

Audit Style and Financial' Statements Comparability "Evidence from Firms Listed on The Egyptian Stock Exchange" An Applied Study

Dr. Maha Mohamed Ramadan

Associate Professor of Accounting
at Eslsca University in Egypt
Alexandria University Faculty of Business
maha.ramadan@eslsc.edu.eg

Aya Alaa Essmat Salama

Teaching Assistant of Accounting
at Arab Open University in Egypt,
Master of Science in Accounting
AyaAlaaSalama@hotmail.com

Dr. Hady Omar Abozeid

Assistant professor of Accounting at
Arab Academy for Science, Technology
and Maritime Transport
hady.abozeid@aast.edu

Abstract

The purpose of this study is to investigate the effect of audit style on financial statements comparability. The term "audit style" is used to describe the distinct set of internal rules and operating procedures employed by each of the Big 4 audit firms to apply auditing standards and enforce accounting standards among its clients. Comparability is measured by how accruals and earnings structures of two businesses operating in the same industry are more similar. Firm size, leverage ratio, market to book ratio, sales revenue, sales growth, and cash flow from operations are used as control variables. The research sample consists of 30 Real Estate companies and 27 Food, Beverage and Tobacco companies listed on the Egyptian stock exchange from 2018 to 2022, resulting in a final sample of 1,410 firm-pair observations using stratified random sampling technique. The study provided evidence that audit style has a significant positive effect on financial statements comparability, as measured by the covariation in accruals and earnings. The findings show that there is higher comparability between firm-pairs in the same sector audited by the same Big 4 audit firm than those audited by different Big 4 audit firms. Moreover, improved comparability is found between firm-pairs audited by Big 4 audit firms than those audited by non-Big 4 audit firms.

Keywords: Comparability; Audit style; Big 4 audit firms, accruals covariation and earnings covariation

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نمط المراجعة وقابلية القوائم المالية للمقارنة "دراسة تطبيقية علي الشركات المقيدة بالبورصة المصرية"

ملخص البحث

يهدف هذا البحث إلي دراسة تأثير نمط المراجعة على قابلية القوائم المالية للمقارنة. يستخدم مصطلح "نمط المراجعة" لوصف المجموعة المختلفة من القواعد الداخلية وإجراءات التشغيل التي تستخدمها كل من شركات المراجعة الأربع الكبرى لتطبيق معايير المراجعة وتنفيذ معايير المحاسبة بين عملائها. يتم قياس قابلية القوائم المالية للمقارنة من خلال مدى تشابه هياكل الاستحقاقات والأرباح لشركتين تعملان في نفس القطاع. وقد استخدمت الدراسة حجم الشركة ونسبة الرفع المالي، نسبة القيمة السوقية إلي القيمة الدفترية، حجم المبيعات، ونمو المبيعات، والتدفقات النقدية من الأنشطة التشغيلية كمتغيرات رقابية. وتتكون عينة البحث من 30 شركة مدرجة في البورصة المصرية من عام 2018 إلى عام 2022 في قطاع العقارات و27 شركة في قطاع الأغذية والمشروبات والدخان مما نتج عنه الحصول على عينة عشوائية مكونة من 1410 من المشاهدات لكل زوج من الشركات. قدمت الدراسة أدلة على أن تأثير نمط المراجعة له تأثير إيجابي كبير على قابلية القوائم المالية المقارنة مقاسا بالتغير في كلا من الاستحقاقات والأرباح. وقد أظهرت النتائج أن هناك قابلية للمقارنة بين أزواج الشركات في نفس الصناعة التي يتم مراجعتها من قبل نفس شركة المراجعة بشرط أن تكون من إحدى شركات المراجعة الأربع الكبرى مقارنة بتلك التي يتم مراجعتها من قبل شركتين مختلفتين بشرط أن يكونوا من ضمن شركات المراجعة الأربع الكبرى. إضافة إلي ذلك، أوضحت الدراسة زيادة في قابلية القوائم المالية للمقارنة بين أزواج الشركات في نفس الصناعة التي يتم مراجعتها من قبل شركات المراجعة الأربع الكبرى مقارنة بتلك التي يتم مراجعتها من قبل شركات المراجعة غير الأربع الكبرى.

الكلمات المفتاحية: قابلية القوائم المالية للمقارنة، نمط المراجعة، الشركات الأربع الكبرى، التغير

في الأرباح، التغير في الاستحقاقات

1. Introduction

Accounting comparability is 'the quality of information that enables users to identify similarities in and differences between two sets of economic phenomena' (FASB, 1980; IASB, 2010). The Financial Accounting Standard Board (FASB) emphasized that investing and lending decisions essentially involve evaluations of alternative opportunities, and they cannot be made rationally if comparative information is not available (FASB, 1980). In addition, relevant and faithfully represented information is most useful if it can be readily compared with similar information reported by other entities and by the same entity in other periods (FASB, 2010). According to the joint conceptual framework project of the FASB and the International Accounting Standards Board (IASB), comparability is a crucial quality of financial information that raises its use (FASB, 2010).

Many researchers discussed the advantages of comparability referring to its importance as a qualitative characteristic of financial information. Comparability makes information more transferable inside and across firms because of the lower costs of gathering and processing information as well as the improved quality of information available to users (De Franco et al., 2011). Information asymmetry is reduced through greater financial statements comparability as it enables less informed investors to execute effective financial analysis (Kim et al., 2013). Accordingly, accounting comparability is expected to be a key qualitative characteristic of accounting information for managing management behavior through monitoring (Zhang et al., 2020). The managers' capacity to manipulate earnings and the dispersion of their estimates is limited when financial statements are comparable (Rashidi Baghi and Zareei, 2022). A highly comparable accounting system allows investors to accurately predict the difference between any two businesses' future cash flows (Wu and Xue, 2023).

Prior audit literature discussed the importance of financial statements comparability. For example, the efficiency of auditors undertaking risk-based auditing and analytical procedures is enhanced by comparability (Kang et al.,

2015). Another advantage is that financial statements comparability is beneficial to both inside and outside stakeholders as it boosts the efficiency of communicating information in financial statements (Zhang, 2018). Financial statements comparability is negatively correlated to audit report delay (Zheng, 2020). Moreover, Sun et al. (2022) believed that firms with better accounting comparability have a cost advantage since auditors will be able to obtain audit evidence and make right audit judgements more easily. As a result, Sun et al. (2022) advocated that financial statements comparability is negatively related to audit fees.

The working rules of each audit firm needed for the interpretation and enforcement of accounting and auditing standards give birth to the term audit style (Francis et al., 2014). Francis et al., (2014) added that each of the Big 4 audit firms has its own internal policies for interpreting and complying with Generally Accepted Accounting Principles (GAAP) same as it does for Generally Accepted Auditing Standards (GAAS). These internal policies or rules are important as they cannot be neglected or abolished even when a principles-based approach to GAAP is followed (Kothari et al., 2010). Kothari et al. (2010) added in this respect that economic agents, including auditors, are the ones who are responsible for developing internal rules to interpret and apply accounting and auditing standards consistently. Moreover, because of audit techniques that are all different, each firm's audit methodology will either find or not detect the same client errors (Francis et al., 2014). This gives the researcher the motive to focus on the role of the auditor.

This study contributes to literature examining the relationship between audit style and comparability as there is scarcity of research in this area in Middle East Countries. This is done by examining this study on companies listed in the Egyptian stock exchange market in the period from 2018 till 2022 using a sample of 30 Real Estate companies and 27 Food, Beverage and Tobacco companies resulting in a final sample of 1,410 firm-pair observations. Moreover, the research study adopted two measures for measuring comparability accruals and earnings covariation not only by one

measure like most of the studies in this field. The remainder of the study is structured as follows: the next section presents the theoretical framework. Section 3 includes literature review and hypotheses development. Section 4 involves the research methodology and statistical analysis and discussion of research results and finally, Section 5 covers the conclusions, limitations, and recommendations for further research.

2- Theoretical Framework

Several theories attempted to explain the role of auditors, **first of which is agency theory which** emphasizes the contractual relationship between a principal and an agent, where the principal delegates responsibility to the agent to manage the firm and make decisions on behalf of the principal (Eisenhardt, 1989; ICAEW, 2005; Jensen and Meckling, 1976). Agency costs arise from conflicts of interest due to the division of ownership and control. Modern organizations separate ownership and control, leading to agency problems. To address this, systems like incentives and oversight are necessary (Fama and Jensen,1983). Incentives can motivate managers to act in the company's best interests, but they can also lead to new agency issues, such as managers placing excessive emphasis on short-term objectives (Jensen and Meckling, 1976). Monitoring and control systems, such as market discipline, board oversight, and external audits, can help reduce agency problems (Fama and Jensen, 1983). Auditors serve as impartial third parties ensuring the accuracy of financial statements. The expenses incurred by the principal and agent to reduce the discrepancy between the principal's trust and the agent's objectives are considered agency costs (Jensen and Meckling, 1976). The auditing process is essential for addressing information asymmetry caused by the agent's personal interests and the principal's lack of confidence (ICAEW, 2005).

Stewardship theory emphasizes the importance of managers acting in the best interests of the organization and its stakeholders (Donaldson and Davis, 1991), prioritizing trust, accountability, and responsibility (Davis et al., 1997). Stewardship theory is substitute for agency theory. The theories'

primary distinction is how much emphasis they place on human behavior (Davis, Schoorman, & Donaldson, 1997). According to Davis et al. (1997), the agency theory characterizes the agent's behavior as that of a self-serving individual, whereas the stewardship theory characterizes the agent as a self-actualizing man. This theory is particularly relevant to auditors, who must serve as impartial, independent stewards of financial statements in order to reassure the principals that their actions were in line with their goals (Williams, 1988).

3- Literature review and hypotheses development

This section presents the definitions of comparability and its correlation with other variables, the role of the auditor in improving comparability, the definition of audit style, the relationship between audit style and comparability and ends by development of research hypotheses.

3-1 Definitions of comparability

Accounting comparability is “the quality of information that enables users to identify similarities in and differences between two sets of economic phenomena.” (FASB 1980; IASB 2010). It is stated that “in-vesting and lending decisions essentially involve evaluations of alternative opportunities, and they cannot be made rationally if comparative information is not available” (FASB 1980). Moreover, it is stated that “relevant and faithfully represented information is most useful if it can be readily compared with similar information reported by other entities and by the same entity in other periods” (FASB 2010). The International Accounting Standards Board (IASB) and the FASB's joint conceptual framework project asserts that comparability is a fundamental characteristic of financial information that increases its usefulness (FASB 2010). According to the FASB, the development of accounting standards is driven mostly by the need for comparability in financial reporting. Following Francis et al. (2014), accounting comparability is defined in this study as the similarity of reported earnings and accruals of firm pairs in the same sector, and consequently exposed to the same general economic shocks, *ceteris paribus* due to the consistency with which rules are

implemented between firms. In another way, those firm pairs are expected to have similar accruals and earnings structure.

3-2 Advantages of comparability

Credit rating agencies' assessments of peers' credit risk are influenced by lower comparability within peer groups, leading to more variable changes in accounting numbers (Kim et al., 2013). Low comparability can make firms appear more similar or different when economic fundamentals are constant (Young and Zeng 2015), while high comparability increases the usefulness of financial statements (Simmons 1967). Comparability improves analysts' understanding of how economic events translate into accounting performance, enabling more precise forecasts. It also makes information more transferable within and across firms due to lower costs and improved quality (De Franco et al., 2011). Comparable financial statements may alleviate judgment calculations (Yip and Young, 2012), reduce creditors' efforts in analyzing and comparing enterprises (Kim et al., 2013), and reduce financing constraints caused by information asymmetry (Mehrabanpour et al., 2020). Accounting comparability is essential for controlling management behavior through monitoring and is a qualitative characteristic of accounting information (Zhang et al., 2020).

Financial statements comparability has been found to positively impact capital markets, particularly with foreign mutual fund ownership. Higher comparability lowers foreign investors' information acquisition costs, promoting foreign mutual fund ownership (DeFondet al., 2011). Additionally, accounting comparability is negatively correlated with the cost of equity capital, decreasing information risks associated with investment and reducing the rate of return required by investors (Imhof et al., 2017). Comparability is crucial in investment decisions, such as asset allocation, as it allows managers to conduct in-depth evaluations comparing target companies to industry rivals (Campbell and Yeung, 2017; Chen et al., 2018). Furthermore, financial statements comparability improves stock price informativeness about future earnings, allowing investors to draw stronger conclusions at a reduced cost

and make clearer predictions about how economic events will convert into accounting numbers in the future (Choi et al., 2019). More accounting comparability between public and private firms suggests that the reported financial information of private firms has more value relevance and makes the valuation multiples of public peer firms more applicable and relied upon when valuing private firms (Bourveau et al., 2023).

Empirical research on comparability focused on the effects of financial statements comparability on debt markets. Credit risk pricing is influenced by financial statements comparability, which is negatively correlated with credit risk pricing. This is due to the relationship between credit default swap and bond markets, where credit default swap writers and bond investors demand narrower credit spreads for companies in more comparable industries (Kim et al., 2013). Accounting comparability is also negatively correlated with debt cost, as it can lower the expenses of analyzing information required by creditors and make monitoring easier for creditors (Fang et al., 2016). Comparability is also negatively correlated with trade credit, which is more expensive than outside financing. This suggests that comparability plays a crucial role in short-term financing decisions (Islam, 2018). Furthermore, comparability is negatively associated with short-term debt, as strong governance caused by comparability reduces the likelihood of self-serving attributions by managers and makes current liabilities unnecessary (Do, 2021).

Financial statements comparability significantly impacts financial reporting quality. Comparability between companies and across time helps stakeholders make better capital allocation choices (Barth, 2013). Managers can use financial reports to benchmark, reduce uncertainty about demand and cost conditions, and learn about strategic decisions made by other firms in the same industry. This information can influence the decisions and financial reporting of peer firms. Accounting comparability improves information quality and quantity by lowering the cost of obtaining and processing information. Managers may report higher quality accruals if they have better awareness of their company's environment (Chen and Gong, 2019). Financial

statements comparability is positively correlated with financial reporting quality, reducing managers' engagement in earnings management and improving information transparency and quality (Shuraki et al., 2021). The managers' capacity to manipulate earnings and the dispersion of their estimates is limited when financial statements are comparable (Rashidi Baghi and Zareei, 2022).

Financial statements comparability is beneficial for both internal and external stakeholders as it enhances the efficiency of information communication in financial statements. Auditors can evaluate a client's financial status and performance, identify irregularities, and reduce audit delays by utilizing comparable financial reports. Comparability is also associated with the opinion accuracy of audit reports, enhancing going concern opinions and reducing the risk of bankruptcy. It also helps auditors identify fraud in clients' real economic status and assess their going-concern state. Comparability positively impacts audit quality, as it helps auditors understand how economic transactions are converted into accounting figures, enhancing audit quality. It also facilitates the assessment of a client's inherent business risk, improving audit productivity by better understanding their existing clients (Zhang, 2018). Additionally, Khuong et al., (2022) suggested that comparability reduces data gathering costs and improves data quality. Thus, comparability broadens knowledge for managers, enabling better understanding of industry and environment. This helps assess company performance, forecast economic developments, and submit higher-quality discretionary accruals, ultimately sustaining profitability (Khuong et al., 2022).

Furthermore, companies with highly comparable accounting information are less likely to experience financial distress. Accordingly, to reduce the risk of financial distress, auditors should encourage and enforce standards that increase comparability. Thus, investors and analysts may choose highly comparable companies over less comparable ones (Islam et al., 2023). Islam et al., (2023) added in this respect, that the study's conclusions should be taken into account by regulators when developing financial reporting standards

since increasing comparability might lessen financial distress and have broader economic consequences. A highly comparable accounting system allows investors to accurately predict the difference between any two businesses' future cash flows, even when they are still unsure about each firm's cash flow (Wu and Xue, 2023). Moreover, greater accounting comparability raises CEO compensation that is both cash- and equity-based. Comparability seems to increase the usefulness of equity incentive contracts and decrease CEO opportunistic incentives. Furthermore, CEOs who receive larger equity incentives are more inclined to reveal high-quality accounting information and are less inclined to misrepresent their performance (Arianpoor and Efazati, 2023). When a firm's comparability improves, the stock returns of the peer firms become less adversely related to CEO compensation. This implies that when comparability improves, the filtering effect of stock return-based relative performance evaluation reduces (Park and Nwaeze, 2023).

Financial statements comparability positively impacts audit efficiency by reducing the cost of collecting information, understanding similarities and differences between accounting elements, and enabling auditors to evaluate client risk. This enhances the efficiency of risk-based auditing and analytical procedures, allowing auditors to devote more time and effort to high-risk engagements (Kang et al., 2015). High comparability increases the efficiency of new auditors by decreasing their audit effort (Zhang, 2018). However, it is negatively correlated with audit report delay, as it allows for efficient sharing of relevant knowledge, lowers information costs, and reduces audit time. Firms with higher accounting comparability have a cost advantage, making it easier for auditors to gather evidence and make accurate judgments (Zheng, 2020). Consequently, it is hypothesized that financial statements comparability is negatively related to audit fees (Sun et al., 2022).

3-3 The Role of the Auditors in improving comparability

Auditors play a crucial role in improving the quality of financial statements, not only in enhancing comparability but also in enhancing their credibility. High audit quality ensures that financial statements fairly represent

the company's financial position and performance for its users. Financial reporting quality is influenced by more than just audit quality, as the quality of pre-audited financial statements also impacts it (DeFond and Zhang, 2014). New auditor disclosure standards issued by the Public Company Accounting Oversight Board (PCAOB) may improve financial reporting quality due to the "threat of disclosure." Management may embrace change in methods and disclosures, especially those involving biased evaluations, to enhance the accuracy of pre-audited financial statements prepared by management and alter the dynamics of negotiations between auditor and management (Reid et al., 2019).

Experienced auditors make audit decisions with greater consistency than inexperienced auditors (Bedard, 1991), and their industrial knowledge is closely linked to their competence (Bonner and Walker, 1994). Industry experts offer audit services of a better caliber than non-experts (Chin and Chi 2009; Reichelt and Wang 2010), and industry experience is inextricably linked to individuals (Chi and Chin 2011; Zerni 2012). Non-expert industry auditors are likely less competent and independent than expert auditors (DeFond and Zhang, 2014). Audit firms play a significant role in firm-to-firm financial statements comparability, with each office having a distinct audit style. Audit offices have some discretion in enforcing internal policies and staff training (Kawada, 2014), and audit firms' internal policies and interpretation of accounting and auditing standards can improve the comparability of financial statements for the companies they audit (Smith, 2022). Finally, the auditors and their audit styles at different levels; the individual level, audit office level, and audit firm level affect financial statements comparability.

3-4 Definition of Audit Style

Audit firms are classified into three categories depending on their usage of information technologies in their audit into structured, intermediate, and unstructured audit technologies (Kinney, 1986). However, this does not conflict with the fact that regardless of the method applied by the auditor, generally accepted auditing standards must be implemented. Accordingly,

each firm must develop its own internal working policies and procedures for efficient and consistent implementation of GAAS (Cushing and Loebbecke 1986). Auditors also try to set themselves apart by using distinct approaches, such as qualitative or quantitative techniques (Kaplan et al., 1990). This results in different client errors and implementation issues, leading to financial statements being more comparable for firm pairs with the same auditor (Francis et al., 2014).

Each Big 4 audit firm has its own internal policies for interpreting and complying with GAAP, and these policies are essential for efficiency. Economic agents, including auditors, emerge as a result of a principles-based approach to GAAP (Kothari et al., 2010). An in-house GAAP guide is indispensable for Big 4 accounting firms, as U.S. GAAP still requires substantial judgment in interpreting and applying accounting standards. The audit style is a term that arises from the unique set of internal working rules used by each audit firm in the implementation of auditing and accounting standards (Francis et al., 2014).

Francis et., al (2014) argued that that the audit style is raised from the rules and testing procedures of each Big 4 firm which might differ from one audit firm to the other creating a different style for each firm. As a result, such an audit style could have a systematic impact on earnings. On the other side, other researchers argue that audit style is raised from industry expertise. Industry expertise helps auditors to make their own mark on their engagements as the more experienced audit partners are, the higher the levels of independence and competency they have. It is documented that expert audit partners have their own unique distinctive style which leads to higher financial statements comparability among their clients (Ahn and Sonu, 2021). Regarding this study, the audit style is a term that arises from the own unique set of internal working rules that each audit firm uses in the implementation of auditing and accounting standards. The study focuses on the industry experience by dividing the sample into two sectors and testing each sector separately due to its effect on the audit style.

3-5 Hypotheses Development

3-5-1 Effect of change in Big 4 audit styles on comparability

Economic agents, including audit firms, affect the financial reporting outcomes. The accounting standards, their interpretation, enforcement, auditing, and litigation of the accounting standards are all intricately intertwined within the financial reporting system (Barth et al., 2012). Auditors play a vital role in all these features of the financial reporting system. Each one of the Big 4 audit firms has its own internal working rules as well as a unique method for implementing auditing standards and the enforcement of accounting standards (Francis et al. 2014). Improved financial statement comparability is found among firms audited by the same audit firm either Big 4 or non-Big 4 due to the unique audit style of each audit firm (Johnston and Zhang, 2021). Consequently, the researcher assumes that the probability of having more comparable financial statements is higher between firm pairs in the same sector and audited by the same Big 4 audit firm than firm pairs in the same sector but audited by different Big 4 audit firms.

Therefore, the first main hypothesis is developed as follows:

***H₁**: Firm-pairs that are audited by two different Big 4 audit firms will have less comparability than firm-pairs that are audited by the same Big 4 audit firm.*

3-5-2 Effect of change in Big 4 versus non-Big 4 audit styles on comparability

Prior literature has investigated the relation between financial statement comparability and audit firms whether Big 4 or non-Big 4. Since non-Big 4 auditors are linked to lower quality audited earnings, higher quality auditors are more likely to implement accounting rules accurately (Becker et al., 1998; Francis et al., 1999; Teoh and Wong 1993). A switch from a non-Big 4 audit firm to a Big 4 audit firm is more likely to happen by firms with higher US institutional investment due to higher comparability (Fang et al., 2016). Furthermore, The Big 4 audit firms have a greater opportunity to be able to

standardize their internal working rules for applying auditing standards and for the enforcement of accounting standards consistently than non-Big 4 audit firms (Francis et al., 2014). The reason behind this is that the Big 4 audit firms have a wealth of internal expertise, improved quality control processes, and more funds at their disposal to ensure consistent application of auditing and accounting standards (Chen et al., 2020; Francis et al.,2014; Shi et al., 2021). Owing to the application of accounting standards on a more consistent and correct basis by Big 4 audit firms, the study hypothesizes that comparability is greater among firm-pairs in the same sector and audited by Big 4 audit firms than firm-pairs in the same sector but audited by non-Big 4 audit firms. Therefore, the second hypothesis is stated as follows:

H₂: Firm-pairs that are audited by different non-Big 4 audit firms will have less comparability than firm-pairs that are audited by different Big 4 audit firms.

4- Research Methodology

4-1 Sample Selection

The research is based on a sample of 57 listed companies from two of the largest non-financial sectors listed on the Egyptian Stock Exchange. The researcher collected annual data for 30 companies listed in the real estate sector from 2018 to 2022 and 27 companies listed in the food, beverage, and tobacco sector from year 2018 till year 2022. The researcher unites the industry in the firm-pair observations so that the firms are exposed to the same general economic shocks. Thus, the study is applied to the real estate and food, beverage, and tobacco sectors which are the largest non-financial sectors in terms of numbers. The researcher applied differences in accruals, earnings, and control variables between firms according to the audit firms that audited them, resulting in 1,410 firm-pair observations: 559 observations in the real-estate sector and 851 observations in the food, beverage and tobacco sector. In line with the prior research findings, financial firms were excluded since they conform to a unique set of accounting standards and governance. Secondary data used in the study are collected from the annual standalone financial

statements downloaded from the companies' websites and Misr Mubasher website. Table 1 shows the calculation of the final sample size and table 2 displays the number of companies in each year according to the availability of their annual standalone financial statements.

Table 1: Final sample size

Sample selection criteria	Companies
All listed Real Estate companies	32
Add: all listed Food, Beverage & Tobacco companies	28
Less: Companies in Real Estate sector that have unavailable annual financial statements as they are newly established where the amounts included in their financial statements are from the establishment date in 2021 till the end of 2022	2
Less: Unavailable standalone financial statements in Food, Beverage & Tobacco sector in all 5 years	1
Final sample size	57

Source: prepared by the researcher

Table 2: The study sample – number of companies

Year	Real Estate	Food, Beverage & Tobacco	Total
2018	27	25	52
2019	27	25	52
2020	28	26	54
2021	29	26	55
2022	25	24	49
Total	136	126	262

Source: prepared by the researcher

4-2- Research variables and their measurements

4-2-1 Dependent variable

In line with Francis et al. (2014), comparability is defined in this study as the similarity of reported earnings and accruals of firm pairs in the same industry, and consequently exposed to the same general economic shocks, *ceteris paribus* due to the consistency with which rules are implemented between firms. Comparability is a latent variable that needs observed variables to be measured according to prior research, financial statements comparability is measured by two observed variables which are accruals and earnings covariation. The researcher measures comparability by both accruals and earnings covariation. Total accruals determine how closely two companies' total accruals match. The researcher calculates total accruals by subtracting net income and net cash flows from operations scaled by annual total assets of the previous year. The total accrual difference between firm pairs is the difference in absolute terms between the total accruals of company *i* and company *j* in a firm-pair within the same sector. The earnings covariation indicates the degree of cross-temporal fluctuation in the earnings of company *i* and company *j* in a firm pair in the same sector, it is measured by a model shown in table (3). Prior research that examined the effect of the audit on comparability measures the comparability by accruals or earnings covariation or by both (Ahn and Sonu, 2021; Cao et al., 2016; Francis et al., 2014; Li et al., 2021; Mohseni et al., 2014; Smith 2022.)

4-2-2 Independent variable

Similar to Francis et al. (2014), audit style is defined in this study as the term that arises from the own unique set of internal working rules that each Big 4 use in the implementation of auditing and accounting standards. Audit style is represented by dummy variables, which are Same Big4 and Auditor Style. Regarding the first hypothesis, the dummy variable (Same Big 4) takes 1 if firm-pairs are audited by the same big 4 audit firm and 0 if firm-pairs are audited by different big 4 audit firms. Regarding the second hypothesis, the

dummy variable (Auditor Style) takes 1 if firm pairs are audited by Big 4 audit firms and takes 0 if firm-pairs are audited by non-Big 4 audit firms.

For the first hypothesis, the following panel linear regression is used:

$$Comp_{ij} = \beta_0 + \beta_1 Same\ Big4_{ij} + \beta_2 Size\ Diff_{ij} + \beta_3 Cfo\ Diff_{ij} + \beta_4 Lev\ Diff_{ij} + \beta_5 MB\ Diff_{ij} + \beta_6 Sales\ Diff_{ij} + \beta_7 Sales\ Grwth\ Diff_{ij} + \epsilon_{ij}$$

For the second hypothesis, the following panel linear regression is used:

$$Comp_{ij} = \beta_0 + \beta_1 Auditor\ Style_{ij} + \beta_2 Size\ Diff_{ij} + \beta_3 Cfo\ Diff_{ij} + \beta_4 Lev\ Diff_{ij} + \beta_5 MB\ Diff_{ij} + \beta_6 Sales\ Diff_{ij} + \beta_7 Sales\ Grwth\ Diff_{ij} + \epsilon_{ij}$$

Table 3: Study variables and their measurements

Variable	Abbreviation	Measurement
Dependent variable Financial Statements Comparability	<i>Comp_{ij}</i>	<p>It is measured by two proxy's accruals covariation and earnings covariation.</p> <p>Accruals covariation: measured by difference in absolute terms between the total accruals of company i and company j in a firm-pair within the same sector.</p> $(Total_Accr_Diff_{ij}) = Abs(Total_Accr_i - Total_Accr_j)$ <p>Where the total accruals are calculated by subtracting net income and net cash flows from operations scaled by annual total assets of the previous year.</p> <p>Earnings covariation: measured by the level of covariation and it is calculated as the adjusted R² from the subsequent regression model:</p> $Earnings_i = \beta_{0ij} + \beta_{1ij} Earnings_j + \epsilon_{ij}$ <p>Where earnings are the annual net income scaled by average total assets of each company.</p>
Independent variable	Auditor Style	Measured by dummy variables, which are SameBig4 and Auditor Style. Dummy

Variable	Abbreviation	Measurement
Audit Style		variable (SameBig4) takes 1 if firm-pairs have the same Big 4 as their audit firm, 0 if otherwise. The second dummy variable (Auditor Style) takes 1 if firm-pairs have Big 4 as their audit firms, 0 if they have non-Big 4 as their audit firms. The study focuses on the industry experience by dividing the sample into two sectors and testing each sector separately due to its effect on the audit style.
Control variable Firm Size	<i>Size Diff</i>	Absolute value of the difference in firm size between each firm pair. Firm size is calculated as the natural logarithm of total assets.
Control variable Net Cash flows from operations	<i>CFO Diff</i>	Absolute value of the difference in net cash flows from operations between each firm pair, scaled by beginning annual total assets.
Control variable Leverage ratio	<i>Lev Diff</i>	Absolute value of the difference in leverage between each firm pair. It is calculated by dividing total debts by total assets.
Control variable Market to book ratio	<i>MB Diff</i>	Absolute value of the difference in market to book ratio between each firm pair. It is calculated by dividing the market value of equity by the book value of equity. The market value of equity is calculated by multiplying the closing price of the stock by the total number of outstanding shares.
Control variable Sales Revenue	<i>Sales Diff</i>	Absolute value of the difference in the annual sales revenue between each firm pair.
Control variable Sales growth	<i>Sales Grwth Diff</i>	Absolute value of the difference in the annual sales growth between each firm pair. Sales growth is calculated as annual sales revenue of the current year minus annual sales revenue of the prior year, divided by annual sales revenue of the prior year.

Source: prepared by the researcher

5- Results and discussion

The researcher applied the steps of analysis and the linear panel regression equations to test the first and second hypotheses of the study on real-estate sector and food, beverage, and tobacco sector.

5-1 Real-estate sector analysis

5-1-1 Testing the first hypothesis linear model significance:

The study used the panel regression techniques to test the first hypothesis stating that: Firm-pairs that are audited by two different Big 4 audit firms will have less comparability than firm-pairs that are audited by the same Big 4 audit firm. The research model is tested using earnings covariation as a measure for comparability and then repeated using accruals covariation.

5-1-1-1 Measuring comparability using earnings covariation

a- Model Diagnostics:

After comparing the diagnostics of the three-panel models to determine the most appropriate model for testing the earnings covariation, it is found that the heteroskedasticity pooled panel model is the most fitted model to explain the impact between the independent and dependent variables.

b- Pooled Panel:

The following pooled panel linear regression model is used to test the effect of audit style on financial statements comparability using earnings covariation as a measure for the dependent variable comparability and audit firm being same Big 4 or different Big 4 as an indicator for audit style to obtain the most fitted linear relationship.

- The regression model for testing the earnings covariation is:

$$\begin{aligned}
 \widehat{Earnings}_{i,j} = & 0.310301 \text{ Same or diff Big } 4_{i,j} \\
 & + 0.00860582 \text{ Size Diff}_{i,j} \\
 & - 0.0259315 \text{ Leverage Diff}_{i,j} - 0.322068 \text{ CFO Diff}_{i,j} \\
 & + 0.00211636 \text{ Sales Diff}_{i,j} \\
 & + 0.00182592 \text{ Sales gro Diff}_{i,j}
 \end{aligned}$$

Table 4: The Heteroskedasticity correction pooled panel model for the hypothesis H_1 .

Model	Pooled Panel	Dependent variable		Earnings covariation	VIF Test
		Coefficient	t-ratio	p-value	
Constant	0.00576486	0.5455	0.5864	Insignificant	
Same Big 4 or diff Big 4	0.310301	4.345	<0.0001	Significant	2.555
Firm Size diff. (same Big 4 and diff Big 4)	0.00860582	4.052	<0.0001	Significant	1.799
Leverage ratio diff. (same Big 4 and diff Big 4)	-0.0259315	-2.022	0.0453	Significant	1.398
Market to book ratio diff. (same Big 4 and diff Big 4)	-0.00167491	-0.7773	0.4384	Insignificant	1.270
Net cash flows diff. (same Big 4 and diff Big 4)	-0.322068	-5.637	<0.0001	Significant	2.534
Sales diff. (same Big 4 and diff Big 4)	0.00211636	3.416	0.0009	Significant	2.523
Sales growth diff. (same Big 4 and diff Big 4)	0.00182592	1.885	0.0618	Significant	1.221
Adjusted R-squared			24.687%		
F-test		7.182104	p-value	<0.0001	
Overall test of Heteroscedasticity		7.8962	p-value	0.711342	
Ramsey RESET overall Test		3.71863	p-value	0.270372	
Chi-square test of Normality		7.7947	p-value	0.23762016	

Source: Prepared by the researcher depending on E-views software output.

Variance Inflation Factors (VIF): This test used to detect the multicollinearity problem between the independent and control variables, by which the test has minimum possible value equal 1.0 and the values greater than 10.0 may indicate a collinearity problem.

F-test: This test used to compare between the appropriate linear panel model (pooled or fixed).

White Stability test for random error variation (Heteroscedasticity): The regression models and the OLS method are based on several assumptions, including the constancy of homoscedasticity by which the mean should be equal to zero, and if the Heteroscedasticity variation is used, some methods are used to overcome this problem, such as the White test. The null hypothesis is that the model has a problem of random error instability if p-value is greater than 0.05.

Ramsey RESET test for model specification: This test is used to determine whether the model contains all the appropriate variables and excludes all irrelevant variables to ensure that the model estimated coefficients are not biased. This is done through the Ramsey RESET Test, and the decision criterion is to accept the null hypothesis that the study model includes all the appropriate variables P-value was greater than (0.05).

Normality of random error variation: The regression models and the OLS method are based on several assumptions, including that the residuals of linear regression model must be normally distributed by which the model can be used for long run forecasting.

From table (4) it can be concluded that:

- The overall pooled panel model is significant as the p-value of overall F-test has a value of <0.0001 which is less than 0.05 with adjusted R-squared value of 24.687% which means that the independent variables explain the change in the earnings covariation by 24.687%.
- The independent variable same Big 4 or diff Big 4 and the control variables (leverage diff., firm size diff., sales growth diff., net cash flows diff, and sales diff.) have a significant impact on earnings covariation.
- Market to book ratio diff. is found to have an insignificant impact on earnings covariation.
- From the above table, it can be shown that the Ramsey reset test for independent variables sufficiency, heteroscedasticity test for random error variation, and chi square for residuals normality all have p-value greater than 0.05 which means that the pooled linear panel model has all sufficient independent and control variables, also the model doesn't suffer from random errors instability as the model residuals are randomly distributed.

5-1-1-2 Measuring comparability using accruals covariation

a- Model Diagnostics:

After comparing the diagnostics of the three-panel models to determine the most appropriate model for testing the accruals covariation, it is found that the Heteroscedasticity pooled panel model is the most fitted model to explain the impact between the independent and dependent variables.

b- Pooled Panel:

The following pooled panel linear regression model is used to test the effect of audit style on financial statements comparability using accruals covariation as a measure for the dependent variable comparability and audit firm being same Big 4 or different Big 4 as an indicator for audit style to obtain the most fitted linear relationship.

- The regression model for testing the accruals covariation is:

$$\begin{aligned}
 \widehat{Accruals}_{ij} = & 0.181417 \text{ Same or diff Big } 4_{ij} \\
 & + 0.0297700 \text{ Size Diff}_{ij} - 0.0210918 \text{ Leverage Diff}_{ij} \\
 & + 0.00186574 \text{ Sales Diff}_{ij} \\
 & + 0.00137334 \text{ Sales gro Diff}_{ij}
 \end{aligned}$$

Table 5: The Heteroskedasticity correction pooled panel model for the hypothesis H₁.

Model	Pooled Panel	Dependent variable		Accruals covariation	VIF Test
		<i>t</i> -ratio	<i>p</i> -value		
Independent variables	Coefficient				
Constant	-1.36488e-06	-0.00663	0.9947	Insignificant	
Same Big or Diff Big 4	0.181417	2.144	0.0340	Significant	2.555
Firm Size diff. (same Big 4 and diff Big 4)	0.0297700	12.09	<0.0001	Significant	1.799
Leverage ratio diff. (same Big 4 and diff Big 4)	-0.0210918	-2.410	0.0174	Significant	1.398
Market to book ratio diff. (same Big 4 and diff Big 4)	-0.000193113	-0.1107	0.9120	Insignificant	1.270
Net cash flows diff. (same Big 4 and diff Big 4)	-0.0996307	-1.264	0.2085	Insignificant	2.534
Sales diff. (same Big 4 and diff Big 4)	0.00186574	5.341	<0.0001	Significant	2.523
Sales growth diff. (same Big 4 and diff Big 4)	0.00137334	14.41	<0.0001	Significant	1.221
Adjusted R-squared			49.32112%		
F-test		12.56332	<i>p</i> -value	<0.0001	
Overall test of Heteroscedasticity		6.3167	<i>p</i> -value	0.126367	
Ramsey RESET overall Test		0.576272	<i>p</i> -value	0.5635	
Chi-square test of Normality		1.2113	<i>p</i> -value	0.44086016	

Source: Prepared by the researcher depending on E-views software output.

Wilcoxon test: This test is used to compare between two populations means difference

From table (5) it is concluded that:

- The overall pooled panel model is significant as the p-value of overall F-test has a value of <0.0001 which is less than 0.05 with adjusted R-squared value of 49.32112% which means that the independent variables explain the change in the accruals' covariation by 49.32112%.
- The independent variable same Big 4 or different Big 4 and the control variables (leverage diff., firm size diff., sales growth diff., and sales diff.) have a significant impact on the accruals' covariation.
- Market to book ratio diff, and net cash flows diff.) are found to have an insignificant impact on the accruals' covariation.
- The above table shows that the Ramsey reset test for independent variables sufficiency, heteroscedasticity test for random error variation, and chi square for residuals normality all have p-value greater than 0.05 which means that the pooled linear panel model has all sufficient independent and control variables, also the model doesn't suffer from random errors instability as the model residuals are randomly distributed.

5-1-1-3 Testing the means differences between two variables

To test the significance of difference between the dependent variables have same means or not, the researcher used Wilcoxon test to test the mean differences between the two variables, by which the test null hypothesis states that: there is no significance difference between the variables means and will be accepted if the test *p-value* more than or equal 0.05, while the test alternative hypothesis states that: there is a significance difference between the variables means and will be accepted if the test *p-value* less than 0.05.

The following table (6) presents a Wilcoxon test to test the means difference between earnings and accruals covariation of same Big 4 and earnings and accruals covariation of different Big 4.

Table 6: Wilcoxon test of the dependent variable.

Method	<i>df</i>	Chi-Squared	<i>P-value</i>	Reject H0 at ($\alpha=0.05$)
Earnings covariation	1	3.8408	0.04002	
Accruals covariation	1	52.1537	0.04987	

Source: prepared by the researcher from E-views output

From table (6) it is concluded that: there is a significant difference between earnings and accruals covariation of same Big 4 and earnings and accruals covariation of different Big 4.

Since the Chi-squared test for the difference between earnings and accruals covariation of same Big 4 and earnings and accruals covariation of different Big 4 has a positive value, this means that: Firm-pairs that are audited by two different Big 4 audit firms have less comparability than firm-pairs that are audited by the same Big 4 audit firm.

Therefore; the researcher accepts the first hypothesis for the real-estate sector.

5-1-2 Testing the second hypothesis linear model significance:

The study used the panel regression techniques to test the second hypothesis stating that: Firm-pairs that are audited by different non-Big 4 audit firms have less comparability than firm-pairs that are audited by different Big 4 audit firms. The research model is tested using earnings covariation as a measure for comparability and then repeated using accruals covariation.

5-1-2-1 Measuring comparability using earnings covariation

a- Model Diagnostics:

After comparing the diagnostics of the three-panel models to determine the most appropriate model for testing the earnings covariation, it is found that the heteroscedasticity pooled panel model is the most fitted model to explain the impact between the independent and dependent variables.

b- Pooled Panel:

The following pooled panel linear regression model is used to test the effect of audit style on financial statements comparability using earnings

covariation as a measure for the dependent variable comparability and audit firm being Big 4 or not as an indicator for audit style to obtain the most fitted linear relationship.

- The regression model for testing the earnings covariation is:

$$\begin{aligned}
 \widehat{Earnings}_{ijt} = & 0.181417 \text{ diff Big 4 or Non - Big 4}_{ij} \\
 & + 0.297756 \text{ Size Diff}_{ij} \\
 & - 0.0336594 \text{ Leverage ratio Diff}_{ij} \\
 & - 0.12562 \text{ Net cash flows Diff}_{ij} \\
 & + 0.0235620 \text{ Sales Diff}_{ij} \\
 & + 0.0356230 \text{ Sales growth Diff}_{ij}
 \end{aligned}$$

Table 7: The Heteroskedasticity correction pooled panel model for the hypothesis H_2 .

Model	Pooled Panel	Dependent variable		Earnings covariation	VIF test
		Coefficient	t-ratio		
Constant	-1.36488e-06	-0.00663	0.9947	Insignificant	
Diff Big 4 or non-Big 4	0.181417	2.144	0.0340	Significant	2.555
Firm Size diff. (diff Big 4 and non-Big 4)	0.297756	12.09	<0.0001	Significant	1.799
Leverage ratio diff. (diff Big 4 and non-Big 4)	-0.12562	-2.410	0.0174	Significant	1.398
Market to book ratio diff. (diff Big 4 and non-Big 4)	-0.0001235	-0.1107	0.9120	Insignificant	1.270
Net cash flows diff. (diff Big 4 and non-Big 4)	-0.009683	-1.264	0.2085	Insignificant	2.534
Sales diff. (Big 4 and non-Big 4)	0.0235620	5.341	<0.0001	Significant	2.523
Sales growth diff. (diff Big 4 and non-Big 4)	0.0356230	14.41	<0.0001	Significant	1.221
Adjusted R-squared			69.1117%		
F-test	43.19224		p-value	<0.0001	
Overall test of Heteroscedasticity	6.3167		p-value	0.126367	
Ramsey RESET overall Test	5.76272		p-value	0.5635	
Chi-square test of Normality	1.2113		p-value	0.44086016	

Source: Prepared by the researcher depending on E-views software output.

From table (7) it is concluded that:

- The overall pooled panel model is significant as the p-value of overall F-test has a value of <0.0001 which is less than 0.05 with adjusted R-squared value of 69.1117% which means that the independent variables explain the change in the earnings covariation by 69.1117%.
- The independent variable diff Big 4 or non-Big 4 and the control variables (firm Size diff., leverage ratio diff., net cash flows diff., and sales diff.) have a significant impact on earnings covariation.
- Market to book ratio diff. and net cash flows diff. had an insignificant impact on earnings covariation.
- The above table shows that the Ramsey reset test for independent variables sufficiency, heteroscedasticity test for random error variation, and chi square for residuals normality all have p-value greater than 0.05 which means that the pooled linear panel model has all sufficient independent and control variables, also the model doesn't suffer from random errors instability as the model residuals are randomly distributed.

5-1-2-2 Measuring comparability using accruals covariation:

a- Model Diagnostics:

After comparing the diagnostics of the three-panel models to determine the most appropriate model for testing the accruals covariation, it is found that the heteroskedasticity pooled panel model is the most fitted model to explain the impact between the independent and dependent variables.

b- Pooled Panel:

The following pooled panel linear regression model is used to test the effect of audit style on financial statements comparability using accruals covariation as a measure for the dependent variable comparability and audit firm being Big 4 or not as an indicator for audit style to obtain the most fitted linear relationship.

- The regression model for testing the accruals covariation is:

$$\begin{aligned}
 \widehat{Accruals}_{i,j} = & 0.780869 \text{ diff Big 4 or Non - Big 4}_{i,j} \\
 & + 0.00723928 \text{ Size Diff}_{i,j} \\
 & - 0.0336594 \text{ Leverage ratio Diff}_{i,j} \\
 & - 0.739238 \text{ Net cash flows Diff}_{i,j} \\
 & + 0.00312610 \text{ Sales Diff}_{i,j}
 \end{aligned}$$

Table 8: The Heteroskedasticity correction pooled panel model for the hypothesis H_2 .

Model	Pooled Panel	Dependent variable		Accruals covariation	VIF test
		Coefficient	t-ratio	p-value	
Constant	-0.0188070	-1.411	0.1587	Insignificant	
Diff Big 4 or non-Big 4	0.780869	50.49	<0.0001	Significant	2.555
Firm Size diff. (diff Big 4 and non-Big 4)	0.00723928	3.147	0.0017	Significant	1.799
Leverage ratio diff. (diff Big 4 and non-Big 4)	-0.0336594	-2.380	0.0177	Significant	1.398
Market to book ratio diff. (diff Big 4 and non-Big 4)	0.000801880	0.7106	0.4777	Insignificant	1.270
Net cash flows diff. (diff Big 4 and non-Big 4)	-0.739238	-24.49	<0.0001	Significant	2.534
Sales diff. (diff Big 4 and non-Big 4)	0.00312610	3.891	0.0001	Significant	2.523
Sales growth diff. (diff Big 4 and non-Big 4)	0.000358695	0.4212	0.6737	Insignificant	1.221
Adjusted R-squared			59.9604%		
F-test		76.1035	F-test	76.1035	
Overall test of Heteroscedasticity		1.617	<i>p-value</i>	0.637025	
Ramsey RESET overall Test		4.179	<i>p-value</i>	0.84245131	
Chi-square test of Normality		1.57	<i>p-value</i>	0.42876067	

Source: Prepared by the researcher depending on E-views software output.

From table (8) it is concluded that:

- The overall pooled panel model is significant as the p-value of overall F-test has a value of <0.0001 which is less than 0.05 with adjusted R-squared value of 59.9604% which means that the independent variables explain the change in accruals covariation by 59.9604%.

- The independent variable diff Big 4 or non-Big 4 and the control variables (firm Size diff., leverage ratio diff., net cash flows diff., and sales diff.) have a significant impact on accruals covariation.
- The constant and the control variables (market to book ratio diff. and sales growth diff.) have an insignificant impact on accruals covariation.
- The above table shows that the Ramsey reset test for independent variables sufficiency, heteroscedasticity test for random error variation, and chi square for residuals normality all have p -value greater than 0.05 which means that the pooled linear panel model has all sufficient independent and control variables, also the model doesn't suffer from random errors instability as the model residuals are randomly distributed.

5-1-2-3 Testing the means differences between two variables

In order to test that is there a significant difference between the dependent variables have same means or not, the researcher used Wilcoxon test to test the mean differences between the two variables, by which the test null hypothesis states that: there is no significance difference between the variables means and will be accepted if the test p -value more than or equal 0.05, while the test alternative hypothesis states that: there is a significance difference between the variables means and will be accepted if the test p -value less than 0.05.

The following table (9) presents a Wilcoxon test to test the means difference between earnings and accruals covariation of different non-Big 4 and earnings and accruals covariation of different Big 4.

Table 9: Wilcoxon test of the dependent variable

Method	<i>df</i>	Chi-Squared	<i>P-value</i>	Reject H ₀ at ($\alpha=0.05$)
Earnings covariation	1	589.8562	0.0000	
Accruals covariation	1	633.0969	0.0000	

Source: prepared by the researcher from E-views output

From table (9) it is concluded that: there is a significant difference between earnings and accruals covariation of different non-Big 4 and earnings and accruals covariation of different Big 4.

Since the Chi-squared test for the difference between earnings and accruals covariation of different non-Big 4 and earnings and accruals covariation of different Big 4 has a positive value, this means that: Firm-pairs that are audited by different non-Big 4 audit firms have less comparability than firm-pairs that are audited by different Big 4 audit firms.

Therefore; the researcher accepts the second hypothesis for real-estate sector.

5-2 Food, beverage, and tobacco sector analysis

5-2-1 Testing the first hypothesis linear model significance

The study used the panel regression techniques to test the first hypothesis stating that: Firm-pairs that are audited by two different Big 4 audit firms will have less comparability than firm-pairs that are audited by the same Big 4 audit firm. The research model is tested using earnings covariation as a measure for comparability and then repeated using accruals covariation.

5-2-1-1 Measuring comparability using earnings covariation

a- Model Diagnostics:

After comparing the diagnostics of the three-panel models to determine the most appropriate model for testing the earnings covariation, it is found that the heteroskedasticity pooled panel model is the most fitted model to explain the impact between the independent and dependent variables.

b- Pooled Panel:

The following pooled panel linear regression model is used to test the effect of audit style on financial statements comparability using earnings covariation as a measure for the dependent variable comparability and audit firm being same Big 4 or different Big 4 as an indicator for audit style to obtain the most fitted linear relationship.

- The regression model for testing the earnings covariation is:

$$\begin{aligned}
 \widehat{Earnings}_{ij} = & 0.272562 \text{ Same or diff Big } 4_{ij} \\
 & - 0.0240211 \text{ Size Diff}_{ij} \\
 & - 0.297805 \text{ Leverage Diff}_{ij} \\
 & - 0.0107771 \text{ Market to book ratio Diff}_{ij} \\
 & + 0.00706057 \text{ Sales Diff}_{ij} \\
 & + 0.110423 \text{ Sales gro Diff}_{ij}
 \end{aligned}$$

Table 10: The Heteroskedasticity correction pooled panel model for the hypothesis H₁.

Model	<i>Pooled Panel</i>	Dependent variable		Earnings covariation	VIF Test
Independent variables	Coefficient	t-ratio	p-value	Significance	
Constant	1.77456e-08	0.000003	0.9996	Insignificant	
Same Big 4 or diff Big 4	0.272562	0.082373	0.0020	Significant	2.630
Firm Size diff. (same Big 4 and diff Big 4)	-0.0240211	0.010391	0.0259	Significant	4.986
Leverage ratio diff. (same Big 4 and diff Big4)	-0.297805	0.070650	0.0001	Significant	2.547
Market to book ratio diff. (Same Big 4 and diff Big 4)	-0.0107771	0.005087	0.0403	Significant	3.321
Net cash flows diff. (Same Big 4 and diff Big 4)	0.105363	0.069381	0.1365	Insignificant	3.550
Sales diff. (Same Big 4 and diff Big 4)	0.00706057	0.001505	<0.0001	Significant	4.514
Sales growth diff. (Same Big 4 and diff Big 4)	0.110423	0.076069	0.1542	Significant	2.672
Adjusted R-squared			72.6323%		
F-test		66.05440	F-test	<0.0001	
Overall test of Heteroscedasticity		1.45	p-value	0.7520105	
Ramsey RESET overall Test		1.9377	p-value	0.79023006	
Chi-square test of Normality		2.7078	p-value	0.61586006	

Source: Prepared by the researcher depending on E-views software output.

From table (10) it is concluded that:

- The overall pooled panel model is significant as the p-value of overall F-test has a value of <0.0001 which is less than 0.05 with adjusted R-squared value of 72.6323% which means that the independent variables explain the change in the earnings covariation by 72.6323%.
- The independent variable same Big or different Big 4 and the control variables (leverage diff., firm size diff., market to book ratio diff., sales growth diff., and sales diff) have a significant impact on the earnings covariation.
- The constant and the control variable net cash flows diff. have an insignificant impact on the earnings covariation.
- The above table shows that the Ramsey reset test for independent variables sufficiency, heteroscedasticity test for random error variation, and chi square for residuals normality all have p-value greater than 0.05 which means that the pooled linear panel model has all sufficient independent and control variables, also the model doesn't suffer from random errors instability as the model residuals are randomly distributed.

5-2-1-2 Measuring comparability using accruals covariation**a- Model Diagnostics:**

After comparing the diagnostics of the three-panel models to determine the most appropriate model for testing the accruals covariation, it is found that the Heteroskedasticity pooled panel model is the most fitted model to explain the impact between the independent and dependent variables.

b- Pooled Panel:

The following pooled panel linear regression model is used to test the effect of audit style on financial statements comparability using accruals covariation as a measure for the dependent variable comparability and audit firm being same Big 4 or different Big 4 as an indicator for audit style to obtain the most fitted linear relationship.

- The regression model for testing the accruals covariation is:

$$\begin{aligned}
 \widehat{Accruals}_{i,j} = & 0.156568 \text{ Same or diff Big 4}_{i,j} + \\
 & 0.0223108 \text{ Size Diff}_{i,j} - 0.137045 \text{ Leverage Diff}_{i,j} + \\
 & -0.0114300 \text{ Market to book ratio} \\
 & \text{Diff}_{i,j}
 \end{aligned}$$

Table 11: The Heteroskedasticity correction pooled panel model for the hypothesis H_1 .

Model	Pooled Panel	Dependent variable		Accruals covariation	VIF Test
		Coefficient	t-ratio	p-value	
Constant	0.171016	1.197	0.2383	Insignificant	
Same Big or Diff Big 4	0.156568	1.981	0.0443	Significant	2.630
Firm Size diff. (same Big 4 and diff Big 4)	0.0223108	1.866	0.0492	Significant	4.986
Leverage ratio diff. (same Big 4 and diff Big 4)	-0.137045	-2.241	0.0305	Significant	2.547
Market to book ratio diff. (same Big 4 and diff Big 4)	-0.0114300	-2.220	0.0320	Significant	3.321
Net cash flows diff. (same Big 4 and diff Big 4)	-0.0171333	-0.1437	0.8865	Insignificant	3.550
Sales diff. (same Big 4 and diff Big 4)	-0.00257342	-0.3512	0.7272	Insignificant	4.514
Sales growth diff. (same Big 4 and diff Big 4)	0.0322853	0.6833	0.4982	Insignificant	2.672
Adjusted R-squared			38.7524%		
F-test		5.338630	F-test	5.338630	
Overall test of Heteroscedasticity		44.011	p-value	0.141277	
Ramsey RESET overall Test		3.27214	p-value	0.485623	
Chi-square test of Normality		5.31959	p-value	0.0699624	

Source: Prepared by the researcher depending on E-views software output.

From table (11) it is concluded that:

- The overall pooled panel model is significant as the p-value of overall F-test has a value of 0.000214 which is less than 0.05 with adjusted R-squared value of 38.7524% which means that the independent variables explain the change in the accruals covariation by 38.7524%.
- The independent variable same Big 4 or different Big 4 and the control variables (leverage diff., firm Size diff., and market to book ratio diff.) have a significant impact on accruals covariation.

- Net cash flows diff., sales growth diff., and sales diff.) had an insignificant impact on the dependent variable accruals covariation.
- The above table shows that the Ramsey reset test for independent variables sufficiency, heteroscedasticity test for random error variation, and chi square for residuals normality all have *p*-value greater than 0.05 which means that the pooled linear panel model has all sufficient independent and control variables, also the model doesn't suffer from random errors instability as the model residuals are randomly distributed.

5-2-1-3 Testing the means differences between two variables

Wilcoxon test is used to test the mean differences between the two variables, by which the test null hypothesis states that: there is no significance difference between the variables means and will be accepted if the test *p-value* more than or equal 0.05, while the test alternative hypothesis states that: there is a significance difference between the variables means and will be accepted if the test *p-value* less than 0.05.

The following table (12) presents a Wilcoxon test to test the means difference between earnings and accruals covariation of same Big 4 and earnings and accruals covariation of different Big 4.

Table 12: Wilcoxon test of the dependent variables.

Method	<i>Df</i>	Chi-Squared	<i>P-value</i>	Reject H ₀ at ($\alpha=0.05$)
Earnings covariation	1	29.6605	0.0000	
Accruals covariation	1	30.9523	0.0000	

Source: prepared by the researcher from E-views output

From table (12) it can be concluded that: there is a significant difference between earnings and accruals covariation of same Big 4 and earnings and accruals covariation of different Big 4.

Since the Chi-squared test for the difference between earnings and accruals covariation of same Big 4 and earnings and accruals covariation of different Big 4 has a positive value, this means that: Firm-pairs that are audited by two

different Big 4 audit firms have less comparability than firm-pairs that are audited by the same Big 4 audit firm.

Therefore, the first research hypothesis is accepted for the food, beverage and tobacco sector.

5-2-2 Testing the second hypothesis linear model significance

The study used the panel regression techniques to test the second hypothesis stating that: Firm-pairs that are audited by different non-Big 4 audit firms will have less comparability than firm-pairs that are audited by different Big 4 audit firms. The research model is tested using earnings covariation as a measure for comparability and then repeated using accruals covariation.

5-2-2-1 Measuring comparability using earnings covariation

a- Model Diagnostics:

After comparing the diagnostics of the three-panel models to determine the most appropriate model for testing the earnings covariation, it is found that the heteroskedasticity pooled panel model is the most fitted model to explain the impact between the independent and dependent variables.

b- Pooled Panel:

The following pooled panel linear regression model is used to test the effect of audit style on financial statements comparability using earnings covariation as a measure for the dependent variable comparability and audit firm being Big 4 or not as an indicator for audit style to obtain the most fitted linear relationship.

- The regression model for testing the earnings covariation is:

$$\begin{aligned}
 \widehat{Earnings}_{i,j} = & -0.141025 + 0.304733 \text{ diff Big 4 or Non - Big 4}_{i,j} \\
 & + 0.0128454 \text{ Size Diff}_{i,j} \\
 & - 0.223034 \text{ Leverage ratio Diff}_{i,j} \\
 & + 0.257673 \text{ Net cash flows Diff}_{i,j} \\
 & + 0.00688839 \text{ Sales Diff}_{i,j}
 \end{aligned}$$

Table 13: The Heteroskedasticity correction pooled panel model for the hypothesis H_2 .

Model	Pooled Panel	Dependent variable		Earnings covariation	VIF test
		Coefficient	t-ratio		
Constant	-0.141025	-2.279	0.0229	Significant	
Diff Big 4 or non-Big 4	0.304733	8.831	<0.0001	Significant	1.673
Firm Size diff. (diff Big 4 and non-Big 4)	0.0128454	2.477	0.0134	Significant	1.199
Leverage ratio diff. (diff Big 4 and non-Big 4)	-0.223034	-21.37	<0.0001	Significant	1.186
Market to book ratio diff. (diff Big 4 and non-Big 4)	0.000812066	1.317	0.1883	Insignificant	1.037
Net cash flows diff. (Big 4 and non-Big 4)	0.257673	15.20	<0.0001	Significant	1.662
Sales diff. (diff Big 4 and non-Big 4)	0.00688839	2.203	0.0279	Significant	1.294
Sales growth diff. (diff Big 4 and non-Big 4)	-0.00492036	-1.453	0.1467	Insignificant	1.207
Adjusted R-squared			66.2044%		
F-test	238.8738		F-test	<0.0001	
Overall test of Heteroscedasticity	2.57		p-value	0.79511052	
Ramsey RESET overall Test	1.8032		p-value	0.31378019	
Chi-square test of Normality	2.57		p-value	0.79511052	

Source: Prepared by the researcher depending on E-views software output.

From table (13) it is concluded that:

- The overall pooled panel model is significant as the p-value of overall F-test has a value of <0.0001 which is less than 0.05 with adjusted R-squared value of 66.2044% which means that the independent variables explain the change in the earnings covariation by 66.2044%.
- The independent variable diff Big 4 or non-Big 4 and the control variables (firm Size diff., leverage ratio diff., net cash flows diff., and sales diff.) have a significant impact on the earnings covariation.
- The constant and the control variables (market to book ratio diff. and sales growth diff.) have an insignificant impact on the earnings covariation.

- The above table shows that the Ramsey reset test for independent variables sufficiency, heteroscedasticity test for random error variation, and chi square for residuals normality all have p-value greater than 0.05 which means that the pooled linear panel model has all sufficient independent and control variables, also the model doesn't suffer from random errors instability as the model residuals are randomly distributed.

5-2-2-2 Measuring comparability using accruals covariation

a- Model Diagnostics:

After comparing the diagnostics of the three-panel models to determine the most appropriate model for forecasting the accruals covariation, it is found that the heteroskedasticity pooled panel model is the most fitted model to explain the impact between the independent and dependent variables.

b- Pooled Panel:

The following pooled panel linear regression model is used to test the effect of audit style on financial statements comparability using accruals covariation as a measure for the dependent variable comparability and audit firm being Big 4 or not as an indicator for audit style to obtain the most fitted linear relationship.

- The regression model for testing the accruals covariation is:

$$\widehat{Accruals}_{ijt} = 0.186232 \text{ diff Big 4 or Non - Big 4}_{ij} + 0.0623253 \text{ Size Diff}_{ij} - 0.123522 \text{ Leverage Diff}_{ij} - 0.0105231 \text{ Market to book ratio Diff}_{ij}$$

Table 14: The Heteroskedasticity correction pooled panel model for the hypothesis H_2 .

Model	Pooled Panel	Dependent variable		Accruals covariation	VIF test
		Coefficient	t-ratio	p-value	
Constant	0.162235	1.197	0.2383	Insignificant	
Diff Big 4 or non-Big 4	0.186232	1.981	0.0443	Significant	3.412
Firm Size diff. (diff Big 4 and non-Big 4)	0.0623253	1.866	0.0492	Significant	1.527
Leverage ratio diff. (diff Big 4 and non-Big 4)	-0.123522	-2.241	0.0305	Significant	1.635
Market to book ratio diff. (diff Big 4 and non-Big 4)	-0.0105231	-2.220	0.0320	Significant	1.072
Net cash flows diff. (diff Big 4 and non-Big 4)	-0.0362332	-0.1437	0.8865	Insignificant	3.725
Sales diff. (diff Big 4 and non-Big 4)	-0.0069662	-0.3512	0.7272	Insignificant	2.005
Sales growth diff. (diff Big 4 and non-Big 4)	0.0032562	0.6833	0.4982	Insignificant	1.355
Adjusted R-squared			45.6852%		
F-test		6.752230	p-value	6.752230	
Overall test of Heteroscedasticity		6.3320	p-value	0.3562	
Ramsey RESET overall Test		4.56232	p-value	0.56220	
Chi-square test of Normality		5.66223	p-value	0.622321	

Source: Prepared by the researcher depending on E-views software output.

From table (14) it is concluded that:

- The overall pooled panel model is significant as the p-value of overall F-test has a value of 0.000203 which is less than 0.05 with adjusted R-squared value of 45.6852% which means that the independent variables explain the change in the accruals' covariation by 45.6852%.
- The independent variable diff Big 4 or non-Big 4 and the control variables (leverage diff., firm size diff., and market to book ratio diff.) have a significant impact on the accruals' covariation.
- The constant and the control variables (net cash flows diff., sales growth diff., and sales diff.) have an insignificant impact on the accruals' covariation.
- The above table shows that the Ramsey reset test for independent variables sufficiency, heteroscedasticity test for random error variation, and chi square for residuals normality all have p-value greater than 0.05 which means that

the pooled linear panel model has all sufficient independent and control variables, also the model doesn't suffer from random errors instability as the model residuals are randomly distributed.

5-2-2-3 Testing the means differences between two variables

In order to test that is there a significant difference between the dependent variables have same means or not, the researcher used Wilcoxon test to test the mean differences between the two variables, by which the test null hypothesis states that: there is no significance difference between the variables means and will be accepted if the test *p-value* more than or equal 0.05, while the test alternative hypothesis states that: there is a significance difference between the variables means and will be accepted if the test *p-value* less than 0.05.

The following table (15) presents a Wilcoxon test to test the means difference between earnings and accruals covariation of non-Big 4 and earnings and accruals covariation of different Big 4.

Table 15: Wilcoxon test of the dependent variable.

Method	<i>df</i>	Chi-Squared	<i>P-value</i>	Reject H ₀ at ($\alpha=0.05$)
Earnings covariation	1	1166.8667	0.0000	
Accruals covariation	1	1303.2186	0.0000	

Source: prepared by the researcher from E-views output

From table (15) it is concluded that: there is a significant difference between earnings and accruals covariation of non-Big 4 and earnings and accruals covariation of different Big 4.

Since the Chi-squared test for the difference between earnings and accruals covariation of different non-Big 4 and earnings and accruals covariation of different Big 4 has a positive value, this means that: Firm-pairs that are audited by different non-Big 4 audit firms have less comparability than firm-pairs that are audited by different Big 4 audit firms.

Therefore; the researcher accepts the second hypothesis for the food, beverage, and tobacco sector.

5-3 Hypotheses discussion

Previous research found a significant positive relationship between audit style and financial statements comparability, where firm-pairs audited by different big 4 audit firms have lower comparability than that audited by the same big 4 audit firm (Francis et al., 2014; Saleh 2021; Smith 2022; Wilmlink, 2017). On one hand, Francis et al. (2014) found better comparability between firm-pairs audited by Big 4 than firm-pairs audited by non-Big 4. On the other hand, the findings of Smith (2022) rejected their hypothesis that firm-pairs audited by Big 4 have higher comparability than firm-pairs audited by non-Big 4. In line with Francis et al (2014), the findings of this study suggest a significant positive relationship between audit style and financial statements comparability providing evidence to accept the first and second research hypotheses. Firm-pairs that are audited by different Big 4 audit firms have less comparability covariation than firm-pairs that are audited by the same Big 4 audit firm as a test of H_1 when measuring comparability by earnings covariation for the real estate sector as well as for the food, beverage and tobacco sector. In addition, firm-pairs that are audited by different Big 4 audit firms have less comparability than firm-pairs that are audited by the same Big 4 audit firm as a test of H_1 when measuring comparability by accruals covariation for the real estate sector and for the food, beverage and tobacco sector. Furthermore, firm-pairs that are audited by different non-Big 4 audit firms have less comparability than firm-pairs that are audited by different Big 4 audit firms as a test of H_2 when comparability is measured by earnings covariation for the real estate sector and for the food, beverage and tobacco sector. Moreover, firm-pairs that are audited by different non-Big 4 audit firms have less comparability than firm-pairs that are audited by different Big 4 audit firms as a test of H_2 when comparability is measured by accruals covariation for the real estate sector as well as for the food, beverage and tobacco sector.

Prior literature involving comparability used firm size, market to book ratio, leverage ratio, net cash flows from operations, sales revenue, and sales growth as control variables (Ahn and Sonu, 2021; Francis et al., 2014; Mohseni et al., 2014; Wilmink, 2017). Francis et al. (2014) found a significant correlation between each of those variables and comparability (Francis et al., 2014). A significant correlation is also found between leverage ratio and comparability (Mohseni et al., 2014). A significant correlation is found between firm size and comparability, leverage and comparability, market to book ratio and comparability, net cash flows from operations and comparability, sales revenue and comparability (Wilmink, 2017). Zhang (2018) found that firm size is positively correlated with comparability. According to the findings of this study, after testing H_1 and measuring comparability by earnings covariation for the real estate sector using the Heteroskedasticity correction pooled panel model, the researcher finds a significant impact of firm size difference, leverage difference, net cash flows from operations difference, sales difference, and sales growth difference on the dependent variable earnings covariation; however, an insignificant impact of market to book ratio difference is found. After testing H_1 when measuring comparability by accruals covariation and H_2 when measuring comparability by earnings covariation for the real estate sector, the researcher found a significant impact of firm size difference, leverage ratio difference, sales difference, and sales growth difference on comparability; however, an insignificant effect of market to book ratio difference and net cash flow difference is found. After testing H_2 when measuring comparability by accruals covariation for the real estate sector, results provided evidence for the existence of a significant impact of firm size difference, leverage ratio difference, sales difference, and net cash flows difference on accruals; however, an insignificant effect of market to book ratio difference and sales growth difference is found. After testing H_1 when measuring comparability by earnings covariation for the food, beverage, and tobacco sector, results showed a significant impact of leverage difference, firm size difference, market to book ratio difference, sales difference, and sales growth difference is found

on earnings covariation; however, an insignificant impact of net cash flows difference is found. After testing H_1 when measuring comparability by accruals covariation and H_2 when measuring comparability by accruals covariation for the food, beverage, and tobacco sector, results showed a significant effect of leverage difference, firm size difference and market to book ratio on accruals; however, an insignificant impact of net cash flows difference, sales difference, and sales growth is found. After testing H_2 when measuring comparability by earnings covariation for the food, beverage, and tobacco sector, results found a significant effect of leverage difference, firm size difference, market to book ratio, and sales difference, on both accruals and earnings covariation; however, an insignificant impact of net cash flows difference, and sales growth is found.

The researcher applied the research on the real-estate sector and the food, beverage, and tobacco sector as they are the largest non-financial sectors in terms of the number of companies listed on the Egyptian Stock Exchange. Despite the differences in R-squared for both sectors, the hypotheses are significant and accepted in both sectors. This is due to the following similarities: Both sectors are big so many of the companies of the two sectors are audited by Big 4 audit firms which helps in proving and accepting the hypotheses of the research for both sectors, the two sectors are close in the number of listed companies, and from a statistical point of view the sample of both sectors are treated the same in the regression analysis by the same appropriate linear panel regression model. Research indicates higher comparability between firms audited by Big 4 audit firms than those audited by non-Big 4 firms. This is due to higher quality auditors of Big 4 audit firms (Becker et al., 1998; Francis et al., 1999; Teoh and Wong 1993), the greater opportunity for Big 4 firms to standardize their internal working rules for applying auditing standards and for the enforcement of accounting standards consistently than non-Big 4 audit firms (Francis et al., 2014), and the ability to invest more in technical guidance, training, and consistent audit procedures due to their large size. Big 4 audit firms are also known for maintaining their reputation through high standards of responsibility and robust internal control

systems (Burke et al., 2019; Cunningham et al., 2019). Auditors of these firms have greater confidence in their work styles, making the effect of auditor style on comparability more significant than that of small audit firms (Chen et al.,2020). Additionally, Big 4 audit firms have a wealth of internal expertise, improved quality control processes, and more funds to ensure consistent application of auditing and accounting standards (Chen et al., 2020; Francis et al.,2014; Shi et al., 2021). The results also show greater comparability between firm-pairs audited by the same Big 4 audit firm than that audited by different Big 4 audit firms as each one of the Big 4 audit firms has its own internal working rules as well as a unique method for implementing auditing standards and the enforcement of accounting standards (Francis et al., 2014).

6- Conclusion, limitations, and recommendations

The purpose of this study is to examine the correlation between audit style and comparability between firm-pairs. The following conclusions are supported by the statistical results of the hypotheses testing presented in this study. In the Egyptian context, among real estate as well as food, beverage and tobacco firms, there is a positive and significant relationship between audit style, as measured by being audited by the same Big 4 audit firm, and comparability, as measured by accruals and earnings covariation between each firm-pair in the same sector. There is also a significant positive relationship between audit style and comparability where audit style is measured by being audited by Big 4 audit firms and comparability is measured by accruals and earnings covariation between each firm-pair in the same sector. More specifically, the results show that firm-pairs audited by the same Big 4 audit firm have higher comparability than firm-pairs audited by different Big 4 audit firms and improved comparability is also found between firm-pairs audited by different Big 4 audit firms than firm-pairs audited by different non-Big 4 audit firms.

The limitations of the study could hint to future research topics. The study is applied on real estate and food, beverage, and tobacco companies listed on the Egyptian Stock Exchange only. Moreover, the study focused

only on the effect of audit style on comparability, the impact of the adoption of IFRS on comparability was out of focus. In addition, due to the availability of data, the research is applied for only five years from 2018 to 2022. In addition, the researcher was not able to apply the study in the same year in firm-pair observations as the results were insignificant. Furthermore, the researcher uses annual, not quarterly, financial statements in applying this study. The researcher recommends applying the study on a larger scale either inside or outside Egypt. Future research may also include the effect of the adoption of IFRS on comparability. Furthermore, firm size, leverage, market-to book, cash flow from operations, sales revenue, and sales growth may be used as independent or moderating variables in future research. The effect of both the auditor and the adoption of IFRS on comparability. The effect of audit style on financial statements comparability may be examined at different levels, not only at the audit firm level, it may also be applied at the audit office level and the individual level.

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