

The nexus between audit features and timely financial reporting in the GCC region: A moderating role for institutional ownership

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Abstract

This research examines the nexus between audit features and timely financial reporting in the GCC region. The delay in submitting audit reports (ARL) amplifies uncertainty and diminishes confidence in financial statements. Thus, the study focuses on audit firm size, auditor change, busy audit season, institutional ownership (IO), and the timeliness of audit reports for non-financial companies listed on the stock exchanges of Gulf Cooperation Council (GCC) economies. The research draws on 5,271 firm-year observations spanning from 2009 to 2023. To test the hypotheses, the study employs both the generalized method of movements (GMM) technique combined with propensity score matching (PSM) approach. The study reveals that changes in auditors, a busy audit season, and the implementation of the Big 4 significantly increase the ARL in the GCC. Furthermore, institutional ownership cannot mitigate the detrimental effects of these three audit features on ARL. However, IO with at least a 20% stake significantly curtails the negative role of audit features in increasing the ARL in the region. Our research concludes that audit-related features and institutional ownership are very critical in preventing unnecessary delays in the audit report. The increasing ARL in GCC requires the regulator to revisit the legislation regarding the appointment of auditors, auditor change, busy audit season, and the stake of institutional ownership for the listed companies.

Keywords: ARL, Auditor change, Big 4, Busy season, GCC, Institutional ownership.

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1. Introduction

Timely financial information is a basis for effective decision-making for stakeholders such as investors, creditors, and regulators [1]. The accuracy and reliability of this information are crucial, as these stakeholders heavily rely on financial statements to assess a firm's financial health and make informed decisions [2]. Given this reliance, the timeliness of financial reporting has become a focal point for regulators worldwide [2]. Audit report lag (ARL), defined [3] as "the period between a firm's financial year-end and the actual audit report date," is one of the most significant factors in ensuring that financial information is not only accurate but also delivered in a timely fashion. This timeliness enhances the credibility and reliability of the financial statements, which, in turn, bolsters stakeholder confidence [1].

In contrast, the repercussions of a prolonged ARL are also far-reaching. A longer ARL can lead to increased information asymmetry between the management and stakeholders, which negatively impacts market performance and can cause significant unfavorable market reactions [4, 5]. Delayed financial information may also create uncertainty about the firm's true financial position, leading to increased volatility in stock prices and potentially causing investors to lose confidence in the firm. Moreover, delays in financial reporting challenge the quality of reported earnings, exacerbate information asymmetry, create unrest among well-informed stakeholders, and escalate uncertainty regarding investment valuations [6, 7].

Understanding ARL is crucial, particularly in emerging markets where financial systems are still developing. Despite the significant impact of ARL on financial reporting, the determinants of ARL, particularly in emerging markets, remain underexplored. Previous studies have focused on auditor-associated factors that influence ARL, such as audit firm size, auditor change, and the busy audit season [8, 9]. These factors are crucial, as they directly affect the efficiency and effectiveness of the audit process, which, in turn, influences the timeliness of financial reporting. However, these studies lack generalizability across different economies and sectors, raising questions about the applicability of their findings in diverse contexts.

1.1. Research Gap and Objectives

Given the critical role that ARL plays in financial reporting and market stability, this study aims to fill the research gap by examining the factors influencing ARL in the Gulf Cooperation Council (GCC) markets. The GCC region, with its unique economic, regulatory, and corporate governance environment, provides a distinct context for studying ARL. While previous studies have examined ARL in developed markets, there is limited research on this topic within the GCC, a region characterized by rapid economic development and evolving financial systems. This study particularly focuses on the role of institutional ownership, a governance mechanism that could potentially mitigate ARL. Institutional investors are known to play a significant role in enhancing corporate governance by reducing information asymmetry and agency costs, thereby potentially influencing ARL.

1.2. Significance and Contribution of the Study

The significance of this study lies in its potential to contribute to the understanding of ARL in emerging markets, with a specific focus on the GCC region. By exploring the unique challenges and dynamics of the GCC markets, this study offers insights into how governance mechanisms, such as institutional ownership, can reduce ARL and enhance the quality of financial reporting. This is particularly important in the GCC context, where timely and accurate financial reporting is crucial for maintaining investor confidence and ensuring market stability. The findings of this study are expected to have practical implications for regulators, auditors, and corporate governance bodies in the region, providing them with a better understanding of the factors that influence ARL and how they can be managed to improve financial reporting practices.

1.3. Research Questions

Keeping in view the above discussion, this study aims to answer the following research questions:

- 1. What are the key determinants of audit report lag in the GCC markets?
- 2. How does institutional ownership influence audit report lag in the GCC context?

3. What are the broader implications of ARL for market performance, regulatory compliance, and economic stability in the GCC region?

The remainder of the study consists of section two, which presents an overview of the GCC markets and their relevance to ARL. Section three documents the previously documented work and particularly highlights the key factors affecting ARL. In section four, we outline the research methodology, including data sources and analysis techniques. Section five reports the findings of the study, while section six discusses the implications of these findings. Finally, we conclude the study with section seven, which summarizes the key findings and suggests avenues for future research studies.

2. Audit Report Lag (ARL) in Context of GCC Markets

ARL is associated with reduced transparency in GCC, which in return is increasing the uncertainty, leading to an erosion of investors' confidence and adversely impacting the stock prices, price volatility, foreign investments, and ability to capitalize on the new opportunities in the region [10-12]. Longer ARL boosts stock market volatility by causing uncertainty in the financial markets. When investors are uncertain about the company's financial situation, they are more inclined to sell their shares even if the prices are declining, raising volatility. Listed companies must disclose their financial reports within a certain time range per regulatory criteria in GCC nations. However, higher regional ARL leads to non-compliance with such regulatory requirements. For instance, Arabic Holding in 2014, Dana Gas in 2017, Mobily in 2016, United Arab Shipping Company in 2017, Agility in 2009, Abraaj in 2018, and Saudi Enaya in 2019 are a few among many to cite who missed the deadlines. Therefore, regulators stepped in and took action, which included fines (e.g., Abraaj was fined \$315 million, and

Enaya was fined Saudi Riyal (SAR) 150,000), and their shares were suspended from the stock markets until they complied with the requirements. However, these regulatory actions decrease the market integrity, raise volatility, and breed uncertainty in the GCCs' stock markets [11].

Similarly, regulators rely on timely and accurate financial reporting to monitor businesses and take necessary action when warranted. Thus, in GCC, regulators cannot discover potential problems and take prompt corrective action when financial reporting is delayed. For example, the NMC scandal in the UAE remained undetected largely due to delayed reporting [11]. Further, GCC nations are harmonizing their financial reporting standards and procedures with global norms and best practices [13]. International regulators and investors utilize ARL as a crucial criterion to evaluate the accuracy and integrity of financial reporting. Because it may affect how foreign investors and regulators see the GCC financial markets, GCC regulators are concerned about audit report delays [13].

Also, when deciding on credit approval, suppliers/lenders evaluate a company's financial standing using auditor reports. Delayed reporting (longer ARL in our case) than its competitors makes it hard for firms to receive credits on their desired terms and conditions, negatively affecting their regular operations and new investments [14]. Therefore, Moody's downgraded reporting in 2019 and 2020 to secure credit for several GCC-listed firms. Rising ARL is strongly related to the rising capital cost in the region, and the study of Kalelkar and Xu [15] empirically supported this argument by tabulating that rising ARL does contribute to the increasing cost of capital for firms. Figure 1 shows the rising cost of capital in the GCC region over recent years, which is subject to the following reasons. First, investors in GCC perceive a delay in the audit report as less reliable reported results [15]. Second, examining the auditor-client negotiations, researchers [16] discovered that auditors frequently make compromises after lengthy discussions with the client. Third, studies found that high lag times cause financial failure, internal control risks, and poor governance [e.g., [15, 17]]. Hence, such delayed reporting raises investors' perceived information risk, which in turn raises the capital cost, as has been happening in GCC. This calls for immediate attention to the fact that firms in the region need an improvement in their reporting quality, and the rising ARL is indeed a matter of concern to this effect.



GCC-weighted average cost of capital

At a macro level, ARL leaves several economic implications for the region. From the aforementioned arguments, it is quite logical to conjecture that since longer ARL reduces the market efficiency, hampers the investors' confidence, raises the cost of capital, reduces the firms' competitiveness, and increases non-compliance with regulatory requirements, the economic uncertainty rises, which has been further denting the economic growth and development of GCC countries in the recent years. Therefore, there is an increasing need for corporations and their auditors to enhance their auditing and financial reporting procedures, with the aim of reducing the audit report lag.

3. Literature Review

Several studies found that longer ARL is associated with negative market reactions and stock price crashes [see [8, 18, 19]]. Negative market reactions arise as investors prefer shorter ARLs because a longer ARL causes delays in earning announcements and reduces earning informativeness, leading to negative sentiments and thus, negative market reactions Habib and Huang [8] and Whittred and Zimmer [14]. Habib and Muhammadi [18] reported that firms experienced negative market returns in the immediate aftermath of the delayed audit report. Moreover, a longer ARL typically signifies extended discussions between the auditor and the client, often stemming from concerns about the client firm's earnings quality [20]. As Hutton, et al. [21] argued, managers may be tempted to conceal bad news by manipulating reported financial results, which increases the risk of a price crash. In this context, an external audit is important because it verifies the accuracy of

financial accounts and enables prompt disclosure of adverse news, thereby limiting the risk of a price crash. Supporting these arguments, an earlier study by Habib and Huang [8] has empirically reported that shorter ARL reduces investor belief heterogeneity, which could prevent price crashes. The quality of financial reports is critical for market confidence and keeping investors well-informed. A shorter ARL increases the quality of financial reports and the information provided, which can certainly result in higher returns [22]. Therefore, a better comprehension of the factors determining ARL allows stakeholders to classify and react to the driving factors that could be challenging or unfavorable to the audit appointment, audit client, or its stakeholders.

Audit firm size (Big 4) is a significant determinant of ARL. It is important to determine ARL related to resources that require managing audit tasks within the timeframe. Technological development often equips these firms, aiding them in task management. Likewise, the literature strongly supports that the presence of Big-N, or an auditor from larger firms, provides timely financial reports. Also, Big-N or large, firms have international exposure [23, 24]. Studies have also reported that larger auditing firms have greater monitoring capability [25] their staff is comparatively more experienced and large [26], the staff is better trained [25] and the firms have enough technological resources to accomplish the task [27] (see Appendix A). Additionally, the Big-N auditors are likely to complete audits timely to preserve their market repute since they cannot afford any signal of their negativity [26]. Because of this, empirical evidence also shows shorter ARL for firms audited by Big-N or larger audit firms [e.g., see [28]].

Another variable of concern is audit season, which can also increase ARL, as the "busy-season" clients negatively affect audit firms' task management efficiency, which may significantly increase ARL. This view is empirically supported by the literature [for example, see [29, 30]] [for example, [30]], which documented positive relationships. In contrast, auditors can offset workload pressures during the busy season through overtime, allowing them to serve a maximum number of clients within the required timeframe, potentially decreasing ARL [29]. Further, auditor workload during busy seasons has been cited as a regulatory risk, threatening the integrity of financial reporting. Regulatory bodies, including PCAOB, CAQ, and the International Accounting Standard Board (IAASB) in the United States, have highlighted threats to the accuracy of financial reporting posed by overburdening audit partners and staff during busy seasons [31, 32]. Previous research has also supported a negative relationship between audit partner busyness and audit quality [33, 34] consistent with the busyness hypothesis that many audit assignments reduce the time and effort available to audit partners. Goodwin and Wu [35] using data from Australia, found that audit partner busyness during the busy audit season does not affect audit quality and argue that each partner optimally manages their busyness. Thus, they suggest that the busy audit season may benefit auditors through knowledge spillover, enabling them to complete audit work more efficiently and maintain audit integrity [36].

The relationship between audit tenure and ARL is somewhat mixed. One perspective suggests that changing auditors increases ARL because the new auditor needs time to adapt to the client's accounting practices and other related concerns [37]. The earlier scholars Abdelsalam and Street [38]; Afify [26]; Abernathy, et al. [39] and Habib, et al. [30] empirically supported the notion and found a positive association between audit tenure and ARL. However, Harjoto, et al. [29] failed to find any significant association between auditor tenure and ARL. Tanyi, et al. [40] provided an in-depth analysis, reporting that changing auditors increases ARL, but the effect is mitigated when firms retain their past auditor. Conversely, auditors with longer tenures detect financial misstatements more quickly and can significantly reduce ARL [41]. This finding highlights the importance of the audit partner/client relationship in ARL. Similarly, constraints place additional pressure on auditors to complete the audit accurately, resulting in a negative correlation between audit efficiency and audit time pressure [42].

4. Theoretical Framework and Hypotheses Development

4.1. Theoretical Framework

The current study draws on various theories to construct the framework for the empirical examination of determinants of ARL in GCC countries. Primarily, this research follows "agency theory" to elucidate the link of corporate governance factors with ARL. The literature suggests that agency and resource dependency theories serve as the fundamental foundations for managerial decisions. In this study, agency theory addresses the conflict of interest between management and other stakeholders, whereas resource-dependent theory explains how the external resources of organizations are used to align with the interests of stakeholders.

Auditor-associated factors such as audit firm size, auditor change, and busy audit season are also crucial. These factors are expected to negatively contribute to the issue of rising ARL in the GCC region. Agency theory is also a useful economic theory of accountability, which supports the development of the audit. External auditors ensure that the firm's internal controls, procedures, guiding principles, and policies are suitable, effective, and compliant with governmental requirements, industry standards, and company policies. Understanding audit firm size, auditor change, and busy audit season may provide insights into audit efficiency, given the expected variation in ARL across economies. The board appoints an external auditor to provide a reliable and timely audit of the firms, ultimately reducing agency conflicts [40, 43]. This study considers three auditor-associated factors as determinants of ARL in GCC economies. These factors include the size of audit firms (Big 4), changes in auditor, and busy audit season. In hypotheses 1, 2, and 3, their negative role in increasing the ARL in GCC is tested.

Further, stewardship theory emphasizes relationships in which shareholders engage managers to function on their behalf. On the other hand, agency theory undertakes that managers are motivated not by private benefit but by the need to gain intrinsic satisfaction through effectively accomplishing innately inspiring work to use authority [44]. As dominant owners of listed companies, institutional investors are expected to act as responsible stockholders and influence corporate policies through their strong monitoring mechanisms [45]. In the context of ARL, institutional investors' presence is expected to

improve the relationship between auditor-related factors and ARL, thus helping to resolve the issue of insignificant, inconclusive, and conflicting associations reported by existing studies [46-49]. Institutional investors play a crucial mitigating role in the GCC economies, as they possess strong incentives to participate in governance and ensure timely audit reports [47]. Thus, hypotheses 4, 5, and 6 test their moderating role in the relationship between audit firm size, auditor change, busy audit season, and ARL. Figure 2 represents the framework based on the discussed theoretical perspectives.



Theoretical framework.

4.2. Hypotheses Development

4.2.1. Audit Firm Size and the ARL

The lag in audit reports is associated with auditor affiliation. Auditors affiliated with Big 4 audit firms can be categorized into Big 4 audit firms versus non-Big 4 audit firms [9, 30]. As mentioned by the Big 4, large firms are comparatively better at conducting audits promptly since these firms often have skilled personnel [50]. These firms also allocate resources to train their employees appropriately and utilize the latest technology, regardless of the cost, as they prioritize timeliness. Further, these firms are more visible, and their market reputation also forces them to conduct the audit fairly and transparently [22]. So far, the literature highlights that these firms maintain the timeliness of audit reports, which ultimately reduces ARL [39]. Similarly, these firms are highly graded in the market due to their independence in conducting the audit and are more likely to repel any pressure exerted by the client in case of audit-related conflicts [51].

Historically, these firms are considered resistant to pressure from clients irrespective of the client's strength or influence [22, 52]. On the other hand, a contrasting perspective suggests that large firms positively correlate with ARL due to their propensity for lengthy client negotiations and their expectations to engage in more negotiations to ensure the credibility and reliability of financial reports. This could potentially lead to an increase in audit report latency if a large firm undertakes an audit of a firm [53]. Moreover, these audit firms are more cautious and perform comparatively more comprehensive audits than an average audit firm, since they have more to lose in litigations and lawsuits, thus increasing ARL [40].

At the same time, it is worth stating that these firms are also likely to handle client audits after any ambiguity or mistrust created by the earlier audit firm. Hence, the audit in such a scenario requires more attention and fieldwork to challenge the ambiguity or fraud caused by an earlier auditing firm [54]. One of the biggest challenges auditors face us revenue recognition. This issue involves the most complex and sensitive audit areas for the most apparent motives. The supportive audit evidence is often fragile or too unclear [55]. Therefore, audit firms must conduct a fundamental test for timeliness [50]. To authenticate documents like sales or purchase invoices, the auditor follows invoice verification, which takes longer than normal. Likewise, the issue of financial fraud is more pronounced in economies where legal protections have poor standings [40]. The larger audit firms have a lot to lose in these economies, and their ranking remains at stake [56].

Checking the issues methodically for fraudulent intents and prejudices is crucial. Big audit firms often delay their audit reports because they need to establish their authority and vigilance over the auditing of their client firms [57-59]. This argument is more appropriate in a competing and challenging environment like the GCC. Given the context of this study, the role of big audit firms seems to be more challenging as the governance structure is comparatively weaker, and shareholders' protection rights are not sufficiently implemented in the GCC countries. Given the challenging viewpoint regarding the relationship between Big 4 auditing and ARL, the current research develops the following hypothesis for empirical testing: *Hypothesis 1: Larger audit firm size (i.e., Big 4) increases audit report lags in the GCC countries.*

4.2.2. Auditor Change and the ARL

The negative consequences of auditor's change on financial and non-financial outcomes have appealed to general attention from managers and investors. Despite the mandatory disclosure of pertinent information about auditor changes, the

primary motives remain uncertain or imprecise [60]. They also argued that auditor changes are likely important to the deviations in client risk. In line with this view, the empirics highlighted evidence that the auditor's changes might be driven by the firm's financial and litigation risk or auditors' apparent risk exposure [61]. Additionally, the new auditor's name must be disclosed when its appointment is expected to impact stakeholders positively; however, the scenario is completely different in a situation when negative consequences are expected. This leaves the investors' risk and returns at stake because a negative outcome could cause them unanticipated losses. In the context of audit report lag, [62] reported that a firm that changes its auditor late (early) in its financial year often experiences an average increase (reduction) in its audit report lag. Any delay in making change increases the likelihood of higher audit report lag, as newly appointed auditors typically take time to familiarize themselves with the management and evaluate the internal audit system [63]. A recent study by Tanyi, et al. [40] posited that auditor changes positively correlate with audit report lag because they cause distractions and escalate audit risk in the first year of audit assignment. There is evidence to suggest that any auditor change will increase audit report lag [30, 64]. Similarly, GCC economies should exhibit a similar relationship. Therefore, the views lead to the following hypothesis in the context of GCC economies:

Hypothesis 2: The change in auditor during a fiscal year increases the ARL in the GCC countries.

4.2.3. Auditing Season and the ARL

During the audit season, auditors frequently encounter significant workload disparities, which, according to Yerkes and Dodson [65] can lead to stress or arousal levels that surpass the optimal threshold. When stress exceeds this threshold, performance declines, a phenomenon that has been empirically supported in the auditing context [66]. Research into the effects of workload imbalances among audit firms has traditionally employed experimental or survey methods to explore the relationship. These studies typically focus on "time pressure," a key aspect of workload disparity, defined as the pressure to complete tasks within limited timeframes. In the auditing field, time pressure is particularly pronounced during busy seasons when multiple clients require services simultaneously. Previous experimental studies have consistently highlighted the detrimental impact of deadline pressure on audit quality [67].

More recent research has adopted archival methods to examine the effects of workload pressure, focusing on busy seasons and the interval between the actual publication of audit reports and their deadlines [68]. These studies have largely confirmed earlier findings, suggesting that even with stretched audit resources, the behavioral and physiological stress induced by workload disparities makes it difficult for audit firms to meet deadlines. These delays are often attributed to the misallocation of resources, which tend to be concentrated on fieldwork rather than addressing the technical complexities of the audit process. Consequently, the scarcity of resources during the audit season exacerbates delays, leading to increased audit report lag.

The pressure associated with the audit season has been found to negatively affect an audit firm's task processing accuracy, undermine the effectiveness of the technology employed by auditors [42] and diminish professional skepticism. These factors collectively contribute to a longer ARL during the busy season. Empirical studies have supported this view, demonstrating a negative relationship between the audit busy season and the timeliness of audit reports [29, 61, 68].

To mitigate the issue of audit report delays, some researchers suggest that audit firms could counteract the pressure of the busy season by hiring additional personnel, investing in advanced technology, or extending working hours. These measures, theoretically, could reduce ARL. However, the dominant perspective in the literature emphasizes the cognitive strain placed on auditors during busy seasons, which continues to be a significant factor in explaining audit delays. This leads to the following hypothesis:

Hypothesis 3: The busy audit season during a fiscal year increases the audit report lag in the GCC countries.

4.2.4. Curtailing Role of Institutional Ownership

Institutional investors, due to their fiduciary responsibilities, are more invested in and attentive to the governance of a company than individual investors [67]. Companies with higher levels of institutional ownership tend to be more closely monitored, which can influence audit-related factors, including ARL. Institutional investors have a vested interest in ensuring that the firm makes decisions that maximize shareholder value [69]. This oversight often extends to encouraging the firm to engage high-quality auditors, such as the Big 4 or industry-specialized auditors, who are likely to reduce audit report lag through more efficient audit processes [70].

Institutional investors exert significant influence over corporate decisions, including those related to the selection and retention of external auditors [71, 72]. As active shareholders, they can offer specific recommendations and vote on board decisions, such as the appointment of an external auditor. Empirical studies have shown that institutional ownership positively impacts auditor selection and monitoring, often leading to the selection of auditors with greater expertise and experience [73-75]. This active monitoring by institutional investors can enhance audit quality and reduce the likelihood of delays in audit report issuance.

Moreover, institutional investors often influence audit committees by setting explicit expectations regarding audit quality and process efficiency. This involvement can lead to the selection of auditors who are capable of completing audits more effectively, even during the busy season, thereby reducing audit report lag [76, 77]. Institutional investors' demands for high audit quality, coupled with their ability to influence auditor selection, suggest that they play a crucial role in mitigating factors that typically lead to audit delays.

However, the literature on auditor change presents a nuanced view. While some scholars argue that auditor rotation can enhance auditor independence and, by extension, audit quality, others contend that the costs and disruptions associated with changing auditors outweigh the potential benefits [78, 79]. Auditor rotation has been criticized for potentially reducing audit

quality and efficiency due to the steep learning curve and additional costs associated with on boarding a new audit team [80]. Moreover, studies have found that auditor change does not necessarily improve auditor independence, which is often cited as a primary reason for rotation. This suggests that in companies with significant institutional ownership, where audit quality and independence are already closely monitored, the benefits of auditor rotation may be limited.

In contrast, firms lacking institutional ownership may struggle with weaker management oversight, which can exacerbate the challenges associated with auditor independence and audit quality. In such cases, even with auditor rotation, the inherent issues related to audit report lag may persist [81]. Institutional investors, with their significant investments in monitoring and controlling the audit process, are likely to be better positioned to manage the risks associated with auditor change, thereby potentially reducing audit report lag in such scenarios. Given this context, the following hypotheses are proposed:

Hypothesis 4: Institutional ownership weakens the positive relationship between larger audit firm size (Big 4) and audit report lag in the GCC countries.

Hypothesis 5: Institutional ownership weakens the positive relationship between change in auditor and audit report lag in the GCC countries.

Hypothesis 6: Institutional ownership weakens the positive relationship between the busy audit season and audit report lag in the GCC countries.

5. Methods

5.1. Sample Description

The sample for this study is comprised of 5,271 firm-year observations of non-financial listed firms from 2009 to 2023 across GCC markets. We used specific criteria to finalize our selection for analyses. As the number of firms listed on the stock markets is not the same in each study year, we added only those firms in our sample that remained listed once included in the panel. Moreover, we retrieved the financial data from Thomson Reuters and published reports. Finally, firms' data available on their official websites was also included in the sample. Hence, our final sample was further restricted and consisted of unbalanced panel data from 2009 to 2023. In Appendix A, all variables are defined. The standard 2-digit code was utilized to classify the firms across various industries.

5.2. Independent and Dependent Variables

Habib [52] lag concept underpins our analysis of ARL, which refers to the time between the end of a firm's financial year and the date of its audit report [48]. Audit firm size is measured with a dummy factor taken as 1 if the firm is audited by a Big-4 audit firm, or 0 otherwise. Busy audit season is similarly coded as 1 if the audit is conducted during a busy season, or 0. Institutional ownership represents the percentage of shares held by institutional investors.

The study also controls for various factors at three different levels, such as governance, auditor-related, and firm-specific. The governance level control includes board (independence and gender diversity) and audit committee features (size, accounting expertise, meeting frequency). Auditor-level control includes the auditor's industry specialization, qualified opinion, and audit fee. Finally, firm-level controls are profitability, leverage, IFRS adoption, age, and complexity. Country, industry, year, and COVID-19 effects are also applied as control variables to capture broader contextual influence on ARL. All these control factors are detailed in Appendix A, with references to prior studies [19, 82, 83].

5.3. Summary Statistics: Descriptives and Correlations

Table 1 reports the findings from descriptive statistics and correlation regarding the study variables. The correlation between independent variables is below the threshold level of 70% (i.e., 0.70), hence mitigating the issue of multicollinearity. For further clarity, the "variance inflation factor (VIF)" is also applied to measure the multicollinearity. This test exempts a variable from collinearity issues if the coefficient value derived is less than 10. The VIF happened to be under the threshold value for all the independent variables, and hence, it insisted that there is no concern of multicollinearity. Table 1 also reports descriptive statistics for the mean and standard deviation of the variables. For example, ARL has a standard deviation of 6.97, while the mean value for audit firm size indicates that 51% of the sample firms are audited by Big 4 firms. The mean for auditor change is 0.39, and the mean for the busy audit season is 0.78, indicating that 78% of firms undergo audits during this busy season. Institutional ownership averages 12%, and the mean ARL is approximately 71 days, higher than in other countries.

Table 1.		
Descriptive statistics,	VIF, and correlation matrix	

Variables	Mean	S.D	VIF	1	2	3	4	5	6	7	8	9
ARL (1)	71.28	6.96		1.000								
CEO duality (2)	0.28	0.49	2.39	0.022	1.000							
Board gender diversity (3)	0.18	1.96	1.69	-0.118	-0.149	1.000						
CEO tenure (4)	6.28	4.11	1.65	0.050	-0.013	-0.077	1.000					
Audit committee size (5)	3.30	0.52	2.86	-0.147	-0.126	0.044	-0.015	1.000				
Accounting expertise (6)	2.50	0.79	2.12	-0.320	-0.010	0.218	0.015	0.100	1.000			
Industry-specialization (7)	0.68	0.46	1.98	-0.131	-0.119	0.341	-0.012	0.131	0.116	1.000		
Big 4 (8)	0.51	0.50	1.86	-0.099	0.066	0.094	0.036	0.090	-0.025	0.387	1.000	
Auditor change (9)	0.39	1.23	3.69	-0.032	0.007	0.006	-0.142	0.115	-0.032	0.172	0.049	1.000
Audit fee (10)	0.17	1.76	1.86	-0.139	0.088	0.107	-0.058	0.146	-0.089	0.416	0.344	0.617
Auditor tenure (11)	1.98	0.81	3.98	-0.123	0.031	0.076	0.031	-0.051	0.001	0.015	0.009	0.455
Busy audit season (12)	0.78	1.22	2.60	-0.039	-0.039	0.035	0.026	-0.139	0.009	-0.009	0.041	-0.019
Qualified opinion (13)	0.07	0.27	2.22	0.238	0.004	-0.223	0.122	-0.091	-0.013	-0.001	0.007	-0.372
Audit committee diligence (14)	5.75	1.51	1.86	-0.080	-0.232	0.140	0.055	0.042	0.070	0.016	0.003	-0.026
Board independence (15)	0.31	2.18	1.88	0.099	-0.111	0.054	0.051	0.044	0.057	0.003	-0.020	0.023
Financial leverage (16)	2.99	2.57	2.67	0.286	0.140	-0.143	0.116	-0.035	-0.025	-0.176	0.023	0.031
Firm complexity (17)	12.14	2.63	2.16	-0.114	0.115	0.093	-0.023	0.036	0.051	0.242	0.004	0.022
Firm age (18)	21.27	3.01	1.95	-0.031	0.0441	0.028	0.020	0.109	0.007	0.007	0.032	-0.015
Profitability (19)	5.68	1.05	1.55	-0.077	-0.053	0.071	-0.070	0.020	0.223	0.098	-0.035	-0.013
IFRS adoption (20)	0.47	0.39	2.76	-0.145	-0.006	0.220	0.015	0.139	0.018	0.004	0.209	-0.015
Institutional ownership (21)	0.12	1.27	3.13	-0.022	-0.005	0.185	0.013	0.117	0.015	0.003	0.175	-0.013
Variables	10	11	12	13	14	15	16	17	18	19	20	21
Audit fee (10)	1.000											
Auditor tenure (11)	0.095	1.00										
Busy audit season (12)	0.028	-0.01	1.000									
Qualified opinion (13)	-0.45	-0.17	0.127	1.000								
Audit committee diligence (14)	0.007	0.337	0.044	-0.226	1.000							
Board independence (15)	0.010	0.142	0.315	-0.120	0.150	1.000						
Financial leverage (16)	-0.12	-0.12	0.078	0.436	0.063	-0.133	1.000					
Firm complexity (17)	0.001	-0.05	-0.22	-0.269	0.251	0.385	-0.308	1.000				
Firm age (18)	0.022	-0.23	-0.42	-0.422	0.506	0.117	-0.047	0.172	1.000			
Profitability (19)	0.001	-0.21	-0.29	-0.095	0.335	0.136	-0.042	0.217	0.144	1.000		
IFRS adoption (20)	0.118	-0.01	-0.02	-0.045	0.020	0.071	0.162	0.312	0.388	0.274	1.000	
Institutional ownership (21)	0.099	0.087	0.023	0.005	0.196	0.014	0.124	0.016	0.003	0.186	0.014	1.000

6. Model Specification

This research is conducted in two stages, i.e., in the first stage, we tested the direct impact of CEO duality and tenure on ARL (H1, H2, and H3). For analyses, the Generalized Method of Moments (GMM) estimator was applied following the existing studies such as Cullinan, et al. [84] and Handayani and Ibrani [85]. GMM has an inbuilt mechanism to address the endogeneity issue that generally arises in corporate governance research. This estimator provides more robust estimates by tackling the dynamic relationship between variables and mitigates the risk of bias from omitted variables. In addition, the GMM approach also allows for the inclusion of lagged dependent variables as instruments, making it an appropriate choice for our panel data set that spans over a longer period. Overall, this method overcomes most of the limitations of ordinary least squares (OLS). This study applies the following model to test the hypotheses 1, 2, and 3.

 $ARL_{i,t} = \beta_0 + \beta_1 Audit firm size_{i,t} + \beta_2 auditor change_{i,t} + \beta_3 busy audit season + \beta_2 auditor change_{i,t} + \beta_3 busy audit season +$

 β_4 corporate governance characteristics $_{i,t} + \beta_5$ auditor associated factors $_{i,t} + \beta_6$ firm specific factors $_{i,t} + \sum$ year effect $+ \sum$ industry effect $+ \sum$ country effect $+ \sum$ COVID effect $+ \varepsilon_{i,t}$ (1)

In Equation 1, $ARL_{i,t}$ represents audit report lag of firms I in year t. Further, in this study, corporate governance level (board independence, CEO duality, CEO tenure, board gender diversity, audit committee accounting expertise, audit committee size, and audit committee diligence), auditor level (audit firm industry specialization, qualified audit opinion, and audit fee), and firm level (firm complexity, profitability, financial leverage, IFRS adoption, and firm age), besides year, industry, country, and COVID fixed effects, are the controlled factors. The control factors enhance the internal validity of the model by limiting the impact of confounding extraneous factors. As a dependent variable, ARL is sensitive to the year, industry, country, and COVID due to the potential direct or indirect impact of these four constructs. Therefore, controlling for these factors is important. Further, these control factors also capture any variation in governance and auditor-associated policies in the main model [19, 86, 87]. The error term is represented by $\varepsilon_{i,t}$.

In the second stage, this research applied regression models to empirically examine the curtailing role of institutional investors towards audit firm size, auditor change, busy audit season, and ARL (Hypotheses 4, 5, and 6). The interaction terms are introduced to evaluate these effects, with separate regressions for each interaction term to avoid estimation bias. $ARL_{i,t} = \beta_0 + \beta_1 corporate governance$ characteristics $_{i,t} + \beta_2 institutional ownership_{i,t} + \beta_3 auditor associated factors <math>_{i,t} + \beta_3 institutional$

 $\beta_{4} audit firm size_{i,t} * institutional ownership_{i,t} + \beta_{5} firm specific factors_{i,t} + \sum year effect + \sum industry effect + \sum country effect + \sum COVID effect + \varepsilon_{i,t}$ (2)

 $ARL_{i,t} = \beta_0 + \beta_1 corporate governance characteristics_{i,t} + \beta_2 institutional ownership_{i,t} + \beta_3 auditor associated factors_{i,t} + \beta_4 auditor change * institutional ownership_{i,t} + \beta_5 firm specific factors_{i,t} + \sum year effect + \sum industry effect + \sum country effect + \sum COVID effect + \varepsilon_{i,t}$ (3)

 $\begin{aligned} ARL_{i,t} &= \beta_0 + \beta_1 corporate \ governance \ characteristics \ _{i,t} + \beta_2 institutional \ ownership_{i,t} + \beta_3 auditor \ associated \ factors \ _{i,t} + \\ \beta_4 busy \ audit \ season \ * \ institutional \ ownership_{i,t} + \beta_5 firm \ specific \ factors \ _{i,t} + \\ \sum \ country \ effect \ + \ \\ \sum \ COVID \ effect \ + \ \\ \varepsilon_{i,t} \end{aligned}$

The study focuses on the interaction terms between institutional ownership, audit firm size, auditor change, and busy audit season. These terms, along with corporate governance, auditor-associated, and firm-specific controls, are tested for their influence on ARL.

6.1. Main Findings

As shown in Table 2, the regression results applying the GMM approach address concerns of endogeneity, which may arise from reverse causality or omitted variables. The GMM estimates provide consistent and unbiased results, as indicated by the significant Hensen J-statistic (p>0.05), which confirms the validity of the instruments used. The R-squared value of 0.4281 suggests that the included factors explain 42.81% of the variance in ARL. The Durbin-Watson statistic falls within the acceptable range of 1.5 to 2.5, suggesting no first-order autocorrelation in the model.

The GMM results (refer to Table 2) reveal that audit firm size (Big-4) continues to have an insignificant impact on ARL (β = 0.125, p>.05), aligning with prior studies [88]. This insignificance may indicate ineffective resource allocation by larger firms, suggesting that only qualitative factors like the composition of audit teams may influence ARL reduction. As a result, H₁ is supported. Additionally, the results demonstrate a significant positive impact of auditor change (β = 0.237, p>.01) and busy audit season (β = 0.198 and p>.05) on ARL, supporting H2 and H3. These findings are consistent with previous literature [39, 89]. They highlighted that the auditor change affects ARL because external auditors are frequently replaced under regulations, particularly in GCC countries where it takes place every three years, and that creates delays in the auditing process [40]. The busy audit seasons also exacerbate these delays, as firms require more time to allocate resources effectively [30, 55]. Moreover, the study includes control variables at the auditor, firm, governance, and macro levels. The COVID-19 dummy variable (for COVID-19 = 1; otherwise = 0) demonstrates a significant effect, supporting earlier studies suggesting pandemic-related disruptions contributed to audit delays. The study applied winsorizations at the 1st and 99th percentiles to minimize the effect of outliers and improve model robustness.

Table 2. GMM estimator results

Audit report lag			
Variables	Coefficient	Std. E	z-Stat
Big 4 (H ₁)	0.138**	0.007	2.719
Auditor change (H ₂)	0.254***	0.031	3.835
Busy audit season (H ₃)	0.216**	0.054	2.645
Governance level control			
Board independence	-0.071	0.083	-0.855
CEO duality (H ₁)	0.205**	0.091	2.253
CEO tenure (H ₂)	0.137*	0.069	1.987
Board gender diversity	-0.010	0.016	-0.625
Audit committee accounting expertise	-0.128*	0.080	-1.600
Audit committee size	-0.181**	0.092	-1.968
Audit committee diligence	-0.109*	0.065	-1.677
Auditor level control			
Audit firm industry-specialization	-0.243***	0.073	-3.329
Audit fee	-0.162**	0.071	-2.282
Qualified opinion	0.158**	0.091	1.737
Auditor tenure	-0.355**	0.202	-1.757
Firm-level control			
Firm complexity	0.217*	0.128	1.695
Firm profitability	-0.274*	0.170	-1.612
Financial leverage	0.248**	0.130	1.907
IFRS adoption	-2.202*	0.072	-1.528
Firm age	-0.066*	0.035	-1.886
Year effect	Yes		
Industry effect	Yes		
Country effect	Yes		
COVID-19 effect	Yes		
R-squared	0.441		
Adjusted R-squared	0.418		
J-statistic	4.761 (p=0.31)		
Instrument rank	22		
Durbin-Watson stat	1.942		
Durbin-Wu Hausman F-statistics	3.16 (p=0.55)		

Note: Std. E = The robust std. errors.

z-stats = z-Statistic obtained from GMM estimator.

*** represents a 1% level of significance.

** represents a 5% level of significance. * represents a 10% level of significance.

Continuous variables are winsorized at the 1st and 99th percentiles. Robust standard errors are reported. Three different models are regressed.

6.2. Curtailing Role of Institutional Ownership

In this stage, the research study explores how institutional ownership's curtailing role in the association between audit firm size, auditor change, and busy audit season. For this purpose, the study introduces interaction terms between audit firm size, auditor change, busy audit season, and institutional ownership. Thus, three interaction terms were applied to empirically test curtailing effects. The study uses the GMM models and includes all those variables in the regression model given and reported in Table 2. Here, the concerned variables are the audit firm size, auditor change, busy audit season, and institutional ownership. Including other variables (auditor-associated, CG-related, and firm-specific factors) in this model implies that they serve as control factors. We also regress the model without these controls but observe a significantly lower value of R2. Therefore, the inclusion of these variables improves the validity of the model. Additionally, different regression models were applied for each interaction term to address the estimation biases that may arise due to the inclusion of both interaction terms. The findings are presented in Table 3. The findings of interaction terms with institutional ownership are discussed for brevity. However, it is essential to mention that the study finds no significant change in the relationship between control factors and ARL. The direct effect of audit firm size, auditor change, and busy audit season is the same as reported in the main model.

First, we used the overall sample and tested the three separate interaction terms for each of the three auditor-associated factors for their relationship with ARL and found a limited curtailing role of institutional ownership. As shown in Models 1, 2, and 3 in Table 3, there is an insignificant interaction term between Big 4 and institutional ownership, while the interaction terms between auditor change, busy audit season, and institutional ownership are significantly positive (β =0.121 and p<0.05, and β =0.116 and p<0.05, respectively), indicating that institutional ownership is less effective with a minor stake in GCC.

However, the question remains unanswered: what percentage of institutional investors effectively improves the overall governance structure, which may curtail the negative role of audit firm size, auditor change, and busy audit season in increasing ARL in GCC? For in-depth analyses, the study applies a percentile technique to identify the level of effective ownership [90]. A series of analyses are conducted by taking a 5 percentile, 10 percentile, 15 percentile, 20 percentile, 25 percentile, and 30 and above percentiles. For each percentile, the study uses separate regression. The other control factors are

the same as those used in the above models. For brevity, we report the findings of the 20th percentile only in Models 4, 5, and 6 in the below table.

The direct relationship between governance level control and ARL remains unchanged, despite minor variations in the coefficient estimate. As shown in Table 3, models 4, 5, and 6 show that institutional ownership is negatively related to ARL (5% significance level). The findings entail that institutional ownership is an effective mechanism for reducing ARL. However, remember that institutional ownership only becomes effective when it accounts for 20% or more of the ownership. Hence, firms with institutional owners holding a substantial ownership stake (20% or above) will likely influence ARL. The research hypothesis, which suggests that institutional investors have the potential to influence managerial decisions through their voting power, underscores the significance of their limiting role in the current study. They are expected to improve the effectiveness of corporate governance in the region. Following a similar pattern, we introduce similar interaction terms reported in Table 3 but with 20 percentile of institutional ownership. The findings show a strong curtailing effect of institutional ownership. All the interaction terms are negative and statistically significant. Institutional investors play a curtailing effect on the negative role of auditor change, busy audit season, and auditor firm size. Each of the terms has a statistically significant negative interaction term. The coefficient of the interaction between audit firm size and institutional ownership is negative and statistically significant (coefficient = -0.153, p<0.05; model 4). Similar to auditor change, the interaction term between institutional ownership and auditor change is negatively significant (coefficient = -0.137, p<.05; model 5). A negative and statistically significant interaction term was also found between busy audit season and institutional ownership (coefficient = -0.165, p<.05; refer to model 6). These interaction terms show institutional ownership's curtailing effect on GCC countries' audit firm size, auditor change, and busy audit season. Significantly, their role is associated with at least 20% of ownership in GCC economies. Consequently, institutional ownership accepts H4, H5, and H6 are 20%. The GMM results suggest that institutional investors' engagement in management and governance decisions improves audit efficiency in the GCC region. Therefore, firms with higher institutional ownership are more likely to exert effective oversight, reducing the delays caused by frequent auditor changes and the busy audit season.

Table 3.

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Curtaining fore of institutional ownership.	ARL (GMM estimator)			ARL (20 percentile)		
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Curtailing role of institutional ownership						
Audit firm size *Institutional ownership (H ₄)	0.033			-0.153***		
Auditor change *Institutional ownership (H ₅)		0.121**			-0.137**	
Busy audit season *Institutional ownership (H ₆)			0.116**			-0.165**
Corporate governance level control						
Board independence	-0.078	-0.661	-0.894	-0.084	-0.651	-0.883
Board gender diversity	-0.089	-0.109	-0.163	-0.098	-0.107	-0.162
CEO duality	-0.161***	-0.142***	-0.151***	-0.171***	-0.167***	-0.156***
CEO tenure	0.169**	0.169**	0.181***	0.192***	0.177**	0.194**
Audit committee accounting expertise	0.113*	0.119*	0.121*	0.124*	0.119*	0.121*
Audit committee size	-0.126*	-0.121*	-0.133*	-0.136*	-0.127*	-0.134*
Audit committee diligence	-0.186**	-0.169**	-0.182**	-0.198***	-0.183**	-0.197***
Institutional ownership	-0.013	-0.041	-0.041	-0.098*	-0.094*	-0.098*
Auditor-related control						
Big 4	0.134**	0.127**	0.123**	0.131**	0.138**	0.131**
Audit firm industry-specialization	-0.196***	-0.190***	-0.194***	-0.189***	-0.189***	-0.192***
Audit fee	-0.138*	-0.141*	-0.142*	-0.142*	-0.138*	-0.142*
Qualified opinion	0.134*	0.146*	0.109*	0.145*	0.136*	0.112*
Auditor tenure	-0.357**	-0.369***	-0.293***	-0.378***	-0.364***	-0.296**
Auditor change	0.239***	0.248***	0.237***	0.248***	0.242***	0.237***
Busy audit season	0.196**	0.193**	0.196**	0.198**	0.194**	0.189**
Firm-specific control						
Firm complexity	0.172*	0.191*	0.195*	0.186*	0.205**	0.208**
Firm profitability	-0.217**	-0.278**	-0.227**	-0.264**	-0.293**	-0.245**
Financial leverage	0.242**	0.241**	0.243**	0.249**	0.277**	0.282**
IFRS adoption	-0.164*	-0.164*	-0.172*	-0.178*	-0.159*	-0.183*
Firm age	-0.054*	-0.049*	-0.061*	-0.056*	-0.053*	-0.067*
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes
Country effect	Yes	Yes	Yes	Yes	Yes	Yes
COVID-19 effect	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.495	0.549	0.561	0.481	0.543	0.554
Adjusted R-squared	0.471	0.533	0.543	0.467	0.527	0.538
Durbin-Watson stat	1.962	2.151	2.214	1.913	2.147	2.179

Note:

*** represents a 1% level of significance. ** represents a 5% level of significance.

* represents a 10% level of significance.

The continuous variables are winsorized at the 1st and 99th percentiles. Only the coefficient value is presented. Eight different models are regressed.

6.3. Propensity Score Matching-Curtailing Effect

Despite using the GMM approach, which could effectively address the issue of endogeneity, we also apply the propensity score matching (PSM) technique as an additional precautionary measure to ensure further robustness. PSM is employed to balance the sample for the GMM results. This is because firm-specific factors may simultaneously influence both institutional ownership and ARL, which raises concerns about potential estimation biases [91]. The literature suggests that the relationship between institutional ownership and auditor-related variables may vary based on firm characteristics, leading to significant differences between firms with high and low ARL. By using PSM, we aim to mitigate these differences and ensure that our sample is well-matched, reducing the risk of bias and reinforcing the validity of our findings.

To this end, this study identifies the elements that significantly differ in enterprises with institutional ownership of 20% or above compared to those with no institutional ownership or institutional ownership below 20% before using PSM. First, the study divides the data into 20% and above institutional ownership and shorter segments. Companies with institutional ownership of 20% and above (139 firms) and shorter segments (305 firms) make up the groups of companies with higher and lower institutional ownership. Then a t-test is applied to test any significant difference between the two groups, and based on earlier research [91] firm size, profitability, financial leverage, IFRS adoption, and firm age are applied for comparison (see Panel A in Table 4).

Table 4.

Propensity matching score.

Panel A (Pre-match)		-		
Variables	Institutional ownership	Institutional ownership		
	20% and above	Below 20%		
	Sample (N=139)	Sample (N=305)		
	Mean	Mean	Difference	t-stats
IFRS adoption	59.196	38.090	21.106***	3.303
Firm age	20.718	21.270	-0.552	-1.325
Firm size	13.448	8.277	5.171***	2.445
Profitability	6.888	5.049	1.839**	2.297
Leverage	1.168	3.115	-1.947**	-2.109
Panel B (Post-match)		-		
Variables	Institutional ownership	Institutional ownership		
	20% and above	Below 20%		
	Sample (N=108 firms)	Sample (N=108 firms)		
	Mean	Mean	Difference	t-test
IFRS adoption	57.008	55.336	1.672	1.446
Firm age	19.367	19.602	-0.235	-1.064
Firm size	13.724	12.571	1153	1.300
Profitability	6.517	6.439	0.078	1.474
Leverage	1.092	1.105	-0.013	-1.290
Variable	Panel C (Pre-match)		Panel D (Por	st-match)
	[Ob. = 6084]		[Ob. = 2972]	
	Coefficient	p-value	Coefficient	p-value
Intercept	7.082***	P<0.01	6.228***	P<0.01
IFRS adoption	0.166**	P<0.05	0.089	P=0.145
Firm age	0.104**	P=0.05	0.037	P=0.228
Firm size	0.170***	P<0.01	0.011	P=0.516
Profitability	0.063*	P<0.10	0.071	P=0.183
Leverage	-0.113**	P<0.05	-0.065	P=0.401
Year effect	Ye	Yes		
Industry effect	Yes Yes			
Country effect	Ye	8	Yes	
COVID-19 effect	Yes Ye			
Pseudo R ²	0.11	0.389		

Note: Panel A represents the t-test differences in the mean value of the firm with institutional ownership of 20% and above from firms without institutional ownership of 20% and above. Differences in mean values and t-statistics are provided for PSM. ***, ** and * represent significance level at 1%, 5% and 10% respectively. N represents the number of firms and Ob. represents firm-year observations.

Firms with 20% and above institutional ownership are much larger, more profitable, have higher IFRS adoption rates, and are less leveraged. However, the firm's age does not significantly differ between the two samples. As a result, the study creates our treatment and control groups using firm size, age, profitability, IFRS adoption, and leverage as control factors. PSM divides the sample into treatment and control groups. The treatment groups include firms owned by institutions. In contrast, the control group consists of companies with a lower level of institutional ownership. Panel B is rerun with a t-test to validate the reliability of the treatment and control groups. In each panel, the means of the two groups do not differ statistically significantly.

Further, the theses use the logit regression in panels C and D. If a company has institutional ownership of 20% and above, the binary dependent variable equals 1; otherwise, 0. We discover IFRS adoption, company age, profitability, and leverage as positive and statistically significant drivers of institutional ownership of 20% and above in the pre-match samples (see panel C). The post-match sample results, however, demonstrate that these factors have a negligible effect on institutional ownership of 20% and above. Additionally, the pseudo-R2 value for the logit regression in panel D is 0.389, significantly higher than the values of 0.115 for the post-match regression (see and compare panels C and D). The "equal trend" hypothesis finds support in the PSM-based sample, aiding in the resolution of the endogeneity issue. After selecting all non-financial enterprises, the study left 216 firms in panel D, 108 of which had institutional ownership of 20% and above, and 108 of which had institutional ownership of 20% and above, and 108 of which had institutional ownership of 20% and above.

Next, this research study regresses the OLS regression on the PSM sample. ARL is correlated with audit firm size, auditor change, busy audit season, and institutional ownership. Table 5 summarizes the results. Institutional ownership and its interaction with audit firm size, auditor change, and busy audit season are the variables of concern. In contrast, corporate governance, auditor-level, and firm-level are used as control factors. The study includes all variables used in the primary regression. Only the findings of institutional ownership and its interaction with audit firm size, auditor change, the study finds minor variations in the effect of other variables, which are negligible in the current study context.

The findings suggest that the interaction terms between institutional ownership \times audit firm size, institutional ownership \times auditor change, and institutional ownership \times busy season are negative, statistically significant, and hence similar, as reported in Table 3 above. Therefore, neither the level of significance nor the coefficient estimate of variables of concern vary greatly in this study. Moreover, Table 3 indicates that institutional ownership also has a direct impact. Thus, the results are robust to the main findings presented in Table 3.

Table 5.

Curtailing role of institutional ownership (PSM sample).

Variables	ARL					
Γ	Model 1	Model 2	Model 3			
Audit firm size *Institutional ownership (H ₃)	-0.124***					
Auditor change *Institutional ownership (H ₄)		-0.167**				
Busy audit season*Institutional ownership (H ₄)			-0.119**			
Governance level control						
Board independence	-0.079	-0.651	-0.872			
Board gender diversity	-0.096	-0.107	-0.159			
CEO duality	-0.160***	-0.151***	-0.156***			
CEO tenure	0.185**	0.176**	0.182**			
Audit committee accounting expertise	0.121*	0.115*	0.119*			
Audit committee size	-0.131*	-0.124*	-0.129*			
Audit committee diligence	-0.191**	-0.181**	-0.188**			
Institutional ownership	-0.097*	-0.092*	-0.095*			
Auditor-level control						
Big 4	0.120**	0.125**	0.123**			
Audit firm industry-specialization	-0.190***	-0.188***	-0.180***			
Audit fee	-0.134*	-0.132*	-0.131*			
Qualified opinion	0.130*	0.130*	0.106*			
Auditor tenure	-0.351**	-0.353**	-0.286**			
Auditor change	0.231***	0.233***	0.235***			
Busy audit season	0.191**	0.193**	0.190**			
Firm level control						
Firm complexity	0.181*	0.202*	0.207*			
Firm profitability	-0.260*	-0.290*	-0.235*			
Financial leverage	0.239**	0.266**	0.272**			
IFRS adoption	-0.176*	-0.156*	-0.181*			
Firm age	-0.054*	-0.050*	-0.063*			
Year effect	Yes	Yes	Yes			
Industry effect	Yes	Yes	Yes			
Country effect	Yes	Yes	Yes			
COVID-19 effect	Yes	Yes	Yes			
R-squared	0.478	0.532	0.543			
Adjusted R-squared	0.463	0.516	0.527			
Durbin-Watson stat	1.829	2.037	2.080			

Note: *** represents a 1% level of significance.

** represents a 5% level of significance.

* represents a 10% level of significance.

7. Discussions

This research study has achieved two major goals. First, the study has determined the audit firm size, auditor change, and busy audit season's impact on ARL in GCC emerging markets. However, few scholars examined ARL factors in other markets. Audit report lag informs business stakeholders about audit efficiency. Reporting quality depends on audit report timeliness. Audit report lag enhances company value-affecting information quality and lowers information asymmetry. More clear evidence of audit firm size, auditor change, and busy audit season affecting audit report lag will help auditors provide meaningful information on time, which is their main purpose. In contrast to prior studies, this study analyses GCC markets and ARL over 14 years. Second, institutional ownership reduces the negative role of audit firm size, auditor change, and busy audit season in increasing the ARL in GCC countries.

The study finds a significant negative role of the Big 4, auditor change, and busy audit season in increasing ARL in GCC economies. For the auditor change, Big 4, and the busy audit season, these findings are not surprising in the context of GCC due to the following reasons. Big 4 auditors consistently maintain their reputation via greater audit quality [79]. In order to maintain the quality of their audits, Big 4 auditors invest more time in GCC economies, which in turn leads to an increase in ARL. The significant negative impact of auditor turnover indicates that GCC firms may consider changing their auditors to enhance audit efficiency and quality. A client may change auditors to address audit quality issues or benefit from the new auditor's perspective and skills. This adjustment needs more time and thus increases ARL [17]. Peak audit times increase auditor workload and time restrictions, which hurts ARL.

Further, the study also finds evidence of the ineffectiveness of institutional ownership. Because all the interaction terms (institutional ownership \times audit firm size, institutional ownership \times auditor change, and institutional ownership \times busy audit season) are positive and statistically significant, they cannot play a curtailing role in ARL in GCC. To enhance clarity, this study employed the percentile approach to determine the percentage of institutional ownership, which serves as an effective tool for managing agency conflicts towards ARL. We analyze five, ten, fifteen, twenty, twenty-five, thirty, and above percentiles and summarize 20 percentile and above findings. Institutional ownership negatively affects ARL at 5% significance. It, therefore, reduces ARL, and their curtailing role is prominent at 20% or more, where they can put additional pressure on management to increase their corporate governance procedures, particularly their approach to financial reporting and auditing. This results in a quicker and more effective audit procedure [92]. This, in turn, reduces the possibility of an audit report delay. Further, institutional investors who own a significant portion of the companies they invest in are more likely to keep a careful eye on the companies' financial reporting and auditing procedures, which in return assists them in identifying likely concerns before they develop into larger difficulties and cause any unnecessary audit delay [90]. Firms with institutional ownership put significant efforts into controlling the audit process, supporting auditor independence through auditor change, and monitoring management [81]. In these firms, the institutional owners have already addressed the issue of auditor independence by maintaining an unbiased relationship with management and enhancing audit quality [81], thereby reducing the risk of a longer audit report lag. Busy audit season brings in the risk of precision [93], but firms with institutional investors make large investments in monitoring management, IT, audit process, internal audit, and control systems, which help to mitigate the risk [81]. Also, institutional owners can call an emergency general meeting to take corrective action if they feel the existing BOD/AC is not managing the firm's activities in their best interests [92]. Due to this, these investors are more likely to achieve beneficial and favorable outcomes on AC/BOD-related matters, such as promptly communicating with the external auditor, especially during the busy audit season [92]. This creates a rewarding environment for the external auditor, where he finishes his work efficiently despite the hectic season and swiftly publishes the audit report.

Investors, suppliers, banks, and others demand timely financial information from financial statements, which has always worried regulators. The ARL makes financial information highly helpful, relevant, and dependable. Late provision of accounting information can exacerbate information asymmetry, thereby negatively impacting business market performance [94]. Delayed financial information dissemination also negatively impacts the market [4, 5].

Auditor change, busy audit season, and audit firm size are critical factors contributing to the GCC region's rising ARL. However, the study revealed that institutional investors with 20% or above ownership stake in the firms are particularly essential to curtail the negative role of these factors towards ARL in the GCC economies, which implies that authorities in the region should focus on regulating the percentage of institutional ownership to improve the quality of financial information by minimizing the audit report lag.

8. Conclusion

Relevance and reliability are the top attributes of accounting information, as highlighted in the FASB and IASB Conceptual Framework. Investors rely on timely, relevant, reliable, and unbiased information. This study focuses on the timeliness of financial reporting, examining Audit Report Lag (ARL) as a key determinant of firm value, performance, and stakeholder decisions. Given that audit reports drive the timeliness of financial information, this research explores the role of various audit-related factors, particularly audit firm size, auditor change, and busy audit season, as contributors to ARL in GCC economies. Additionally, the study explores the role of institutional ownership in moderating these relationships.

The findings reveal that audit firm size, auditor change, and busy audit season significantly increase ARL in GCC economies. While institutional ownership fails to mitigate this effect in general, a substantial institutional stake of 20% or more shows a direct, significant role in reducing the ARL. The study posits that institutional investors can alleviate agency problems by curbing managerial tendencies to engage in actions detrimental to audit quality, such as appointing non-Big 4 auditors, changing auditors, or conducting audits during the busy season. However, this mitigating effect is only observed when institutional ownership reaches a sizable threshold (20% or greater).

9. Implications

9.1. Theoretical Implications

This research offers critical theoretical insights into financial reporting and corporate governance. It extends the application of agency theory by illustrating how institutional ownership, particularly a substantial stake of 20% or more, can curb managerial behaviors that lead to increased ARL. This finding underscores the importance of ownership structure in influencing corporate governance mechanisms and financial reporting timeliness. Additionally, the research reinforces the relevance of the FASB and IASB Conceptual Framework in emphasizing the need for timely and reliable financial information, which is crucial for firm value and stakeholder decisions.

9.2. Practical Implications

The practical implications of this research are significant for investors, corporate management, and regulators. Investors should consider audit-related factors such as Big 4 auditors, auditor changes, and busy audit seasons when assessing the timeliness and reliability of financial reports. Moreover, firms should encourage higher institutional ownership and manage audit engagements proactively to reduce ARL. From a regulatory perspective, policies that promote institutional ownership and improve corporate governance frameworks could enhance the financial environment by ensuring the provision of timely and reliable financial information to the market.

10. Limitations

This study is not without limitations. The first limitation is the research's confinement to GCC economies, potentially limiting the generalizability of the findings to the regions with different regulatory environments and market dynamics. Second, the focus on institutional ownership and audit-related factors overlooks potential regulatory or external changes that may influence financial reporting timeliness. These factors should be considered when interpreting the results.

11. Future Research Directions

Future research can expand upon this study by examining similar relationships in different geographic regions and regulatory contexts to enhance the generalizability of the findings. Additionally, longitudinal studies may reveal how the relationships between institutional ownership, audit-related factors, and ARL evolve. Researchers could also explore different types of institutional investors, their engagement techniques, and how they influence corporate governance and financial reporting processes. These inquiries could provide deeper insights into the root causes of ARL and suggest ways to optimize corporate governance frameworks for improved financial reporting timeliness.

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Variables and their description.	
Variables	Description
ADI	The period of completion of the audit starts from the closing date of the company's books to
	the date stated in the audit report
Dig 1	A dummy variable coded one if the firm-year financial statements are audited by a Big-4 audit
Dig-4	firm and 0 otherwise
	An auditor is defined as an industry specialist leader if, in a specific year, the audit firm has
Audit firm industry specialization	the largest market share in a two-digit SIC industry and if its market share is at least ten
Addit fifth fieldstry specialization	percentage points greater than the second largest industry leader in a national audit market.
	Industry specialization is calculated for each industry for each year.
Qualified opinion	A dummy variable coded one if the firm-year observations had a qualified audit opinion,
Quantos opinion	including going-concern opinion, and 0 otherwise
Auditor tenure	Natural log of the number of years the same audit firm is auditing a client
Auditor change	A dummy variable equal to 1 if the observation firm changed auditors during the year and 0
ridditor change	otherwise
Audit committee size	Natural logarithm of the number of audit committee members
Gender diversity	Female directors as a percentage of total board members
Audit committee diligence	Number of Audit committee meetings held during the year
Board independence	Independent directors as a percentage of total board members
CEO duality	A dummy variable coded 1 if the CEO is also the chairman of the board
Financial leverage	Total debts scaled by total assets
CEO age	Natural logarithm of CEO age of firm I in year t
CEO tenure	Natural logarithm of CEO tenure of firm I in year t.
Market to book value	Market to book value of firm I in a year t.
Firm age	The difference between the year of incorporation and year of observation of firm I in year t
IFRS adoption	A dummy variable equal to 1 if a firm adopts IFRS in a year t, and 0 otherwise
	A dummy variable equal to 1 if auditor issues going concern opinion for the firm I a year t,
Going concerned	and 0 otherwise
Profitability	The return on asset ratio of a firm I in a year t

Appendix A.	
Variables and	their description

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