significant 140 firm-year observations reflect long audit tenures.

Percentage: This group accounts for 93.33% of the sample, highlighting that most of the audits in the sample were conducted by auditors with longstanding relationships with their clients.

A long audit tenure provides auditors with a deep understanding of the client’s operations, financial practices, and history, which can enhance the efficiency and effectiveness of audits.

However, prolonged relationships could potentially reduce professional skepticism, increasing the risk of auditor familiarity threats. Auditors may become less critical of the client's financial reporting over time, which could compromise the objectivity of the audit.

The overwhelming majority of long audit tenures (93.33%) indicate

that auditors are often well-acquainted with their clients, potentially leading to efficiencies in auditing but also increasing the risk of reduced independence. The minimal presence of short tenures (6.67%) limits the fresh perspective and independent scrutiny that auditors might bring to a new client relationship.

This distribution suggests the need for periodic rotation of auditors or mechanisms to ensure that professional skepticism is maintained, even in long-standing auditor-client relationships, to mitigate potential biases and enhance audit quality.

Table no (4),Tabulation of Audit Office Size		
Audit Office Size	Freq.	Percent
0	83	55.33
1	67	44.67
Total	150	100.00

Table No (4) presents the distribution of audit office size in the sample of 150 firm-year observations. The "Audit Office Size" variable is categorized into "0" for non-Big Four audit firms and "1" for Big Four audit firms.

Non-Big Four Audit Offices:

Frequency: 83 audits were conducted by non-Big Four firms.

Percentage: This group represents 55.33% of the sample, indicating that the majority of the audits were performed by smaller audit firms.

Non-Big Four audit firms are typically smaller in size and may have fewer resources compared to their Big Four counterparts. This could impact their ability to conduct more complex audits, particularly those involving intricate fair value measurements.

These firms may also have closer relationships with their clients, which can result in better client understanding but also raises concerns about auditor independence and professional skepticism.

Big Four Audit Offices:

Frequency: 67 audits were conducted by Big Four firms.

Percentage: This group accounts for 44.67% of the sample, suggesting a significant presence of large, globally recognized audit firms.

Implications:

Big Four audit firms generally have more resources, advanced audit technologies, and extensive expertise. This often translates to higher audit quality, particularly for complex issues such as fair value measurements.

The larger size and resources available to Big Four firms may enhance the accuracy and thoroughness of audits, providing confidence in the reliability of financial statements. This may also help mitigate risks associated with subjective measurements and estimations.

The table shows a fairly balanced distribution between non-Big Four (55.33%) and Big Four firms (44.67%) within the sample. While Big Four firms dominate in terms of global recognition and resources, non-Big Four firms still perform a significant portion of audits, indicating a diversity of audit office sizes in the sample.

This balance highlights the importance of audit office size in determining audit quality. Large audit firms, such as the Big Four, are often better equipped to handle complex financial reporting and auditing tasks, especially those involving fair value measurements. However, non-Big Four firms, although smaller, can still provide effective audits, particularly in cases where client relationships and industry-specific knowledge are paramount.

4.5. Hypotheses Testing

The main hypotheses of the research, that there is a significant impact of fair value measurement risks about financial instruments and goodwill on the audit quality, will be tested. The results from linear regression will be used to validate these hypotheses and determine the extent to which the independent variable impacts the dependent variable as follows:-

The first hypothesis tests the fair value measurement risks by the new_ INS _VAR_PER on the audit quality.

Table No (5), Linear regression for Model (3) of the third hypothesis				
ABS_EM	Coef.	t-value	P-value	Sig
New-INS-VAR_PER	.017	2.11	.037	**
SIZE	-.001	-0.59	.554	
ROA	-.137	-1.45	.149	
Leverage	-.003	-0.48	.632	
specialization	-.019	-0.97	.332	
Audit Tenure	.059	2.09	.039	**
Audit Office Size	-.009	-0.46	.645	
Group (year) : base Included				
Group(sector): Included				
Number of observations		150		
R-squared		0.229		
F-test		3.766		
Prob > F		0.000		
*** p<.01, ** p<.05, * p<.1				

From the table above, the following equation expresses the relation between New-INS-VAR_PER and ABS_EM

$$ABS - EM_{it} = b_0 + b_1\, INS_{it} + b_2\, SPEC_{it} + b_3\, TENURE_{it} + b4\, AuditorSize_{it} + b_5\, firm\, Size_{it} + b_6\, LEV_{it} + b_7\, ROA_{it} + b_8\, years_{it} + \mathcal{E}_{it}$$

Table No (5) presents the results of the linear regression for Model (1), which examines the impact of fair value measurement risks, specifically New-INS-VAR-PER (Variance in Financial Instruments), on audit quality, measured by ABS_EM (Absolute Earnings Management). This model evaluates whether variance in financial instrument valuations affects the level of earnings management and, consequently, audit quality.

Key Findings:

New-INS-VAR-PER (Coefficient = 0.017, p-value = 0.037, Significant at 5%)

The coefficient for New-INS-VAR-PER is 0.017, which is statistically significant at the 5% level (p-value = 0.037).

This positive relationship indicates that greater variance in financial instrument valuations is associated with higher levels of ABS_EM (earnings management), suggesting reduced audit quality.

This finding highlights the challenges auditors face when dealing with the fair value measurement of financial instruments, where subjective estimates and complex valuation models may increase the risk of financial misstatements.

The researcher emphasizes that Keshk et al. (2020), Oyewo (2020), Hamo and Hamdan (2023), and Sangchan et al. (2020) which confirm similar hazards, support this viewpoint.

SIZE (Coefficient = -0.001, p-value = 0.554, Not Significant)

The coefficient for SIZE is -0.001 and is not statistically significant (p-value = 0.554).

This suggests that firm size does not have a significant impact on earnings management in this model, implying that fair value measurement risks related to financial instruments affect audit quality regardless of firm size.

ROA (Coefficient = -0.137, p-value = 0.149, Not Significant)

The coefficient for ROA is -0.137, but it is not statistically significant (p-value = 0.149).

This indicates that profitability (ROA) does not significantly influence earnings management or audit quality in this context.

Leverage (Coefficient = -0.003, p-value = 0.632, Not Significant)

The coefficient for Leverage is -0.003 and is not statistically significant (p-value = 0.632).

This implies that the firm's financial structure, as measured by debt levels, does not have a meaningful impact on audit quality in the context of financial instrument variances.

Specialization (Coefficient = -0.019, p-value = 0.332, Not Significant)

The coefficient for Specialization is -0.019, but it is not statistically significant (p-value = 0.332).

This result suggests that the auditor's industry specialization does not substantially affect the quality of audits when dealing with fair value measurement risks related to financial instruments.

Audit Tenure (Coefficient = 0.059, p-value = 0.039, Significant at 5%)

The coefficient for Audit Tenure is 0.059 and is statistically significant at the 5% level (p-value = 0.039).

This positive relationship indicates that longer auditor-client relationships are associated with higher levels of ABS_EM (earnings management), reflecting potential familiarity threats and reduced skepticism over time, which can compromise audit quality.

Audit Office Size (Coefficient = -0.009, p-value = 0.645, Not Significant)

The coefficient for Audit Office Size is -0.009 and is not statistically significant (p-value = 0.645).

This suggests that the size of the audit firm (Big Four vs. non-Big Four) does not significantly influence earnings management in this model.

Model Summary:

R-squared (0.229): The R-squared value of 0.229 indicates that the model explains approximately 22.9% of the variability in ABS_EM. This represents a moderate level of explanatory power.

F-test (3.766, p-value = 0.000): The overall model is statistically significant (p-value < 0.01), indicating that the independent variables collectively have a meaningful impact on the dependent variable (audit quality).

New-INS-VAR-PER:

The significant positive relationship between New-INS-VAR-PER and ABS_EM underscores the importance of addressing fair value measurement risks related to financial instruments. Increased variances in financial instrument valuations are linked to greater earnings management, highlighting the challenges auditors face in verifying these subjective estimates and ensuring accurate financial reporting.

Audit Tenure: The significant positive association between Audit Tenure and ABS_EM suggests that longer auditor-client relationships may reduce audit quality due to familiarity threats or decreased skepticism by auditor.

Non-Significant Variables:

Variables such as SIZE, ROA, Leverage, Specialization, and Audit Office Size do not significantly influence earnings management in this model, suggesting that these factors are less impactful compared to fair value measurement risks.

Overall, the results of table (5) highlight the critical role of fair value measurement risks, particularly those associated with financial instruments, in determining audit quality. The findings emphasize the need for auditors to enhance their expertise and procedures when auditing financial instrument valuations to mitigate the risks of earnings management. Additionally, the impact of Audit Tenure suggests a potential need for stricter regulations or policies to address familiarity threats and ensure that auditors maintain professional skepticism over long-term engagements.

Table No (6),Variance Inflation Factor for the First Hypothesis		
	VIF	**1/VIF**
new INS VAR PER	1.453	.688
SIZE	2.045	.489
ROA	1.501	.666
Leverage	1.429	.7
specialization	2.288	.437
Audit Tenure	4.057	.246
Audit Office Size	2.567	.39
Mean VIF	2.875	
Breusch-Pagan / Cook-Weisberg test Prob > chi2 = 0.0000		
Durbin-Watson d-statistic 1.521		

Table No (6) presents the Variance Inflation Factor (VIF) for the variables used in Model (1) of the first hypothesis, which examines the relationship between fair value measurement risks, specifically New-INS-VAR-PER (Variance in Financial Instruments), and audit quality, measured by ABS_EM (Absolute Earnings Management). The table also includes results for the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity and the Durbin-Watson statistic for autocorrelation in the residuals.

Variance Inflation Factor (VIF) Analysis:

The VIF values indicate the extent of multicollinearity among the independent variables. If the VIF is greater than 5 (or 10), this typically suggests that there may be a multicollinearity issue, which could affect the stability of the coefficient estimates.

New-INS-VAR-PER (VIF = 1.453, 1/VIF = 0.688):

The VIF for New-INS-VAR-PER is 1.453, which is well below the threshold of concern. This indicates that there is no multicollinearity issue with this variable, and it is independently contributing to the model. The 1/VIF value of 0.688 confirms the stability and reliability of this variable in the regression.

SIZE (VIF = 2.045, 1/VIF = 0.489):

The VIF for SIZE is 2.045, which suggests no significant multicollinearity with other predictors.

The 1/VIF value of 0.489 further confirms that this variable does not contribute to multicollinearity concerns in the model.

ROA (VIF = 1.501, 1/VIF = 0.666):

The VIF for ROA is 1.501, indicating no multicollinearity.

The 1/VIF value of 0.666 suggests that ROA does not inflate the variance in the regression estimates.

Leverage (VIF = 1.429, 1/VIF = 0.7):

The VIF for Leverage is 1.429, which is low and indicates no multicollinearity issues.

The 1/VIF value of 0.7 confirms that leverage is not significantly correlated with other variables in the model.

Specialization (VIF = 2.288, 1/VIF = 0.437):

The VIF for Specialization is 2.288, which is higher than some other variables but still well within acceptable limits.

The 1/VIF value of 0.437 further confirms that Specialization is not contributing significantly to multicollinearity in the model.

Audit Tenure (VIF = 4.057, 1/VIF = 0.246):

The VIF for Audit Tenure is 4.057, which is the highest among the variables but still under the threshold of concern.

The 1/VIF value of 0.246 suggests that Audit Tenure may have some mild correlation with other predictors, but it does not pose a significant multicollinearity issue.

Audit Office Size (VIF = 2.567, 1/VIF = 0.39):

The VIF for Audit Office Size is 2.567, indicating that this variable is not problematic in terms of multicollinearity. The 1/VIF value of 0.39 further shows that Audit Office Size does not significantly contribute to multicollinearity in the regression model.

Mean VIF: 2.875

The Mean VIF value of 2.875 is below the threshold of 5, indicating that overall, multicollinearity is not a significant issue in the model. The independent variables are sufficiently independent from one another, meaning that the regression coefficients should be reliable.

Breusch-Pagan / Cook-Weisberg Test:

Prob > chi2 = 0.0000:

The Breusch-Pagan / Cook-Weisberg test results indicate a significant presence of heteroskedasticity (p-value < 0.05).

Heteroskedasticity refers to non-constant variance in the residuals, which violates one of the assumptions of OLS regression. This could lead to biased or inefficient standard errors.

To address this, robust standard errors are recommended to correct for this issue, ensuring more reliable coefficient estimates.

Durbin-Watson Statistic:

Durbin-Watson d-statistic = 1.521:

The Durbin-Watson statistic value of 1.521 indicates positive autocorrelation in the residuals (since the value is below 2).

Positive autocorrelation means that the residuals from one observation are correlated with those from another observation. This violates the assumption of independent errors in regression.

To correct for autocorrelation, the model could be adjusted to include lagged variables or other autoregressive components.

VIF Analysis:

The VIF values indicate that multicollinearity is not a significant issue in the model, as the values are all below the threshold of concern (5). This means that the regression coefficients should be stable and not unduly influenced by correlations between independent variables.

Heteroskedasticity (Breusch-Pagan / Cook-Weisberg):

The test result shows significant heteroskedasticity, suggesting that the variance of the residuals is not constant across observations. This can distort the accuracy of the standard errors. Using robust standard errors will help address this issue and improve the reliability of the model.

Autocorrelation (Durbin-Watson):

The Durbin-Watson statistic suggests that there is positive autocorrelation in the residuals. This indicates that the model might benefit from adjustments, such as incorporating lagged variables, to account for dependencies in the residuals and improve the model's reliability.

The model appears to perform well with respect to multicollinearity, as the VIF values are within acceptable ranges. However, the presence of heteroskedasticity and positive autocorrelation suggests that model adjustments, such as the use of robust standard errors and autoregressive techniques, may be necessary to improve the accuracy and reliability of the regression estimates.

The second hypothesis tests the fair value measurement risks by the new-var-Goodwill on the audit quality.

Table No (7), Linear Regression for the Second Hypothesis				
ABS_EM	Coef.	t-value	P-value	Sig
New-var-Goodwill	.023	2.04	.043	**
SIZE	-.001	-0.65	.519	
ROA	-.11	-1.21	.228	
Leverage	-.004	-0.51	.611	
specialization	-.017	-0.87	.384	
Audit Tenure	.062	2.26	.026	**
Audit Office Size	-.009	-0.44	.663	
Group (year) : base Included				
Group(sector): Included				
Number of observations		150		
R-squared		0.222		
F-test		4.113		
Prob > F		0.000		
*** p<.01, ** p<.05, * p<.1				

From the table above, the following equation expresses the between relation New-var-Goodwill and New-var-Goodwill

$$ABS - EM_{it} = b_0 + b1\, Goodwill_{it} + b_2\, SPEC_{it} + b_3\, TENURE_{it} + b_4\, Auditor\, Size_{it} + b_5\, firm\, Size_{it} + b_6\, LEV_{it} + b_7\, ROA_{it} + b_8\, years_{it} + \mathcal{E}_{it}$$

Table No (7) presents the results of the linear regression for the second hypothesis, which tests the impact of fair value measurement risks, specifically New-var-Goodwill (variance in goodwill measurement), on audit quality, measured by ABS_EM (Absolute Earnings Management). This model examines whether discrepancies in the measurement of goodwill impact earnings management and, ultimately, the quality of audits.

New-var-Goodwill (Coefficient = 0.023, p-value = 0.043, Significant at 5%)

The coefficient for New-var-Goodwill is 0.023, and the p-value is 0.043, which is statistically significant at the 5% level.

This positive coefficient indicates that greater variance in goodwill measurement is associated with increased ABS_EM, suggesting that higher

risks in measuring goodwill lead to higher levels of earnings management. This finding underscores the impact of fair value measurement risks in the intangible asset area on audit quality. The researcher confirms that Ranga and Pathak (2022), Wang and Li, (2022), Ziye et al. (2021), and Thesing and Velte, (2021), which emphasize similar hazards, support this viewpoint.

SIZE (Coefficient = -0.001, p-value = 0.519, Not Significant)

The coefficient for SIZE is -0.001 and is not statistically significant (p-value = 0.519).

This suggests that firm size does not have a significant impact on ABS_EM in this model, implying that both large and small firms may have similar levels of earnings management when considering goodwill measurement risks.

ROA (Coefficient = -0.11, p-value = 0.228, Not Significant)

The coefficient for ROA is -0.11 and is not statistically significant (p-value = 0.228).

This result suggests that Return on Assets (ROA), as a profitability measure, does not substantially influence the level of earnings management (ABS_EM) in the context of goodwill measurement risks.

Leverage (Coefficient = -0.004, p-value = 0.611, Not Significant)

The coefficient for Leverage is -0.004, and it is not statistically significant (p-value = 0.611).

This implies that the debt-to-equity ratio does not significantly affect earnings management or audit quality when assessing goodwill measurement risks.

Specialization (Coefficient = -0.017, p-value = 0.384, Not Significant)

The coefficient for Specialization is -0.017, and it is not statistically significant (p-value = 0.384).

This suggests that the auditor's industry specialization does not have a substantial effect on earnings management in the context of goodwill measurements.

Audit Tenure (Coefficient = 0.062, p-value = 0.026, Significant at 5%)

The coefficient for Audit Tenure is 0.062, and it is statistically significant at the 5% level (p-value = 0.026).

This positive relationship indicates that longer auditor-client relationships are associated with higher levels of earnings management (ABS_EM). This may reflect a reduced level of skepticism over time, leading to lower audit quality as auditors become too familiar with their clients.

Audit Office Size (Coefficient = -0.009, p-value = 0.663, Not Significant)

The coefficient for Audit Office Size is -0.009, and it is not statistically significant (p-value = 0.663).

This suggests that the size of the audit firm does not significantly influence earnings management in this model.

Model Summary:

R-squared (0.222): The R-squared value of 0.222 indicates that the model explains approximately 22.2% of the variability in ABS_EM. This suggests that the model has a moderate level of explanatory power, with other factors outside the current model likely contributing to the variation in earnings management.

F-test (4.113, p-value = 0.000): The F-test value of 4.113 with a p-value of 0.000 indicates that the overall model is statistically significant, suggesting that the independent variables together have a meaningful impact on ABS_EM (audit quality).

The significant positive relationship between New-var-Goodwill and ABS_EM indicates that increased variance in goodwill measurements contributes to higher earnings management. This finding highlights the importance of accurate and consistent goodwill valuations in maintaining high-quality audits. Inaccurate or subjective goodwill valuations may encourage management to manipulate earnings, ultimately affecting audit quality.

Audit Tenure:

The positive relationship between Audit Tenure and ABS_EM suggests that longer auditor-client relationships may lead to decreased audit quality due to reduced auditor skepticism. This points to the potential risks

of familiarity threats and underscores the importance of maintaining professional independence in long-term auditor-client engagements.

Non-Significant Variables:

Variables such as SIZE, ROA, Leverage, Specialization, and Audit Office Size do not significantly affect ABS_EM in this model, suggesting that these factors do not have a substantial impact on earnings management when considering the risks associated with goodwill measurements.

Overall, the results of the second hypothesis provide valuable insights into the relationship between fair value measurement risks related to goodwill and audit quality. The significant relationship between New-var-Goodwill and ABS_EM underscores the importance of accurate goodwill measurement in maintaining high-quality audits. Additionally, the significant impact of Audit Tenure on ABS_EM suggests that longer auditor-client relationships may reduce audit quality due to familiarity threats. These findings emphasize the need for auditors to address goodwill measurement risks and maintain professional skepticism throughout their engagements to ensure robust audit quality.

Table No (8) Variance Inflation Factor for the Second Hypothesis

	VIF	1/VIF
new var Goodwill	1.183	.845
SIZE	2.045	.489
ROA	1.501	.666
Leverage	1.438	.695
specialization	2.291	.436
Audit Tenure	4.049	.247
Audit Office Size	2.571	.389
Mean VIF	2.84	
Breusch-Pagan / Cook-Weisberg test Prob > chi2 = 0.0008		
Durbin-Watson d-statistic 1.528		

Table No (8) presents the Variance Inflation Factor (VIF) results for the variables used in Model (2) of the second hypothesis, which tests the relationship between fair value measurement risks, specifically New-var-Goodwill (variance in goodwill measurement), and audit quality, measured by ABS_EM (Absolute Earnings Management). The table also provides

diagnostic tests for heteroskedasticity (Breusch-Pagan / Cook-Weisberg test) and autocorrelation (Durbin-Watson statistic).

Variance Inflation Factor (VIF) Analysis:

The VIF values indicate the extent to which multicollinearity may be present among the independent variables. A VIF value above 5 (or 10) suggests multicollinearity concerns, while lower values indicate that the variables are not highly correlated with each other.

New-var-Goodwill (VIF = 1.183, 1/VIF = 0.845):

The VIF for New-var-Goodwill is 1.183, which is well below the threshold of 5, indicating minimal multicollinearity with other variables.

The 1/VIF value of 0.845 further suggests that this variable does not contribute to multicollinearity in the model.

SIZE (VIF = 2.045, 1/VIF = 0.489):

The VIF for SIZE is 2.045, which is within acceptable limits, indicating no significant multicollinearity.

The 1/VIF value of 0.489 further supports the fact that SIZE is independent of other predictors in the regression.

ROA (VIF = 1.501, 1/VIF = 0.666):

The VIF for ROA is 1.501, indicating that there is no significant correlation between ROA and other variables.

The 1/VIF value of 0.666 further suggests that ROA does not inflate the regression coefficients.

Leverage (VIF = 1.438, 1/VIF = 0.695):

The VIF for Leverage is 1.438, indicating that it does not cause significant multicollinearity in the model.

The 1/VIF value of 0.695 further confirms that Leverage is not highly correlated with other predictors.

Specialization (VIF = 2.291, 1/VIF = 0.436):

The VIF for Specialization is 2.291, which is still below the threshold for concern.

The 1/VIF value of 0.436 indicates that Specialization does not contribute significantly to multicollinearity in the model.

Audit Tenure (VIF = 4.049, 1/VIF = 0.247):

The VIF for Audit Tenure is 4.049, the highest among the variables, but still below the threshold of concern (5 or 10).

The 1/VIF value of 0.247 reflects a stronger relationship with other variables, but it does not indicate a critical multicollinearity issue.

Audit Office Size (VIF = 2.571, 1/VIF = 0.389):

The VIF for Audit Office Size is 2.571, which is within acceptable limits, indicating no significant multicollinearity.

The 1/VIF value of 0.389 further confirms that this variable does not pose multicollinearity concerns.

Mean VIF: 2.84

The Mean VIF of 2.84 is below the threshold of 5, indicating that multicollinearity is not a significant issue in this model. The predictors are not highly correlated with one another, which ensures that the coefficient estimates are reliable and not inflated due to multicollinearity.

Breusch-Pagan / Cook-Weisberg Test:

Prob > chi2 = 0.0008:

The Breusch-Pagan / Cook-Weisberg test indicates the presence of heteroskedasticity (p-value < 0.05).

Heteroskedasticity refers to the situation where the variance of the residuals is not constant across observations, which violates one of the assumptions of OLS regression. This issue can lead to biased standard errors and incorrect conclusions about the statistical significance of the coefficients.

To address this, robust standard errors should be employed to correct for this non-constant variance in the residuals.

Durbin-Watson Statistic:

Durbin-Watson d-statistic = 1.528:

The Durbin-Watson statistic of 1.528 indicates positive autocorrelation in the residuals (since the value is below 2).

Positive autocorrelation suggests that the residuals are not independent, and there may be a pattern in the error terms that has not been accounted for. This violates the assumption of independent errors in OLS regression.

To address autocorrelation, adjustments such as including lagged variables or employing autoregressive models may be needed to improve the model's specification and reliability.

Summary and Implications:

VIF Analysis:

The VIF values are generally low, with a Mean VIF of 2.84, indicating that multicollinearity is not a significant issue in the model. The predictors do not have high correlations with each other, ensuring stable and reliable regression estimates.

Heteroskedasticity (Breusch-Pagan / Cook-Weisberg Test):

The significant Breusch-Pagan / Cook-Weisberg test result indicates the presence of heteroskedasticity. This suggests that the standard errors might be biased, and to correct for this, robust standard errors should be used to improve the reliability of the statistical tests.

Autocorrelation (Durbin-Watson Statistic):

The Durbin-Watson statistic of 1.528 indicates mild positive autocorrelation in the residuals, meaning that the residuals are correlated over time or observations. This suggests that the model may benefit from adjustments to account for autocorrelation, such as incorporating lagged terms or using autoregressive models.

Overall, the model appears to perform well in terms of multicollinearity, with acceptable VIF values indicating stable regression estimates. However, the presence of heteroskedasticity and positive autocorrelation in the residuals suggests that corrective measures, such as using robust standard errors and addressing autocorrelation, should be implemented to ensure accuracy and reliability.

4.6. Discussion and results summary

The analysis presented in this research provides insights into the factors that influence audit quality, particularly, fair value measurements risks of financial instruments and goodwill. The results from linear

regression models reveal significant associations among certain predictor variables and audit quality. This section discusses the key findings, their implications, and the results of the applied study.

The results indicate a significant relationship among fair value measurements risks of financial instruments and goodwill and audit quality. Both variables exhibit positive and statistically significant coefficients in their respective models. This result suggests that higher levels of fair value measurement risks, particularly those associated with financial instruments, in determining audit quality. The results emphasize that auditors need to enhance their expertise and procedures when auditing financial instrument valuations to mitigate the risks of earnings management.

Regarding the goodwill, the results provide valuable insights into the relationship between fair value measurement risks related to goodwill and audit quality. The significant relationship between New-var-Goodwill and ABS_EM underscore the importance of accurate goodwill measurement in maintaining high-quality audits. The findings reveal that the impact of risks related to goodwill is approximately 2%. This relatively low variance is attributed to the fact that most companies in the sample did not conduct the required goodwill impairment tests. Instead, they consistently maintained the same goodwill values over the five years, resulting in zero differences between the recorded and actual amounts.

In the first model, Size does not show statistical significance, indicating that it may not be a critical factor in determining audit quality when New-INS-VAR_PER measures fair value measurement risk of financial instruments. In the second model, SIZE also is not statistically significant. This result indicates that firm size does not significantly impact ABS_EM in this model, implying that both large and small firms may have similar levels of earnings management when considering goodwill measurement risks.

In the first model, ROA, leverage, audit office, and specialized do not significantly influence earnings management in this model, suggesting that these factors are less impactful compared to fair value measurement risks. While, audit tenure has a significant positive association with ABS_EM, indicating that longer auditor-client relationships may reduce audit quality due to familiarity threats or decreased skepticism by the auditor.

In the second model, SIZE is not statistically significant; this means that firm size does not have a significant impact on ABS_EM in this model, implying that both large and small firms may have similar levels of earnings management when considering goodwill test risks.

ROA, Leverage, Specialization, and Audit Office Size are not statistically significant. Hence, they do not significantly affect earnings management or audit quality when assessing goodwill measurement risks. Conversely, Audit Tenure is statistically significant. The positive relationship indicates that longer auditor-client relationships are associated with higher levels of earnings management (ABS_EM). This may reflect a reduced level of skepticism over time, leading to lower audit quality as auditors become too familiar with their clients.

5. Conclusion

Fair value accounting causes challenges and risks in the audit process that significantly affect the audit quality. These challenges back to fair value measurements are classified into three levels. Level 3 mostly constitutes a challenge due to being based on unobservable inputs, which opened to personal judgments, and, hence, more manipulation. Financial instruments, especially those available for sale affected by this manipulation due to management's desire to enhance its image in the market by influencing its financial position. Goodwill also constituted a challenge because the goodwill impairment test is costly, complicated, and time-consuming. Furthermore, the test must be implemented annually or more due to the circumstances. Therefore, managers skip implementing the test due to its problems and in order not to recognize the goodwill impairment losses.

The findings reveal the significant effect of fair value measurement risks related to financial instruments and goodwill on the audit quality. Furthermore, the proposed models reveal that fair value helps to overvalue assets, particularly financial instruments. The findings reveal that most firms in the sample did not comply with the required goodwill impairment test, significantly affecting the audit quality. Instead, they consistently maintained the same goodwill values over the sample year. Hence, all these issues significantly affect the audit quality. The findings also reveal that the impact of risks related to goodwill is approximately 2%. This relatively low variance is attributed to the fact that most companies in the sample did not conduct the required goodwill impairment test. Instead, they consistently

maintained the same goodwill values over the sample year, resulting in zero differences between the recorded and actual amounts. This practice demonstrates a pattern of avoiding compliance with the testing requirements and highlights the predictive accuracy of the model used in the research.

Therefore, auditors must apply professional skepticism, engage in detailed testing, and sometimes rely on external experts to ensure the accuracy and fairness of valuations. The potential for misstatements and manipulation, if not carefully managed, can undermine the integrity of financial reporting. Furthermore, the proposed models by the research help to solve the mentioned problem, mitigate the audit risks, and improve the audit quality.

ملخص البحث

الغرض: تهدف هذه الدراســـة إلى فحص تأثير مخاطر قياســـات القيمة العادلة المتعلقة بالأدوات المالية والشهرة على جودة المراجعة.

المنهجية: أجرى الباحث دراسة تطبيقية باستخدام عينة من ٣٠ شركة خضعت لعمليات اندماج واســتحواذ، وبالتالي سُــجلت قيمة الشــهرة في قوائمها المالية خلال الفترة من ٢٠١٨ إلى ٢٠٢٢.

نتائج البحث: كشفت النتائج الإحصائية عن وجود تأثير معنوي لمخاطر قياسات القيمة العادلة المرتبطة بالأدوات المالية والشـــهرة على جودة المراجعة. كما أظهرت النماذج المقترحة أن القياس بالقيمة العادلة يؤدي إلى المبالغة في تقييم الأصــول، خاصــة الأدوات المالية. علاوةً على ذلك، لم تلتزم معظم الشركات في العينة بإجراء اختبار انخفاض الشهرة السنوي.

الاضــافة العلمية: تشــكل المحاســبة بالقيمة العادلة تحديات ومخاطر في عملية المراجعة تؤثر بشكل كبير على جودتها. تصنف قياسات القيمة العادلة إلى ثلاث مستويات، ويشكل المستوى الثالث (الاعتماد على مدخلات غير قابلة للملاحظة) تحديًا خاصًــا بسـبب الاعتماد على التقديرات الذاتية، مما قد يفتح الباب للتلاعب في تقييم الأدوات المالية. كما تطرح الشـــهرة تحديات بســـبب تعقيد وارتفاع تكلفة اختبار انخفاض قيمتها، وضــرورة إجرائه ســنويًا أو عند ظهور مؤشــرات تدعو لذلك. وبالتالي، قد تستغل الإدارة هذه الثغرات لتحسين الصورة المالية للشركة في السوق.

لذلك، تقدم هذه الدراســـة نماذج مقترحة لتحديد المخاطر المرتبطة بالقيمة العادلة وبالتالى مســـاعدة المراجعين في التحقق من التلاعب بقيمة الأدوات المالية ونتائج اختبار انخفاض قيمة الشـــهرة. كما يمكن لهذه النماذج أن تدعم واضـــعي المعايير ومعدي القوائم المالية في تحديد قيم الأدوات المالية وخسائر انخفاض قيمة الشهرة بدقة، مما يعزز جودة المراجعة بشكل عام.

الكلمات المفتاحية: مخاطر قياســـات القيمة العادلة ،الادوات المالية، الشـــهرة، جودة المراجعة

References

1- AL-Qatamin. K. I , and Salleh. Z, (2022),” Audit Quality: A Literature Overview and Research Synthesis” ***Journal of business and management***, Vol. 22, No. 2, pp. 56-66.
2- Chang, Y.L, Liu,C.C and Ryan.S.G,(2021), “Accounting policy choice during the financial crisis: evidence from adoption of the fair value option‖”, ***Journal of accounting, auditing and finance***, Vol,.No. 321,pp.1-34.
3- Chen,B.(2022),"Do investors value audit quality of complex estimates?" ***Journal of Advances in Accounting***, Vol. 57, No.1, pp. 1-14.
4- Ciurdas, I. (2024). AUDITING ACCOUNTING ESTIMATES AND FAIR VALUE MEASUREMENTS. A LITERATURE REVIEW. ***Annales Universitatis Apulensis: Series Oeconomica***,Vol. *26,No.* 1,pp 30-40.
5- Financial Accounting Standards Board, FASB, (2007),**SFAS142**, Financial of goodwill and Other Intangible Assets.
6- Fortin, S . Hammami, A. and Magnan, M.(2021),” Re-exploring Fair Value Accounting and Value Relevance: An Examination of Underlying Securities, ABACUS, ***Journal of Accounting Finance and Business study***, Vol. 57, No.2,PP220 -250.
7- Fortin, S . Hammami, A. and Magnan, M.(2021),” Re-exploring Fair Value Accounting and Value Relevance: An Examination of Underlying Securities, ABACUS, ***Journal of Accounting, Finance and Business study***, Vol. 57, No.2,pp220 -250.
8- Griffith, E.E. Hammersly,J.S. and Kadous,K. , (2015) “Audits of Complex Estimates as Verification of Management Numbers: How Institutional Pressures Shape Practice” ***Journal of Contemporary Accounting Research,*** Vol. 32 No. 3 pp. 833–863.
9- Gros, M. and Worret, D.(2014),” The challenge of measuring audit quality: some evidence”, ***Journal of Int. J. Critical Accounting***, Vol. 6, No. 4,pp345-375.
10- Hamo. M.H ,and Hamdan. K.H, (2023),” Financial instruments audit program according to the international auditing practice statement No1000 (Special considerations in financial instruments auditing”,***American Journal of Business Management, Economics and Banking***, Vol.13,No.2, pp54-67.

11- Hosseinniakani, S. M., Inacio, H., and Mota, R. (2014)," A Review on Audit Quality Factors" ***International Journal of Academic Research in Accounting Finance and Management Sciences***, Vol . 4, No. 2, pp316 – 331.

12- Hussein. S. A, (2018) Evaluating accounting for goodwill impairment according to FASB & IASBS' standards, An analytical and comparative Study, **Master's thesis**, Helwan University. Egypt.

13- International Accounting Standard Board, IASB, (2014), ***IAS32***, Financial Instruments: Presentation, amendment 2022.

14- International Accounting Standard Board, IASB,(2010), **IAS36, 32.**Impairment of Assets, Feb.

15- Jokar, H., & Daneshi, V. (2020), "Investor sentiment, stock price, and audit quality", ***International Journal of Managerial and Financial Accounting***, Vol,12. No,1. pp25-47. 40.

16- Kateb, I., and Belgacem, I. (2024). "Navigating governance and accounting reforms in Saudi Arabia's emerging market: impact of audit quality, board characteristics, and IFRS adoption on financial performance". ***International Journal of Disclosure and Governance***, 21(2), 290-312.

17- Keshk ,W. Hung-Yuan ,H. and Mande,V,(2020),‖ How have US banks adopted theFinancial Accounting Standards Board_s Level 3 fair value disclosure rules?, ***Journal of accounting and finance***,Vol,60 .No,1 .PP 693–727.

18- Krasodomska, J., Simnett, R., and Street, D. L. (2021), "Extended external reporting assurance: Current practices and challenges", ***Journal of International Financial Management & Accounting***, Vol.32,No.1, pp104-142.

19- Li, Y., Park, Y. I., & Wynn, J. (2018),"Investor reactions to restatements conditional on disclosure of internal control weaknesses", ***Journal of Applied Accounting Research***, Vol. 19, No.3, pp423-439.

20- Lu, R., He, W., and Zhang, X. (2023). Using available-for-sale Securities to Smooth Earnings: Evidence from China. ***Abacus***, Vol.59, No.1, 163-196.

21- McDonough.R, Panaretou.A, and Shakespeare.C, (2020),"Fair value accounting: Current practice and perspectives for future research", ***Journal of Business Finance and accounting,*** Vol. 47, No.1, PP.303–332.

22- Muydinov, E., and Mamazhonov, A. (2021), "Documenting an Audit of Financial Statements Based On International Auditing Standards".,***International Journal of Progressive Sciences and Technologies***, Vol. 25, No. 1, pp314-321.

23- Napier, C. J., and Stadler, C. (2020). "The real effects of a new accounting standard: the case of IFRS 15 Revenue from Contracts with Customers", ***Accounting and Business Research***, Vol.50, No. 5,pp 474-503.

24- Oyewo,B.(2020), Post-implementation challenges of fair value measurement (IFRS13): some empirical evidence, ***African journal of economic and management studies,*** Vol. 11, No. 4, pp. 587-607.

25- Rajgopal, S., Srinivasan, S., and Zheng, X. (2021),"Measuring audit quality. Review of Accounting Studies", Vol. 26, No.2, pp559-619.

26- Ranga, A. and Pathak, R. (2023),"Determinants of goodwill impairment disclosure: the role of audit quality and analysts following", Managerial Finance, Vol. 49 No. 1, pp. 88-109.

27- Romanus, R. N. (2019), "Earnings quality and investor reaction to restatement announcements", ***Advances in Business Research***, Vol 9, No.1,pp 46-63.

28- Salih, J. I., and Flayyih, H. H. (2020). "Impact of audit quality in reducing external audit profession risks",***International Journal of Innovation, Creativity and Change***,Vol. 13,No. 7, pp176-197.

29- Sangchan, P., Habib, A., Jiang, H., & Bhuiyan, M. B. U. (2020), "Fair value exposure, changes in fair value and audit fees: Evidence from the Australian real estate industry". ***Australian Accounting Review,*** Vol.30, No.2, pp123-143.

30- Thesing, J., and Velte, P. (2021) "Do fair value measurements affect accounting-based earnings quality? A literature review with a focus on corporate governance as moderator", ***Journal of Business Economics,*** Vol.91, No.7, pp965-1004.

31- Walker, M. J. (2023). "Accounting for Debt Securities in the Age of Silicon Valley Bank. Supervisory" ***Research and Analysis Notes***, Vol. 1, pp1-11.

32- Wang,Y. and Li,Y. (2022)," Scale of Goodwill Impairment and Audit Charge" **Research paper**, No. pp1-6,available athttps://www.scitepress.org/Papers/2022/120280/120280.

33- Weirich, T.R and Churyk N.T. ,(2021), "Accounting and audit quality perspective: fair value measurements and disclosures curriculum gaps‖

Calderon, T.G. (Ed.) Advances in Accounting Education: Teaching and Curriculum Innovations" , ***Journal of advances in accounting education,*** Vol. 25, pp 3-22.

34- Ziye. H, Chen, D. and Tang, J. (2021), "Do goodwill impairments affect audit opinions? Evidence from China", ***Journal of Accounting Research***, Vol.14, No. 2, June, P151-182.