

Article

Accounting Quality and Audit Attributes on the Stock Price Crashes in an Emerging Market

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Abstract: This study addresses the relationship between accounting quality and audit attributes (i.e., audit quality, auditor industry specialization, audit concentration, and audit fees) with companies' SPCRs listed on the Iraqi Stock Exchange. A multivariate regression model was used to test the hypotheses. The research hypotheses were tested using a sample of 210 observations of the listed Iraqi firms from 2013 to 2018 and a multiple regression model based on the random-effects model's panel data technique. The findings indicate a negative and significant relationship between the accounting quality, audit, auditor industry specialization and SPCRs. Results also conveyed a meaningful and positive association between stock price crash risk (SPCR) and audit fees. The results did not confirm the relationship between corporate governance and audit concentration with SPCR. The primary research model was tested with additional methods (t + 1, fixed effects, ordinary least squares). Since this is the first study addressing this issue in the emerging markets, it provides users, analysts, and legal entities with helpful information about audit attributes that significantly affect SPCR. These results also contribute to developing science and knowledge in this field and fill the literature gap.

Keywords: accounting quality; stock price crash risk; audit quality; auditor industry specialization



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1. Introduction

The SPCR might be considered a market-level event that has attracted the attention of accounting scholars and practitioners in recent decades (Chen et al. 2001). It is a crucial consideration for market participants (Robin and Zhang 2015). The capital market needs to measure investors' risky pricing and fluctuation factors. This is confirmed by the current situation in the markets around the world. The financial crisis had a determining impact on financial markets, causing stocks to sell sharply worldwide (Aboura 2014; Jiang et al. 2021; Gennaro and Nietlispach 2021).

It is difficult to assess the financial losses caused by the crisis in Western Europe, Eastern Europe, America or the Middle East markets. Practically no one predicted the type of risk the financial crisis would pose. Although there have been various recent events, such as terrorist attacks in Europe, this is the only crisis affecting financial markets (Kolaric and Schiereck 2016, pp. 306–10; Bouoiyour and Selmi 2021, pp. 87–104). However, to minimally limit financial losses resulting from such situations, it appears necessary to have reliable information about the enterprise's financial situation. All current financial information, as well as final information, comes from accounting. Therefore, all good and bad information must be evident in accounting documents and financial statements. Audit and quality are key factors here, and accounting quality and policy are implemented in enterprises (Ryu et al. 2021, p. 1411; Keune and Johnstone 2012, pp. 1641–77; Bednarek 2016, p. 322). Audit quality plays a significant role in the financial markets since they are likely to detect

the client firms' financial reports misreporting (Carp and Istrate 2021, p. 6924; DeAngelo 1981, pp. 184–89).

We analyze four audit attributes (Yeung and Lento 2018, pp. 1–24; Callen and Fang 2013, pp. 211–18). These attributes are necessary to promote the audit process, improve effective decision-making, and restrict opportunistic behaviors (Ashbaugh-Skaife et al. 2006, pp. 203–43). All studies conducted in the context of the stock price crash discovered two main reasons: management activities and accounting systems, which boost them (Khajavi and Zare 2016). Hence, we expect a better audit process, reduced information asymmetry between shareholders and management, and reduced stock market crashes in the future. Following prior studies (e.g., Hutton et al. 2009, pp. 67–86; Jin and Myers 2006, pp. 257–92; Zimon et al. 2021), we used the negative coefficient of stock return skewness for assessing stock crashes. We also control the fixed effect of year and industry, firm size, and other risk factors for stock crashes (Cronqvist and Nilsson 2003, pp. 695–719; Linck et al. 2008, pp. 308–28). We also have examined the main research models with various criteria, including board independence, CEO change, and auditor tenure. The study is willing to contribute to accounting and finance literature in some channels. This study examines the relationship between accounting quality, audit quality, audit specialization, audit fees, and audit market competition with the stock price crash in Iraq.

This research provides deep insights into audit qualities by analyzing four audit attributes' distinct effects on stock price risk. The mechanisms for protecting stakeholders' interests and rights establish justice in the capital market through existing structures. These mechanisms demand a positive result on firms' operational processes. In particular, the current paper may enhance the literature on SPCR in Iraq. In other words, the findings from emerging markets, including Iraq, may enrich the comprehension of individuals on how market practitioners may apply the publicly reported information compared to developed capital markets.

2. Literature Review

Research conducted in European countries shows that improving the quality of accounting is essential in the context of emerging crises, especially for small enterprises with low liquidity and concentrated ownership structure (Onali et al. 2017, pp. 455–78). Interesting conclusions also stem from studies on the influence of macroeconomic conditions on income manipulations of European-listed companies during the 2008–2009 financial crisis. The main findings are a decrease in income smoothing and improved accruals quality in the crisis period. CEOs have less incentive to manipulate earnings in crisis times due to a higher market tolerance for weak performance (Filip and Raffournier 2014, pp. 72–79). We agree with earlier studies' findings (Galoppo and Paimanova 2018, pp. 185–213) that Eastern European financial markets did not meet expectations regarding transparency, financial liquidity, and risk in the face of emerging crises. The research above covers a few countries (the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Turkey, and Ukraine). It proves that the European countries' financial markets are more sensitive to current economic changes, as evidenced by their greater volatility level than well-established financial markets.

European countries have also been classified and divided in terms of the quality of financial information based on a single set of accounting standards (IFRS) into three clusters. Cluster 1 includes Belgium, France, and Sweden; cluster 2 includes Finland, Portugal, and Greece; and cluster 3 includes Austria, Denmark, Germany, Ireland, Italy, the Netherlands, Spain, and the UK. These clusters present a similar pattern of accounting quality referring to financial information (Morais et al. 2018, pp. 334–50). It is assumed that improvement in financial transparency also affects earnings management. This statement is criticised by professional observers due to its complexity, as shown by research conducted on the group of European-listed firms (Cadot et al. 2021, pp. 1628–37). Other studies of cross-national corporate governance conducted in 11 countries in Central and Eastern Europe have demonstrated a causal relationship between good financial reporting that results

from good corporate governance. Regarding accounting quality, research revealed problems with Eastern Europe's transition to western norms. Due to legal heritage, countries were divided into three clusters. The first cluster includes the Baltic countries (Estonia, Latvia, and Lithuania), the second one consists of the Visegrád group (Hungary, Poland, Czech Republic, and the Slovak Republic), and the final cluster covers the countries of Southern Europe (Slovenia, Croatia, Romania, and Bulgaria) (Lindahl and Schädewitz 2018, pp. 24–49). Similar conclusions can be drawn from the research on the effect of foreign direct investments (FDIs) on financial reporting quality in transitional economies. Data analysis from 12 transitional economies in Central and Eastern Europe has shown that investment freedom and freedom from corruption increase earnings quality. Moreover, the results show a high level of FDIs is associated with high conditional conservatism (Hämäläinen and Martikainen 2015, pp. 295–310). In Poland and Eastern European countries, the research confirms the strong impact of the quality of accounting and audit attributes on fluctuations in the prices of companies' shares. (Kousenidis et al. 2014; Mackevičius and Kazlauskienė 2016, pp. 120–37; Chłodnicka and Zimon 2020).

Therefore, it is crucial to introduce protective and control mechanisms. Investors' protective mechanisms demand a positive impact on all the firm's operational processes. These mechanisms tend to establish justice in the capital market via existing structures. Major investors are likely to consume more time and energy to evaluate a particular company's investment and operating policies to guarantee that CEOs apply proper business strategies and may use their voting rights to encourage individuals for hard working to increase the interest of stockholders. Additionally, effective monitoring by major stockholders may also decrease the opportunistic behavior of CEOs. Therefore, financial statements may lose their effect on reflecting the economic facts of companies and lose their usage to impact the decision-making process. In turn, unreliable financial reports may promote the incidence of SPCR (Butar and Murniati 2021).

Also, the auditors' role and audit attributes for guaranteeing the correctness of financial statements and accounting quality have experienced considerable attention from empirical research.

3. Theoretical Foundations and Hypotheses Development

3.1. The Iraqi Institutional Settings

Recent studies examined corporate governance (Andreou et al. 2016), the quality of financial reporting (Kim and Zhang 2016; Gennaro and Nietlispach 2021), management style and compensation (Kim et al. 2016), and informal organizations (Callen and Fang 2015). After the arrival of the ISIS group in this country and the insecurities and political instability it has created, the performance of the country's firms has been remarkably degraded to a larger extent. The economic and political uncertainty resulting from the ISIS emergence in the region has led to fundamental issues for all aspects of the country, such as economic, political, security, and performance dimensions. There are appropriate justifications to conclude that ISIS impacts finance (Heißner et al. 2017). The ISIS phenomenon in Iraq is known as a wake-up alarm. Its political-economic uncertainty has had a major impact on the financial reporting quality of business entities. Research on stock prices in Iraq is scarce due to recent economic and security problems accompanied by regulatory challenges and financial market instability. ISIS has intensified these issues. The capital market of less developed countries such as Iraq always has price bubbles and major market crashes (Allen et al. 2005). In Iraq, this is due mainly to the presence of ISIS since 2014. It is also because the formal institutions (i.e., investor protection system, corporate governance, and accounting standards) receive scant attention (Piotroski and Wong 2012). A financial sector can partially explain an increase in capital market resilience for terrorist activities which can be partially explained by a stable banking/financial sector (Chen and Siems 2004). This is especially true of Arab Countries, which have limited natural resources and lower per capita revenues from oil and gas exports compared to countries such as Kuwait or Qatar and, at the same time, a large population (Brach and Loewe 2010). Moreover, recent

studies in China provide empirical evidence that when terrorist attacks occur, the crash risk increases significantly (Kong et al. 2021). Since no study has examined the impact of accounting quality and audit attributes on the SPCR of firms listed on the stock exchange market of Iraq before and after the emergence of ISIS, this paper is among the initial efforts assessing such an association. Although Iraq's economic and political condition might not be distinguishable compared to other countries, the paper's findings may also be applied to other countries in the Middle East (Hassan et al. 2014).

3.2. Hypothesis Development

Literature includes many studies that indicate strong relationships between the impact of accounting quality and audit quality on the share prices of enterprises, which is confirmed by research carried out in Europe, Asia, and America. (Carp and Istrate 2021, p. 6924; DeAngelo 1981, pp. 184–89; Sirois et al. 2016, pp. 111–44).

Most previous investigations on the SPCR mostly leaned on the theory of bad news accumulation (Jin and Myers 2006). SPCR show the low ability of CEOs to cover bad news over time (Habib et al. 2018). Companies usually release bad news when the amount has been extended, so they cannot cover them from the market practitioners. The disclosure of accumulated bad news may lead to a negatively skewed return (Hutton et al. 2009; Zhu 2016). According to Hutton et al. (2009), a big threat to stock prices is CEOs willing to retain negative information about the enterprise systematically; however, this information is eventually disclosed and leads to a sudden drop in stock prices. Unfortunately, research by Chen et al. (2001) confirms that SPCR stems from the delay in reporting bad news by the firm's management.

Investors will likely compare their evaluations based on previous information with the recently provided stock prices. The gap between the two stock price situations will reduce the stock value. This stock price crash causes market shareholders to incur huge losses in their wealth and reduces their confidence in capital markets. Therefore, many studies find an answer to determine the factors that affect SPCR. SPCR equals the likelihood of a large-scale abrupt decline in a business stock price (Bleck and Liu 2007). The predominant literature on crash risk relies on the Jin and Myers (2006) agency model, suggesting that asymmetric information between CEOs and investors could lead to managerial hubris, with CEOs concealing bad news for their benefits, such as maximizing compensation or protection of employment (Kothari et al. 2009). CEOs can easily ignore disclosing the firm's bad news to keep their position if there is no full transparency in financial reporting. The bad news is accumulated in the data, and when it has reached its limit, it is no longer sustainable, causing a cost to the company. Hence, when released in the market at once, it causes a crash in the relevant business unit (Hutton et al. 2009). One of the most important factors determining the risk of SPCR in companies is the accumulation of bad news (Callen and Fang 2015; Callen and Fang 2017; Deng et al. 2020), which might be translated as low-quality accounting reports. The ability to cover negative information might not be continued for a long time. Day by day, the accumulated bad news has generated a degree of threshold, likely to be disclosed suddenly. Having the market been alarmed by the bad news accumulation, it may respond to such a phenomenon negatively. Thus the stock price must fall, resulting in the SPCR (Hutton et al. 2009; Kothari et al. 2009). Moreover, other studies conducted in Europe, Asia, and America have confirmed a positive association between earnings opacity and SPCR (Andreou et al. 2015, pp. 916–66; Bradshaw et al. 2010; Kim and Zhang 2016, pp. 412–41; Richardson et al. 2005, pp. 437–85).

This type of management dysfunction should be eliminated as soon as possible, which is why the role of auditors and the analysis of the impact of accounting quality and audit attributes on changes in the company's share prices is vital for building high-quality accounting and financial reporting. On the other hand, emerging research points to a negative link between conditional conservatism and the risk of a future crash. Still, more importantly, it provides new evidence, showing that unconditional conservatism is also negatively linked to the risk of a future stock price crash. (Kousenidis et al. 2014, pp. 120–37). In general,

the more conservative a company's accounting practices, the less likely CEOs are to hide bad news. The amount of information that CEOs of different companies may hide varies. The ability and opportunity of CEOs to limit the company's private information causes information asymmetry. The more asymmetric information, the greater the importance and impact of conservatism in reducing the SPCR. Therefore, the SPCR may be affected by accounting attributes (Kordestani and Khatami 2016).

H1. *There is a remarkable association between accounting quality and SPCR.*

An essential source of information on the issues of the quality of accounting audits and share prices of companies on the market appears to be a look at the Far and Middle East countries. A good example is the latest research conducted in China, in which the authors analyze the relationship between the Confucianism of audit firms and the risk of SPCR. (Fan and Xu 2022, p. 101995).

Such an analysis through the prism of a different culture, religion (Du 2013, pp. 319–47), or Confucian moral standards of audit firms is an excellent basis for conducting new detailed research and analysis in the countries of, for example, Europe. Times of crisis and COVID-19 show that now it is necessary to expand research and look for new, sometimes exotic, distant markets to examine whether the presence of accounting and audit attributes plays a significant role in limiting the future SPCR (Stock Price Cash Risk), and thus improving the quality of accounting information.

Although long engagement of auditors with a client may enable them to figure out the potential misreporting to use proper auditing techniques to identify the major misstatement (Beck and Wu 2006), further, through their informational role, also decrease crash risk by decreasing agency costs, decreasing malfeasance by CEOs, improving operating decisions, and decreasing expropriation (Robin and Zhang 2015). Therefore, it is highly expected that the audit quality will likely determine the level of SPCR in the future.

Still, Callen and Fang (2017) find that longer auditors' engagement may threaten auditor independence and demotivate them to identify potential fraudulent reporting. Poor business performance may decrease the quality of financial statements, resulting in SPCR. Although the literature indicates a complex role for auditors that may manifest itself in high-quality auditors mitigating crash risk (Robin and Zhang 2015), according to these contrary arguments, it is hard to evaluate the impact of audit association with SPCR.

Stock price reductions are not limited to a single stock but include all market stocks (Chen et al. 2017). The change in the stock price of a business is due to the management of confidential information. When CEOs disclose all information quickly, stock returns will be distributed symmetrically. The average volume of positive returns on good news equals the average of adverse returns on bad news. However, CEOs are mostly encouraged to cover negative news from equity owners and hide it in the firm (Kothari et al. 2009), and they have incentives to delay the disclosure of bad news for reputation, compensation, and employment concerns (Kothari et al. 2009; Francis et al. 2008; Malmendier and Tate 2009). CEOs' behavior is also greatly influenced by their early-life disaster experience on SPCR (Chen et al. 2021). CEOs at the center of this conflict of interest try to reduce this conflict by providing financial information. They are motivated to optimize the company's position and often can do so due to management authority in reporting. CEOs' tendency to disclose news asymmetrically leads to a future SPCR. Meanwhile, accounting quality, auditing quality, and audit attributes are essential in changing companies' stock prices since high-quality auditors prevent information asymmetry between manager and owner and prevent CEOs from concealing negative information. Therefore, this study addresses accounting quality and audit attributes' effect on Iraqi stock price fluctuations. Most researchers posit that a high-quality audit (i.e., auditor's specialization, audit concentration, fees, and the audit market competition) is among the most efficient ways to disclose information. It is expected that the higher quality of audits restricts manipulation of accounting figures by CEOs and leads them to explore questionable accounting practices, and reduces the chances of management to achieve anticipated profit and accumulate bad news and information

on the firm; as such, the risk of stock price fall declines in the market (Balsam et al. 2003). As the process of storing bad news continues, it accumulates over time until it reaches a certain point that exceeds the ability of the administration to store bad news. At this point, this accumulated bad news is disclosed, resulting in a decrease in the acute market value of the firm's shares, which creates the risk of a collapse in stock prices (Bleck and Liu 2007; Hutton et al. 2009; Kothari et al. 2009; Callen and Fang 2013; Kim and Zhang 2016).

According to agency theory, sufficient and appropriate monitoring and control procedures must be established to maintain outside investors (Karamanou and Vafeas 2005). The agency problems act as a catalyst in financial reporting transparency. Accounting is an economical service with a critical role in improving responsibility and reliability in financial reporting. Therefore, with the increase in agency problems due to insufficient monitoring, more demand for high-quality audits (Azibi et al. 2010). High audit quality improves financial information quality, increases accounting information transparency, and decreases capital costs (Khurana and Raman 2004). Khajavi and Zare (2016) found a negative and significant relationship between audit quality and SPCR, Callen and Fang (2015), and Yeung and Lento (2018) showed a significant relationship between accounting quality, corporate governance, and audit quality with stock price and SPCR; increasing one factor will reduce SPCR. Chae et al. (2020) investigated the effect of audit quality on SPCR. They found that financial statements and low audit quality increase the level of SPCR. Xue and Ying (2020) showed that accounting quality reduces SPCR. Abdel-Wanis (2021) found that increased audit quality raises SPCR with OLS, GLS, and GLM but reversely using GMM. This study selected audit quality, auditor industry specialization, audit concentration, and audit fees for audit attributes. In general, theoretically, it is expected that more accurate investigation of financial statements of firms and more audit quality will prevent opportunistic motivation and ability of management to show the unrealistic performance of the firm, accumulate bad news in the firm, and ultimately leads to a reduction in crash risk (Khajavi and Zare 2016). Based on the mentioned discussions, the second hypothesis is developed followingly:

H2. *There is a remarkable association between audit quality and SPCR.*

Hung et al. (2021) dispute that the greater audit fees, as another index for audit quality, may represent the greater level of client risk that the auditor may face. The audit pricing behaviour, which might be counted as an index for ambiguous reporting of a client firm, might be correlated with SPCR (Hackenbrack et al. 2014). Daemigah (2020a) also evidences that audit greater fees are significantly incorporated with audit quality in a meta-analysis. As one of the primary responsibilities of the auditors is to reduce the risks and errors within the financial statements, the auditors may reduce the business risk by exerting greater efforts. Furthermore, in case of existing significant defects in the internal controls and the operational processes of a client, the audit firm may implement further tests and procedures, as well as use greater human and time budget, both of which force clients to pay for them, to encourage the client firm for improving its internal controls and reporting quality, which in turn reduce the SPCR. In other words, if the auditors feel that reducing audit risk requires excessive efforts, they are likely to require greater audit fees from the audited client to cover the audit costs and meet the expectations of audit partners. In competitive markets for audit services, the fees paid to auditors should reflect their effort (Simunic 1980), and audit fees could be related to SPCR (Robin and Zhang 2015). Hackenbrack et al. (2014) also reported a significant association between audit pricing and SPCR. They applied the audit pricing as ambiguity in firm-specific data and revealed that the SPCR enhanced as the ambiguity arose. Khani and Rajabdorri (2019) showed a significant positive relationship between audit pricing and SPCR. Therefore, it is expected that the greater audit fees may guarantee the quality of the audit work, reducing the business risk of the client and its SPCR. Supporting this argument, Yeung and Lento (2018) find that higher audit quality, measured by greater audit fees, is associated with lower SPCR. Consequently, we develop the third hypothesis to examine such a relationship followingly:

H3. *There is a remarkable association between audit pricing and SPCR.*

According to the literature specifications, the proposed characteristics of specialized auditors, such as industry-specific knowledge, may provide them with competitive advantages regarding costs and services (Mayhew and Wilkins 2003) and are likely to be incorporated with beneficial outcomes, including minor errors in work papers of audit staff, higher reporting quality, lower discretionary accruals (Balsam et al. 2003), and positive market response. Auditors of particular industries have stronger motivation to maintain their reputation in the industry (Craswell et al. 1995). High audit quality conducted by auditors of particular industries has a significant positive correlation with timely and helpful financial information (Chen et al. 2012). The relationships between crash risk and its ascertained determinants are moderated in firms audited by industry-specialist auditors (Robin and Zhang 2015). In a meta-analysis, Salehi et al. (2019) evidence that specialized auditors are likely to provide higher-quality audit services. Moreover, Soo-Joon and Hee-Joong (2017) show that higher audit quality, proxied by industry specialist auditors, has a significant and negative effect on the crash risk. After controlling the firm-level effect, Feng et al. (2021) found a statistically significant and negative association between auditor industry specialization and SPCR. They indicated that auditor industry specialization decreases price crash risk by mitigating earnings manipulation. They documented that the negative association is more pronounced for firms that switch from non-specialist to specialist auditors. As a proxy for audit quality, we expect the audit specialisation to attenuate the SPCR in client firms. Thus, the fourth hypothesis is conducted followingly:

H4. *There is a remarkable association between audit industry specialization and SPCR.*

Alternatively, it is widely documented that an effective corporate governance system might increase the shareholders' wealth by alleviating agency problems and controlling managerial activities (Karamanou and Vafeas 2005; Xie et al. 2003), resulting in reduced SPCR. In this regard, Chen et al. (2017) demonstrate that SPCR is highly attenuated by efficient corporate governance mechanisms such as internal control and monitoring policies. An extension of a firm's owners is the board of directors, which is charged with monitoring management to protect the interests of shareholders. The composition, structure, subcommittees, and overall board size have all been essential to this function. A well-functioning board of directors should have unique characteristics to the company and its regulatory environment. The literature on board monitoring has focused heavily on board composition. The "agency perspective" suggests that independent directors should dominate boards, but empirical studies provide mixed support for this perspective. In the "resource dependence perspective", the board should provide diverse expertise to allow the firm to deal successfully with internal and external operating uncertainties. For example, Hillman et al. (2000) have argued that boards should include business experts, field experts (e.g., lawyers), and influential community members. Regardless of the perspective adopted, the literature suggests that a properly functioning board should reduce agency risks, which are inversely related to crash risk (Kim and Zhang 2016). These might be correlated with a better corporate governance mechanism improving the reporting environment, specifically, beyond reporting advantages of clearness and accounting conservatism and increasing the possibility that industry specialized auditors may rectify the SPCR in other channels (Robin and Zhang 2015), e.g., by assisting practical and strategic decision-making (Godfrey and Hamilton 2005), rectifying agency problems in general (Watts and Zimmerman 1983), and decreasing expropriation of property right by insiders (Fan and Wong 2005). High-quality audit services may reduce the SPCR under their information disclosure and corporate governance mechanism (Robin and Zhang 2015). Wu et al. (2020) revealed that corporate governance affects SPCR. They also found that companies with high corporate governance rankings are substantially less likely to encounter SPCR. We expect an effective board composed of independent and diverse directors to be negatively associated with crash risk.

H5. *There is a remarkable association between corporate governance mechanisms and SPCR.*

Finally, according to previous findings, we assume that audit market concentration might affect audit quality. Prior studies suggest that the relation between audit market concentration and audit quality can be either positive or negative, depending on whether higher concentration decreases the costs of telling the truth (Huang et al. 2016). Audit firms possessing a wider range of clients in the market are more likely to present high-quality services and vice versa. As discussed earlier, this may reduce (increase) the probability of SPCR. In this regard, prior literature revealed that discretionary accruals and reported earnings of clients of Big 4 auditors are linked with lower levels of earnings management than non-Big 4 auditors (Becker et al. 1998; Francis et al. 1999).

In contrast, the current governmental reports in the U.S, the U.K, and the E.U have led to concerns about the incremental concentration of the audit market over the Big 4 audit firms, which may have a negative impact on the audit market and the audit quality (General Accounting Office (GAO) 2003; Government Accountability Office 2008; Oxera 2007; United States Treasury 2008). Prior empirical results documented that the clients' earnings are likely to be affected by the negotiation between the company and its auditor, in which the statistics of audit firms in the market may determine the quality of audit outcomes based on different scenarios (Francis et al. 2008). The Great Britain authorities also required documents supporting the lower audit quality due to the Big 4 market concentration. Moreover, audit firms' concentrated market may be a consequence of issuing clean opinions to them, even in the case of existing bad accumulated news in the client firms, which might be explained by the economic incentives. Jin and Myers (2006) propose a theoretical framework connecting bad news accumulation to the risk of SPCR. Hutton et al. (2009) find a positive correlation between earning manipulation and SPCR, which in turn may also explain the macro-level indices such as labour reallocation (Salehi et al. 2021a) and GDP growth (Daemigah 2020b). Therefore, we expect that audit market concentration may increase the likelihood of SPCR by providing low-quality audit services in the market.

H6. *There is a remarkable association between the audit market concentration and SPCR.*

3.3. The Impact of ISIS on the Relationship between Accounting Quality and Audit Attributes with SPCR

A modern terrorist group such as ISIS has destructive financial consequences (Bazrafshan et al. 2021). The presence of ISIS in any country can affect the country's economic security and business. Hence, ISIS creates political instability and economic insecurity. As the most critical internal but outsourcing factor, political instability has the closest and most significant interaction with economic security in influencing production factors that can significantly impact financial reporting quality (Talab et al. 2017). Insecurity and political instability create serious business units that will harm by providing financial reporting, financing, and innovation.

Studies about the impact of economic instability and insecurity on business financial decisions in the stock market (Chan et al. 2017; Çolak et al. 2017; Hou et al. 2018; Li et al. 2018; Brogaard et al. 2019) revealed a significant relationship between political instability and financial activities of a business. The economic and political uncertainty resulting from the emergence of ISIS into this region has led to intense problems for the nation's political, economic, performance, and security aspects. It may significantly reduce the financial market efficiency (Heißner et al. 2017). In line with the opportunistic theory of positive accounting prospective, a greater level of uncertainty due to ISIS has provided CEOs with the opportunity to prepare high-quality accounting information (Bazrafshan et al. 2021). Salehi et al. (2021b) found that ISIS contributes to declining financial reporting quality. Macroeconomic instability caused by terrorist actions may negatively impact the CEOs' understanding of firms' upcoming performance and lead to poor prediction and evaluation, increasing accounting accruals (Duru et al. 2020). The CEOs in companies which are suffering from losses caused by actual incidents of terrorist activities show greater incentives to cover the poor performance of their firms (Moser 2020), as the market reaction to the attacks is substantially mitigated for firms with higher discretionary accrual

(Ongsakul et al. 2020). These CEOs may increase discretionary policies to reduce the unfavorable effect of terrorist activities and improve their financial status (Rachmawati and Adhariani 2019). They may opportunistically affect the accruals in macroeconomic instability led by terrorist actions (Stein and Wang 2016). Therefore, it is likely that the ISIS phenomenon in Iraq may have a negative and significant influence on the quality of financial reporting of companies. Since the presence of terrorist groups causes economic instability and insecurity in countries, we expect ISIS to affect the relationship between accounting quality and audit attributes with the SPCR.

4. Research Methodology

The statistical population comprises all listed companies on the Iraqi Stock Exchange between 2012 and 2018. A systematic elimination method is used for sampling. According to the data collected at the end of 2018, the final statistical sample was determined based on the information in Table 1.

Table 1. The number of companies.

| Companies Listed on the Iraqi Stock Exchange | Number of Companies |
|--|---------------------|
| Total number of companies | 123 |
| Banks and financial institutions | |
| calling companies | (39) |
| insurance companies | (5) |
| investment companies | (9) |
| Financial services | (17) |
| Telecommunication companies | (2) |
| Non-disclosure of information | (16) |
| Total sample | 35 |

Basic information and initial data for hypothesis testing are collected using the Iraqi Stock Exchange database. The data analysis method is cross-sectional and year-to-year (data panel). The multivariate linear regression method has been used to test the hypotheses, and descriptive and inferential statistical methods have been used to analyze the obtained data. Thus, the frequency distribution table is used to describe the data. At the inferential level, the F-Limer test, the Hussmann test, the normality test, and the multiple linear regression test are used to test the research hypotheses.

4.1. Research Model

In this study, the following multiple regression model is used to analyze the relationship between accounting quality and audit attributes with the SPCR:

Model 1

$$NCSKEW_{j,t} = a_0 + a_1 ACCQ_{it} + a_2 AQ_{it} + a_3 AIS_{it} + a_4 HHI - AUDIT_{it} + a_5 LNAFEE_{it} + a_6 BIND_{it} + a_7 Size_{it} + a_8 LEV_{it} + a_9 ROA_{it} + a_{10} ROE_{it} + a_{11} Age_{it} + a_{12} GRW_{it} + a_{13} MTB_{it} + a_{14} Loss_{it} + a_{15} MTenure_{it} + a_{16} Mchange_{it} + a_{17} Atenure_{it} + a_{18} Achange_{it} + a_{19} CG_{it} + industry_{it} + year_{it} + \varepsilon_{it}$$

The statistical population is tested separately in pre- and post- ISIS eras for additional analysis. Their results are compared by model (1).

4.2. Research Variables

The dependent variable:

SPCR (NCSKEW): The negative coefficient of skewness in stock returns and the models of Hutton et al. (2009), Callen and Fang (2011), Kim et al. (2014), and Andreou et al. (2016) is used to measure SPCR. The firm-specific monthly return is applied to measure skewness's negative coefficient, as shown in Equation (1).

$$W_{it} = Ln(1 + \varepsilon_{it}) \quad (1)$$

where:

$W_{i,t}$: the firm-specific monthly return of firm i in month t ;
 $\varepsilon_{i,t}$: the residual return of the stock of firm I in month t ;

$$r_{it} = a_j + a_{1,j}r_{m,t-2} + a_{2,j}r_{m,t-1} + a_{3,j}r_{m,t} + a_{4,j}r_{m,t+1} + a_{5,j}r_{m,t+2} + \varepsilon_{it} \quad (2)$$

where:

$R_{i,t}$: is the stock return of firm j in month t over the fiscal year;
 $R_{m,t}$: is the market return in month t . To calculate the monthly market return, the index at the beginning of the month is reduced from the index at the end of the month, and the obtained value is divided into an index at the beginning of the month.

Then, for calculating the negative skewness of the stock returns, the firm-specific monthly return and Equation (3) are used (Chen et al. 2001; Callen and Fang 2011; Kim et al. 2014):

$$NCSKEW_{j,t} = \left(\frac{n(n-1)^{\frac{3}{2}} \sum w_{j,t}^3}{(n-1)(n-2)(\sum w_{j,t}^2)^{\frac{3}{2}}} \right) \quad (3)$$

where:

$NCSKEW$: the negative coefficient of skewness of monthly return of firm j in month t ;
 W_{jt} : the firm-specific monthly return of firm j in month t ;
 N : the number of monthly returns.

Independent variables

1. Accounting Quality (ACCQ): the absolute error of accruals are used to measure accounting quality, persistent with the research of Francis et al. (2005) and Cornell et al. (2017). This criterion is obtained from an adjusted Dechow and Dichev model (2002) by McNichols (2002). The absolute error of accruals in this model reflects the accruals in the past, current, and future cash flows, and it is more compatible with accrual basis accounting. The Dechow and Dichev (2002) model are as follows:

$$TACC_{i,t} = a_0 \frac{1}{TA_{i,t-1}} + a_1 \frac{CFO_{i,t-1}}{TA_{i,t-1}} + a_2 \frac{CFO_{i,t}}{TA_{i,t-1}} + a_3 \frac{CFO_{i,t+1}}{TA_{i,t-1}} + a_4 \frac{\Delta Sales_{i,t-1}}{TA_{i,t-1}} + a_5 \frac{PPE_{i,t-1}}{TA_{i,t-1}} + \varepsilon_{i,t}$$

$TACC$ indicates total accruals in the above model and is calculated according to the Dechow and Dichev (2002) model. OCF is the operating cash flows, $\Delta sales$ is the change in sales, PPE is the property, plant, and equipment, and the model's estimated residual. The absolute value of the residual in the model is used to measure accounting quality.

2. Audit attributes:

- Audit quality (AQ) indicates the size of audit firms. If the audit firms are big, this equals one and otherwise zero.
- Auditor industry specialization (AIS) is the auditor's specialization in the industry i and year t . We used market share as an index for auditor industry specialization. Increased market share increases auditor specialization in industry and experience compared to other rivals. The auditor's market share is calculated as the total assets of all employees/owners of each auditing firm in a particular industry to all owners' total assets.

In this study, the industry specialization institutions have market share, i.e., the above ratio is more than $[1.2 * (1/\text{the number of all the companies})]$. After calculating an audit firm's market share, the audit firm specialises in that industry if the result is higher than the above equation. Therefore, it equals one and zero otherwise (Habib and Bhuiyan 2011).

- Audit concentration (HHI-AUDIT): auditor's concentration: following the prior papers (Huang et al. 2016; Eshleman and Lawson 2016; Kallapur et al. 2010; Newton et al. 2013, 2016), this study uses the auditor concentration index. The lower the HHI index

level, the greater the market concentration level. Kallapur et al. (2010) and Boone et al. (2012) highlight that such an index's outcome might be counted as a criterion for audit market competition. Choi and Zéghal (1999) conclude a significant and negative tie between competition and concentration in the audit markets. Following Markus and Steven (1997), the industry section uses the index in this paper. Moreover, following Kallapur et al. (2010), this criterion is multiplied by (-1) to be translated as a measure of the competitiveness of the audit market. Followingly, this criterion is formulated:

$$HHI = \left(\sum_{i=1}^k \left(\frac{S_{it}}{S_{jt}} \right) \right)^2 * (-1)$$

where: k : the number of auditors in the related industry s : total audit fee received by the auditor in the related industry S : total audit fee received by auditors in related industry

- Audit fees (LNAFEE): the natural logarithm of audit fees

3. Board attributes:

Corporate governance (CG): in this study, the number of board, audit committee and board specialization, audit committee, and board independence are used as the corporate governance index. Therefore, we obtain the corporate governance variable by exploratory factor analysis of these variables.

Control variables

M-tenure: equals the years that the management has continuously tenured

M-change: If the CEO has changed in the year under review, it equals one, otherwise zero.

Auditor tenure (A-Tenure): equals the years the auditor has continuously audited the unit under consideration.

Auditor change (A-change): If the auditor has changed in the year under review, it equals one; otherwise, zero.

Board of Directors Independence (B-Ind): equals the ratio of non-executive board members to the total number.

Firm size (Size): equals the natural logarithm of the total assets.

Leverage (LEV): variable equals the dividend of total debts to total assets in the current year.

ROE: is the calculation result of dividing the net income by the book value of the shareholder's equity in the current year.

Return on Assets (ROA): The result of dividing the net profit by the total assets' book value.

Firm's age (Age): equals the time since the firm was established to the year under consideration.

Sales Growth (GRW): equals this year's sales minus last year's sales divided by last year's sales.

Market to Book ratio (MTB): dividing the market share by the book equity value.

Loss: if the firm reports a loss, it equals one and otherwise zero.

Year: The dummy variable of the year.

Industry: The dummy variable of industry.

5. Results

This study used one model to analyze the relationship between accounting quality and audit attributes with SPCR. The panel data consists of 35 Iraqi companies from 2012 to 2018. The following variables are used to estimate the models. The variables include accounting quality, audit attributes, SPCR, and other control variables. Table 2 shows the descriptive statistics.

Table 2. The descriptive statistics.

| | Mean | Std. Dev. | Q1 | Median | Q3 | Min | Max |
|-----------|--------|-----------|-------|--------|--------|--------|--------|
| Ncskew | −0.183 | 3.175 | −3.72 | −3.01 | 3.52 | −4.299 | 3.649 |
| ACCQ | 0.1132 | 0.343 | 0.91 | 0.72 | 0.56 | 1.187 | 1.680 |
| AQ | 0.777 | 0.417 | 0.000 | 1.000 | 1.000 | 0.000 | 1.000 |
| Atenure | 3.267 | 1.873 | 1.000 | 3.000 | 8.000 | 1.000 | 8.000 |
| Achange | 0.218 | 0.414 | 0.000 | 0.000 | 1.000 | 0.000 | 1.000 |
| Size | 12.201 | 1.479 | 9.000 | 10 | 12 | 8.662 | 16.582 |
| LEV | 0.489 | 0.751 | 0.005 | 0.25 | 3.43 | 0.003 | 4.165 |
| ROA | −0.054 | 0.591 | −1.04 | 0.009 | 0.38 | −6.892 | 1.184 |
| ROE | −0.039 | 0.331 | −1.25 | 0.02 | 0.53 | −3.182 | 0.982 |
| AGE | 3.400 | 0.411 | 2.854 | 3.512 | 4.025 | 2.302 | 4.248 |
| GRW | 0.442 | 2.389 | −1 | 0.000 | 9.05 | −5.506 | 21.618 |
| MTB | 4.306 | 5.349 | −2.68 | 2.16 | 18 | −8.745 | 25.669 |
| LOSS | 0.406 | 0.492 | 0.000 | 0.000 | 1.000 | 0.000 | 1.000 |
| LNAFEE | 10.731 | 1.062 | 7.19 | 10.67 | 14.06 | 6.851 | 14.190 |
| AIS | 0.728 | 0.446 | 0.000 | 1.000 | 1.000 | 0.000 | 1.000 |
| Mtenure | 4.648 | 2.858 | 0.000 | 5.000 | 10 | 1.000 | 10.000 |
| Mchange | 0.193 | 0.396 | 0.000 | 0.000 | 1.000 | 0.000 | 1.000 |
| Bind | 0.914 | 0.103 | 0.71 | 1.000 | 1.000 | 0.625 | 1.000 |
| CG | 2.001 | 0.759 | 0.76 | 2.12 | 3.32 | 0.693 | 3.689 |
| HHI_Audit | −0.016 | 0.013 | −0.44 | −0.014 | −0.001 | −0.044 | −0.002 |

All the variables are stationary at the unit root test. The obtained LM statistics for each variable are reported in Table 3.

Table 3. The results of the Hadri test.

| Variable | Sig. | Variable | Sig. |
|-----------|--------|----------|--------|
| AccQ | 0.8954 | Ncskew | 0.3325 |
| Atenure | 0.5486 | AQ | 0.8745 |
| Size | 0.4781 | Achange | 0.2154 |
| ROE | 1.000 | Lev | 0.9741 |
| Age | 0.2158 | ROA | 0.8715 |
| MTB | 0.1873 | GRW | 0.9748 |
| Lnafee | 1.000 | Loss | 0.2157 |
| Mtenure | 0.8621 | AIS | 0.3148 |
| Bind | 0.1982 | Mchange | 0.4287 |
| HHI-Audit | 0.4190 | CG | 0.2193 |

According to the Collinearity test in Table 4. According to the VIF statistics, no collinearity is between the variables.

Table 4. The collinearity test results.

| Variable | VIF | 1/VIF |
|-----------|------|-------|
| AIS | 4.16 | 0.240 |
| AQ | 4.04 | 0.247 |
| HHI_AUDIT | 4.02 | 0.249 |
| Mtenure | 3.14 | 0.318 |
| ACCQ | 3.03 | 0.329 |
| ATENURE | 2.60 | 0.383 |
| Mchange | 2.44 | 0.410 |
| ROA | 2.23 | 0.448 |
| Achange | 2.01 | 0.498 |
| Age | 1.68 | 0.593 |
| BIND | 1.65 | 0.607 |
| LEV | 1.63 | 0.614 |
| LOSS | 1.62 | 0.618 |
| ROE | 1.55 | 0.644 |
| MTB | 1.44 | 0.693 |
| SIZE | 1.34 | 0.747 |
| GRW | 1.29 | 0.775 |
| LNAFEE | 1.24 | 0.804 |
| Mean VIF | | 5.52 |

Table 5 presents the correlation coefficients of the variables. This test examines the relationship between the variables in pairs; its output is the above matrix. Since this diameter examines the correlation between the variable and always equals one (i.e., complete correlation). The correlation is higher when the amounts are closer to one, and the closer they are to zero, they lack correlation.

Table 5. The correlation coefficients of the variables (Pearson method).

| | Ncskew | ACCQ | AQ | Atenure | Achange | Size | LEV | ROE | ROA | AGE | GRW | MTB | LOSS | LNAFEE | AIS | Mtenure | Mchange | Bind | CG | HHL_Audit |
|-----------|--------|--------|--------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|--------|-------|-----------|
| Ncskew | 1.000 | | | | | | | | | | | | | | | | | | | |
| ACCQ | 0.047 | 1.000 | | | | | | | | | | | | | | | | | | |
| AQ | -0.039 | -0.138 | 1.000 | | | | | | | | | | | | | | | | | |
| Atenure | -0.010 | 0.112 | -0.216 | 1.000 | | | | | | | | | | | | | | | | |
| Achange | -0.043 | -0.055 | 0.109 | -0.640 | 1.000 | | | | | | | | | | | | | | | |
| Size | -0.091 | 0.177 | 0.177 | 0.125 | -0.027 | 1.000 | | | | | | | | | | | | | | |
| LEV | -0.121 | -0.247 | 0.255 | -0.118 | 0.097 | 0.023 | 1.000 | | | | | | | | | | | | | |
| ROE | 0.098 | 0.095 | -0.098 | 0.078 | 0.003 | 0.047 | -0.239 | 1.000 | | | | | | | | | | | | |
| ROA | 0.115 | 0.079 | -0.121 | 0.039 | -0.059 | -0.004 | -0.356 | 0.525 | 1.000 | | | | | | | | | | | |
| AGE | -0.142 | 0.081 | -0.088 | -0.212 | 0.059 | -0.012 | 0.188 | -0.233 | -0.241 | 1.000 | | | | | | | | | | |
| GRW | 0.091 | -0.150 | -0.138 | 0.059 | -0.071 | -0.100 | 0.016 | 0.075 | 0.064 | -0.093 | 1.000 | | | | | | | | | |
| MTB | -0.015 | 0.125 | 0.166 | -0.155 | 0.036 | -0.113 | -0.072 | 0.001 | 0.227 | -0.011 | 0.121 | 1.000 | | | | | | | | |
| LOSS | -0.139 | -0.064 | 0.176 | -0.139 | 0.125 | 0.064 | 0.341 | -0.396 | -0.485 | 0.276 | -0.149 | -0.082 | 1.000 | | | | | | | |
| LNAFEE | -0.021 | 0.017 | -0.031 | 0.229 | -0.162 | 0.370 | -0.097 | 0.031 | 0.084 | 0.016 | -0.024 | 0.091 | -0.119 | 1.000 | | | | | | |
| AIS | -0.175 | -0.038 | 0.447 | -0.192 | 0.053 | 0.301 | 0.139 | -0.117 | -0.135 | 0.039 | -0.160 | 0.142 | 0.166 | 0.100 | 1.000 | | | | | |
| Mtenure | 0.002 | 0.073 | -0.433 | 0.412 | -0.187 | -0.100 | -0.198 | 0.139 | 0.091 | -0.003 | 0.081 | -0.148 | -0.110 | 0.102 | -0.341 | 1.000 | | | | |
| Mchange | -0.044 | -0.022 | 0.232 | -0.197 | 0.167 | 0.037 | 0.073 | -0.115 | -0.216 | -0.003 | -0.067 | 0.135 | 0.132 | -0.169 | 0.215 | -0.626 | 1.000 | | | |
| Bind | -0.138 | 0.043 | 0.405 | -0.191 | 0.104 | 0.330 | 0.126 | -0.087 | -0.109 | 0.127 | -0.098 | 0.322 | 0.131 | 0.085 | 0.298 | -0.332 | 0.206 | 1.000 | | |
| CG | -0.021 | -0.002 | -0.067 | -0.014 | -0.027 | 0.033 | -0.056 | 0.031 | 0.0002 | -0.018 | -0.039 | 0.005 | -0.196 | 0.076 | 0.129 | 0.046 | -0.109 | -0.007 | 1.000 | |
| HHL_Audit | -0.213 | 0.021 | -0.037 | -0.069 | 0.007 | 0.143 | 0.135 | -0.170 | -0.212 | 0.465 | -0.141 | -0.032 | 0.202 | 0.036 | -0.0004 | 0.018 | 0.038 | 0.299 | 0.072 | 1.000 |

According to the integration test results in Table 6, the null hypothesis of data integration at the 99% confidence level is rejected. Therefore, a panel data model should be used to estimate the coefficients of these models.

Table 6. The results of pooling.

| | Sig. | Statistics |
|-----------------|--------|------------|
| Research model | 0.0091 | 1.81 |
| Post ISIS model | 0.0367 | 1.65 |
| Pre ISIS model | 0.000 | 11.27 |

In Table 7, the Hausman test statistic is 20.59, 23.89, and 32.45 for research models. Since this is lower than the pre- and post-ISIS era tables, and the H₀ (i.e., the proper model is the random effect model) is rejected, the fixed effects model is selected, which is an efficient model. For the primary research model, since the table’s χ^2 is higher and the null hypothesis (i.e., the proper model is the random effect model) is not rejected, the efficient model is the random-effects model.

Table 7. The results of the Hausman test.

| | Sig. | Statistics |
|-----------------|--------|------------|
| Research model | 0.2454 | 20.59 |
| Post ISIS model | 0.0920 | 23.89 |
| Pre ISIS model | 0.0132 | 32.45 |

Based on Table 8, a positive and significant relationship between audit fees and SPCR is clear. This is because its *p*-value is 0.039, which is lower than the significance level of 0.05, and its coefficient is a positive amount of 0.069. Further, a negative and significant relationship exists between accounting quality, auditing, and auditor industry specialization with SPCR. This is because their *p*-values are 0.007, 0.000, and 0.047, accordingly, which is lower than the significance level of 0.05, and their coefficients are the negative amounts of 0.650, 1.409, and 1.446. Therefore, the null hypothesis is rejected, indicating no significant relationship between these variables. In other words, improving these findings means that higher quality accounting figures will likely send positive signals to the market, resulting in a reduced likelihood of SPCR. Supportively, [Chen et al. \(2001\)](#) confirm that the SPCR might result from the firm’s management’s provision of low-quality accounting reports.

Table 8. The results of the first model.

| Variable (Ncskew) | Coef | Std. Err. | z | Prob |
|-------------------|---------|------------------------|-------|-------|
| ACCQ | −0.650 | 0.239 | −2.72 | 0.007 |
| AQ | −1.409 | 0.388 | −3.63 | 0.000 |
| Atenure | −0.846 | 0.811 | −1.04 | 0.297 |
| Achange | −0.304 | 0.169 | −1.80 | 0.072 |
| Size | −0.056 | 0.016 | −3.55 | 0.001 |
| LEV | −0.020 | 0.009 | −2.06 | 0.040 |
| ROA | 0.943 | 0.024 | 38.46 | 0.000 |
| ROE | 0.142 | 0.216 | 0.66 | 0.512 |
| AGE | −0.016 | 0.018 | −0.91 | 0.364 |
| GRW | 0.043 | 0.016 | 2.70 | 0.007 |
| MTB | 0.306 | 0.094 | 3.24 | 0.001 |
| LOSS | 1.012 | 0.314 | 3.22 | 0.001 |
| LNAFEE | 0.069 | 0.033 | 2.08 | 0.039 |
| AIS | −1.446 | 0.728 | −1.99 | 0.047 |
| Mtenure | −0.095 | 0.109 | −0.87 | 0.382 |
| Mchange | 0.946 | 0.080 | 11.76 | 0.000 |
| Bind | −2.924 | 0.802 | −3.65 | 0.000 |
| CG | −0.400 | 0.237 | −1.69 | 0.094 |
| HHL_Audit | −33.159 | 20.945 | −1.58 | 0.113 |
| _con | 3.875 | 5.414 | 0.72 | 0.474 |
| R-SQ | | 0.2198 | | |
| R-SQ2 | | 0.0876 | | |
| Prob Model | | Wald chi2 (19) = 69.55 | | |
| | | Prob > chi2 = 0.0000 | | |

Based on the results, there is no significant relationship between corporate governance and SPCR at the 95% confidence level. However, at the 90% confidence level, there is a negative and significant relationship. This is because its p -value is 0.094, higher than the significance level of 5% and lower than 10%. Hence, there is no significant relationship between corporate governance and SPCR at the 95% confidence level. However, at a 90% level, there is a negative and significant relationship between these variables. In addition, there is no significant relationship between audit concentration and SPCR.

According to Table 8, the model evaluation results are robust. Four classic econometrics estimation hypotheses are analyzed in the panel data, and reliable results are reported. Furthermore, since the model's significance level is 0.000, lower than the significance level of 5%, the company's intercept is not significant according to the applied regression. Finally, the model has a sufficient and proper significant level.

The study also examined pre-ISIS data. Table 9 shows a significant positive relationship between audit fees and SPCR. This is because its p -value equals 0.013, which is lower than the significant level of 0.05, and its coefficient is a positive value of 0.3 0.376; therefore, the null hypothesis is not rejected. Table 9 shows a negative and significant relationship between accounting quality, auditing, corporate governance, and audit concentration with SPCR. This is because their p -values are 0.000, 0.007, 0.002, and 0.000, accordingly, which is lower than the significance level of 0.05. Their coefficients are negative amounts of 0.010, 0.014, 0.021, and 0.079. Therefore, the null hypothesis (i.e., no significant relationship between these variables and SPCR) is rejected. However, the opposite hypothesis indicating a significant relationship is accepted.

Table 9. The model specification for pre-ISIS.

| Variable (Ncskew) | Coef | Std. Err. | z | Prob |
|-------------------|---------|-------------------|-------|-------|
| ACCQ | −0.010 | 0.002 | 4.86 | 0.000 |
| AQ | −0.014 | 0.005 | −2.72 | 0.007 |
| Atenure | −1.664 | 1.625 | −1.02 | 0.322 |
| Achange | 4.211 | 1.738 | 2.42 | 0.029 |
| Size | 5.008 | 2.974 | 1.68 | 0.113 |
| LEV | 6.698 | 4.304 | 1.56 | 0.141 |
| ROA | −13.553 | 6.715 | −2.02 | 0.062 |
| ROE | 10.357 | 5.971 | 1.73 | 0.103 |
| AGE | −7.590 | 2.641 | −2.87 | 0.012 |
| GRW | 0.295 | 0.316 | 0.93 | 0.365 |
| MTB | −0.741 | 0.392 | −1.89 | 0.078 |
| LOSS | −4.721 | 2.025 | −2.33 | 0.034 |
| LNAFEE | 3.376 | 1.199 | 2.82 | 0.013 |
| AIS | 10.615 | 5.181 | 2.05 | 0.058 |
| Mtenure | 3.695 | 3.204 | 1.15 | 0.267 |
| Mchange | 0.255 | 0.059 | 4.28 | 0.000 |
| Bind | −0.240 | 0.055 | −4.37 | 0.000 |
| CG | −0.021 | 0.007 | −3.18 | 0.002 |
| HHL_Audit | −0.079 | 0.012 | −6.54 | 0.000 |
| _con | −98.759 | 99.639 | −0.99 | 0.337 |
| R-SQ | | 0.7745 | | |
| R-SQ2 | | 0.5784 | | |
| Prob Model | | F(19, 15) = 2.71 | | |
| | | Prob > F = 0.0275 | | |

The results of post-ISIS data were examined. Table 10 shows a positive and significant relationship between corporate governance and SPCR during and after ISIS. This is because its p -value is 0.000 which is lower than the significant level of 0.05, and its coefficient is the positive amount of 6.497. This conveys that ISIS has negative corporate governance to perform its monitoring duties correctly to reduce SPCR. However, this relationship was negative in the pre-ISIS era because of increased corporate governance and reduced SPCR. Furthermore, the relationship between audit fees and SPCR is not confirmed. This is because their p -value is 0.372, greater than the significance level of 5%. Therefore, the relationship between these two variables is rejected. Table 10 shows a negative and significant relationship between accounting quality, auditing, auditor industry specialization, and auditor concentration with SPCR during and after the ISIS era. Their p -value is 0.022, 0.0024, 0.041, and 0.032, accordingly, lower than the significance level of 0.05. Their coefficients are negative amounts of 0.096, 0.037, 2.301, and 0.664. Therefore, the null hypothesis is rejected. However, the opposite hypothesis indicating a significant relationship is accepted.

The research model was tested with different methods to ascertain the results' robustness and determine whether the results align with the leading results. Table 11 results based on the $t + 1$ method show a negative and significant relationship between accounting quality, auditor industry specialization, corporate governance, and audit concentration with SPCR. Their p -values are 0.009, 0.044, 0.031, and 0.046, accordingly, which is lower than the significance level of 5%. Their coefficients are also negative amounts of 0.639, 0.048, 1.055, and 0.132, indicating a significant negative relationship between these variables and SPCR. However, there is no significant relationship between audit fee and audit quality with SPCR.

Based on the ordinary least square method and Table 11, there is a significant negative relationship between accounting quality, auditor industry specialization, and corporate governance with SPCR. Their p -values equal 0.006, 0.028, and 0.000, lower than the significance level of 5%. Their coefficients equal negative amounts of 0.690, 1.369, and 0.473. Based on the ordinary least square method ($t + 1$ and main method), no significant relationship at the level of 95% is observed between audit fee, audit quality, and audit concentration with SPCR.

Table 10. Model specification for post-ISIS.

| Variable (Ncskew) | Coef | Std. Err. | z | Prob |
|-------------------|--------|-------------------|-------|-------|
| ACCQ | −0.096 | 0.042 | −2.30 | 0.022 |
| AQ | −0.037 | 0.016 | −2.27 | 0.024 |
| Atenure | −0.443 | 0.339 | −1.31 | 0.195 |
| Achange | 0.097 | 0.048 | 2.02 | 0.046 |
| Size | −1.758 | 1.439 | −1.22 | 0.225 |
| LEV | 0.728 | 0.618 | 1.18 | 0.242 |
| ROA | 0.128 | 0.052 | 2.45 | 0.015 |
| ROE | 2.085 | 1.812 | 1.15 | 0.253 |
| AGE | −0.773 | 0.323 | −2.39 | 0.019 |
| GRW | 0.665 | 0.115 | 5.78 | 0.000 |
| MTB | 0.645 | 0.314 | 2.05 | 0.041 |
| LOSS | 0.255 | 0.059 | 4.28 | 0.000 |
| LNAFEE | 0.933 | 1.040 | 0.90 | 0.372 |
| AIS | −2.301 | 1.108 | −2.08 | 0.041 |
| Mtenure | −0.219 | 0.091 | −2.40 | 0.016 |
| Mchange | 0.668 | 0.115 | 5.79 | 0.000 |
| Bind | −0.392 | 0.143 | −2.74 | 0.006 |
| CG | 6.497 | 0.398 | 16.30 | 0.000 |
| HHI_Audit | −0.664 | 0.309 | −2.15 | 0.032 |
| _con | 57.797 | 22.709 | 2.55 | 0.013 |
| R-SQ | | 0.3026 | | |
| R-SQ2 | | 0.2683 | | |
| Prob Model | | F(19, 81) = 1.56 | | |
| | | Prob > F = 0.0867 | | |

Table 11. The results of the model.

| Variable | T + 1 | | OLS | | Fixed Effect | |
|-----------|--------|----------------------|---------|--------------------|--------------|-------------------|
| | Ncskew | Coef | Prob | Coef | Prob | Coef |
| ACCQ | −0.639 | 0.009 | −0.690 | 0.006 | −0.950 | 0.000 |
| AQ | −1.055 | 0.086 | −0.642 | 0.056 | −0.495 | 0.070 |
| Atenure | 0.473 | 0.708 | −0.851 | 0.247 | −0.218 | 0.774 |
| Achange | −0.039 | 0.004 | −0.220 | 0.003 | −0.048 | 0.001 |
| Size | −0.122 | 0.002 | −0.068 | 0.895 | −0.173 | 0.004 |
| LEV | −0.002 | 0.000 | −0.416 | 0.017 | −0.007 | 0.004 |
| ROA | 2.055 | 0.048 | 0.089 | 0.022 | 0.710 | 0.018 |
| ROE | 2.119 | 0.005 | 0.268 | 0.005 | 0.327 | 0.525 |
| AGE | 0.016 | 0.245 | 1.375 | 0.040 | −0.489 | 0.005 |
| GRW | 0.255 | 0.035 | 0.344 | 0.002 | 0.170 | 0.004 |
| MTB | 0.398 | 0.091 | 0.854 | 0.022 | 0.084 | 0.002 |
| LOSS | 0.717 | 0.066 | 0.825 | 0.016 | 0.045 | 0.000 |
| LNAFEE | 0.423 | 0.113 | 0.084 | 0.733 | 1.177 | 0.016 |
| AIS | −0.048 | 0.044 | −1.369 | 0.028 | −1.426 | 0.123 |
| Mtenure | −0.031 | 0.002 | −0.071 | 0.563 | −0.073 | 0.000 |
| Mchange | 1.668 | 0.203 | 1.070 | 0.062 | 0.989 | 0.053 |
| Bind | −4.018 | 0.029 | −1.850 | 0.519 | −9.455 | 0.328 |
| CG | −1.055 | 0.031 | −0.473 | 0.000 | −0.055 | 0.051 |
| HHI_Audit | −0.132 | 0.046 | −36.926 | 0.078 | 802.803 | 0.009 |
| _con | 4.881 | 0.200 | 3.330 | 0.502 | 28.885 | 0.038 |
| R-SQ | | 0.8027 | | 0.7242 | | 0.1988 |
| R-SQ2 | | 0.4826 | | 0.6763 | | 0.1198 |
| Prob | | Wald chi2(19)= 77.51 | | F(19, 182) = 12.50 | | F(19,149) = 1.95 |
| Model | | Prob > chi2 = 0.0000 | | Prob > F = 0.0000 | | Prob > F = 0.0146 |

Based on the fixed effects method, there is a significant negative relationship between accounting quality, corporate governance, and SPCR. This is because their *p*-values equal 0.000 and 0.051, lower than the significance level of 5%. Their coefficients equal negative

amounts of 0.950 and 0.055. Based on the fixed-effect method, a positive and significant relationship exists between audit fees and audit concentration with SPCR. Their p -values equal 0.016 and 0.009, and their coefficients equal positive amounts of 1.177 and 802.803, hence this equation contradicts previously applied methods. There is no significant relationship at the level of 95% between audit quality and auditor industry specialization with SPCR.

The research model was tested with different methods to ascertain the results' robustness and determine whether the results aligned with the main results. According to Table 12 and based on the random effects method, there is a negative and significant relationship between accounting quality, auditing, and audit concentration with SPCR. Their p -values equal 0.004, 0.026, and 0.000, lower than the significance level of 5%. Their coefficients are negative amounts of 0.012, 0.075, and 0.016. Based on the random-effects model, there is no significant relationship at the level of 95% between auditor industry specialization and corporate governance with SPCR in the pre-ISIS era. However, according to the random effects method, there is a positive and significant relationship between audit fees and SPCR in the pre-ISIS era. This is because its p -value equals 0.000 and its coefficient equals 0.107, which indicates a positive and significant relationship between these two variables.

Table 12. The results of the model for pre-ISIS.

| Variable | Fixed Effect | | OLS | |
|------------|--------------|--|--------|---------------------------------------|
| | Coef | Prob | Coef | Prob |
| Ncskew | | | | |
| ACCQ | −0.002 | 0.004 | −0.233 | 0.000 |
| AQ | −0.027 | 0.026 | −0.014 | 0.007 |
| Atenure | −2.501 | 0.010 | −2.448 | 0.010 |
| Achange | −7.027 | 0.025 | −6.962 | 0.010 |
| Size | 0.056 | 0.027 | 0.165 | 0.000 |
| LEV | 0.448 | 0.520 | 0.425 | 0.676 |
| ROA | −0.028 | 0.000 | −1.098 | 0.717 |
| ROE | 1.633 | 0.456 | 1.660 | 0.521 |
| AGE | −0.009 | 0.742 | −0.027 | 0.000 |
| GRW | 0.122 | 0.439 | 0.119 | 0.629 |
| MTB | −0.139 | 0.083 | −0.139 | 0.130 |
| LOSS | −2.344 | 0.101 | −2.314 | 0.079 |
| LNAFEE | 0.107 | 0.000 | 0.165 | 0.000 |
| AIS | 1.149 | 0.310 | 1.104 | 0.347 |
| Mtenure | −0.101 | 0.762 | −0.065 | 0.858 |
| Mchange | 0.053 | 0.021 | 0.045 | 0.046 |
| Bind | −0.028 | 0.000 | −0.018 | 0.016 |
| CG | −0.059 | 0.083 | −0.010 | 0.000 |
| HHI_Audit | −0.078 | 0.000 | −0.018 | 0.014 |
| _con | 14.126 | 0.088 | 14.028 | 0.162 |
| R-SQ | | 0.3627 | | 0.3532 |
| R-SQ2 | | 0.3485 | | 0.3274 |
| Prob Model | | Wald chi2(19) = 138.19 Prob > chi2 = 0.0000 | | F(19, 48) = 1.38 Prob > F = 0.1825 |

According to the ordinary least square method, there is a negative and significant relationship between accounting quality, auditing, corporate governance, and audit concentration with SPCR. Their p -values are 0.000, 0.007, 0.000, and 0.014, lower than the significance level of 5%. Their coefficients equal negative amounts of 0.233, 0.014, 0.010, and 0.018. According to the ordinary least square method, there is no significant relationship at a 95% level between auditor industry specialization and SPCR in the pre-ISIS era. However, according to the ordinary least square method, there is a positive and significant relationship between audit fees and SPCR in the pre-ISIS era. This is because its p -value equals 0.000, and its coefficient is a positive amount of 0.165, which indicates a positive and significant relationship between these two variables.

Table 13 shows a negative and significant relationship between accounting quality, auditing, corporate governance, and auditor concentration with SPCR. Their p -value is 0.000, 0.000, 0.021, and 0.006, which is lower than the significance level of 5%. Their coefficients are negative amounts of 0.019, 0.104, 0.04, and 0.392. Based on the $t + 1$ method, there is no significant relationship at a 95% level between auditor industry specialization and audit fee with SPCR in the post-ISIS era.

Table 13. The results of the model for post-ISIS.

| Variable | T+1 | | OLS | | Fixed Effect | |
|-----------|-------------------|-------|--------------------|-------|-----------------------|-------|
| | Coef | Prob | Coef | Prob | Coef | Prob |
| ACCQ | −0.019 | 0.000 | −0.094 | 0.017 | −0.235 | 0.030 |
| AQ | −0.104 | 0.000 | −0.011 | 0.014 | −0.010 | 0.000 |
| Atenure | −0.014 | 0.018 | −0.165 | 0.420 | −0.212 | 0.316 |
| Achange | 1.809 | 0.200 | 0.153 | 0.000 | 0.103 | 0.036 |
| Size | −0.225 | 0.083 | −0.002 | 0.079 | −0.002 | 0.071 |
| LEV | 0.355 | 0.552 | 0.001 | 0.060 | −0.095 | 0.790 |
| ROA | 1.438 | 0.043 | 0.255 | 0.000 | 0.136 | 0.529 |
| ROE | 0.042 | 0.004 | 0.015 | 0.007 | 0.155 | 0.007 |
| AGE | −0.014 | 0.005 | −0.007 | 0.004 | −0.014 | 0.559 |
| GRW | 0.668 | 0.000 | 0.004 | 0.000 | 0.016 | 0.005 |
| MTB | 0.100 | 0.043 | 0.024 | 0.004 | 0.030 | 0.021 |
| LOSS | 0.977 | 0.410 | 0.093 | 0.894 | 0.153 | 0.000 |
| LNAFEE | 0.567 | 0.252 | 0.030 | 0.021 | 0.005 | 0.002 |
| AIS | −1.755 | 0.185 | −2.299 | 0.004 | −2.255 | 0.012 |
| Mtenure | −0.104 | 0.000 | −0.056 | 0.705 | −1.927 | 0.000 |
| Mchange | 0.116 | 0.026 | 0.153 | 0.000 | 0.465 | 0.000 |
| Bind | −0.033 | 0.002 | −0.010 | 0.000 | −0.002 | 0.004 |
| CG | −0.094 | 0.021 | −0.756 | 0.083 | −0.094 | 0.017 |
| HHI_Audit | −0.392 | 0.006 | −50.555 | 0.045 | −47.302 | 0.078 |
| _con | 3.793 | 0.717 | 1.615 | 0.793 | 2.525 | 0.700 |
| R-SQ | 0.5668 | | 0.5965 | | 0.5718 | |
| R-SQ2 | 0.5275 | | 0.5614 | | 0.3982 | |
| Prob | F(19, 80) = 0.68 | | F(19, 114) = 17.75 | | Wald chi2(19) = 66.21 | |
| Model | Prob > F = 0.8287 | | Prob > F = 0.0000 | | Prob > chi2 = 0.0000 | |

Based on the ordinary least square method, there is a negative and significant relationship between accounting quality, auditing, auditor industry specialization, and auditor concentration with SPCR. Their p -value is 0.017, 0.000, 0.014, 0.004, and 0.045 accordingly, which is lower than the significance level of 5%. Their coefficients are negative amounts of 0.094, 0.011, 2.299, and 50.555. Based on the ordinary least square method, there is no significant relationship at a 95% level between corporate governance and SPCR in the post-ISIS era. However, according to the ordinary least square model, there is a positive relationship between audit fees and SPCR in the post-ISIS era. This is because its p -value equals 0.021, and its coefficient is 0.030, indicating a positive and significant relationship between these two variables.

Based on the random-effects model, there is a negative and significant relationship between accounting quality, auditing, auditor industry specialization, and corporate governance with SPCR after the ISIS era. Their p -values are 0.030, 0.000, 0.002, and 0.017, accordingly lower than the significance level of 5%. Their coefficients are negative amounts of 0.235, 0.010, 2.255, and 0.094. According to the random-effects model, there is no significant relationship at 95% between auditor concentration and SPCR in the post-ISIS era. Based on the random-effects model, there is a positive and significant relationship between audit fees and SPCR. This is because its p -value equals 0.002 and its coefficient equals 0.005, which indicates a positive and significant relationship between these two variables.

6. Discussion and Conclusions

Recently, the SPCR has drawn the attention of accounting scholars and activists in the markets (Kousenidis et al. 2014; Richardson et al. 2005). The financial crisis had an indicative impact on financial markets. The political and economic instability resulting from the entry of ISIS into Iraq has created severe problems for society's economic, political, security, and performance dimensions. This instability can significantly impact the accounting quality. The auditors' role and audit attributes in guaranteeing the fairness of financial reports and the quality of accounting figures have received remarkable attention from empirical and analytical efforts. This study addresses the relationship between accounting quality and audit attributes with companies' SPCRs on the Iraqi Stock Exchange. This study selected audit quality, auditor industry specialization, audit concentration, and audit fees for audit attributes.

Results show a significant positive relationship between audit fees and SPCR.

Results show a significant positive relationship between audit fees and SPCR. This is also confirmed by research on Europe and Asia. (Allen and Geiger 2012, pp. 57–116; Fan and Xu 2022, p. 111925).

Further, a negative and significant relationship exists between accounting quality, auditing, and auditor industry specialization with SPCR. Based on the results, there is no significant relationship between corporate governance and SPCR at the 95% confidence level. However, at the 90% confidence level, there is a negative and significant relationship. There is no significant relationship between corporate governance and SPCR at the 95% confidence level. Yet, at a 90% level, there is a negative and significant relationship between these variables. Additionally, there is no significant relationship between audit concentration and SPCR.

In the test of pre-ISIS data, there is a positive and significant relationship between audit fees and SPCR. There is a negative and significant relationship between accounting quality, auditing, corporate governance, and audit concentration with SPCR. In contrast, the results of post-ISIS data show a positive and significant relationship between corporate governance and SPCR during and after ISIS. This conveys that ISIS has negative corporate governance to perform its monitoring duties correctly to reduce SPCR. However, this relationship was negative in the pre-ISIS era because of increased corporate governance and reduced SPCR. Furthermore, the relationship between audit fees and SPCR is not confirmed. Additionally, there is a negative and significant relationship between accounting quality, auditing, auditor industry specialization, and auditor concentration with SPCR during and after the ISIS era.

This study provides deep insights into audit qualities by analyzing four audit attributes' distinct effects on stock price risk. This paper may contribute to the incremental documents of SPCR. The results from the Iraq developing market add to the understanding of how the financial market participants may use available data to compare with that of developed markets. The findings of this empirical paper may generate helpful information for legislators and capital market analysts, contribute to the development of knowledge in this field, and bridge the gap in the literature.

Our paper also provides some practical implications for equity owners and CEOs. According to the findings of this study, the equity owners are informed that they can preclude the probability of SPCR by improving the corporate governance mechanisms, such as the number of board members, audit committee and board specialization, the presence of audit committee, and board independence. Moreover, they may reduce the SPCR by contracting with auditors possessing particular characteristics, including specialized, market concentration, and high-quality services. More importantly, firms' authorities are aware that paying greater audit fees to auditors might be translated by the market analysts as hoarding bad news inside the firms by providing auditors with economic incentives. Finally, market policy makers may use our findings to design and implement policies, including improving investors' rights protection and external corporate governance mechanisms, to rectify the impact of the regional phenomenon, such as ISIS consequences, on the market. The unchanged findings of the pre-ISIS and post-ISIS suggest that strong corporate governance

mechanisms such as accounting quality, audit specialization, and board characteristics are likely to perform their governance role effectively even after the unexpected crisis. Thus, emphasizing such issues is likely to improve countries' business environment.

All the research might be suffered from potential limitations. In this paper, the investigated firms have been decreased by data integration; in case of having further data of Iraqi listed firms, the possibility of having different conclusions would be increased. Additionally, the chosen period and region to conduct the study are limited to the specifications stated in the third section. Therefore, such limitations must be considered to generalise the findings to other ages and geographical regions.

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