



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

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

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**Abstract:**

This paper shows the impact of accounting conservatism (AC) on the performance of firms. Furthermore, the paper discusses the adjusting task of the joint audit (JA) between AC and the performance of the firm on the Egyptian Exchange. The paper used the database to collect 336 observations from non-financial corporations on the Egyptian market during the years 2016 to 2023 by using fixed effect models to estimate the results. The conclusion finds that AC increases the performance of the firm, which means there is a positive relationship in the long term. where the level of AC is associated with higher firm performance (FP). The conclusion also showed that JA adjusted the sequence of FP according to the AC levels. The conclusions of this paper contribute to increasing the studies on the variables by introducing more comprehensive models of these variables in the Egyptian market. The outcomes of this paper have practical issues for various stakeholders to improve FP. Also, it explores the role of adjusting JA in affecting the association 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 336 ملاحظة سنوية للشركات غير المالية المدرجة في مؤشر EGX 100 لسوق الأوراق المالية المصرية من عام 2016 إلى عام 2023. 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 تفسيراً إضافياً 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

Development and improving the performance of the firm play a vital role in corporations that serve the shareholders' interests (Al-Shattarat, 2017). Evaluating a corporation's performance is considered important in measuring the corporation's most important accounting and market indicators to determine the corporation's position in the market and to determine what should be improved and developed in the event of poor indicators (Elmashtawy et al., 2024a). The firm's performance (FP) measures reflect the corporation's position concerning the market and about its peers in the same industry, and therefore these measures provide an appropriate means to improve the FP in the short and long term (Mandour et al., 2018). Therefore, the FP reflects the different aspects taken by management, such as selecting between policies for accounting conservatism (AC) (Boachie & Mensah, 2022). The high levels of corporations use the freedom available to them to compare AC roles to select the best for achieving their objectives (Dang et al., 2020).

AC is important to evaluating FP and knowing the condition of financial statements and is a main element in tackling financial decisions (Lobo et al., 2016). AC helps in recording financial operations accurately, understanding a company's actual FP, and making strategic decisions (Zerni et al., 2012). Financial reports are the main element in making decisions, and investors can depend on them. Therefore, AC is necessary for building trust and providing reliable and accurate information (Banker et al., 2016). The main contribution of AC is complaining about international accounting standards, which promote transparency. The corporation is more efficient and attractive in making decisions for investors and partners (Beaver & Ryan, 2005). According to Givoly et al. (2007), corporate long-term plans and performance can be used by AC for growth and expansion. The performance of departments and activities within corporations can be measured by AC to determine weaknesses and strengths and take corrective actions when necessary (Hansen et al., 2018).

On the other hand, the European Commission (EC) finds that joint auditing (JA) plays a main role in improving FP and the quality of auditing (EC, 2010). Although most researchers find that there is an important role for the external auditors' quality, what happens in a JA situation will be addressed

in this research. It was found that JA has a vital influence on the company's commitment to conservative accounting policies and improving FP, according to previous studies that determined the study variables. Thus, companies' compliance with adopting conservative accounting policies positively affects the FP (Lobo et al., 2016; Mandour et al., 2018).

The research gap identified through the existing literature, which is not cited in studying and analyzing the JA approach (Ding et al., 2018; Khuong et al., 2019; Lim & Mali, 2023; Xu et al., 2007), still introduces unexplored rules in the Egyptian context. This study is important and different from previous studies in many aspects. First, it focuses on the Egyptian market, whereas the first studies focused on developing economies. Second, this study analyzes the adjusting role of JA and its effect on AC and FP. Previous studies, however, have mainly determined the effect 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, this research differs from previous literature in that it depends on the financial statements of Egyptian corporations. 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).

The study's purpose is to identify the effects of AC on FP and the adjusting role of JA in Egypt. The analysis is based on 336 observations spanning the years 2016 to 2023. Results reveal that AC has a positive influence on FP in the long term. The results also concluded that JA adjusted the relationship between AC and FP. The current study aims to contribute to the following aspects: First of all, the papers aim to enrich the research on AC, FP, and JA. Thus, advancing the relevant literature in this field. Second, the research is significant because the important role of JA in firm 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 and data collection. Section 4 discusses the results, and Section 5 presents the conclusion.

## 2. Literature Review and Hypotheses Development

This research develops hypotheses that contribute to comprehending the association between AC, JA, and FP. This research derives its variables and hypotheses from agency theory and signaling theory. These theories emphasize the importance of adopting conservative accounting policies by the corporation's management to preserve the corporation's assets and improve its performance in the long term (Ching et al., 2015; Fama & Jensen, 1983; Harvey Pamburai et al., 2015). Many studies have used these theories to understand the effects of AC and explain the factors affecting FP (Aqabna et al., 2023; Mahrani & Soewarno, 2018). In addition, many studies have adopted these theories to explain the effects of the JA approach (Lobo et al., 2016; Zerni et al., 2012). Agency theory is considered one of the most important theories for studying FP due to the impact of performance on the interests of shareholders. According to agency theory, improving the FP has the effect of protecting shareholders' interests and improving the company's long-term sustainability (Birjandi et al., 2015; Boshnak et al., 2023; Cui et al., 2021; Khuong et al., 2019). In addition, the JA approach may be an important mechanism for serving shareholders' interests and strengthening their confidence in the company's financial statements (Durst & Leyer, 2022; Fama & Jensen, 1983; Langrafe et al., 2020). The JA works to provide more accurate financial statements and follow more conservative policies, thus improving the FP in the long term (Wang et al., 2020).

Furthermore, signaling theory indicates that the company may follow some policies and strategies as a signal to current and incoming investors that the company has a competitive advantage that distinguishes it from other companies (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, actions taken by a company's management offer investors signals about the management's vision of the company's future

(Alves & Carmo, 2022; Mavlanova et al., 2012; Sitanggang et al., 2020). 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.

### 2.1 Literature 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 association 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). The managers make decisions based on their managerial discretion and private information, which might improve FP (Hessian, 2019; Kouaib & Lacombe, 2023; Mahrani & Soewarno, 2018). Conversely, Sohn (2012) determined that AC practices negatively impact the accuracy of forecasts by financial analysts on the stock exchanges. 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 influence on FP, reflecting the firms' inadequate financial situation. The studies (Cui et al., 2021; Nasr & Ntim, 2018; Sana'a, 2016) implicitly indicate that the adverse effect of AC practices on FP manifests in the short term. The studies (Dakhlallh et al., 2020; Hessian, 2019; Wenfang & Ayisi, 2020) also concluded a negative association between AC practices and FP. Nasr and Ntim (2018) investigated the association between AC and FP in emerging markets. Their findings indicated that while AC positively influences agency costs, this effect is not statistically significant. In contrast, agency costs have a vital positive impact on FP. Moreover, they revealed that AC has a negative, albeit statistically insignificant, impact on FP. According to the previous discussions, the next hypothesis was formulated:

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



## 2.2 Literature related to AC, FP, and JA

According to agency theory, the external auditor serves as a crucial mechanism for CG by auditing management, safeguarding shareholders' interests, and enhancing FP (Elmashtawy et al., 2023; Elmashtawy et al., 2024b; Fama & Jensen, 1983; Zerni et al., 2012). Agency theory posits that JA provides greater resources and expertise, thereby promoting higher conservatism and enhancing FP. Conversely, signaling theory asserts that managers might adopt JA to signal to owners and convince investors of the corporation's high quality (Alves & Carmo, 2022; Lobo et al., 2016; Scholtz & Smit, 2015).

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) highlighted the substantial positive impact of JA 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) demonstrated that companies implementing JA exhibit higher levels of conservatism and improved FP.

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. Vaklifard 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., 2024a; 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. Drawing from the preceding discussion, the subsequent hypothesis is proposed:

*H2: JA moderates the association between AC and FP.*

### 3. Research Design and Method

#### 3.1 Sample and Data Collection

The study population comprises corporations listed in the EGX 100 Index from 2016 to 2023, as these represent the most active firms on the stock exchange. The EGX100 EWI index measures the performance of the top 100 companies in terms of liquidity and activity, including the companies that make up the EGX30 index and the companies that make up the EGX70 EWI index. The final sample included 42 companies listed on the EGX 100, divided into 11 sectors. 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; 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 reports must have been issued on December 31 to meet consistency in the fiscal year. Fourthly, all financial reports 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 presents a summary of the selection process for the sample.

Additionally, the study utilized secondary data for sample collection. This study relied on collecting data on its variables from the financial reports and auditor reports of the sample corporations. Data for the sample companies were collected from the official websites of these companies. This study also sourced data from relevant websites, including Mubasher Info ([www.mubasher.info](http://www.mubasher.info)), to obtain comprehensive annual financial statements for the sampled companies.

**Table 1. Sample Selection Process**

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
<b>Total</b>		<b>42</b>	<b>336</b>	<b>100%</b>

## 3.2 Variables definition

### 3.2.1 Joint Audit (JA)

JA involves carrying out the auditing process by two auditors from different offices who are jointly responsible for the auditing process and issuing a single report. JA can be expressed by a dummy variable that takes the number 1 if the company has two auditors from different audit firms and 0 if it has one auditor (André et al., 2016; Deng et al., 2014; Elmashtawy et al., 2023; Lobo et al., 2017).

### 3.2.2 Accounting Conservatism (AC)

AC represents the company's cautious policies. According to Beaver and Ryan (2005), the level of accounting conservatism can be measured by an index of the market value of shares to the book value of shares (MTB). MTB is equal to the market value of equity divided by the book value of equity (Banker et al., 2016; Elmashtawy et al., 2022; Lobo et al., 2016; Zerni et al., 2012). If the ratio is higher than one, this indicates that the corporation has a high level of accounting conservatism.

### 3.2.3 Firm Performance (FP)

The FP indicators are a reflection of the plans, policies, and strategies taken by management for the sustainability of the company. There are many indicators for measuring FP, perhaps the most important of which is Tobin's Q model (Pham et al., 2012). Tobin's Q model reflects the company's future earnings expectations. Tobin's Q is equal to (market value of the net assets + book value of total liabilities) / book value of assets (Brian et al., 2015; Elmashtawy et al., 2024b; Pham et al., 2012; Singh et al., 2018).

Furthermore, this research utilized return on assets (ROA) and return on equity (ROE) as proxies of FP in the alternative model 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 control variables for this research are firm size (FSIZE), audit firm size (Big 4), and leverage (LEV). Firm size is defined using the natural logarithm

of total assets (Antounian et al., 2021; Boachie & Mensah, 2022; Elmashtawy & Salaheldeen, 2022). The size of the audit firm is defined using a dummy variable, assigned a value of 1 if the audit firm is one of the Big 4, and 0 if the audit firm is non-Big 4 (Awuye, 2022; Rompotis & Balios, 2023; Shahwan, 2021; Ugwu et al., 2020). Leverage is assessed using the total liabilities divided by the total assets ratio (Boachie & Mensah, 2022; Elmashtawy et al., 2024a; 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
<b>Dependent variable</b>			
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)
<b>Moderating variable</b>			
Joint audit	JA	A dummy variable that takes the number 1 if the company has two auditors from different audit firms and 0 if it has one auditor	(Elmashtawy et al., 2023; Deng et al., 2014; Lobo et al., 2016; Zerni et al., 2012)
<b>Independent variable</b>			
Accounting conservatism	MTB	The number of issued shares multiplied by	(Beaver & Ryan, 2005; Lobo et al., 2016;

Variable	Acronym	Measurement	Source
		their closing price to the book value of net assets	Marmousez, 2009; Velte & Azibi, 2015)
<b>Control variables</b>			
Firm size	FSIZE	The logarithm of the total assets	(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	The total liabilities divided by the total assets' ratio	(Boachie & Mensah, 2022; Elmashtawy & Salaheldeen, 2022; Jelinek, 2007; Vakilifard & Mortazavi, 2016)

### 3.3 Specifications of the regression models

This research developed six models to measure the influence of AC on FP and the moderating role of JA on the association between the level of AC and FP. Figure 1 illustrates the influence of AC on FP and the moderating role of the JA.

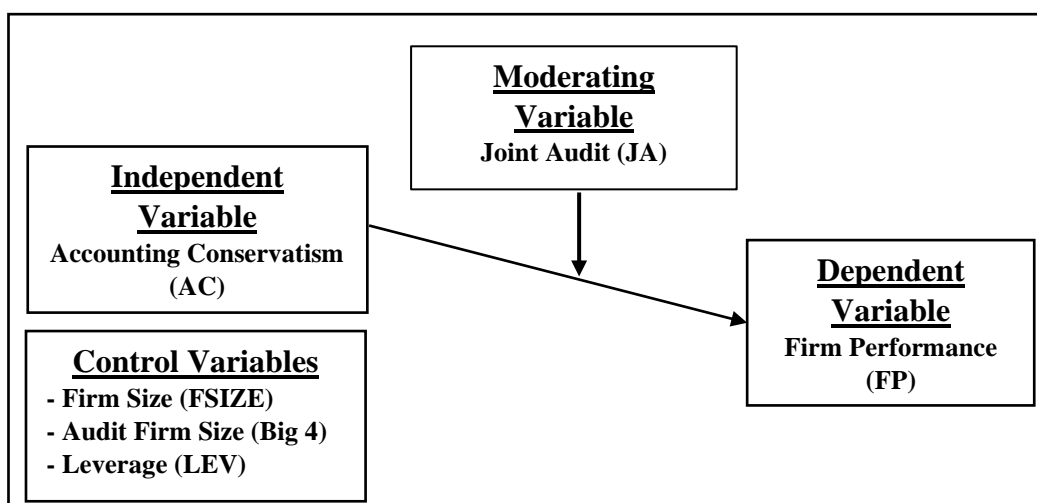


Figure 1. Theoretical Framework

Based on the previous figure examining whether AC affects FP and whether JA moderates the relationship between AC and FP, the study's models can be formulated as regression models, as follows:

The direct influence models assess the effect of AC on FP in the Egyptian exchange's companies. The study formulated three models, and these models answer hypothesis 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:**

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

**Model 5:**

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

**Model 6:**

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

### 3.4 Data analysis

The research employs fixed-effects ordinary least squares panel data regression models 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 identify whether the model is pooled or random, the Breusch and Pagan-Lagrange multiplier tests are used. In addition, the Hausman analysis 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 Analysis and Correlation Matrix

Table 3 shows a summary of the descriptive analysis for the independent, dependent, moderating, and control variables used in the study. The research examines the adherence of variables to the normal distribution through the application of the Kolmogorov-Smirnov and Shapiro-Wilk tests. Findings suggest that the variables conform to the normal distribution, as evidenced by significance values exceeding 0.05 (Pallant, 2020).

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.

**Table 3. Descriptive analysis**

Variables	Observations	Mean	Standard Deviation	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

It is clear from the results of the correlation analysis in Table 4 that all values of the correlation coefficients within the matrix amounted to less than 0.80. This result indicates that the results of the correlation analysis between the study variables are free from multicollinearity (Gujarati & Porter, 2003).

**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.

Table 4 also concludes that there are 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. Furthermore, the variance inflation factor (VIF) test findings reveal a very low VIF for each variable (less than 1.30) and a large tolerance (at least 0.77), which indicates that there are no multicollinearity problems in the research variables in the correlation analysis (O'brien, 2007).

#### 4.2 Direct Effect Analyses

Table 5 displays the regression findings of the direct influence analysis. The outcomes in models 1, 2, and 3 are allocated to the direct influence regression models of the effect of AC on Tobin's Q, ROA, and ROE, respectively, as proxies for FP. 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 ( $B = 0.35, 0.28, \text{ and } 0.29$ , respectively). This finding indicates that companies exhibiting elevated levels of AC demonstrate a greater degree of 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. Moreover, AC serves as a safeguarding mechanism, mitigating a company's risk exposure while enhancing its overall performance. This finding 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.

The results also indicate that the AC affects the FP according to accounting measures (in the short term) through the ROA and ROE measures. Moreover, AC affects the FP as measured by the market (in the long run), which is expressed by Tobin's Q. Furthermore, the results concluded that the size of the corporation has a positive effect on the accounting measures of the FP in the short term (ROA and ROE), while the size of the corporation negatively affects the FP from a market perspective in the long term (Tobin's Q).

Table 5. Direct Effect Regression Results

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

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

These results mean that as the size of the corporation increases, its level of performance improves in the short term, and vice versa in terms of the corporation's performance in the long term. The findings also concluded that the presence of Big 4 in the audit process positively affects the FP according to accounting measures (ROA and ROE), and there is no significant effect of Big 4 audit firms on the FP according to market measures (Tobin's Q). This result means that the presence of Big 4 audit firms is important to improve the FP in the short term. Finally, there is an inverse effect of financial leverage on the FP, as the values of Tobin's Q and ROE are -0.01 and -0.02, respectively. This result reflects the negative impact of the increase in debt and financial insolvency on the FP in the short and long term.

#### 4.3 Moderating Effect Analyses

The 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 of the moderating influence indicate that JA, as a moderating variable, strengthens and modifies the association between AC and FP. The levels of

significance are 0.01, 0.01, and 0.05, respectively, through the study models that were conducted (Tobin's Q, ROA, and ROE). These results indicate that companies can improve their performance by focusing on following conservative policies within the company, in addition to adopting JA by appointing two auditors from different offices. The results of the moderating effect analysis can be supported by agency theory and signaling theory. According to agency theory, the company's appointment of two auditors from different offices serves the interests of shareholders and gains their confidence in financial reports. Furthermore, signaling theory suggests that a JA may signal to current and potential investors the accuracy and integrity of the financial reports. These results are consistent with the results of studies (Angsoyiri, 2021; Cui et al., 2021; Kalbasi & Lashgari, 2020; Rompotis & Balios, 2023; Rusmin, 2010; Sattar et al., 2020; Ugwu et al., 2020; Umar et al., 2021). 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	<b>0.19</b> (0.01)**	<b>0.02</b> (0.19)**	<b>-0.04</b> (0.13)***
AC	<b>0.38</b> (0.03)*	<b>-0.45</b> (0.05)	<b>-0.34</b> (0.09)**
JA	<b>2.54</b> (0.69)**	<b>2.02</b> (1.11)***	<b>2.01</b> (0.02)*
AC * JA	<b>0.88</b> (0.25)***	<b>0.08</b> (0.02)***	<b>0.09</b> (0.00)**
FSIZE	<b>-0.49</b> (0.04)**	<b>0.05</b> (0.00)***	<b>-0.14</b> (0.02)***
Big 4	<b>-0.23</b> (0.01)*	<b>0.10</b> (0.00)	<b>0.06</b> (0.00)***

<b>LEV</b>	<b>-0.01</b> <b>(0.01)**</b>	<b>-0.01</b> <b>(0.00)***</b>	<b>-0.02</b> <b>(0.00)***</b>
<b>Adjusted R<sup>2</sup></b>	<b>0.84</b>	<b>0.81</b>	<b>0.72</b>
<b>F-statistic</b>	<b>12.43</b>	<b>23.32</b>	<b>11.33</b>
<b>Prob (F-test)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Durbin-Watson test</b>	<b>2.01</b>	<b>1.66</b>	<b>1.73</b>

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

It is clear from the results of the regression analysis of the direct effect and the moderating effect that the values of adjusted R<sup>2</sup> 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. Additionally, it signifies the precision of the models and the autonomy of the factors influencing FP. Moreover, the outcomes demonstrated that the significance levels were 0.00 across the regression analysis models.

#### 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 research employed panel data alongside logistic regression analysis to assess the interconnection among JA, AC, and FP. Table 7 reveals the impact of the JA on the association between AC and the FP for the Egyptian listed companies. The findings reveal that the significance level test yielded a value of 0.0001 for the variable representing the interaction between JA and AC (JA\*AC), which is below the significance level of 0.05. This indicates a substantial impact of the JA introduction on the association between AC level and FP. Additionally, the significance levels of the control variables, namely firm size and leverage rate, are below 0.05, suggesting a significant relationship with FP. However, the audit firm size (Big 4) does not exhibit a significant effect, given its significance level exceeding 0.05.

Table 7. Multiple linear regression models

Variable	The relationship between AC level and FP			
	Before JA		After JA	
	Coefficient	Prob.	Coefficient	Prob.
<b>C</b>	-61.905	0.022	72.209	0.064
<b>AC</b>	0.483	0.000	0.539	0.000
<b>JA</b>	-----	-----	0.386	0.002
<b>JA * AC</b>	-----	-----	0.274	0.001
<b>Tobin's Q</b>	-0.167	0.004	-0.198	0.005
<b>ROA</b>	1.051	0.000	1.0164	0.000
<b>ROE</b>	-0.494	0.000	-0.525	0.000
<b>FSIZE</b>	-2.214	0.000	-2.236	0.000
<b>Big 4</b>	-0.019	0.733	0.013	0.822
<b>LEV</b>	1.213	0.000	1.209	0.000
<b>R-Squared</b>	0.925		0.921	
<b>Adjusted R-squared</b>	0.927		0.926	
<b>F-test</b>	344.4		327.5	
<b>Prob (F-test)</b>	0		0	
<b>Durbin-Watson test</b>	1.537		1.588	

The analysis reveals a statistically significant correlation between JA and AC levels within the financial reports of EGX 100-listed companies. This finding aligns with previous research conducted by Lobo et al. (2013), Mandour et al. (2018), and Zerni et al. (2012), elucidating the positive influence of JA activation on AC levels in financial reporting. Furthermore, a positive and statistically significant relationship emerges between AC levels and FP among EGX 100 firms, underscoring the importance of implementing AC practices. Additionally, the results indicate that the interaction between JA and AC levels within EGX 100 financial reports positively impacts FP. The adjusted R-squared for the conducted models is 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. Consequently, there is an enhancement in the model's explanatory capacity from 0.9137 to 0.9178, signifying the favorable impact of the JA introduction in the relationship

model. Moreover, the coefficient of the regression models exhibits positive significance, as the significance levels fall below the significance threshold of 0.05.

## 5. Conclusion

This research examined the effect of the level of accounting conservatism on firm performance and the moderating role of JA on the association between accounting conservatism and firm performance. This research is attributed to a balanced database of 336 firm-year observations of Egyptian non-financials spanning from 2016 to 2023. The outcomes indicated that AC had a significant and positive effect on firm performance. 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 outcomes also concluded that JA adoption has a vital 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 of AC, FP, and JA, especially in Egypt. The study is the first to investigate the moderating role of JA in the association between AC and FP. Second, the research offers various implications for regulators, auditors, firms, and stakeholders. It indicates that JA implementation can bolster FP within non-financial companies listed on the Egyptian Stock Exchange. Consequently, regulators have the opportunity to advocate for JA as a means to enhance FP and incentivize its adoption among firms. Additionally, regulatory bodies can formulate guidelines and regulations that promote JA integration to bolster FP. Auditors are advised to prioritize JA consideration when evaluating FP in non-financial firms. Moreover, auditors can offer constructive feedback and recommendations to firms aimed at enhancing their performance and embracing more prudent practices. Finally, stakeholders can focus on the JA for more conservatism to enhance FP.

The study is subject to several limitations. Firstly, the analysis spanned eight years and focused solely on non-financial firms within a single country, thereby restricting the generalizability of the conclusions and

limiting control over all variables influencing the outcomes. 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 might not encompass all dimensions of FP, given its multifaceted nature. There remains potential for future investigations to explore the impact of JA on the association between the level of accounting conservatism and FP using alternative FP metrics. Subsequent research endeavors could also delve into comparing various audit types and their respective effects 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 companies. In conclusion, forthcoming research could endeavor to replicate the models developed in this study across diverse countries and extend the comparison over an extended timeframe to enable a more comprehensive analysis.



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