أثر التحفظ المحاسبي على أداء الشركة: الدور المعدل للمراجعة المشتركة مع دراسة تطبيقية على الشركات المساهمة المصرية

The effect of accounting conservatism on firm performance: the moderating role of joint audit with an Empirical Study on Egyptian Corporation

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Abstract:

This study examines the impact of accounting conservatism (AC) on firm performance (FP). Furthermore, the study investigates the moderating role of the joint audit (JA) approach in this relationship in Egyptian exchange. The study used a sample of 336 firm-year observations of non-financial firms listed in the EGX 100 Index of the Egyptian stock market from 2016 to 2023. Panel data analysis with fixed-effect models was utilized to estimate the results. The findings concluded a positive effect of AC on FP in the long term, which indicates that the increase in the level of AC is associated with a higher FP. The findings also showed that JA moderates the relationship between AC and FP. The findings contribute to the literature on accounting practices and performance by conducting more research that can provide an additional explanation of the impact of JA on AC practices and FP in the Egyptian context. These findings help regulators, investors, and policymakers realize the importance of JA in increasing AC levels and improving FP. The study's unique contributions to the literature include exploring the JA as a moderating role that can significantly affect the relationship between AC and FP, which leads to higher FP in the future.

Keywords: Firm Performance, Accounting Conservatism, Joint Audit, Egyptian Stock Exchange.

الملخص:

تتناول هذه الدراسة تأثير التحفظ المحاسبي على أداء الشركات. علاوة على ذلك، تناولت الدراسة الدور المعدل لمدخل المراجعة المشتركة في هذه العلاقة بالبورصة المصرية. استخدمت الدراسة عينة مكونة من ٣٣٦ ملاحظة سنوية للشركات غير المالية المدرجة في مؤشر EGX 100 لسوق الأوراق المالية المصرية من عام ٢٠١٦ إلى عام ٢٠٢٣. وتم استخدام تحليل المحتوى مع نماذج التأثير الثابت لتقدير النتائج. وخلصت النتائج إلى وجود تأثير إيجابي للتحفظ المحاسبي على أداء الشركات خلال المدى الطويل، مما يشير إلى أن الزيادة في مستوى التحفظ المحاسبي يرتبط بارتفاع مستوى أداء الشركة. وأظهرت النتائج أيضا أن المراجعة المشتركة يمكن أن تخفف من العلاقة بين التحفظ المحاسبي وأداء الشركة. تساهم نتائج هذه الدراسة في الفكر المحاسبي المتعلق بالممارسات المحاسبية والأداء من خلال إجراء المزيد من الأبحاث التي يمكن أن تقدم تفسيرًا إضافيًا لتأثير المراجعة المشتركة على ممارسات التحفظ المحاسبي وأداء الشركات في البيئة المصرية. تساعد هذه النتائج الجهات التنظيمية والمستثمرين وواضعي السياسات على إدراك أهمية المراجعة المشتركة في زيادة مستويات التحفظ المحاسبي وتحسين أداء الشركات. تشمل المساهمات الفريدة للدراسة في استكشاف المراجعة المشتركة كدور معدل يمكن أن يؤثر بشكل جوهري على العلاقة بين التحفظ المحاسبي وأداء الشركة، مما يؤدي إلى ارتفاع مستوى أداء الشركة في المستقبل.

الكلمات المفتاحية: أداء الشركة، التحفظ المحاسبي، المراجعة المشتركة، البورصة المصرية.

1. Introduction

The management's goal is to develop and improve firm performance (FP) while also serving the interests of shareholders, which is accomplished through managing the firm's resources most efficiently (Al-Shattarat, 2017). As a result, FP reflects the performance of its management in numerous aspects, such as accounting conservatism (AC), debt repayment, selecting the proper financing structure, and confronting the dangers to which the firm is exposed (Boachie & Mensah, 2022). The management uses the freedom available to it to choose between AC policies for achieving its goals (Dang et al., 2020).

AC is vital in evaluating FP and understanding its financial condition and is an essential element for making the right strategic and financial decisions (Lobo et al., 2016). AC helps accurately record financial operations, making it easier to understand a company's actual FP and make strategic decisions (Zerni et al., 2012). Investors also rely on financial reports to make their decisions, so AC is crucial to building trust and providing accurate and reliable information (Banker et al., 2016). AC contributes to compliance with international accounting standards, which increases the company's transparency and makes it more attractive to investors and partners (Beaver & Ryan, 2005). According to Givoly et al. (2007), AC can be used to analyze a company's long-term performance and plan for growth and expansion. AC can also be used to measure the performance of departments and activities within the company, which helps in identifying strengths and weaknesses and taking corrective measures when necessary (Hansen et al., 2018).

On the other hand, according to a report titled "Audit Policy: Lessons from Crises" released by the European Commission (EC), joint audit (JA) is an important mechanism for improving audit quality and FP (European Commission (EC), 2010). Although the literature has highlighted the importance of the external auditor's quality, what happens in a JA situation has not been investigated and will be addressed in this research. Based on extrapolating the accounting literature that focused on studying the relationship between JA, AC, and FP, the study notes that most companies that have committed to using JA have more conservative accounting practices when issuing their financial statements. This has a favorable impact on enhancing AC, lowering agency issues, and improving the FP (Zerni et al., 2012; Mandour et al., 2018).

The research gap is that, while literature reviews have made significant progress in the study and analysis of the JA approach in a foreign environment (Ding et al., 2018; Khuong et al., 2019; Lim & Mali, 2023; Xu et al., 2007), there are still some research gaps in this field that can be studied in the Egyptian context. Furthermore, there has been no investigation of the association between AC and FP or the impact of JA on this relationship. This study is unique and different from prior studies in several ways. First, it focuses on Egypt, an emerging market in the Middle East and North Africa (MENA), whereas prior studies have mainly been conducted on developed economies. Second, the study examines the moderating effect of JA on the relationship between AC and FP; prior studies, however, have mainly examined the direct impact of AC on FP. Third, FP studies remain significant and have become a source of concern for regulators and policymakers (Ding et al., 2018; Kouaib & Lacombe, 2023). As a result, it is necessary to investigate how AC affects FP for investor protection. Therefore, this study provides an extension of previous studies in an attempt to deepen the literature and reduce discrepancies. Finally, the current study differs from previous studies in that it relies on analyzing the financial reports of a group of companies listed on the EGX100 index. It is contended that in developing countries that have different cultural, regulatory, and institutional contexts, it can be expected to differ from that found in developed countries (Kouaib & Lacombe, 2023; Nawaiseh, 2016). Therefore, the current study is unique and different from prior studies.

The study's purpose is to examine the effects of AC on FP and the moderating effect of JA on this relationship in Egypt. The analysis is based on a balanced database of 336 observations and runs from 2016 to 2023. The findings reveal that AC has a significant positive effect on FP in the long term. The results also exhibit that the JA moderates the relationship between AC and FP. Consequently, the current study seeks to make the following contributions to the existing literature: first, the study contributes to the theoretical understanding and adds to the current literature on AC, FP, and JA, thus advancing the literature review in this field while also giving practical evidence about the nature of this relationship in Egypt. Second, the study is significant because the critical role that JA plays in a firm's monitoring deserves in-depth research on the various factors that relate AC to FP. Finally, the study provides regulators, auditors, firms, shareholders, investors, and other stakeholders with practical contributions. The

remainder of this paper is organized as follows: Section 2 provides a detailed discussion concerning the literature review and hypotheses development. Section 3 presents the study's methodology. Section 4 discusses the results, and Section 5 presents the conclusion.

2. Literature Review and Hypotheses Development:

The study develops hypotheses that contribute to comprehending the association between AC, JA, and FP. The study relied on agency theory and signaling theory, which contend that a high level of AC may reduce agency costs and enhance FP. These theories were selected due to their frequent use in FP studies and their ability to enhance comprehension of AC effects (Aqabna et al., 2023; Mahrani & Soewarno, 2018). Several empirical studies have based their research models on agency theory to study the association between AC and FP (Birjandi et al., 2015; Boshnak et al., 2023; Cui et al., 2021; Khuong et al., 2019). Therefore, agency theory is an important foundation for this study because it helps explain the relationship between AC and FP and also argues for the moderating role of JA as a mechanism for enhancing FP. According to the agency theory, the importance of AC lies in its role in protecting the interests of shareholders, enhancing FP, and thus mitigating agency problems (Durst & Leyer, 2022; Fama & Jensen, 1983; Langrafe et al., 2020). Furthermore, agency theory argues that the JA is a vital mechanism that effectively monitors management, safeguards the interests of shareholders, minimizes agency costs, and enhances FP (Ching et al., 2015; Fama & Jensen, 1983; Harvey Pamburai et al., 2015). The JA facilitates the provision of accurate and reliable financial information while also reducing information asymmetry (Wang et al., 2020).

On the other hand, signaling theory contends that well-performing firms can distinguish themselves from poorly performing firms by giving a trustworthy signal about their performance to the stock markets (Braga-Alves & Shastri, 2011). If badly performing firms are unable to imitate well-performing firms in delivering the same signaling, this signaling is believable to the public (Downes & Heinkel, 1982). The signal theory suggests that the company may adopt a high level of AC to deliver signals to stakeholders (Jung & Cho, 2022; Al Koliby et al., 2022). According to signaling theory, managers may make critical decisions as a signal to shareholders and a tool to persuade investors, such as by adopting JA (Alves & Carmo, 2022; Sitanggang et al., 2020). According to signaling theory,

actions taken by a company's management offer investors signals about the management's vision of the company's future (Mavlanova et al., 2012). As a result, management's financial decisions must not only be correct but also try to persuade the market that they are excellent decisions and in the best interests of the company and thus of investors (Elmashtawy et al., 2023; Taj, 2016). The hypotheses formulated in this section are based on the literature review. There are two groups of relationships: (1) AC and FP; and (2) the moderating role of JA on the relationship between AC and FP.

2.1 Studies related to AC and FP

AC is an accounting principle that aims to provide an accurate and reliable picture of a company's financial position. According to Cui et al. (2021), AC is important to the FP. When a company provides accurate and transparent accounting information, investors and stakeholders feel confident in the FP and financial policy (Cui et al., 2021; Sana'a, 2016). Company managers also rely on accounting information to make the right strategic decisions, including expanding the business or redirecting investments (Nasr & Ntim, 2018). Furthermore, AC can help identify and manage financial risks effectively, reducing the likelihood of financial problems in the future (Cui et al., 2021). AC ensures that the company adheres to internationally or locally recognized accounting legislation and standards, which preserves its reputation and reduces legal risks (Cui et al., 2021; Sana'a, 2016). Excessive AC may lead to presenting an exaggerated picture of reality, while weak conservatism may lead to inflating profits and distorting the company's actual financial position (Cui et al., 2021). Therefore, there must be a balance between AC and FP.

AC is one of the governance mechanisms that limit managers' ability to manipulate financial performance assessments by reducing information asymmetry, thereby improving the FP and future cash flows (Watts, 2003). According to Francis et al. (2009), AC provides appropriate information about the company's expected future value, increasing the trading movement and performance of shares, improving the company's image, attracting investors, and improving FP. AC in financial statements influences FP through a variety of channels, the most important of which are reduced earnings management practices, reduced indebtedness contracts, reduced bankruptcy risks, and increased stock returns (Sana'a, 2016; Watts, 2003). As a result, some indicators show the positive influence of conservatism on improving FP.

Previous studies argue that efficient AC enhances the FP, and thus, there is a positive relationship between AC and FP (Ding et al., 2018; Xu et al., 2007). Furthermore, managers use the flexibility of accounting decisions and conservative accounting policies to boost profitability and impact future cash flow (Wenfang & Ayisi, 2020). Sana'a (2016) discussed the positive impact of AC policies on financial indicators related to FP and their impact on share value growth. The managers make decisions based on their managerial discretion and private information, which might improve FP (Hessian, 2019; Kouaib & Lacombe, 2023; Mahrani & Soewarno, 2018). On the other hand, Sohn (2012) concluded that there is an adverse effect of AC practices on the accuracy of financial analysts' predictions in the capital markets. Therefore, there is a negative relationship between AC and FP because managers only use their discretion to maximize their utility, resulting in misalignment of incentives between managers and shareholders and FP deterioration (Cui et al., 2021).

Several empirical studies on AC have been based on developed countries (e.g., Awuye, 2022; Chowdhury & Eliwa, 2021; Ding et al., 2018; Lim & Mali, 2023). Recently, there has been a growing body of empirical literature on AC in developing countries. For example, Sana'a (2016) provides evidence that companies can improve share value growth by adopting AC policies on financial indicators. Several studies (Elmashtawy et al., 2023; Khuong et al., 2019; Kumar et al., 2021; Lim & Mali, 2023; Rahman & Xiong, 2021) have concluded that AC practices have a positive effect on financial indicators related to the FP, reflecting the firms' inadequate financial situation. Implicitly, the negative effect of AC practices on the FP appears in the short term in light of the studies (Cui et al., 2021; Nasr & Ntim, 2018; Sana'a, 2016). The studies (Dakhlallh et al., 2020; Hessian, 2019; Wenfang & Ayisi, 2020) also revealed a negative association between AC practices and FP. Nasr and Ntim (2018) examined the association between AC and FP in the emerging market and concluded that AC has a positive but not significant effect on agency costs and that agency costs have a positive and significant effect on the FP, while AC has a negative and insignificant effect on the FP. According to the previous discussions, the following hypothesis has been formulated:

H1: AC has a significant and positive effect on FP.

2.2 Studies related to AC, FP, and JA

Agency theory has identified that the external auditor is an important mechanism for CG, which in turn audits management, protects the shareholders' interests, and enhances FP (Elmashtawy et al., 2023; Fama & Jensen, 1983; Zerni et al., 2012). The agency theory suggests that JA has more resources and expertise to maintain a high level of conservatism and improve FP. In contrast, signal theory suggests that managers may make critical decisions as a signal to shareholders as well as a tool to persuade investors that a company is of high quality, such as JA adoption (Alves & Carmo, 2022; Lobo et al., 2016; Scholtz & Smit, 2015). According to signal theory, companies may use various signals to communicate their quality to external stakeholders, such as the board's decision to adopt the JA, which may indicate that the company is committed to issuing high-quality financial statements and has hired two auditors.

JA is one of the governance mechanisms that limit managers' ability to manipulate financial performance assessments by reducing information asymmetry, thereby enhancing the FP (Dakhli, 2022). The JA aims to increase the financial statements' credibility by reducing the asymmetry of information and increasing capital market confidence (Khan et al., 2021). Furthermore, Rompotis and Balios (2023) stated that the JA affects the firm's market value and thus increases stock returns, which is a positive indicator for investors. At the same time, the JA affects borrowing costs, which increases the company's access to external financing on better terms (Angsoyiri, 2021). Sattar et al. (2020) also emphasized the significance of the JA's positive influence on FP. As a result, some indicators show the positive effects of JA on improving FP, due to its tangible impact in ensuring reasonable assurance about the quality of the financial report, on which different stakeholders rely when making investment decisions associated with the company. Zerni et al. (2012) confirmed that companies that activate the JA have a high level of conservatism and FP improvement.

Several previous research findings concluded a positive relationship between JA and FP (Angsoyiri, 2021; Ching et al., 2015; Dakhli, 2022; Rompotis & Balios, 2023; Sattar et al., 2020; Ugwu et al., 2020). Similarly, the studies (Birjandi et al., 2015; Debnath et al., 2022; Jayeola et al., 2017; Kalbasi & Lashgari, 2020; Nawaiseh, 2016; Rusmin, 2010; Umar et al., 2021) have indicated that JA adoption is favorably associated with the level of AC. Empirical studies concluded that the association between AC and the FP is affected by whether the company adopts JA, the presence of foreign

investors on the company's board of directors, the application of international financial reporting standards, and corporate governance (Birjandi et al., 2015; Boachie & Mensah, 2022; Ching et al., 2015; Nawaiseh, 2016; Rusmin, 2010). Hamza and Kortas (2019) concluded that companies in developing countries are not properly scrutinized by regulators and therefore follow different types of AC. Vakilifard and Mortazavi (2016) concluded that the financial leverage, the firm size, the institutional ownership, and the audit firm size are considered the most important characteristics of the company, which contribute to selecting the level of AC. The study also revealed that there is a positive association between AC and FP.

It is supposed that there is an association between AC and FP (Ding et al., 2018; Kumar et al., 2021; Lim & Mali, 2023; Xu et al., 2007), and this association is affected by JA (Birjandi et al., 2015; Ching et al., 2015; Elmashtawy et al., 2024; Mahrani & Soewarno, 2018; Rusmin, 2010). as well as the importance of JA at the level of conservatism practices because of its tangible impact in ensuring reasonable assurance about the quality of the financial report, on which different stakeholders rely when making investment decisions associated with the company. Based on the above justifications and the purpose of the study, it is suggested that JA moderates the relationship between AC and FP. Based on the preceding discussion, the following hypothesis has been proposed:

H2: JA moderates the relationship between AC and FP.

3 Methodology

3.1 Data and sample

The study population is the listed companies in the EGX 100 Index from 2016 to 2023, since these companies are the most active companies listed on the stock exchange, according to the number of transactions and the number of trading days. In addition, this index provides an appropriate representation of all sectors of the economy. The final sample contained 42 firms listed on the EGX 100, distributed to 11 sectors, which provides an appropriate representation of all sectors of the economy. Furthermore, the sample yielded 336 yearly observations after applying the following criteria following previous studies (Deng et al., 2014; Elmashtawy et al., 2023; Lobo et al., 2016; Soliman & Abd Elsalam, 2013; Zerni et al., 2012): Firstly, firms must have been listed on the Egyptian exchange from 2016 to 2023. Secondly, firms' financial reporting must have been available during

this period. Thirdly, firms' financial statements must have been issued on December 31 to meet consistency in the fiscal year. Fourthly, all financial statements must have been published in the Egyptian pound. Fifthly, banks and financial services firms were excluded due to the uniqueness of their activities. Finally, the company voluntarily appointed joint auditors throughout the study period. Table 1 provides a summary of the sample selection.

Table 1. Sample Selection

No.	Sectors	Companies	Observations	
			No.	%
1	Health Care and Pharmaceuticals	6	48	14.3
2	Real Estate	9	72	21.4
3	Food, Beverages and Tobacco	7	56	16.7
4	Basic Resources	4	32	9.5
5	Industrial Goods, Services, and Automobiles	2	16	4.7
6	Travel and Leisure	4	32	9.5
7	Telecommunication Services, Media, and Information Technology	3	24	7.2
8	Construction and Materials	2	16	4.7
9	Trade and Distributors	1	8	2.4
10	Contracting and Construction Engineering	3	24	7.2
11	Textile and Durables	1	8	2.4
Total		**42**	**336**	**100%**

Furthermore, the study relied on secondary data to collect sample data. Financial and accounting data were collected manually from published annual reports, auditor reports, and supplementary clarifications of the sample companies published on their official websites. The study also relied on some related websites, such as the Egypt for Information Dissemination Company website (www.egidegypt.com) and Mubasher Info (www.mubasher.info), to obtain the complete annual financial statements for the sample companies. Moreover, the study collected data from the annual disclosure books issued by the Cairo and Alexandria Stock Exchanges for the most active companies.

3.2 Variables definition:

3.2.1 Joint Audit (JA):

The JA is measured by a dummy variable, which takes a value of 1 when the company adopts the JA or zero otherwise, by analogy with some previous studies (Elmashtawy et al., 2023; Lobo et al., 2017; André et al., 2016; Deng et al., 2014).

3.2.2 Accounting Conservatism (AC):

The level of AC is defined and measured by the model of market-to-book ratio of equity (MTB), which was presented by Beaver and Ryan (2005). MTB is considered one of the most widely used measures in accounting studies (Banker et al., 2016; Lobo et al., 2016; Zerni et al., 2012) and is calculated by the following equation: MTB = market value of equity/book value of equity. If the ratio is higher than one, this indicates that the company has a high level of conservatism.

3.2.3 Firm Performance (FP):

FP is measured based on Tobin's Q model, which is one of the main models for measuring FP. This model is considered the most accurate and used model in accounting studies (Pham et al., 2012), and it reflects market estimates regarding future profits. The value of Tobin's Q is measured based on the total market value of equity and the book value of the total liabilities divided by the book value of assets (Pham et al., 2012; Brian et al., 2015; Singh et al., 2018). It is calculated as follows: Tobin's Q = (market value of equity + book value of the total liabilities) / book value of assets.

Furthermore, the study used return on assets (ROA) and return on equity (ROE) as proxies of FP in the additional analysis. ROA and ROE represent the firm's accounting-based performance measures (Angsoyiri, 2021; Dakhli, 2022; Kahloul et al., 2023; Khan et al., 2021; Sattar et al., 2020; Shoorvarzy & Zeraatkar, 2021; Ugwu et al., 2020).

3.2.4 Control Variables:

The study used firm size (FSIZE), audit firm size (Big 4), and leverage (LEV) as control variables. Firm size is measured by the natural logarithm of total assets at the end of the year (Antounian et al., 2021; Boachie & Mensah, 2022; Elmashtawy & Salaheldeen, 2022). The audit firm size is measured as a dummy variable that takes a value of 1 if the audit firm is Big 4 and 0 otherwise (Awuye, 2022; Rompotis & Balios, 2023; Shahwan, 2021; Ugwu et al., 2020). Leverage is measured by the total liabilities to total assets ratio (Boachie & Mensah, 2022; Elmashtawy et al., 2024; Vakilifard & Mortazavi, 2016). Table 2 summarizes the definition and measurement of dependent, moderating, independent, and control variables, along with evidence from prior studies that used the same measures.

Table 2. Variables Description

Variable	Acronym	Measurement	Source
Dependent variable			
Firm Performance (FP)	Tobin's Q	The equity market value and total debt to the total asset book value ratio	(Amer et al., 2014; Black et al., 2015; Boshnak et al., 2023; Mishra et al., 2021; Tsafack & Guo, 2021; Wang et al., 2020)
	ROA	The net income to total assets ratio	(Boachie & Mensah, 2022; Dakhli, 2022; Khan et al., 2021; Mishra et al., 2021; Monametsi & Agasha, 2020; Puni & Anlesinya, 2020; Ugwu et al., 2020)
	ROE	The net income divided by shareholders' equity ratio	(Amer et al., 2014; André et al., 2015; Angsoyiri, 2021; Birjandi et al., 2015; Dakhli, 2022; Kahloul et al., 2023)

Variable	Acronym	Measurement	Source
Moderating variable			
Joint audit	JA	A dummy variable that takes 1 if the firm adopts voluntary JA and 0 otherwise.	(Elmashtawy et al., 2023; Deng et al., 2014; Lobo et al., 2016; Zerni et al., 2012)
Independent variable			
Accounting conservatism	MTB	The number of issued shares multiplied by their closing price to the book value of net assets	(Beaver & Ryan, 2005; Lobo et al., 2016; Marmousez, 2009; Velte & Azibi, 2015)
Control variables			
Firm size	FSIZE	Total assets, natural logarithm at the end of the year	(Antounian et al., 2021; Boachie & Mensah, 2022; Elmashtawy & Salaheldeen, 2022; Osma et al., 2022)
Audit firm size	Big 4	A dummy variable, which takes a value of 1 when the audit firm belongs to the Big 4, or zero otherwise	(Awuye, 2022; Chowdhury & Eliwa, 2021; Dakhli, 2022; Rompotis & Balios, 2023; Shahwan, 2021; Ugwu et al., 2020)
Leverage	LEV	Total liabilities to total assets ratio (another indicator of bankruptcy risk)	(Boachie & Mensah, 2022; Elmashtawy & Salaheldeen, 2022; Jelinek, 2007; Vakilifard & Mortazavi, 2016)

3.3 Regression models specifications:

Based on the above, six models were developed to measure the impact of AC on FP and the moderating role of JA on the relationship between the level of AC and FP. The study also used some control variables that would control the relationship between the independent and dependent variables, as shown in Figure 1, which illustrates the effect of AC on FP and the moderating role of the JA.

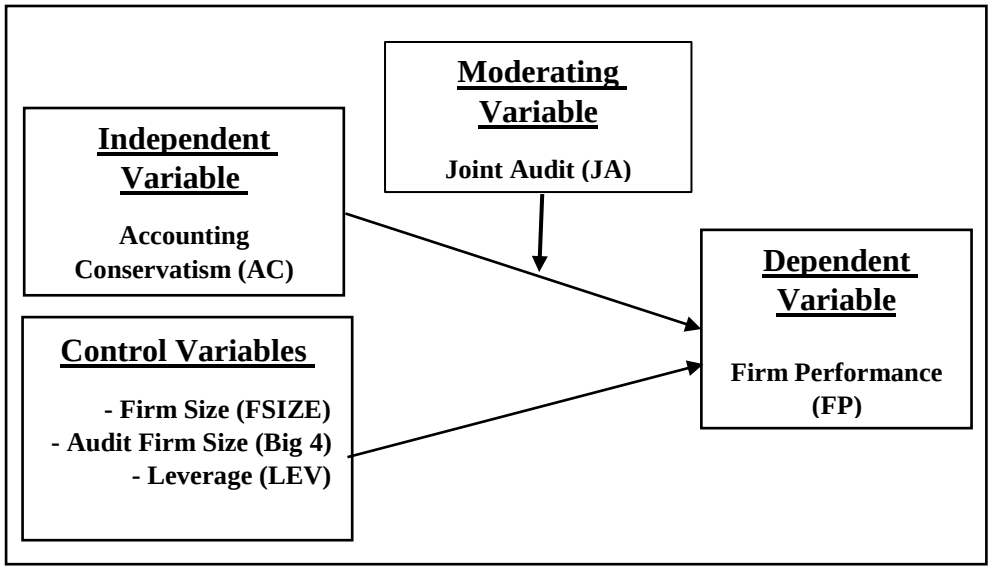

Figure 1. Research Framework

After reviewing the previous figure that determines whether AC influences FP and whether the JA moderates the relationship between AC and FP, the study models can be formulated in the form of regression models, as follows:

The direct effect models assess how AC can influence FP in the Egyptian exchange's non-financial sector. The study formulated three models, and these models answer hypotheses 1.

Model 1:

$$\text{Tobin's Q}_{it} = \alpha + \beta_1 AC_{it} + \beta_2 FSIZE_{it} + \beta_3 Big\ 4_{it} + \beta_4 LEV_{it} + \varepsilon_{it}$$

Model 2:

$$ROA_{it} = \alpha + \beta_1 AC_{it} + \beta_2 FSIZE_{it} + \beta_3 Big\ 4_{it} + \beta_4 LEV_{it} + \varepsilon_{it}$$

Model 3:

$$ROE_{it} = \alpha + \beta_1 AC_{it} + \beta_2 FSIZE_{it} + \beta_3 Big\ 4_{it} + \beta_4 LEV_{it} + \varepsilon_{it}$$

The moderator effect models are to investigate the moderating effect of the JA on the relationship between AC and FP in the Egyptian non-financial sector. The study formulated three models, and these models answer hypothesis 2.

Model 4:

$$\text{Tobin's Q}_{it} = \alpha + \beta_1 AC + \beta_2 JA_{it} + \beta_3 AC * JA_{it} + \beta_4 FSIZE_{it} + \beta_5 Big\ 4_{it} + \beta_6 LEV_{it} + \varepsilon_{it}$$

Model 5:

$$ROA_{it} = \alpha + \beta_1 AC + \beta_2 JA_{it} + \beta_3 AC * JA_{it} + \beta_4 FSIZE_{it} + \beta_5 Big\ 4_{it} + \beta_6 LEV_{it} + \varepsilon_{it}$$

Model 6:

$$ROE_{it} = \alpha + \beta_1 AC + \beta_2 JA_{it} + \beta_3 AC * JA_{it} + \beta_4 FSIZE_{it} + \beta_5 Big\ 4_{it} + \beta_6 LEV_{it} + \varepsilon_{it}$$

3.4 Data analysis:

The study uses ordinary least squares panel data regression models with fixed effects to investigate the relationship between AC, JA, and FP in Egyptian non-financial firms. There is a set of assumptions related to the analysis of the panel data according to its type, and the statistical methods that test these assumptions vary. The choice between the pooled and fixed models is made using the F-test. To determine whether the model is pooled or random, the Breusch and Pagan-Lagrange multiplier tests are used. In addition, the Hausman specification test was used to assess the suitability of the panel data for the random effects model or the fixed effects model. (Eldaia et al., 2022; Sharma and Kaur, 2021).

These three tests were performed to determine the appropriate panel data model. Accordingly, the fixed effects model was used. Regression diagnostics were performed before each model was tested in the study to ensure that multiple regression assumptions were met and to avoid erroneous results. Normality, outliers, multicollinearity, heteroscedasticity, linearity, and autocorrelation are the most important regression assumptions in the study.

4 Results and Discussion:

4.1 Descriptive Statistics and Correlation Matrix

Table 3 presents a summary of the descriptive statistics for the independent, dependent, moderating, and control variables used in the study. The study investigates whether variables follow the normal distribution using the Kolmogorov-Smirnov and Shapiro-Wilk tests, where the

significance values were greater than 0.05, indicating that the variables follow the normal distribution (Pallant, 2020).

Table 3. Descriptive statistics

Variables	Obs	Mean	Std. Dev.	Minimum	Maximum
Tobin's Q	336	1.04	1.48	0.03	16.22
ROA	336	0.01	0.75	-12.10	0.90
ROE	336	0.02	0.76	-11.01	0.80
JA	336	0.59	0.42	0.00	1.00
MTB	336	1.71	2.42	0.02	12.28
FSIZE	336	20.97	1.54	16.30	22.49
Big 4	336	0.65	0.51	0.00	1.00
LEV	336	0.71	1.45	0.00	14.16

Table 3 reveals that the mean of Tobin's Q is 1.04 with a standard deviation of 1.48. The mean of ROA is 0.01, and the minimum and maximum levels are -12.10 and 0.90, respectively. The mean ROE was around 2%, with a standard deviation of 0.76. The average JA is 0.59, and the standard deviation is 0.42, indicating that 59% of the sampled Egyptian firms have adopted JA. The mean of MTB, as a proxy for the level of AC, is 1.71, and it is partly distributed at 2.42, with a minimum of 0.07 and a maximum of 12.28. Concerning the control variables, the average firm size is 20.97 with a standard deviation of 1.54. The mean audit firm size is 0.65, and the standard deviation is 0.51. The average leverage is 0.71, and the standard deviation is 1.45.

An examination of the correlation matrix analysis in Table 4 indicates that all correlation coefficients are less than 0.80, suggesting that multicollinearity does not constitute a major concern (Gujarati & Porter, 2003). Table 4 reveals that there are some significant correlations among independent, dependent, moderating, and control variables. The highest correlation between Tobin's Q and MTB is 0.52, suggesting that a higher level of AC is associated with a higher FP. The correlation between FSIZE and Big 4 is also significant (with a correlation coefficient of 0.50), suggesting that larger firms have a minimum of Big 4 audit firms. The variance inflation factor (VIF) test findings, on the other hand, reveal a very

low VIF for each variable (less than 1.30) and a large tolerance (at least 0.77), which indicates that the analysis does not suffer multicollinearity problems within variables (O'brien, 2007).

Table 4. Correlation Matrix analysis

Variables	Tobin's Q	ROA	ROE	JA	MTB	FSIZE	Big 4	LEV
Tobin's Q	1							
ROA	0.65**	1						
ROE	0.42***	0.01	1					
JA	0.10**	0.08	0.28***	1				
MTB	0.52***	0.26***	-0.07	-0.01	1			
FSIZE	-0.10	-0.06	-0.09**	-0.04	0.33***	1		
Big 4	-0.04	-0.12	0.47**	0.21***	0.25***	0.50***	1	
LEV	- 0.20**	-0.04	0.02	0.03	-0.12	-0.17***	-0.34***	1
VIF	1.11	1.18	1.21	1.14	1.01	1.12	1.24	
Tolerance	0.91	0.78	0.87	0.84	0.90	0.88	0.83	

Note: **, and * are the significance levels at 0.05 and 0.01, respectively.**

4.2 Direct Effect Regression

The findings in Table 5 present the regression results of the direct effect models. The results in models 1, 2, and 3 are allocated to the direct effect regression models of the effect of AC on Tobin's Q, ROA, and ROE, respectively, as proxies for FP. All models were indicated in Table 5, and they were all controlled by firm size, audit firm size, and leverage. The findings in Models 1, 2, and 3 concluded a significant positive effect of AC on Tobin's Q, ROA, and ROE at a 1% and 5% significant level (B = 0.35, 0.28, and 0.29, respectively). This result revealed that firms with a high level of AC have a higher FP by Tobin's Q, ROA, and ROE, and these firms can increase their returns and improve their performance through a high level of AC. Furthermore, AC can be used as a protective measure, which reduces a firm's riskiness and improves its performance. This result is

supported by agency theory and signaling theory and agrees with the findings of Cui et al. (2021), Nasr and Ntim (2018), and Sana'a (2016). Therefore, H1 is supported.

Table 5. Direct Effect Regression Results

Variables	Tobin's Q (Model 1)	ROA (Model 2)	ROE (Model 3)
C	0.04 (1.08)**	0.01 (0.00)	-0.09 (0.03)***
AC	0.35 (0.05)**	0.28 (0.02)**	0.29 (0.01)***
FSIZE	-0.57 (0.11)***	0.28 (0.02)***	0.19 (0.00)**
Big 4	-0.22 (0.05)	0.01 (0.01)*	0.32 (0.05)***
LEV	-0.01 (0.01)*	-0.03 (0.00)	-0.02 (0.01)**
Adjusted R^2	0.62	0.64	0.67
F-statistic	12.89	8.37	11.72
Prob (F-statistic)	0.00	0.00	0.00
Durbin-Watson stat	2.10	1.09	2.04

Note: *, **, and * are the significance levels at 0.1, 0.05, and 0.01, respectively.**

4.3 Moderating Effect Regression

The findings in models 4, 5, and 6 in Table 6 present the moderating role of JA on the relationship between AC and FP models (Tobin's Q, ROA, and ROE). The results revealed that JA moderates the relationship between AC and FP across the conducted models (Tobin's Q, ROA, and ROE) at significant levels of 1%, 1%, and 5%, respectively (B = 0.88, 0.08, and 0.09, respectively). This suggests that the interaction between AC and JA adoption is associated with enhanced FP by Tobin's Q, ROA, and ROE. This is consistent with agency theory and signaling theory. According to these theories, firms may adopt JA as a signal to attract current or potential investors and enhance the firm's positive image. This is similar to the findings of the studies by Cui et al. (2021), Rusmin (2010), Kalbasi and Lashgari (2020), Ugwu et al. (2020), Sattar et al. (2020), Umar et al. (2021), Angsoyiri (2021), and Rompotis and Balios (2023). Hence, H2 is supported.

Noteworthy is that the JA has strengthened the association between AC and FP across the conducted models (Tobin's Q, ROA, and ROE), which was obtained when the JA was added to the model. These results indicate that the JA adoption leads to the enhancement of the FP by Tobin's Q, ROA, and ROE. This indicates the critical role of the JA, as the JA has stronger incentives to influence operational decisions through management monitoring, resulting in a higher FP.

Table 6. Moderating Effect Regression Results

Variables	Tobin's Q (Model 4)	ROA (Model 5)	ROE (Model 6)
C	0.19 (0.01)**	0.02 (0.19)**	-0.04 (0.13)***
AC	0.38 (0.03)*	-0.45 (0.05)	-0.34 (0.09)**
JA	2.54 (0.69)**	2.02 (1.11)***	2.01 (0.02)*
AC * JA	0.88	0.08	0.09

Variables	Tobin's Q (Model 4)	ROA (Model 5)	ROE (Model 6)
	(0.25)***	(0.02)***	(0.00)**
Variables	**Tobin's Q (Model 4)**	**ROA (Model 5)**	**ROE (Model 6)**
FSIZE	-0.49 (0.04)**	0.05 (0.00)***	-0.14 (0.02)***
Big 4	-0.23 (0.01)*	0.10 (0.00)	0.06 (0.00)***
LEV	-0.01 (0.01)**	-0.01 (0.00)***	-0.02 (0.00)***
Adjusted R^2	0.84	0.81	0.72
F-statistic	12.43	23.32	11.33
Prob (F-statistic)	0.00	0.00	0.00
Durbin-Watson stat	2.01	1.66	1.73

Note: *, **, and * are the significance levels at 0.1, 0.05, and 0.01, respectively.**

Overall, it was concluded from the findings of assessing the accuracy of direct and moderating effect regression models that the values of adjusted R^2 reached 0.62, 0.64, and 0.67 for the direct effect regression models and 0.84, 0.81, and 0.72 for the moderating effect regression models. This indicates the positive effect of inserting the interaction between AC and JA variables in the moderating model and also indicates the accuracy of the models and the independence of the factors affecting the FP. Furthermore, the results revealed that the regression models were highly significant, as the significance values were 0.00.

4.4 Additional and Robustness Analyses

Additional analyses are carried out to evaluate the robustness of the study's findings, and it is revealed that earlier results are robust with alternative measurements of the variables. The study used panel data and logistic regression analysis to estimate the relationship between the JA, AC, and FP. Table 7 shows the impact of the JA on the relationship between the level of AC and the FP for companies listed in the EGX100. The result indicates that the value of the significance level test reached (0.0001) for the variable that reflects the interaction between the JA and the level of AC (JA*AC), which is less than the value of the significance level (0.05), which indicates that there is a significant impact of the introduction of the JA on the relationship between the level of AC and the FP. Furthermore, the significance level of the following control variables (firm size and leverage rate) is less than the value of the significance level (0.05). This means that there is a significant effect between these variables and the FP, and it is also found that there is no significant effect for the audit firm size (Big 4), as the value of the significance level is greater than 0.05**.**

Table 7. Multiple linear regression models

Variable	The relationship between AC level and FP			
	Before JA		After JA	
	Cofficient	Prob.	Cofficient	Prob.
C	-61.905	0.022	72.209	0.064
AC	0.483	0.000	0.539	0.000
JA	--------	---------	0.386	0.002
JA * AC	--------	--------	0.274	0.001
Tobin's Q	-0.167	0.004	-0.198	0.005
ROA	1.051	0.000	1.0164	0.000
ROE	-0.494	0.000	-0.525	0.000
FSIZE	-2.214	0.000	-2.236	0.000
Big 4	-0.019	0.733	0.013	0.822
LEV	1.213	0.000	1.209	0.000
R-Squared	0.916321		0.920680	
Adjusted R-squared	0.913669		0.917878	
F-statistic	345.5448		328.4841	
Prob (F-statistic)	0.000		0.000	
Durbin-Watson stat	1.528245		1.579743	

The findings reveal a statistically significant relationship between the JA and the level of AC in the financial reports of the companies listed in the EGX 100. This result is consistent with studies by Zerni et al. (2012), Lobo et al. (2013), and Mandour et al. (2018). This explains why activating the JA positively affects the level of AC in the financial reports. The results also reveal a positive and statistically significant association between the level of AC and the FP in the firms listed in the EGX100, indicating the significance of the activation of AC practices. Moreover, the findings concluded that the interaction between the JA and the level of AC in the financial reports listed in the EGX100 has a positive impact on the FP. The values of the adjusted R-squared reached 0.9137 and 0.9178, respectively, indicating that the independent variables in the model explain 18.03 percent of the change in the dependent variable. Thus, there is an improvement in the explanatory power of the model from (0.9137) to (0.9178), which indicates the positive effect of introducing the JA in the relationship model. In addition, the sign of the regression coefficient was positive, and the probability value of the F-statistic (Sig. = 0.00) was less than the level of significance (0.05).

5 Conclusion

The study investigated the influence of AC on FP and the moderating role of JA on the relationship between AC and FP. The study is attributed to a balanced database of 336 firm-year observations of Egyptian non-financials spanning from 2016 to 2023. The findings revealed that AC had a significant positive effect on FP. It implies that Egyptian companies must concentrate on adopting more conservative practices to improve FP. Moreover, the study found that JA moderates the relationship between AC and FP. The results also revealed that JA adoption plays a significant role in improving FP. Moreover, the results confirm the positive influence of introducing the JA as a moderator variable in the relationship models. Additional analyses were performed to assess the robustness of the study inferences, and it was discovered that previous inferences are robust with different measurements.

This study makes the following distinct contributions to the existing literature: First, for theoretical contribution, it adds to the current literature and bridges an existing gap in the studies of AC, FP, and JA, especially in the Egyptian context. The study is the first to investigate the moderating role of JA in the association between AC and FP. Second, the study provides

several implications for regulators, auditors, firms, and stakeholders. The study findings suggest that the JA can enhance FP in non-financial firms listed on the Egyptian Exchange. Therefore, regulators can promote JA as a mechanism for improving FP and encourage its adoption by firms. Furthermore, regulators can also develop regulations and guidelines that encourage companies to pay attention to JA to enhance FP. Auditors should pay attention to the JA when assessing FP in non-financial firms. Auditors can also provide feedback and recommendations to firms on improving their performance and adopting more conservative practices. Finally, stakeholders can focus on the JA for more conservatism to enhance FP.

There are some limitations to the study. First, the analysis was conducted over eight years and was conducted on non-financial firms and applied to one country; therefore, the conclusions cannot be generalized and all the variables affecting the results cannot be controlled. Second, the quantitative analysis of secondary data may not offer the capacity to interpret and clarify unforeseen relationships among certain variables and FP. Finally, the measures used to measure FP and AC in the study may not include all aspects of FP, as FP can be measured in several ways. Future research may analyze the influence of JA on the relationship between AC and FP using other measures of FP. Future research may compare the different audit types and analyze the effects of both on FP. Also, the study did not address the effect of mandatory JA on FP or compare it with the effect of voluntary JA. Furthermore, future research could consider extending this analysis to encompass both financial and non-financial firms to determine the extent of the difference between them. Finally, future research may attempt to replicate the models formulated in the present study in various countries and compare them over a longer period of time for a broader interpretation.

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