

Audit report delays in the mandatory joint audit setting: a comparative study between the European Union and the MENA region

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Abstract

Purpose – This study aims to examine and compare the mandatory joint audit report delays across joint audit pairs between the European Union and the MENA region.

Design/methodology/approach – This study uses data from nonfinancial companies listed on the French, Moroccan and Tunisian stock exchanges from 2014 to 2023 and uses multiple regression models to analyze the data.

Findings – In France, joint audits involving two Big Four firms produce the shortest delays. In Morocco, pairs of two non-Big Four local auditors are associated with the shortest delays, whereas in Tunisia, the shortest delays occur when firms are audited by two non-Big Four international auditors. French firms generally exhibit shorter delays than Tunisian firms, except for the two non-Big Four international auditor pairs in Tunisia. Moroccan firms report faster than French and Tunisian firms, except, again, for the two non-Big Four international auditor pairs in Tunisia. Additional analyses show that differences in audit report delays across joint-audit pairings are minimal among large firms in all three countries and that the presence of at least one industry-specialized auditor has no meaningful effect in most pairings.

Practical implications – The findings provide regulators and policymakers with evidence on how joint-auditor pairings affect audit timeliness across different institutional settings and highlight important cross-country variations in mandatory joint-audit regimes.

Originality/value – To the best of the authors' knowledge, this is the first study to examine and compare audit report delays across mandatory joint-audit regimes in the European Union and the MENA region, as well as between developed and developing countries. It also investigates the effects of firm size and auditor industry specialization on these delays. Furthermore, it is among the first to use a six-category classification of joint-auditor pairings.

Keywords Mandatory joint audit, Joint audit pairs, Audit report delays, European Union, MENA region

Paper type Research paper



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1. Introduction

Timely audited financial statements are essential for decision-making, enhance the relevance of information, attract foreign investment and serve as important indicators of audit quality (Al-Ajmi, 2008; Leventis *et al.*, 2005; Onatuyeh *et al.*, 2024). Numerous studies have shown that audit report delays – defined as the number of calendar days between the fiscal year-end and the date of the external auditor's report (Wan Hussin and Bamahros, 2013) – can reduce investor confidence in financial statements, increase information asymmetry (Bamber *et al.*, 1993) and signal problems during the audit process or difficulties in resolving sensitive audit issues (Durand, 2019). Furthermore, timely reporting is regarded as an essential mechanism for limiting the spread of rumors about a company's financial condition and performance (Al-Ajmi, 2008).

Despite regulatory emphasis on timeliness – illustrated by shortened SEC filing deadlines, the EU Transparency Directive and repeated calls from standard-setters (Abernathy *et al.*, 2017; EU, 2004; Securities and Exchange Commission, 2002) – audit report delays remain common in both developed and emerging markets. Building on this, joint audits may play a vital role as one mechanism to reduce these delays. This is due to the leveraging of combined resources, task division and knowledge sharing between the two audit firms in joint audit practices (Hassan *et al.*, 2024; Onatuyeh *et al.*, 2024).

Empirical evidence on audit report delays in joint-audit settings is scarce, with only Kuwait included (Alfraih, 2016; Almarzouq *et al.*, 2025; Van der Zahn, 2023). Collectively, these scarce studies, along with the limitations of the traditional three-category classification of joint audit pairs (two Big Four, one Big Four with one non-Big Four and two non-Big Four), highlight the need for further studies using a more comprehensive classification. Furthermore, delays are particularly significant in emerging markets, where investors rely almost exclusively on published financial statements as alternative information sources, as channels such as press conferences, media releases and financial analyst forecasts remain underdeveloped (Al-Ajmi, 2008). Therefore, further research is warranted to investigate audit reporting delays in emerging economies, compare them with those in developed economies and assess the role of joint audits in mitigating such delays.

Despite calls for comparative research on joint audits (Hassan *et al.*, 2024), no study has examined audit report delays across different mandatory joint-audit regimes, nor has any addressed differences in joint audit report delays between developed and developing contexts. Similarly, Hassan *et al.* (2024) highlight a scarcity of comparative auditing research between EU and non-EU countries. Therefore, to bridge these gaps, this study examines and compares how delays in mandatory joint audits vary across joint audit pairs in France (developed/EU) with those in Tunisia and Morocco (developing/MENA region).

The selection of these countries reflects several factors. France, Tunisia and Morocco have a longstanding joint auditing tradition dating back to the 1990s. France is the only EU country to mandate joint audits for nonfinancial firms (Nurunnabi *et al.*, 2020), and Tunisia and Morocco are the only MENA region countries to impose this requirement on nonfinancial companies. Moreover, to the authors' knowledge, no previous study has examined the effect of company size and auditor industry specialization on joint audit delays. Our study also addresses these research gaps by conducting an additional analysis examining the impact of both company size and industry specialization on the delays in mandatory joint audit reports. Therefore, the following research questions guide the study:

- RQ1. Are there statistically significant differences in audit report delays across the joint-audit pairings within each country (France, Morocco and Tunisia)?

- RQ2. Do audit report delays differ across joint-audit pairings when comparing a developed-country setting (France) with emerging-country settings (Morocco and Tunisia)?
- RQ3. Are there statistically significant differences in audit report delays across joint-audit pairings between the two emerging-country settings (Morocco versus Tunisia)?

To address the research questions, data were collected from 440 nonfinancial companies (359 in France, 51 in Morocco and 30 in Tunisia) over the period 2014–2023. Given the small number of firms from Morocco and Tunisia, the generalizability of results from these countries may be limited. Audit report delay was measured as the number of calendar days from the fiscal year-end to the date of the audit report. Moreover, consistent with [Van der Zahn and Tebourbi \(2023\)](#) and [Hassan et al. \(2024\)](#), joint-audit pairs were classified into six categories: both Big Four (B4B4), Big Four + non-Big Four international (B4S1), Big Four + local (B4S2), both non-Big Four international (S1S1), non-Big Four international + local (S1S2) and both local (S2S2). This study also analyzes the company samples separately for each country, dividing firms into three size groups (small, medium and large) and assessing how the inclusion of at least one industry specialist in a joint audit pair affects audit report delays relative to pairs without such a specialist.

The results indicate that the effect of Big-N participation differs markedly between developed and emerging settings. In France, the shortest delays were observed for the B4B4 pair; in Morocco, for the S2S2 pair; and in Tunisia, for the S1S1 pair. French firms generally exhibited shorter audit report delays than Tunisian firms across almost all pair types, except for the S1S1 pair, for which Tunisian firms reported significantly faster delays. However, Moroccan firms displayed shorter delays than French and Tunisian firms for nearly all pairings, with the S1S1 pair showing no significant difference between Moroccan and Tunisian firms. Additional analyses show that differences in audit report delays across joint-audit pairings are minimal among large firms in all three countries. They also found that the presence of at least one industry-specific auditor in a joint audit pair had no material effect on audit delays in most pairs. However, these findings should be interpreted cautiously, given the small sample sizes from Morocco and Tunisia.

This study contributes to the literature on audit report delays, both generally and in joint audits, in several ways. First, it clarifies the role of joint audits in reducing these delays in both developed and developing economies. In developing economies, audited financial reports are a primary source of information for stakeholders ([Al-Ajmi, 2008](#)); thus, delays matter because media outlets and press conferences are not yet well developed ([Khasharmeh and Aljifri, 2010](#)). Second, this study explains how audit report delays differ across joint audit pair compositions in different contexts. By categorizing audit pairs more broadly than prior research, this analysis covers a range of types and sizes; it shows that audit report delays depend on both the composition of joint audit pairs and the institutional context. Notably, it highlights that the institutional context strongly affects audit report delays and that big audit firms' ability to reduce them varies across contexts. Third, the study clarifies the impact of audited firm size, showing that large firms outperform SMEs in reducing delays across most joint audit pair setups, regardless of context. Finally, it illustrates how auditors' industry specialization affects delays in joint audits, finding that industry specialization has little effect on most joint audit pairs across contexts and suggesting it may not be a key factor in reducing delays.

Moreover, the findings of this study offer recommendations to researchers, regulators, audit firms, companies and policymakers on addressing delays in mandatory joint audit

reporting, especially in weaker corporate environments. The results provide valuable insight and point to new directions for future research on joint audits. These findings also suggest that regulators should select joint audit teams based on demonstrated effectiveness, not reputation and should not assume Big-N involvement always reduces delays. They recommend strengthening auditor independence through legislation to improve efficiency and attract international investment to MENA economies. Countries with mandatory joint audits should establish clear guidelines for coordination to address collaboration challenges and maximize benefits. These findings enable audit firms to assess and improve joint audit collaboration, considering sector specialization to gain a competitive edge and achieve better results.

Furthermore, audited firms can strengthen audit strategies by adhering to reporting deadlines. For example, French companies may experience reduced delays when audit teams consist of two Big Four firms (B4B4FR). Tunisian companies may achieve improved on-time compliance by engaging international audit teams outside the Big Four (S1S1TU). In Morocco, audit report delays can be minimized when teams include at least one local firm, particularly when two local firms are involved (S2S2MO). Moreover, our findings confirm the general benefits of joint audits in timely financial report publication. This evidence can guide global decisions about adopting, enhancing or removing joint audit mandates – including measures to boost auditor independence and attract investment. The current absence of standardized joint audit guidelines suggests that standard-setters should address this gap. Similarly, the minimal differences in audit report delays among large companies indicate that policymakers could advise such firms to conduct joint audits. With these findings and implications in mind, the paper proceeds as follows: Section 2 reviews the literature and develops hypotheses; Section 3 presents the methodology; Section 4 reports the main results; Section 5 provides additional analyses and robustness tests; Section 6 concludes by discussing implications, limitations and suggestions for future research.

2. Literature review, research gaps and hypotheses developments

2.1 Literature review and research gaps

Users of financial statements regard annual audited reports as a reliable source of information. Nevertheless, there is a lag between the fiscal year-end and the release of these statements. Although this interval is necessary to produce high-quality information, excessive delays can impair its usefulness and relevance (Rusmin and Evans, 2017). Audit report lag (ARL; also referred to as *audit report delay*) is defined as the number of calendar days from the fiscal year-end to the date of the auditor's report (Al-Ajmi, 2008). Knechel and Payne (2001) decompose total ARL into three components:

- (1) scheduling delay (from fiscal year-end to the start of fieldwork);
- (2) fieldwork delay (time required to complete fieldwork); and
- (3) reporting delay (from the end of fieldwork to the signing of the audit report).

Consequently, audit report delays have attracted considerable research attention because the time required to complete an audit directly affects the timeliness of corporate financial reporting (Alfraih, 2016). Delays in issuing financial reports increase information asymmetry (Al-Ajmi, 2008), reduce the relevance of the reported information (Durand, 2019) and may undermine investor confidence. Prior studies have used ARL as a proxy for audit efficiency and effort (Bamber *et al.*, 1993) and regard timeliness as an essential dimension of audit quality (Al-Ajmi, 2008). From an agency theory perspective, delays exacerbate information asymmetry between managers and shareholders, underscoring the

external auditors' monitoring role. For these reasons, accounting researchers, regulators and policymakers continue to show strong interest in factors that influence audit report timeliness.

Although audit report delays have been extensively researched within individual countries, cross-country comparative studies remain scarce. Comparative studies may lead to new and important discoveries. For instance, [Toumi et al. \(2025\)](#) were among the first to examine the influence of Hofstede's cultural dimensions on audit report delays across 36 countries (2017–2018 data). They found that national culture is associated with delay, with the strength of this relation moderated by the timeliness of the disclosure regime and the nature of the legal enforcement system. Similarly, [Lee et al. \(2008\)](#) compared local and multinational firms. They found weak evidence that auditors need more time for multinational clients, but strong evidence that managers of multinational firms release earnings announcements earlier. More recently, [Zhou et al. \(2024\)](#) found that firms that apply International Financial Reporting Standards (IFRS) exhibit longer audit report delays than those that follow US Generally Accepted Accounting Principles.

Furthermore, most prior studies have been conducted in single-audit regimes. Only a handful have investigated joint-audit settings, notably [Alfraih \(2016\)](#), [Almarzouq et al. \(2025\)](#) and [Van der Zahn \(2023\)](#). All three examined audit report delays in Kuwait and concluded that mandatory joint audits are associated with significantly shorter delays. Additional comparative research on audit report delays is therefore needed, particularly in mandatory joint-audit environments. [Hassan et al. \(2024\)](#) highlighted the scarcity of studies comparing EU and non-EU countries in their systematic review of European Union audit research. Given that the cultural and institutional environments in the MENA region differ substantially from those in Western countries ([Al-Hiyari et al., 2022](#)), the present study seeks to extend the audit report delay literature by analysing and comparing the effects of different joint-audit pair compositions in two distinct institutional contexts:

- (1) France – the only EU member state that mandates joint audits for nonfinancial listed companies ([Hassan et al., 2024](#)) – ; and
- (2) Morocco and Tunisia, the only MENA countries with similar mandatory joint-audit requirements for certain nonfinancial firms.

2.2 Theoretical analysis and hypothesis development

External auditing plays a crucial role in the financial reporting environment. According to agency theory, the primary purpose of auditing is to verify the integrity of financial statements, thereby enhancing stakeholder confidence and facilitating informed economic decisions ([Jensen and Meckling, 1976](#)). However, the separation between ownership and management creates conflicts of interest that can delay financial reporting and impede audit procedures ([Bahrawe, 2024](#)). In this context, external auditing can help reduce both financial report delays and conflicts of interest ([Chow, 1982](#)). Despite this benefit, variations in auditors' work quality significantly affect the objectivity, credibility and quality of reported earnings ([Rusmin and Evans, 2017](#)). Consequently, the audit period length varies depending on the auditor's size and affiliation ([Habib et al., 2019](#)). For instance, [DeFond and Zhang \(2014\)](#) note that the auditing literature categorizes external audit firms into large (the Big Four) and smaller (non-Big Four) firms. Additionally, external audit firms can be classified as Big Four, international or local firms ([Sutaryo and Lase, 2015](#)).

Several studies found that companies audited by Big N, especially Big Four auditors, issue reports earlier than those audited by smaller auditors (e.g. [Alfraih, 2016](#); [Almarzouq et al., 2025](#); [Ghafran and Yasmin, 2018](#); [Ismail et al., 2022](#); [Khoo et al., 2020](#); [Rusmin and Evans, 2017](#);

Walker and Hay, 2013; Wan Hussin *et al.*, 2018). This earlier reporting is attributed to factors such as greater experience and competence (Ashton *et al.*, 1989), more efficient auditing, flexible schedules (Carslaw and Kaplan, 1991), increased resources (Schroeder and Hogan, 2013), highly qualified staff, advanced technology (Leventis *et al.*, 2005), enhanced monitoring (Al-Ajmi, 2008) and a focus on maintaining their reputations (Afify, 2009). However, although numerous previous studies have documented the pivotal role of Big N quality in reducing financial reporting delays, information on what happens in the context of joint audits is limited.

In France, Tunisia and Morocco, company law requires nonfinancial listed companies to appoint at least two separate external audit firms (Abdelmoula, 2023; Ayyash, 2025; Ratzinger-Sakel *et al.*, 2012; Nekhili *et al.*, 2018). These auditors work together to prepare a single audit report, which is signed by both firms. Each company is free to choose its auditors. As a result, auditor selection varies from company to company, leading to differences in reporting timeliness. In the context of mandatory joint audits, we classify auditors into three categories:

- (1) Big Four (Deloitte, EY, KPMG and PwC);
- (2) other international firms (not part of the Big Four); and
- (3) local firms (neither Big Four nor international).

Therefore, there are six possible combinations:

- (1) two Big Four;
- (2) one Big Four and one other international;
- (3) one Big Four and one local;
- (4) two other international;
- (5) one other international and one local; and
- (6) or two locals.

This categorization enables a more detailed analysis of the impact of auditor type on audit delays. Therefore, in line with previous studies, it is expected that the greater the number of international audit firms, particularly the Big Four firms, the shorter the delay in issuing audit reports.

Additionally, signaling theory suggests that companies use distinct signals to assure investors of their quality (Alves and Carmo, 2022). In this study, mandatory joint audits between two audit firms may serve as a clear signal to investors regarding audit report delays. The nature of these signals depends on the audit firms forming the joint audit pair. An increase in the number of international firms, particularly the Big Four, is expected to strengthen perceptions of more timely, higher-quality financial reporting. On the other hand, compliance theory emphasizes the importance of auditors adhering to professional standards and regulations. This theory also suggests that auditors have a responsibility to complete audits and issue reports promptly so that users can make informed decisions based on financial data (Aboulela *et al.*, 2025). Therefore, according to compliance theory, it is essential for an individual or organization, such as an auditor, to complete the audit process within the timeframe stipulated by applicable regulations (Abdillah *et al.*, 2019). However, this obligation may vary depending on the type of audit firm involved in the joint audit. International audit firms, particularly the Big Four, may be more compliant with regulations than smaller firms regarding the timely submission of financial reports and disclosure of information.

Moreover, communication theory examines how information is exchanged and interpreted within a specific context (Rahaman and Bhuiyan, 2024). Therefore, according to this theory, having two audit firms auditing the same client may lead to information exchange between

them, potentially enabling them to overcome audit challenges and complete the audit in the shortest possible time. Therefore, the result of cooperation between the two audit firms through various joint audit pairs may increase the efficiency of audit processes within each pair, regardless of the types of firms that make up the pair, thereby reducing differences in the timing of audit reports across pairs. However, [Deng et al. \(2014\)](#) hypothesized that joint audits with a large and a small firm could weaken the audit process due to free riding: the less experienced auditor might rely on the more experienced one, who would then face the complete reputational loss. However, [Deng et al.'s \(2014\)](#) model does not expect free-riding in joint audits involving two Big Four firms. They argue that both would face reputational losses equally, given their strong standing and resources. Moreover, international audit firms, both Big Four and non-Big Four, may have similar technological skills. Therefore, the preceding discussion underscores the role of Big-N audit firms in reducing audit report delays. This may be more evident in advanced contexts such as France, where strong governance structures enable large audit firms to complete their work efficiently. Thus, this study hypothesizes the following:

- H1.* Mandatory joint audit report delays are negatively associated with the number of Big-N auditing firms that audit French firms' financial statements.

On the other hand, unlike in developed countries, audit reporting delays are particularly pronounced in emerging economies, where alternative information channels, such as press conferences, media releases and financial analyst forecasts, are underdeveloped ([Abernathy et al., 2017](#)). Also, weak governance, limited ongoing disclosure and ineffective regulation further underscore the importance of audit report delay in these contexts. Furthermore, according to reputational protection theory, big auditors focus on safeguarding their reputation and reducing the risk of lawsuits ([Khoo et al., 2020](#)). Therefore, weak governance in developing countries such as Morocco and Tunisia may prompt Big N auditors to conduct more detailed audits to protect their reputations, address governance flaws and identify material misstatements. Consequently, they might spend more time reviewing accounting systems, thereby increasing their workload and delaying the issuance of the audit report.

Moreover, [Boone et al. \(2010\)](#), [Cassell et al. \(2013\)](#) and [Hogan and Martin \(2009\)](#) argued that Big Four auditors do not necessarily deliver higher-quality audits than mid-tier audit firms. Also, mid-tier firms may serve as a more viable alternative to the Big Four than smaller audit firms. Consequently, auditors in the "next tier" after the Big Four can offer valuable insights into the reporting timeliness literature ([Abernathy et al., 2017](#)). In addition, local auditors likely have an information advantage and can reduce information asymmetry with clients by acquiring client-specific knowledge more efficiently than nonlocal auditors. Local auditors also access client information more often and stay informed through local media, enhancing their ability to monitor clients. This easier access to information, combined with greater awareness of regional economic and regulatory contexts, can make local audits more efficient and reduce audit delays ([Dong et al., 2018](#)). This may be particularly evident in developing economies where press conferences and media releases are not yet fully developed ([Khasharmeh and Aljifri, 2010](#)). Furthermore, approximately 72% of Moroccan companies and 90% of Tunisian companies rely on local financial reporting standards. Consequently, local auditors may play a significant role in reducing audit report delays in these contexts. Thus, this study also relies on the following hypotheses:

- H2.* Mandatory joint audit report delays are positively associated with the number of Big-N auditing firms that audit the financial statements of Moroccan and Tunisian firms.

Furthermore, academics have recently applied institutional theory extensively. This theory focuses primarily on understanding organizational performance and growth within broader social and

cultural systems (DiMaggio and Powell, 1983). According to this theory, organizational behavior is determined by the environment in which it operates, encompassing all its cultural, religious, political and social dimensions (Krane and Eulerich, 2020). Therefore, since this study examines the delay in joint audit reporting in Tunisia and Morocco – two under-researched institutional environments – institutional theory can help us understand how the delay in joint audit reporting varies between different pairs in these emerging institutional economies compared to advanced economies, potentially leading to different outcomes.

Additionally, institutional isomorphism posits that organizations adjust to environmental pressures, including legal frameworks and social norms, by adopting analogous structures and practices, resulting in organizational homogeneity (Torres *et al.*, 2020). In line with this, France, Morocco and Tunisia have all implemented mandatory joint audit requirements since the 1990s, and Morocco and Tunisia have adopted elements of the French public accounting system (Khelif *et al.*, 2020). Furthermore, the legal deadlines for publishing audited financial reports are identical at 4 months in France, Morocco and Tunisia (Moalla *et al.*, 2024; Fakhfakh Sakka and Jarboui, 2016). As a result, these long-standing regulatory traditions may standardize professional practices across different joint audit pairs, thereby reducing substantial differences in audit report delays across countries. Nevertheless, important differences that can influence these delays remain. For instance, there is variation in the adoption of IFRS: around 89.28% of French companies adopt IFRS, while only 28.63% of Moroccan and 10% of Tunisian firms do so. Given that companies applying IFRS may experience longer delays (Zhou *et al.*, 2024), audit delays are expected to be longer in French companies. Conversely, unlike France, neither Morocco nor Tunisia regulates the division of labor among joint auditors. Since a balanced distribution of work may help reduce audit report delays (Hassan *et al.*, 2026), this difference could result in shorter audit report delays in France. Finally, auditor tenure also differs: French auditors serve six-year terms that can be renewed (Nekhili *et al.*, 2018); Moroccan auditors serve three-year terms that can be renewed once for a total of six years; and Tunisian auditors serve three-year terms that can be renewed up to two times, followed by a mandatory three-year break (Lajmi *et al.*, 2021). Because changes in auditors require time to understand a new client's operations (DeAngelo, 1981), which may delay the issuance of audit reports, audit report delays are again predicted to be shorter in French companies. Thus, this study also relies on the following hypotheses:

- H3.* Mandatory joint audit report delays for French joint audit pairs are shorter than those for Moroccan and Tunisian pairs.

On the other hand, according to institutional isomorphism, given that Tunisia and Morocco share regional and developmental characteristics, we expect joint audit pairs to exhibit organizational convergence in audit practices, potentially reducing the audit report delay gap between the two countries. However, Tunisia has faced political, economic and social instability since the Tunisian Revolution of December 17, 2010, and its aftermath (Moalla, 2017), which may delay the submission of audited financial reports by listed companies. Therefore, our research also relies on the following hypothesis:

- H4.* Mandatory joint audit report delays for Moroccan joint audit pairs are shorter than those for Tunisian pairs.

3. Research methodology

3.1 Sample and data collection

To construct the sample, we begin with all nonfinancial firms available in Worldscope that were listed on the major stock exchanges in France, Morocco and Tunisia during 2014–2023.

The selection of these countries is based on multiple considerations. First, the accounting systems in Tunisia and Morocco show a strong influence from French practices, stemming from their historical connections, as both countries have adopted the French public accounting system (Khelif *et al.*, 2020). Therefore, France, Tunisia and Morocco share specific regulations, as they also boast a longstanding tradition of joint auditing, originating in the 1990s and persisting to the present. France is the only EU member state to mandate joint audits for nonfinancial firms (Nurunnabi *et al.*, 2020). Likewise, Tunisia and Morocco are unique in the MENA region for imposing this requirement on nonfinancial companies. However, unlike France, Tunisia has not established laws governing the allocation of joint audit work (Abdelmoula and Afess, 2019). The same applies to Moroccan law. Second, however, all three countries restrict nonaudit services; French firms predominantly use IFRS, while Moroccan and Tunisian firms apply local standards, potentially contributing to cross-country differences in audit report delays. Finally, while extensive joint audit research in general has been scrutinized in France, few efforts have targeted Tunisia and Morocco. Given the scant literature on joint audit report delays in general and, especially, between developed and developing countries, this study aims to bridge that gap by focusing on these two distinct regions.

Our sample comprised 820 companies: 664 in France, 75 in Morocco and 81 in Tunisia. We excluded 100 financial firms – 50 in France, 20 in Morocco and 30 in Tunisia – because their accounting rules were too complicated. We also excluded 67 firms (55 in France, 1 in Morocco and 11 in Tunisia) that were audited only by a single auditor throughout the sample period or by a single auditor at times and more than one auditor at other times. Additionally, we excluded 213 companies for which we could not obtain the necessary financial data from Worldscope (France: 200; Morocco: 3; Tunisia: 10). The final usable sample consisted of 440 nonfinancial companies listed over 10 years. This yielded 4,400 observations: 359 companies in France (3,590), 51 in Morocco (510) and 30 in Tunisia (300). The limited sample sizes of the Moroccan and Tunisian samples may restrict the generalizability of this study's findings.

We obtained study data from two sources:

- (1) financial information was gathered from the Worldscope database, while; and
- (2) other information, such as auditor type (Big Four, international or local) and ARL, was collected by hand from annual reports of companies listed on the stock markets of France, Morocco and Tunisia from 2014 to 2023.

Table 1 explains the sample selection procedure.

3.2 Models and variables

France, Morocco and Tunisia have implemented mandatory joint audit requirements since the 1990s. In addition, Morocco and Tunisia have adopted elements of the French Public Accounting System (Khelif *et al.*, 2020). However, despite these similarities, significant contextual differences persist and can influence audit practices and the outcomes of mandatory joint audits. Therefore, a comparative analysis that considers both the shared regulatory traditions and these contextual differences can address a notable gap in the existing literature. For example, because auditor characteristics and resources significantly affect audit efficiency (Sutaryo and Lase, 2015), we divided the joint audit pair affiliations into six different pairs consistent with Hassan *et al.* (2026) and Van der Zahn and Tebourbi (2023): two Big Four auditors (B4B4), one Big Four auditor and one non-Big Four international auditor (B4S1), one Big Four auditor and one local auditor (B4S2), two non-Big Four

Table 1. Sample selection procedures

Data	France	Morocco	Tunisia	Total
Total sample	664	75	81	820
Financials	50	20	30	100
Companies with a single audit or mixed single and joint audit during the sample time	55	1	11	67
Companies with missing financial data during the sample period	200	3	10	213
Final sample	359	51	30	440
Total number of observations	3,590	510	300	4,400

Source(s): Authors' own creation

international auditors (S1S1), one non-Big Four international auditor and one local auditor (S1S2) and two local auditors (S2S2).

Furthermore, the presence of at least one industry- specialized auditor within a joint audit pair may reduce delays in issuing mandatory joint audit reports, as a specialized auditor understands their sector in depth. This could lead to a more comprehensive grasp of sector characteristics (Owhoso *et al.*, 2002). As a result, joint audit pairs with at least one industry-specialized auditor can complete audits more quickly than those without industry specialization. Therefore, the auditor industry specialization was accounted for in this study using a dummy variable set to 1 if at least one audit firm was industry-specialized and 0 otherwise. Moreover, the audit opinion may vary depending on the composition of the audit pairs, and as companies receiving a qualified opinion may experience longer audit delays (Bamber *et al.*, 1993). Thus, this study also controls for the auditor’s opinion using a dummy variable that equals 1 if the opinion is qualified, negative or a disclaimer of opinion, and 0 otherwise.

Moreover, risk assessment is a key part of the audit process, influencing both its scope and timing. For example, audit risk tends to rise when companies face financial problems, such as losses, or have high leverage or low return on assets (ROA) (Durand, 2019). Losses suggest higher business risk and thus require more detailed audits (Bamber *et al.*, 1993). Similarly, high leverage indicates increased financial risk, a greater chance of default and higher audit risk, which can affect audit timing (Carslaw and Kaplan, 1991). Given that the study sample includes most of the listed French, Tunisian and Moroccan nonfinancial companies, we address these factors by including a dummy variable for negative annual net income (loss) and by measuring leverage with the debt-to-assets ratio (LEV) and ROA. Additionally, the presence of restatements in financial statements, which indicates misrepresentation, may increase the risk of litigation against the auditor and, in turn, elevate business risk, thereby delaying the issuance of audit reports (Durand, 2019). As a result, we incorporated this variable (Restatement) into our models, assigning 1 if the financial statements were restated in the year and 0 otherwise.

Additionally, the term of audit tenure in France differs from that in Tunisia and Morocco. Specifically, French auditors serve six-year renewable terms (Nekhili *et al.*, 2018), while Moroccan auditors have three-year terms, renewable once, for a maximum of six years, and Tunisian auditors also serve three-year terms, but these are renewable twice, followed by a mandatory three-year break (Lajmi *et al.*, 2021). These variations in audit tenure may impact auditor continuity. Building on this, changes in auditors can influence joint audit practices, as auditors need time to understand a new client’s operations and systems (DeAngelo, 1981). This may delay the issuance of audit reports. To reflect this, a dummy variable for auditor changes is included: 1 if the company changed at least one joint auditor during the year, and 0 otherwise (CHANGE). Furthermore, there is variation in the application of IFRS across countries.

Approximately 89.28% of French companies adopt these standards. In comparison, only 28.63% of Moroccan companies and 10% of Tunisian companies do so. The application of IFRS can affect audit timing. For example, [Zhou et al. \(2024\)](#) found that firms adopting IFRS experienced longer delays. Therefore, to account for these differences within and between countries, a dummy variable was introduced: 1 for firms adhering to IFRS and 0 for other firms.

On the other hand, this paper is based on most of the listed French, Tunisian and Moroccan nonfinancial companies. These companies differ in several ways. For example, large companies exert greater pressure on auditors and typically have stronger internal controls. These factors reduce delays in the preparation of audit reports ([Ashton et al., 1989](#)). Therefore, to account for firm size, the LnTA variable represents the natural logarithm of total assets at year-end t . Moreover, firm age can also significantly influence audit practices, as older firms are generally less prone to bankruptcy ([Haak et al., 2018](#)). Therefore, age is adjusted using the square root of the firm's age (Sqrt_Age). This is calculated as the square root of the number of years from incorporation to year t . In addition, the number of sectors in which a firm operates can affect audit practices, as different sectors require different audit approaches ([Chan et al., 1993](#)). An increasing number of subsidiaries leads to more inter-company transactions and a greater workload for auditors ([André et al., 2016](#)). Consequently, these factors can delay the release of the audit report. To address these complexities, the square root of the number of subsidiaries (Sqrt_Sub) of firm i at year-end t was included as a control variable. The companies in the sample may also differ in their financial position and ability to meet obligations. As a result, the audit effort required by different joint audit pairs may differ. Since audits often focus on current assets ([Myers, 1977](#)), the current-to-current-liabilities (LIQ) ratio is used to measure liquidity risk as a control variable.

Furthermore, most companies in the sample have a fiscal year-end of December 31. Since client balance sheet dates during peak periods can cause scheduling problems for auditors and potentially delay the audit process ([Carslaw and Kaplan, 1991](#)), the audit season duration (BUSY) was included as a dummy variable: companies ending their fiscal year on December 31 or January 31 were assigned a value of 1, while all others were assigned a value of 0. Ownership structures also vary across these companies; in concentrated ownership, major shareholders may closely monitor activities, reducing the need for audits and affecting their timing ([Palmrose, 1986](#)). To account for ownership concentration, the percentage of closely held shares (SHARES) was used as a control. Also, the market-to-book ratio was included as a control variable; values greater than 1 indicate greater conservatism ([Elmashtawy et al., 2024](#)). Finally, to isolate the effects of industry and year in our analyses, we included industry- and year-fixed effects in our models, as in most previous studies. [Table 2](#) summarizes variable definitions and measurements.

The empirical analysis relies on three primary regression specifications. Model 1 examines within-country differences in audit report delay across the six joint-audit pair types separately for France, Morocco and Tunisia. The functional form is presented below:

$$\begin{aligned}
 ARL_{i,t} = & \beta_0 + \beta_1 B4S1FR_{i,t} + \beta_2 B4S2FR_{i,t} + \beta_3 S1S1FR_{i,t} + \beta_4 S1S2FR_{i,t} + \beta_5 S2S2FR_{i,t} \\
 & + \beta_6 LNTA_{i,t} + \beta_7 IFRS_{i,t} + \beta_8 OPINION_{i,t} + \beta_9 SPEC_{i,t} + \beta_{10} CHANGE_{i,t} \\
 & + \beta_{11} Loss_{i,t} + \beta_{12} LEV_{i,t} + \beta_{13} LIQ_{i,t} + \beta_{14} SHARES_{i,t} + \beta_{15} SqrtSub_{i,t} + \beta_{16} ROA_{i,t} \\
 & + \beta_{17} BUSY_{i,t} + \beta_{18} MTB_{i,t} + \beta_{19} SqrtAge_{i,t} + \beta_{20} Restatment_{1,i,t} + \sum YEARFE \\
 & + \sum IND FE + \varepsilon_{i,t}
 \end{aligned} \tag{1}$$

Table 2. Summary of variables definitions

Variable	Definition
<i>Panel A: Audit firm classification</i>	
B4	The audit firms (1) Deloitte and Associates; (2) ERNST and YOUNG; (3) KPMG and (4) Price Waterhouse Coopers (PwC) are classified as Big4 audit firms
S1	Internationally affiliated audit firms: Baker tilly, BDO, Crowe Howarth, Grant Thornton, Mazars, Nexia, PKF, RSM and BM&A
S2	Audit firms not identified B4 or S1 recognized as local auditing firms
<i>Panel B: Independent variables (joint audit combinations)</i>	
B4B4	If the external audit of the firm, I in year t, is conducted by a joint audit comprising Two (2) Big4 audit firms, then it is scored One (1); otherwise, it is scored zero (0)
B4S1	If the external audit of the firm, I in year t, is conducted by a joint audit comprising One Big4 and One international auditing firm, then it is scored One (1); otherwise, it is scored zero (0)
B4S2	If the external audit of the firm, I in year t, is conducted by a joint audit comprising One Big4 and One local auditing firm, then scored One (1); otherwise, scored zero (0)
S1S1	If the external audit of the firm, I in year t, is conducted by a joint audit comprising Two international auditing firms, then scored One (1); otherwise scored zero (0)
S1S2	If the external audit of the firm, I in year t, is conducted by a joint audit comprising One international and One local auditing firm, then scored One (1); otherwise scored zero (0)
S2S2	If the external audit of firm I, in year t, is conducted by a joint audit comprising Two local auditing firms, then scored One (1); otherwise scored zero (0)
<i>Panel C: Dependent variables</i>	
ARL	The number of days from the end of the financial year (i.e. 31 December) of firm i in year t to the date the independent audit report is signed and issued
<i>Panel E: Control variables</i>	
Sqrt_Sub	Square root of the number of subsidiaries of firm I in year t
LOSS	an indicator variable that takes the value of 1 if net income is negative, and 0 otherwise
ROA	Ratio of net income of firm I reported for year t to the total assets of firm i at the end of year t
LEV	Ratio of total debt to total assets of firm I at the end of year t
SHARES	The percentage of closely held shares
Restatement	An indicator variable equal to 1 if a financial statement restatement has been reported in the current year and 0 otherwise
OPINION	Firm i in year t is scored One (1) if the audit opinion is a qualified, adverse or disclaimer opinion; otherwise, it is scored zero (0)
MTB	The ratio of the market value of equity of firm i at the end of year t to the book value of equity of firm i at the end of year t
BUSY	Equals One for firms with a fiscal year-end date between 12/31 and January, zero otherwise
LNTA	Natural logarithm of total assets of firm i at the end of year t
CHANGE	1 if the client firm changed auditor during the year, and 0 otherwise
Sqrt_Age	Square root of the number of years since establishment
IFRS	In year t, a firm receives a score of One (1) if it adopts IFRS standards; otherwise, it is assigned a score of zero (0)
SPEC	Dummy variable equal to 1 if at least One audit firm is an industry specialist and zero otherwise

Source(s): Authors' own creation

Model 1 runs separately for France, Morocco and Tunisia. ARL is the dependent variable and measures audit report delay as the number of calendar days from the fiscal year-end to the date the joint-audit report is signed. The model is estimated six times in each country, each time using a different joint-audit pair category as the reference (omitted) category. This approach allows pairwise comparisons across all six categories and robustly identifies which

pair type(s) are associated with the shortest (or longest) delays in each country. Consistent with Hassan *et al.* (2026) and Van der Zahn and Tebourbi (2023), the six joint-audit pair dummy variables are defined as follows:

- B4B4 – 1 if both auditors are Big Four, 0 otherwise;
- B4S1 – 1 if one auditor is Big Four and the other is non-Big Four international, 0 otherwise;
- B4S2 – 1 if one auditor is Big Four and the other is local (noninternational), 0 otherwise;
- S1S1 – 1 if both auditors are non-Big Four international, 0 otherwise;
- S1S2 – 1 if one auditor is non-Big Four international and the other is local, 0 otherwise; and
- S2S2 – 1 if both auditors are local, 0 otherwise.

One category is omitted in each estimation to avoid perfect collinearity. All other independent variables and controls are identical to those described earlier. Complete variable definitions and measurement details are provided in Table 2.

Model 2 examines differences in audit report delays between French firms and either Moroccan or Tunisian firms, while controlling for the presence of at least one Big Four auditor in the joint-audit pair. The functional form is as follows:

$$ARL_{i,t} = \beta_0 + \beta_1 \text{Morocco}_{i,t} + \beta_2 \text{Tunisia}_{i,t} + \beta_3 \text{ATLEASTABIG}_{i,t} + \text{Control variables}_{i,t} + \varepsilon_{i,t} \quad (2)$$

In this specification, France is the reference country. ARL is defined as previously described. The dummy variables are:

- FR_{i,t} – 1 for French firm-years, 0 otherwise (reference category);
- MO_{i,t} – 1 for Moroccan firm-years, 0 otherwise;
- TU_{i,t} – 1 for Tunisian firm-years, 0 otherwise; and
- ATLEASTONE_BIG4_{i,t} – 1 if at least one of the two auditors is Big Four, 0 otherwise.

All other control variables are identical to those used in Model 1 (see Table 2 for complete definitions and measurements). Moreover, Model 3 combines country and joint-audit pair indicators to provide a comprehensive comparison of audit report delays across the three countries and the six pair types. The functional form is presented below.

$$ARL_{i,t} = \beta_0 + \beta_1 \text{B4B4MO}_{i,t} + \beta_2 \text{B4S1MO}_{i,t} + \beta_3 \text{B4S2MO}_{i,t} + \beta_4 \text{S1S1MO}_{i,t} + \beta_5 \text{S1S2MO}_{i,t} + \beta_6 \text{S2S2MO}_{i,t} + \text{Control variables}_{i,t} + \varepsilon_{i,t} \quad (3)$$

Model 3 provides a complete pairwise comparison of audit report delays across the six joint-audit pair types and the three countries. The specification is estimated separately for each country-pair combination (France–Morocco, France–Tunisia and Morocco–Tunisia).

Within each country-pair analysis, the model is run six times, each time using a different joint-audit pair from the reference country as the omitted (baseline) category. This allows direct statistical comparison of every joint-audit pair in one country against all pairs in the other country. For example:

- One specification uses B4B4FR as the reference and compares all six Moroccan pairs (B4B4MO ... S2S2MO) to it.
- The next uses B4S1FR as the reference and again compares all six Moroccan pairs to it, and so forth.

The same rotating-reference procedure is applied to the France–Tunisia and Morocco–Tunisia comparisons. The dependent variable (ARL), control variables and measurement details remain the same as in Models 1 and 2 (see Table 2 for complete variable definitions and measurements).

4. Main results

4.1 Descriptive results

4.1.1 The allocation of joint audit pairings across nations. Figure 1 presents the distribution of joint-audit pair types across the three countries. The Big Four dominate the French market: 74.82% of French firm-year observations are audited by one of the three pair types that include at least one Big Four auditor (B4B4, B4S1, B4S2), leaving only 25.18% audited exclusively by non-Big Four firms. In contrast, the Big Four are far less dominant in Morocco and Tunisia, where only 48.04% and 59.00% of observations, respectively, involve at least one Big Four auditor. This indicates a more balanced audit market in the two MENA countries.

4.1.2 The distribution of audit delay days over countries. Table 3 reports the proportion of firms that publish audited financial statements within four months (approximately 120 days) of the fiscal year-end. Compliance is high in France (81.73% of firm-years) and particularly high in Morocco (91.76%). In sharp contrast, only 42.99% of Tunisian firm-years meet this four-month threshold (Fakhfakh Sakka and Jarboui, 2016). These results underscore marked cross-country differences in reporting timeliness.

4.1.3 Sample descriptive statistics. Table 4 reports descriptive statistics for all continuous and dummy variables separately by country. Mean audit report delay is 103.75 days in France, 96.13 days in Morocco and 144.01 days in Tunisia. The shortest observed delays are 21 days (France), 35 days (Morocco) and 54 days (Tunisia), whereas the longest are 311 days (France),

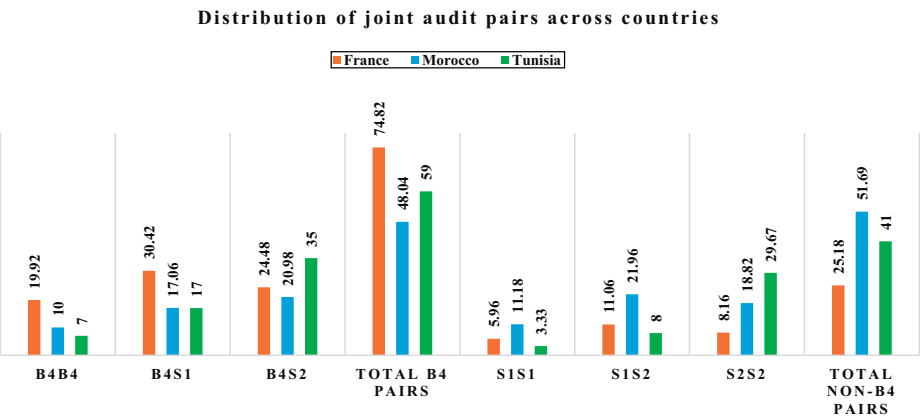


Figure 1. Distribution of joint audit combinations over three countries

Source: Authors’ own creation

Table 3. Distribution of audit delay days over three countries

Audit Delay Days	Country								
	France			Morocco			Tunisia		
	N	%	CUM	N	%	CUM	N	%	CUM
21-45	42	1.17	1.17	20	3.92	3.92	-	-	-
46-60	208	5.79	6.96	22	4.31	8.23	1	0.33	0.33
61-75	352	9.81	16.77	33	6.47	14.7	12	4.00	4.33
76-90	560	15.60	32.37	171	33.53	48.23	15	5.00	9.33
91-105	475	13.23	45.6	59	11.57	59.8	31	10.33	19.66
106-120	1297	36.13	81.73	163	31.96	91.76	70	23.33	42.99
121-150	508	14.15	95.88	42	8.24	100.00	75	25.00	67.99
151-348	148	4.12	100.00	-	-	-	96	32.00	100.00
Total	3590	100.00	100.00	510	100.00	100.00	300	100.00	100.00

Source(s): Authors' own creation

148 days (Morocco) and 348 days (Tunisia). Standard deviations are 29.35 days, 24.22 days and 55.58 days, respectively. These comparisons indicate that Moroccan firms, on average, publish audited reports fastest, followed by French firms; Tunisian firms exhibit the longest delays and the greatest dispersion. However, differences in firm characteristics, regulatory deadlines and market practices across the three countries preclude direct causal attribution of these disparities solely to the joint-audit regime.

4.2 Multivariate analysis

4.2.1 Regression results for the effect of different joint audit pairs on audit report delays in the French, Moroccan and Tunisian companies. Table 5 presents the results of Model 1 estimated separately for France, Morocco and Tunisia. For each country, the model is run six times, each time omitting a different joint-audit pair as the reference category (Models 1–6). This rotating-reference approach permits full pairwise comparisons of delay across all six pair types. The statistical significance of these pairwise differences is summarized in Figures 2 (France), 3 (Morocco) and 4 (Tunisia).

The results in Table 5 and Figure 2 show that French companies audited by two Big Four firms (B4B4FR) have the shortest delays. This is followed by companies audited by B4S1FR, B4S2FR, S1S1FR, S1S2FR, and finally S2S2FR, with the longest delays. Most pairwise differences are statistically significant, confirming *H1*: more international auditors, especially Big Four, on an audit team reduce delays, especially in advanced contexts such as the French context. This is consistent with prior evidence linking greater Big Four involvement to faster completion (Khoufi and Khoufi, 2018; Alfraih, 2016). Consequently, these findings highlight the quality and rigor of external audits in minimizing delays and indicate that Big Four auditors finish audits more quickly than non-Big Four firms, likely due to superior resources, expertise and greater reputational incentives (Al-Ajmi, 2008; Afify, 2009). These outcomes also align with those of Deng *et al.* (2014), who assumed that free-riding does not occur in B4B4 pairs, suggesting that multiple perspectives facilitate better decision-making and reduce audit delays.

Furthermore, unlike in France, Table 5 and Figures 3 and 4 show that audit report delays are longer when Moroccan or Tunisian companies are audited by a pair of Big Four firms (B4B4MO/TU) than in other joint auditor pairings. These findings confirm the second hypothesis: in developing contexts such as Tunisia and Morocco, pairs involving two Big Four firms may increase delays as they protect reputations and mitigate litigation risks by expanding audit scope to compensate for weak governance. For Moroccan firms, Table 5 and Figure 3 show the shortest delays among those audited by two local auditors (S2S2MO),

Table 4. Sample descriptive statistics

Variables	Mean	SD	Min	p25	Median	p75	Max
Panel A: France (N = 3,590; 359 companies)							
Panel A1 Continuous variables							
ARL	103.751	29.346	21	85	110	119	311
LNTA	13.24	2.384	3.178	11.525	13.022	14.896	18.833
SHARES	52.327	26.012	0.01	33.73	56.804	71.64	99.97
LEV	27.547	17.809	0.12	13.44	25.96	38.69	76.15
ROA	-0.077	12.230	-41.19	-0.04	3.14	5.89	17.1
MTB	1.898	1.746	0.02	0.79	1.35	2.37	7.54
Sqrt_SUB	6.909	6.419	0	2.646	5	8.485	52.431
Sqrt_Age	6.822	2.503	2.646	5	6.164	8.426	13.191
Variables	YES						%
Panel A2: Dummy variables							
LOSS	1015						28.27
IFRS	3205						89.28
BUSY	2927						81.53
OPINION	3521						98.08
Restatement	798						22.23
CHANGE	245						6.82
Panel B: Morocco (N = 510; 51 companies)							
Panel B1 Continuous variables							
ARL	96.127	24.217	35	82	92	117	148
LNTA	12.106	1.584	8.537	10.841	12.05	13.358	15.741
SHARES	70.059	15.399	5.56	62.49	71.415	80.26	97.91
LEV	21.003	17.208	0.02	6.79	18.825	30.86	71
ROA	5.672	6.045	-8.28	2.38	5.37	9.45	18.79
MTB	2.384	1.742	0.13	1	1.975	3.48	6.74
Sqrt_SUB	1.521	1.757	0	0	1	2.449	8.66
Sqrt_Age	7.022	1.844	3	5.477	6.782	8.602	10.247
Panel B2: Dummy variables							
Variables	Yes						%
LOSS	85						16.67
IFRS	146						28.63
BUSY	500						98.4
OPINION	486						95.29
Restatement	44						8.63
CHANGE	52						10.20
Panel C: Tunisia (N = 300; 30 companies)							
Panel C1 Continuous variables							
ARL	144.013	55.583	54	115	130.5	160.5	348
LNTA	11.583	1.069	8.65	10.818	11.477	12.302	14.181
SHARES	69.318	13.124	24.82	61.467	73.061	76.153	96.37
LEV	36.948	24.358	0.02	14.79	38.535	55.205	91.94
ROA	5.22	7.236	-9.85	1.475	5.31	10.13	21.23
MTB	1.662	1.336	0.12	0.595	1.455	2.43	5.12
Sqrt_SUB	1.815	1.937	0	0	1.573	2.646	9.487
Sqrt_Age	5.956	1.801	2.646	4.583	5.916	7.106	9.95
(continued)							

Table 4. Continued

Variables	YES	%
<i>Panel C2: Dummy variables</i>		
LOSS	101	33.67
IFRS	30	10
BUSY	300	100
OPINION	296	98.67
Restatement	45	15
CHANGE	36	12

Source(s): Authors' own creation

followed by one non-Big Four international and one local (S1S2MO), then one Big Four and one local auditor (B4S2MO). This pattern supports the second hypothesis, suggesting that local auditors outside the Big Four may reduce delays by maintaining ongoing access to client information and greater regional awareness. Table 5 and Figure 4 also indicate that Tunisian firms audited by two non-Big Four international auditors (S1S1TU) experience significantly shorter delays than those audited by any other pair. This underscores the substantial role international auditors can play in reducing delays. Therefore, results confirm that delays in the mandatory joint audit report vary not only with joint audit pair composition but also with institutional context. However, caution is warranted due to small sample sizes in Morocco and Tunisia, which may limit generalizability.

4.2.2 Regression results for the effect of different joint audit pairs on audit report delays across French, Moroccan and Tunisian companies. Table 6 reports the results of Model 2 and Model 3, which provide pairwise cross-country comparisons of audit report delays (France vs Morocco, France vs Tunisia and Morocco vs Tunisia). For each country-pair comparison, the model is estimated six times, each time using a different joint-audit pair from the reference country as the omitted benchmark. We summarized the statistical significance of these cross-country comparisons in Figures 5 and 6.

Table 6 and Figure 5 show that audit reporting delays are significantly shorter in Moroccan companies than in French companies, both overall and across almost every pair of joint audits (statistically significant at the 1% level), contradicting *H3*. In partial agreement with *H3*, both Table 6 and Figure 6 indicate French firms have shorter delays than Tunisian firms at the 1% significance level, except for the Tunisian pair S1S1TU (two international auditors from outside the Big Four), which submits reports faster than all French pairs. Table 6 and Figure 6 further show that Tunisian firms generally experience longer delays than Moroccan ones, with the same S1S1TU exception, which is not significantly different from Moroccan pairs, thus confirming *H4*. Therefore, these findings also confirm the argument that international auditors can play a significant role in the reporting delays literature (Abemathy *et al.*, 2017). Moreover, while these findings are unique in the audit delays literature, they are consistent with the institutional theory framework and highlight the role of institutional context in reporting delays. However, small sample sizes in Morocco and Tunisia warrant cautious interpretation, as they may limit generalizability.

5. Additional analysis and sensitivity tests

5.1 Audited company size and audit report delays across various joint audit pairs

Although firm size is controlled for in the main models, we further examine its effects by partitioning firms in each country into small, medium and large terciles based on total assets

Table 5. Regression results for the effect of different joint audit pairs on audit report delays in French, Moroccan and Tunisian companies

Variables	French subsample				Moroccan subsample				
	1	2	3	4	5	6	1	2	3
B4B4		-4.233*** (1.110)	-9.834*** (1.307)	-7.195*** (1.679)	-11.08*** (1.650)	-18.86*** (1.724)		-1.083 (3.199)	9.630** (4.377)
B4S1	4.233*** (1.110)		-5.601*** (1.016)	-2.962** (1.503)	-6.844*** (1.456)	-14.63*** (1.525)	1.083 (3.199)		10.71*** (3.769)
B4S2	9.834*** (1.307)	5.601*** (1.016)		2.639* (1.485)	-1.243 (1.358)	-9.026*** (1.466)	-9.630** (4.377)	-10.71*** (3.769)	
S1S1	7.195*** (1.679)	2.962*** (1.503)	-2.639* (1.485)		-3.881** (1.738)	-11.67*** (1.847)	-3.107 (3.971)	-4.190 (3.437)	6.523 (3.987)
S1S2	11.08*** (1.650)	6.844*** (1.456)	1.243 (1.358)	3.881** (1.738)		-7.784*** (1.718)	-10.27** (4.194)	-11.35*** (3.375)	-0.635 (3.528)
S2S2	18.86*** (1.724)	14.63*** (1.525)	9.026*** (1.466)	11.67*** (1.847)	7.784*** (1.718)		-17.78*** (4.452)	-18.86*** (3.739)	-8.151** (3.520)
SPEC	5.777*** (2.001)	5.777*** (2.001)	5.777*** (2.001)	5.777*** (2.001)	5.777*** (2.001)	5.777*** (2.001)	-2.069 (2.816)	-2.069 (2.816)	-2.069 (2.816)
LNTA	-3.961*** (0.319)	-3.961*** (0.319)	-3.961*** (0.319)	-3.961*** (0.319)	-3.961*** (0.319)	-3.961*** (0.319)	-3.900*** (1.277)	-3.900*** (1.277)	-3.900*** (1.277)
BUSY	-2.718*** (0.927)	-2.718*** (0.927)	-2.718*** (0.927)	-2.718*** (0.927)	-2.718*** (0.927)	-2.718*** (0.927)	-58.86*** (4.508)	-58.86*** (4.508)	-58.86*** (4.508)
IFRS	-4.580*** (1.244)	-4.580*** (1.244)	-4.580*** (1.244)	-4.580*** (1.244)	-4.580*** (1.244)	-4.580*** (1.244)	-8.139*** (3.644)	-8.139*** (3.644)	-8.139*** (3.644)
OPINION	5.325* (2.757)	5.325* (2.757)	5.325* (2.757)	5.325* (2.757)	5.325* (2.757)	5.325* (2.757)	-8.214* (4.401)	-8.214* (4.401)	-8.214* (4.401)
CHANGE	2.076 (1.407)	2.076 (1.407)	2.076 (1.407)	2.076 (1.407)	2.076 (1.407)	2.076 (1.407)	-1.073 (2.998)	-1.073 (2.998)	-1.073 (2.998)
LOSS	1.851* (1.092)	1.851* (1.092)	1.851* (1.092)	1.851* (1.092)	1.851* (1.092)	1.851* (1.092)	4.452 (2.789)	4.452 (2.789)	4.452 (2.789)
LEV	-0.0144 (0.0246)	-0.0144 (0.0246)	-0.0144 (0.0246)	-0.0144 (0.0246)	-0.0144 (0.0246)	-0.0144 (0.0246)	-0.0410 (0.0606)	-0.0410 (0.0606)	-0.0410 (0.0606)
ROA	0.0837* (0.0464)	0.0837* (0.0464)	0.0837* (0.0464)	0.0837* (0.0464)	0.0837* (0.0464)	0.0837* (0.0464)	-0.277 (0.253)	-0.277 (0.253)	-0.277 (0.253)
MTB	-1.327*** (0.222)	-1.327*** (0.222)	-1.327*** (0.222)	-1.327*** (0.222)	-1.327*** (0.222)	-1.327*** (0.222)	0.00622 (0.643)	0.00622 (0.643)	0.00622 (0.643)
Sqrt_Sub	-0.134 (0.0986)	-0.134 (0.0986)	-0.134 (0.0986)	-0.134 (0.0986)	-0.134 (0.0986)	-0.134 (0.0986)	3.936*** (0.756)	3.936*** (0.756)	3.936*** (0.756)
LIQ	-0.0223*** (0.00492)	-0.0223*** (0.00492)	-0.0223*** (0.00492)	-0.0223*** (0.00492)	-0.0223*** (0.00492)	-0.0223*** (0.00492)	0.0135 (0.0113)	0.0135 (0.0113)	0.0135 (0.0113)
Sqrt_Age	-0.617*** (0.162)	-0.617*** (0.162)	-0.617*** (0.162)	-0.617*** (0.162)	-0.617*** (0.162)	-0.617*** (0.162)	-1.809*** (0.637)	-1.809*** (0.637)	-1.809*** (0.637)
SHARES	0.129*** (0.0167)	0.129*** (0.0167)	0.129*** (0.0167)	0.129*** (0.0167)	0.129*** (0.0167)	0.129*** (0.0167)	0.0438 (0.0832)	0.0438 (0.0832)	0.0438 (0.0832)
Restatement	1.017 (0.896)	1.017 (0.896)	1.017 (0.896)	1.017 (0.896)	1.017 (0.896)	1.017 (0.896)	2.442 (3.398)	2.442 (3.398)	2.442 (3.398)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	152.4*** (5.512)	156.6*** (5.399)	162.2*** (5.218)	159.6*** (5.341)	163.5*** (5.190)	171.3*** (5.240)	215.6*** (20.33)	216.7*** (19.97)	206.0*** (18.38)
Observations	3,590	3,590	3,590	3,590	3,590	3,590	510	510	510
R-squared	0.364	0.364	0.364	0.364	0.364	0.364	0.451	0.451	0.451

Note(s): ***, ** indicates significant at 1.5, and 10% significance levels, respectively
Source(s): Authors' own creation

(continued)

Note(s): ***, **, * indicates significant at 1.5, and 10% significance levels, respectively
Source(s): Authors' own creation

(continued)

Table 5. Continued

Variables	Moroccan subsample			Tunisian subsample		
	4	5	6	1	2	3
B4B4	3.107 (3.971)	10.27** (4.194)	17.78*** (4.452)		68.10*** (11.86)	49.47*** (11.13)
B4S1	4.190 (3.437)	11.35*** (3.375)	18.86*** (3.739)	-68.10*** (11.86)	18.64** (8.230)	71.98*** (16.55)
B4S2	-6.523 (3.987)	0.635 (3.528)	8.151** (3.520)	-49.47*** (11.13)	18.64** (8.230)	3.880 (13.55)
S1S1		7.158** (3.267)	14.67*** (3.937)	-71.98*** (16.55)	-3.880 (13.55)	22.52 (15.37)
S1S2	-7.158** (3.267)		7.516** (3.247)	-56.92*** (17.24)	11.19 (15.08)	-15.07 (17.30)
S2S2	-14.67*** (3.937)	-7.516** (3.247)		-58.25*** (10.66)	9.855 (8.149)	15.07 (17.30)
SPEC	-2.069 (2.816)	-2.069 (2.816)	-2.069 (2.816)	18.58*** (6.600)	18.58*** (6.600)	-1.331 (16.20)
LNTA	-3.900*** (1.277)	-3.900*** (1.277)	-3.900*** (1.277)	18.58*** (6.600)	18.58*** (6.600)	18.58*** (6.600)
BUSY	-58.86*** (4.508)	-58.86*** (4.508)	-58.86*** (4.508)	-15.32*** (4.944)	-15.32*** (4.944)	-15.32*** (4.944)
IFRS	-8.139** (3.644)	-8.139** (3.644)	-8.139** (3.644)			
OPINION	-8.214* (4.401)	-8.214* (4.401)	-8.214* (4.401)	0.936 (12.19)	0.936 (12.19)	0.936 (12.19)
CHANGE	-1.073 (2.998)	-1.073 (2.998)	-1.073 (2.998)	67.94*** (21.54)	67.94*** (21.54)	67.94*** (21.54)
LOSS	4.452 (2.789)	4.452 (2.789)	4.452 (2.789)	-0.452 (8.224)	-0.452 (8.224)	-0.452 (8.224)
LEV	-0.0410 (0.0606)	-0.0410 (0.0606)	-0.0410 (0.0606)	13.53 (9.203)	13.53 (9.203)	13.53 (9.203)
ROA	-0.277 (0.253)	-0.277 (0.253)	-0.277 (0.253)	0.462*** (0.161)	0.462*** (0.161)	0.462*** (0.161)
MTB	0.00622 (0.643)	0.00622 (0.643)	0.00622 (0.643)	-0.0758 (0.536)	-0.0758 (0.536)	-0.0758 (0.536)
Sqrt_Sub	3.936*** (0.756)	3.936*** (0.756)	3.936*** (0.756)	-2.267 (2.251)	-2.267 (2.251)	-2.267 (2.251)
LIQ	0.0135 (0.0113)	0.0135 (0.0113)	0.0135 (0.0113)	2.456* (1.372)	2.456* (1.372)	2.456* (1.372)
Sqrt_Age	-1.809*** (0.637)	-1.809*** (0.637)	-1.809*** (0.637)	-0.179*** (0.0278)	-0.179*** (0.0278)	-0.179*** (0.0278)
SHARES	0.0438 (0.0832)	0.0438 (0.0832)	0.0438 (0.0832)	2.074 (1.477)	2.074 (1.477)	2.074 (1.477)
Restatement	2.442 (3.398)	2.442 (3.398)	2.442 (3.398)	-0.0895 (0.237)	-0.0895 (0.237)	-0.0895 (0.237)
Year FE	Yes	Yes	Yes	5.752 (5.698)	5.752 (5.698)	5.752 (5.698)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	212.5*** (19.83)	205.3*** (18.82)	197.8*** (17.77)	244.8*** (53.09)	222.3*** (61.17)	237.3*** (57.11)
Observations	510	510	510	300	300	300
R-squared	0.451	0.451	0.451	0.457	0.457	0.457



Figure 2. Differences in audit report delays in the French firms across joint audit pairs
Source: Authors' own creation

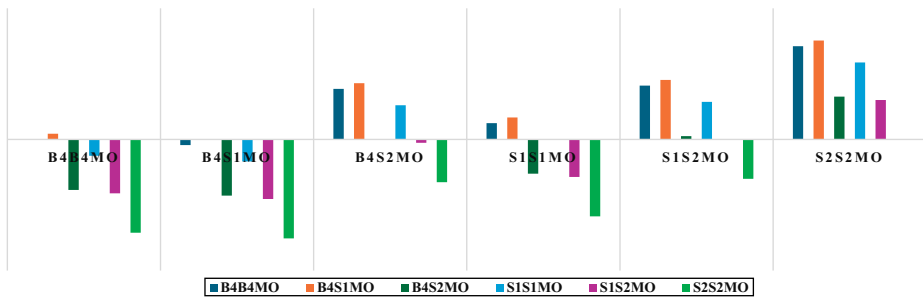


Figure 3. Differences in audit report delays in the Moroccan firms across joint audit pairs
Source: Authors' own creation



Figure 4. Differences in audit report delays in the Tunisian firms across joint audit pairs
Source: Authors' own creation

(Simunic, 1980) and re-estimating the models separately for each tercile. For brevity, the full regression tables are not presented; instead, the key results are summarized in Figures 7–12. Audit services for large companies can be time-consuming due to the complexity of their financial reports (Hamdallah *et al.*, 2021). However, Figures 7–9 indicate that most joint audit pairs exhibit comparable delays in audit reporting between large firms in France, Morocco and Tunisia. These findings are consistent with institutional theory, which suggests that large firms are generally

Table 6. Regression results for the effect of different joint audit pairs on audit report delays across French, Moroccan and Tunisian companies

Variables	1	2	3	4	5	6	7	1	2	3	4
Morocco vs Morocco											
Morocco/Tunisia-17/21*** (1.619)								18.91*** (2.967)			
B4B4		-6.914** (2.967)	-10.32*** (2.844)	-15.74*** (2.876)	-13.58*** (3.048)	-17.11*** (3.036)	-24.19*** (3.059)		57.57*** (8.387)	53.12*** (8.330)	47.45*** (8.298)
B4S1		-4.546 (2.880)	-7.953*** (2.741)	-13.38*** (2.748)	-11.21*** (2.955)	-14.74*** (2.914)	-21.82*** (2.904)		19.03*** (5.594)	14.58*** (5.548)	8.909 (5.499)
B4S2		-5.504* (3.241)	-8.911*** (3.102)	-14.33*** (3.069)	-12.17*** (3.234)	-15.70*** (3.216)	-22.78*** (3.208)		26.74*** (4.271)	22.28*** (4.179)	16.62*** (4.135)
S1S1		-4.510 (2.970)	-7.916*** (2.812)	-13.34*** (2.806)	-11.18*** (3.024)	-14.70*** (2.985)	-21.79*** (2.959)		-9.484*** (3.518)	-13.94*** (3.391)	-19.61*** (3.423)
S1S2		-13.26*** (2.853)	-16.67*** (2.658)	-22.09*** (2.604)	-19.93*** (2.850)	-23.45*** (2.755)	-30.54*** (2.710)		33.84*** (11.07)	29.39*** (11.03)	23.72*** (10.98)
S2S2		-18.54*** (3.067)	-21.95*** (2.917)	-27.37*** (2.855)	-25.21*** (3.061)	-28.73*** (3.004)	-35.82*** (2.968)		33.52*** (5.982)	29.07*** (5.940)	23.40*** (5.831)
SPEC	-0.245 (1.620)	0.383 (1.643)	0.383 (1.643)	0.383 (1.643)	0.383 (1.643)	0.383 (1.643)	0.383 (1.643)	7.877*** (2.408)	12.09*** (2.476)	12.09*** (2.476)	12.09*** (2.476)
LNTA	-4.689*** (0.287)	-3.955*** (0.304)	-3.955*** (0.304)	-3.955*** (0.304)	-3.955*** (0.304)	-3.955*** (0.304)	-3.955*** (0.304)	-5.019*** (0.312)	-4.071*** (0.330)	-4.071*** (0.330)	-4.071*** (0.330)
BUSY	-4.665*** (0.948)	-3.674*** (0.939)	-3.674*** (0.939)	-3.674*** (0.939)	-3.674*** (0.939)	-3.674*** (0.939)	-3.674*** (0.939)	-3.679*** (0.962)	-2.673*** (0.942)	-2.673*** (0.942)	-2.673*** (0.942)
IFRS	-5.143*** (1.187)	-4.393*** (1.204)	-4.393*** (1.204)	-4.393*** (1.204)	-4.393*** (1.204)	-4.393*** (1.204)	-4.393*** (1.204)	-6.807*** (1.485)	-4.703*** (1.501)	-4.703*** (1.501)	-4.703*** (1.501)
OPINION	-1.051 (2.475)	-0.197 (2.501)	-0.197 (2.501)	-0.197 (2.501)	-0.197 (2.501)	-0.197 (2.501)	-0.197 (2.501)	5.553*** (2.658)	6.578*** (2.709)	6.578*** (2.709)	6.578*** (2.709)
CHANGE	3.084** (1.326)	2.876** (1.327)	2.876** (1.327)	2.876** (1.327)	2.876** (1.327)	2.876** (1.327)	2.876** (1.327)	1.523 (1.751)	1.366 (1.709)	1.366 (1.709)	1.366 (1.709)
LOS5	2.135** (1.063)	2.621** (1.044)	2.621** (1.044)	2.621** (1.044)	2.621** (1.044)	2.621** (1.044)	2.621** (1.044)	5.263*** (1.289)	5.246*** (1.259)	5.246*** (1.259)	5.246*** (1.259)
LEV	-0.0341 (0.0237)	-0.0362 (0.0236)	-0.0362 (0.0236)	-0.0362 (0.0236)	-0.0362 (0.0236)	-0.0362 (0.0236)	-0.0362 (0.0236)	0.0489* (0.0284)	0.0386 (0.0290)	0.0386 (0.0290)	0.0386 (0.0290)
ROA	0.0630 (0.0460)	0.0689 (0.0457)	0.0689 (0.0457)	0.0689 (0.0457)	0.0689 (0.0457)	0.0689 (0.0457)	0.0689 (0.0457)	0.127** (0.0517)	0.116** (0.0507)	0.116** (0.0507)	0.116** (0.0507)
MTB	-1.502*** (0.211)	-1.437*** (0.211)	-1.437*** (0.211)	-1.437*** (0.211)	-1.437*** (0.211)	-1.437*** (0.211)	-1.437*** (0.211)	-1.756*** (0.233)	-1.470*** (0.230)	-1.470*** (0.230)	-1.470*** (0.230)
LIQ	0.00364 (0.0997)	0.0141 (0.0988)	0.0141 (0.0988)	0.0141 (0.0988)	0.0141 (0.0988)	0.0141 (0.0988)	0.0141 (0.0988)	-0.114 (0.104)	-0.135 (0.101)	-0.135 (0.101)	-0.135 (0.101)
Sqrt_Sub	-0.0113** (0.00474)	-0.0116** (0.00463)	-0.0116** (0.00463)	-0.0116** (0.00463)	-0.0116** (0.00463)	-0.0116** (0.00463)	-0.0116** (0.00463)	-0.0353*** (0.00533)	-0.0374*** (0.00533)	-0.0374*** (0.00533)	-0.0374*** (0.00533)
Sqrt_Age	-0.860*** (0.167)	-0.779*** (0.163)	-0.779*** (0.163)	-0.779*** (0.163)	-0.779*** (0.163)	-0.779*** (0.163)	-0.779*** (0.163)	-0.474*** (0.174)	-0.439*** (0.171)	-0.439*** (0.171)	-0.439*** (0.171)
SHARES	0.170*** (0.0159)	0.137*** (0.0163)	0.137*** (0.0163)	0.137*** (0.0163)	0.137*** (0.0163)	0.137*** (0.0163)	0.137*** (0.0163)	0.164*** (0.0172)	0.122*** (0.0172)	0.122*** (0.0172)	0.122*** (0.0172)
Restatement	1.335 (0.889)	1.565* (0.877)	1.565* (0.877)	1.565* (0.877)	1.565* (0.877)	1.565* (0.877)	1.565* (0.877)	0.317 (0.975)	0.639 (0.955)	0.639 (0.955)	0.639 (0.955)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	174.2*** (4.908)	156.5*** (5.234)	159.9*** (5.138)	165.3*** (4.953)	163.2*** (5.086)	166.7*** (4.928)	173.8*** (5.004)	171.3*** (5.381)	148.8*** (5.786)	153.3*** (5.682)	159.0*** (5.464)
Observations		4,100	4,100	4,100	4,100	4,100	4,100	3,890	3,890	3,890	3,890
R-squared	0.298	0.326	0.326	0.326	0.326	0.326	0.326	0.374	0.404	0.404	0.404

Notes(s): ***, **, * indicates significant at 1, 5, and 10% significance levels, respectively
Source(s): Authors' own creation

(continued)

Table 6. Continued

Variables	France VS Tunisia			Morocco VS Tunisia			7
	5	6	1	3	4	5	6
Morocco/Tunisia							
B4B4	50.04*** (8.387)	46.33*** (8.339)	37.83*** (8.287)	33.23*** (3.811)	54.58*** (8.759)	70.87*** (8.912)	58.41*** (8.539)
B4S1	11.50** (5.588)	7.94 (5.593)	-0.712 (5.571)	12.00 (8.273)	9.913 (7.725)	26.20*** (6.720)	13.74* (7.428)
B4S2	19.21*** (4.315)	15.50*** (4.255)	6.994* (4.219)	28.57*** (6.841)	26.48*** (5.970)	42.77*** (5.771)	30.30*** (5.667)
S1S1	-17.02*** (3.575)	-20.72*** (3.558)	-29.23*** (3.613)	-5.008 (5.916)	-7.100 (5.247)	9.186* (5.416)	-3.276 (4.481)
S1S2	26.31** (11.08)	22.60*** (11.00)	14.10 (10.98)	24.42** (12.10)	22.33* (11.77)	38.62*** (11.39)	26.15** (11.99)
S2S2	25.99*** (6.002)	22.29*** (5.850)	13.78** (5.756)	22.19** (9.863)	20.10** (8.781)	36.38*** (7.479)	23.92*** (8.349)
SPEC	12.09*** (2.476)	12.09*** (2.476)	12.09*** (2.476)	8.702** (3.519)	8.702** (3.519)	8.702** (3.519)	8.702** (3.519)
LNTA	-4.071*** (0.330)	-4.071*** (0.330)	-4.071*** (0.330)	-4.066*** (1.487)	-4.066*** (1.487)	-4.066*** (1.487)	-4.066*** (1.487)
BUSY	-2.673*** (0.942)	-2.673*** (0.942)	-2.673*** (0.942)	-52.07*** (6.224)	-52.07*** (6.224)	-52.07*** (6.224)	-52.07*** (6.224)
IFRS	-4.703*** (1.501)	-4.703*** (1.501)	-4.703*** (1.501)	-12.08*** (3.924)	-12.08*** (3.924)	-12.08*** (3.924)	-12.08*** (3.924)
OPINION	6.578** (2.709)	6.578** (2.709)	6.578** (2.709)	-1.477 (4.042)	-1.477 (4.042)	-1.477 (4.042)	-1.477 (4.042)
CHANGE	1.366 (1.709)	1.366 (1.709)	1.366 (1.709)	-0.668 (4.470)	-0.668 (4.470)	-0.668 (4.470)	-0.668 (4.470)
LOSS	5.246*** (1.259)	5.246*** (1.259)	5.246*** (1.259)	17.47*** (4.310)	17.47*** (4.310)	17.47*** (4.310)	17.47*** (4.310)
LEV	0.0386 (0.0290)	0.0386 (0.0290)	0.0386 (0.0290)	0.141* (0.0854)	0.141* (0.0854)	0.141* (0.0854)	0.141* (0.0854)
RGA	0.116** (0.0507)	0.116** (0.0507)	0.116** (0.0507)	-0.223 (0.330)	-0.223 (0.330)	-0.223 (0.330)	-0.223 (0.330)
MTB	-1.470*** (0.230)	-1.470*** (0.230)	-1.470*** (0.230)	-0.153 (0.902)	-0.153 (0.902)	-0.153 (0.902)	-0.153 (0.902)
SortL Sub	-0.135 (0.101)	-0.135 (0.101)	-0.135 (0.101)	3.143*** (0.695)	3.143*** (0.695)	3.143*** (0.695)	3.143*** (0.695)
LiQ	-0.0374*** (0.00533)	-0.0374*** (0.00533)	-0.0374*** (0.00533)	-0.0618*** (0.0133)	-0.0618*** (0.0133)	-0.0618*** (0.0133)	-0.0618*** (0.0133)
SortL Age	-0.439** (0.171)	-0.439** (0.171)	-0.439** (0.171)	-1.097 (0.850)	-1.097 (0.850)	-1.097 (0.850)	-1.097 (0.850)
SHARES	0.122** (0.0172)	0.122** (0.0172)	0.122** (0.0172)	-0.130 (0.0952)	-0.130 (0.0952)	-0.130 (0.0952)	-0.130 (0.0952)
Restatement	0.639 (0.955)	0.639 (0.955)	0.639 (0.955)	2.372 (3.573)	2.372 (3.573)	2.372 (3.573)	2.372 (3.573)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	156.4*** (5.591)	160.1*** (5.433)	168.6*** (5.453)	224.0*** (26.45)	224.0*** (25.61)	207.7*** (23.61)	209.1*** (24.62)
Observations	3,890	3,890	3,890	810	810	810	810
R-squared	0.404	0.404	0.404	0.510	0.510	0.510	0.510

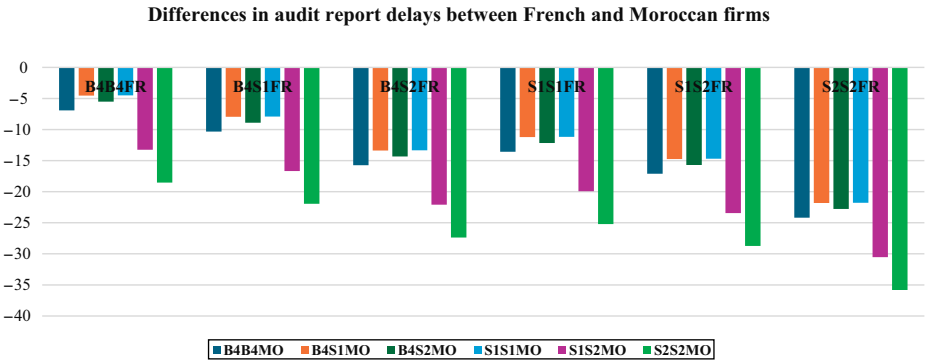


Figure 5. Differences in audit report delays between French and Moroccan firms across joint audit pairs
Source: Authors' own creation

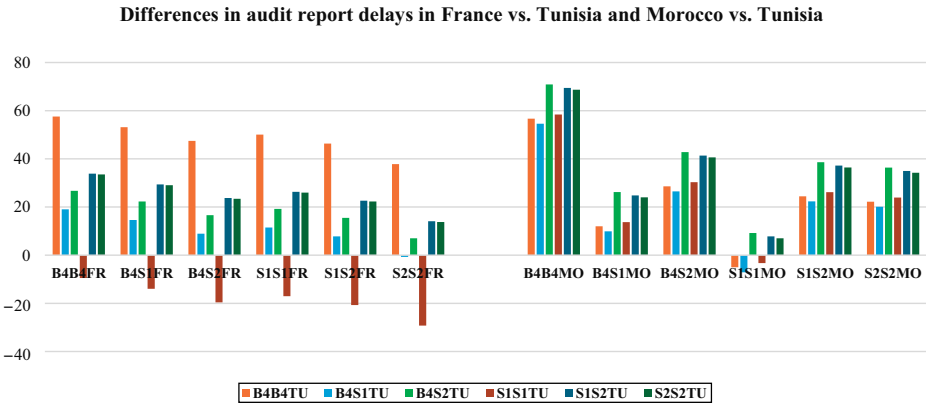


Figure 6. Differences in audit report delays between Tunisian firms and French and Moroccan firms across joint audit pairs
Source: Authors' own creation

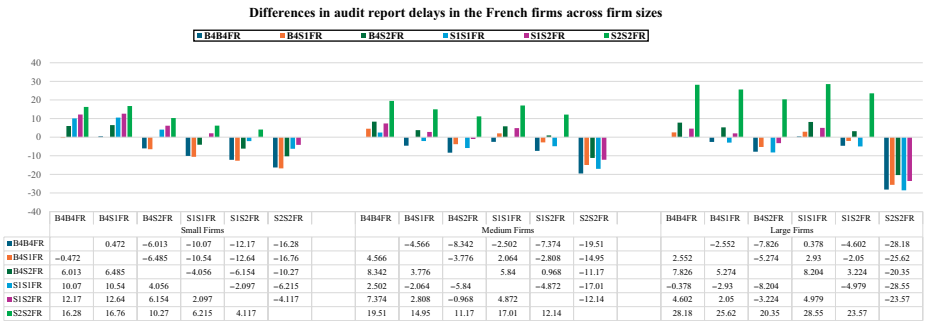


Figure 7. Differences in audit report delays in the French firms across joint audit pairs across firm sizes
Source: Authors' own creation

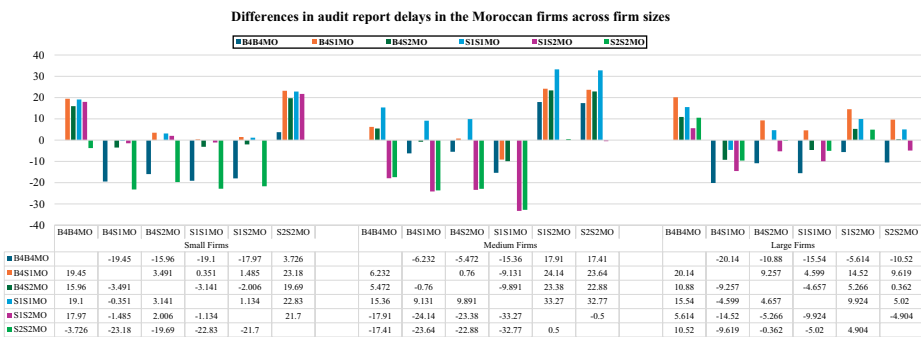


Figure 8. Differences in audit report delays in the Moroccan firms across joint audit pairs across firm sizes
Source: Authors’ own creation



Figure 9. Differences in audit report delays in the Tunisian firms across joint audit pairs across firm sizes
Source: Authors’ own creation

more compliant with regulatory requirements and professional standards, likely due to coercive pressures and the diversity of stakeholder expectations (DiMaggio and Powell, 1983). Furthermore, strong internal controls in large firms may reduce year-end audit work (Ashton *et al.*, 1989), leading these firms to demand timely audit reports. These factors, taken together, may explain why delays in joint audit reports are minimal among most joint audit pairs in large firms. However, while the B4B4MO/TU pair’s role in reducing audit report delays is generally weak compared to other pairs in both Morocco and Tunisia in the main analysis, this pair plays a key role in reducing audit report delays compared to other pairs in large Moroccan and Tunisian firms, and this advantage persisted in reducing audit report delays in the French context. These findings thus highlight the role of the Big Four audit firms in large companies in completing audits on time to maintain their reputation and standing (Afify, 2009). Nevertheless, given the small sample sizes in Morocco and Tunisia, we interpret these results with caution, as they may limit their generalizability.

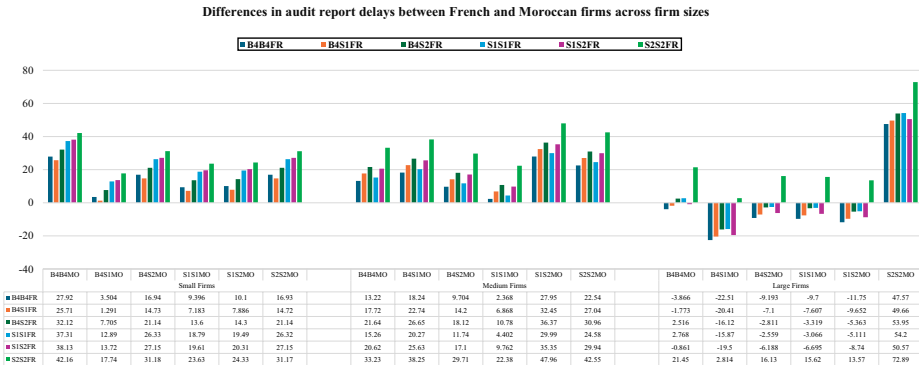


Figure 10. Differences in audit report delays between French and Moroccan firms across joint audit pairs across firm sizes
Source: Authors' own creation

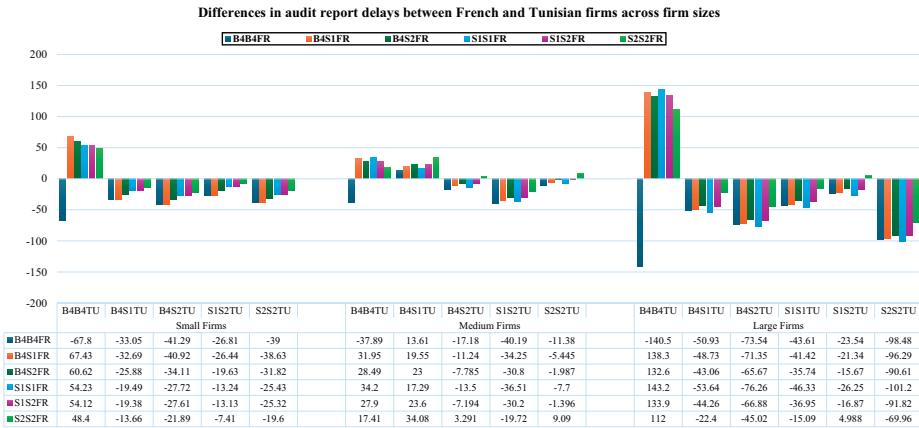


Figure 11. Differences in audit report delays between French and Tunisian firms across joint audit pairs across firm sizes
Source: Authors' own creation

Furthermore, as illustrated in [Figures 10–12](#), the audit report delay comparisons between different joint audit pairs across French, Tunisian and Moroccan firms did not differ significantly from the results presented in Section 4.2.2, which may support and confirm these findings. However, the results show that the Tunisian pair comprising two non-Big Four international auditors (S1S1TU) exist only among large firms. This result may likely explain why S1S1TU is the most effective pair in reducing delays, both among Tunisian firms ([Table 5](#)) and between Tunisian firms and French or Moroccan firms ([Table 6](#)). Nevertheless, given the small sample sizes in Morocco and Tunisia, we interpret these results with caution, as they may limit their generalizability.

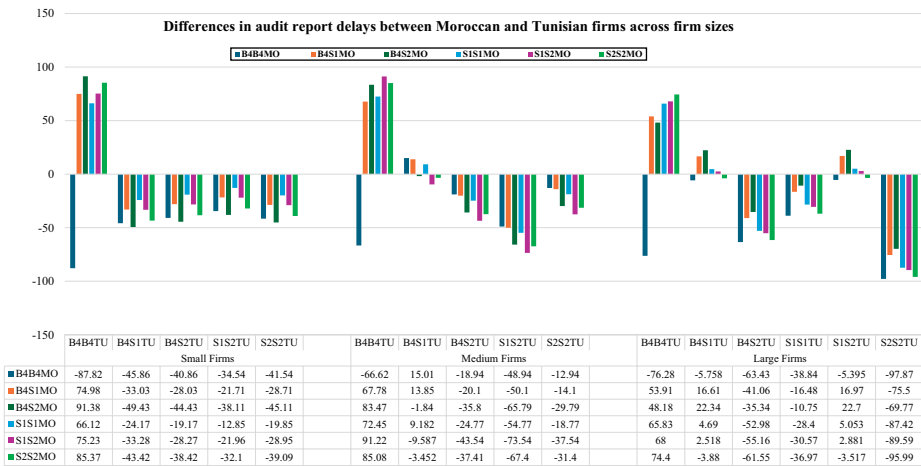


Figure 12. Differences in audit report delays between Moroccan and Tunisian firms across joint audit pairs across firm sizes
Source: Authors' own creation

5.2 Auditor industry specialization

This analysis tests whether having at least one industry specialist among six joint audit pairs reduces audit delay in France, Morocco and Tunisia by comparing cases with and without industry expertise.

5.2.1 Model design. Industry specialization is not directly observable, so prior research relies on proxies such as market share, portfolio share or weighted share (Audousset-Coulrier *et al.*, 2016). The market-share approach is the most common, as frequent service of a sector is assumed to build expertise (Yeboah *et al.*, 2023). While Palmrose (1986) designated specialists as the top three providers in a sector, Audousset-Coulrier *et al.* (2016) review five common market-size proxies (audit fees, total assets, sales, number of clients and the square root of assets or sales). Given the limited fee disclosure in the present sample, total client assets are used here. Following Audousset-Coulrier *et al.* (2016), the auditor with the largest asset-based market share in each two-digit industry is classified as the industry specialist:

$$MS_{ik} = \frac{\sum_{j=1}^{jik} A_{ijk}}{\sum_{i=1}^{ik} \sum_{j=1}^{jik} A_{ijk}} \tag{4}$$

where: MS is the market share of auditor *i* in industry *k*, *i* = 1, 2,... indexes audit firms, *j* = 1,2,... indexes client firms and *k* = 1,2,... indexes industries. *A_{ijk}* represents the total assets of client *j* in industry *k* audited by auditor *i*. The auditor with the largest market share (by client assets) in each two-digit industry is designated the industry specialist. To examine the effect of industry specialization on audit report delay in a joint-audit setting, the following model is estimated:

$$DELAY_{i,t} = \beta_0 + \beta_1 B4B4_SPEC_{i,t} + \text{Control variables}_{i,t} + \varepsilon_{i,t} \tag{5}$$

The dependent and control variables in this model are identical to those used in the main models. The variables $B4B4_SPEC_{i,t}$, $B4S1_SPEC_{i,t}$, $B4S2_SPEC_{i,t}$, $S1S1_SPEC_{i,t}$, $S1S2_SPEC_{i,t}$ and $S2S2_SPEC_{i,t}$ test audit report delay when at least one auditor in the respective joint-audit pair is an industry specialist (coded 1) versus when neither auditor is a specialist (coded 0).

As shown in Table 7, the model is estimated six times independently for each country (France, Morocco and Tunisia), each time using a different one of these six variables as the test variable. We summarized the statistical significance of these delay differences in Figure 13 within each country.

5.2.2 Regression results. Table 7 and Figure 13 show that industry specialization generally does not affect audit report delays in the French, Moroccan or Tunisian samples. For most joint-audit pairs, the presence or absence of a specialized auditor yields no significant difference in delay. This finding is consistent with prior research (e.g. [Abdillah et al., 2019](#); [Bhuiyan and D'Costa, 2020](#)). One possible explanation, in line with communication theory, is that collaboration between the two audit firms may facilitate information exchange and error detection, regardless of auditor industry specialization. However, a few country-specific exceptions are noteworthy. In France, the absence of a specialist in the B4S1 and S1S1 pairs is associated with significantly shorter delays (coefficients of 7.776 and 19.18, both significant at the 1% level). In Morocco, the presence of a specialist in the B4S2 pair is linked to substantially shorter delays (coefficient -77.51 , significant at the 1% level). No meaningful effects are observed in Tunisia. These contrasting patterns indicate that the impact of auditor industry specialization on audit report delays in mandatory joint audits varies across national contexts. Given the small subsamples for Morocco and Tunisia and the known sensitivity of specialization measures ([Audoussert-Coulier et al., 2016](#)), these results should be interpreted with caution.

5.3 Sensitivity and robustness tests

Several additional tests were conducted to verify the robustness of the main findings. First, multicollinearity was assessed using variance inflation factors (VIFs). All VIF values were well below the conventional threshold of 10, indicating no serious multicollinearity concerns. Second, the main regressions were reestimated after (i) taking the natural logarithm of audit report delay and (ii) winsorizing or excluding extreme outliers in delay duration. The untabulated results were materially unchanged in terms of coefficient magnitude, sign and statistical significance.

Third, to address potential endogeneity arising from nonrandom auditor selection, [Heckman's \(1979\)](#) two-stage procedure was applied. In the first stage, a probit model was estimated separately for each country to predict the likelihood of having zero, one or two Big Four auditors, using firm size, leverage, loss incidence, closely held shares, ROA and number of subsidiaries as instruments. The resulting inverse Mills ratios (IMR1 and IMR2) were then included in the second-stage audit-delay regressions. The untabulated Heckman-corrected results were virtually identical to the main findings, confirming that self-selection bias does not drive the reported associations. Overall, these robustness checks reinforce the reliability of the study's conclusions. (Tables available on request.)

6. Conclusion

This study examines audit report delays under mandatory joint-audit regimes using data on 440 nonfinancial firms (359 French, 51 Moroccan, 30 Tunisian) from 2014 to 2023. Results reveal distinct country patterns: in France, B4B4 pairs produce the shortest delays, followed by B4S1; in Morocco, two local auditors (S2S2) are fastest, followed by S1S2; in Tunisia, two non-Big Four international auditors (S1S1) perform best. French firms generally report faster than

Table 7. Regression results for the effect of auditor industry specialization on audit report delays in the French, Moroccan and Tunisian companies

Variables	1	2	3	French	4	5	6	1	Monocan	2
B4_B4_SPEC	-2.184 (4.630)							-20.18 (38.94)		
B4_S1_SPEC		7.776*** (2.428)							6.136 (6.090)	
B4_S2_SPEC			-0.625 (4.839)							
S1_S1_SPEC				19.18*** (6.347)		4.341 (3.895)				
S2_S2_SPEC										
LNTA	-2.026*** (0.690)	-4.538*** (0.585)	-5.165*** (0.625)	-4.141** (1.630)	-2.909** (1.346)	-2.909** (1.346)	1.111 (1.776)	-7.247 (16.42)	-13.30*** (2.351)	
BUSY	-9.562*** (2.228)	3.880** (1.755)	-2.883* (1.653)	-10.62* (3.077)	-6.605*** (3.077)	-6.605*** (3.077)	9.592*** (2.338)	-	-	
IIRS	-17.43*** (6.942)	-13.23*** (2.954)	-2.141 (1.814)	5.954 (4.748)	-14.38*** (3.549)	-14.38*** (3.549)	1.700 (3.453)	-71.12 (84.35)	-3.719 (15.26)	
OHNON	4.154 (7.959)	4.259 (3.383)	-4.514 (6.125)	2.606 (10.51)	-14.10 (11.41)	-14.10 (11.41)	15.02 (9.245)	-	8.819 (6.984)	
CHANGE	6.486* (3.353)	2.588 (2.761)	-2.186 (2.773)	0.912 (4.565)	1.954 (3.438)	1.954 (3.438)	4.488 (4.237)	-0.964 (4.770)	-0.964 (4.770)	
LOSS	-2.998 (2.763)	-1.598 (1.886)	3.929** (1.977)	17.38*** (3.685)	2.846 (3.613)	2.846 (3.613)	1.658 (4.105)	10.07 (11.10)	5.040 (7.012)	
LEV	0.112* (0.0635)	-0.110*** (0.0384)	0.00202 (0.0446)	-0.360*** (0.0942)	0.115 (0.0786)	0.115 (0.0786)	-0.251*** (0.0721)	-0.205 (0.435)	0.377*** (0.118)	
ROA	-0.383*** (0.198)	-0.08000 (0.0807)	0.335*** (0.0723)	0.479** (0.218)	-0.110 (0.171)	-0.110 (0.171)	-0.0341 (0.174)	1.158 (1.376)	0.218 (0.353)	
MTB	-2.745*** (0.595)	-2.161*** (0.417)	1.192*** (0.378)	-0.608 (1.088)	-1.497* (0.880)	-1.497* (0.880)	-0.492 (0.979)	-2.403 (3.794)	1.100 (2.065)	
Size	-0.46*** (0.130)	-0.0615 (0.191)	0.671* (0.378)	0.588 (0.442)	-0.174 (0.622)	-0.174 (0.622)	-1.648*** (0.629)	-165.5 (139.5)	9.215** (4.293)	
Size_Age	-0.0457*** (0.0131)	-0.00165 (0.00833)	-0.0307*** (0.00656)	-0.0139 (0.0164)	-0.0119 (0.0193)	-0.0119 (0.0193)	0.00219 (0.0150)	-0.156 (0.123)	0.0349 (0.0295)	
SHARES	1.664*** (0.393)	0.632* (0.322)	-0.405 (0.294)	-3.216*** (0.988)	0.395 (0.529)	0.395 (0.529)	-1.866*** (0.549)	-67.68 (67.70)	-7.530** (2.985)	
Restatement	0.240*** (0.0305)	0.0849*** (0.0298)	-0.0404 (0.0381)	-0.151*** (0.0570)	0.167** (0.0727)	0.167** (0.0727)	0.195** (0.0757)	0.190 (0.751)	-0.132 (0.178)	
Year FE	-0.0684 (1.872)	-0.131 (1.523)	4.262*** (1.563)	-0.414 (3.828)	1.048 (2.916)	1.048 (2.916)	0.509 (3.229)	10.60 (6.862)	-9.494* (5.150)	
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Constant	168.0*** (4.31)	161.2*** (7.967)	166.6*** (10.31)	187.4*** (21.77)	177.3*** (19.50)	177.3*** (19.50)	95.91*** (25.34)	Yes	881.1 (690.6)	
Observations	715	1,092	879	214	397	397	293	51	87	
R-squared	0.436	0.357	0.186	0.479	0.357	0.357	0.330	0.827	0.786	

Note(s): ***, **, * indicates significant at 1, 5, and 10% significance levels, respectively
Source(s): Authors' own creation

(continued)

Table 7. Continued

Variables	3	4	Moroccan		6	1	2	3	4	5	6
			5						Tunisian		
B4_B4_SPEC											
B4_S1_SPEC											
B4_S2_SPEC	-77.51*** (14.23)	54.81 (46.94)				-	26.50* (15.05)	9.721 (6.978)			
S1_S1_SPEC			10.53 (0.227)								
S1_S2_SPEC										53.953 (0)	
S2_S2_SPEC											-22.10 (24.19)
LNTA	-4.847 (3.172)	0.656 (7.934)	5.130 (3.109)		-30.18 (63.79)	64.23 (0)	-90.68** (42.13)	-28.38*** (10.68)	32.28 (0)	1.912 (0)	-1.019 (14.40)
IBSY	-	-143.2 (154.4)	-26.60*** (8.351)		9.301 (6.331)	-	-	-	-	-	-
IFRS	8.062 (6.348)	13.34* (7.500)	19.66** (8.210)		-66.28 (217.1)	-	-59.85 (281.5)	-42.53*** (10.24)	-	-46.143 (0)	109.9*** (33.88)
OPINION	-16.41*** (5.293)	4.530 (6.074)	-9.430 (7.325)		-39.05 (134.4)	-	-	-	-	-	2.908 (24.00)
CHANGE	-0.338 (0.059)				-17.08 (117.0)	46.99 (0)	-19.30 (21.51)	8.434 (8.619)	18.01 (0)	271.6 (0)	-3.056 (10.44)
LOSS	-0.953* (5.952)	-17.09 (24.27)	0.204 (6.601)		6.265 (11.42)	122.3 (0)	36.58*** (12.04)	-22.28* (13.18)	-	-938.6 (0)	23.29* (13.34)
LEV	0.939*** (0.206)	0.425 (0.290)	-0.302 (0.316)		7.665 (8.311)						
ROA	-0.944** (0.387)	-1.290 (1.409)	-1.222 (0.755)		0.182 (0.236)	-4.553 (0)	3.382 (2.482)	0.913*** (0.321)	-12.87 (0)	177.5 (0)	0.152 (0.395)
MTB	0.867 (1.103)	-2.925 (1.741)	-7.343** (3.632)		0.820 (0.516)	-0.317 (0)	1.003 (1.035)	-1.675* (0.880)	-0.984 (0)	-64.00 (0)	0.482 (0.795)
Size_Sub	5.252*** (1.239)	30.24 (27.20)	-7.487*** (1.644)		-3.589* (1.960)	-18.41 (0)	8.546 (6.496)	7.090* (3.657)	21.02 (0)	-689.2 (0)	0.942 (5.555)
LIQ	0.0125 (0.0291)	0.150*** (0.0494)	-0.141*** (0.0391)		-1.149 (56.56)	295.5 (0)	-188.3 (335.5)	-0.530 (3.400)	-	-26.906 (0)	28.91*** (6.150)
Size_Age	11.16** (4.686)	7.406 (5.889)	-4.857** (2.274)		-0.0178 (0.0226)	-0.961 (0)	-0.107 (0.170)	-0.271*** (0.0605)	-0.265 (0)	5.974 (0)	-0.115* (0.0582)
SHARES	-0.411*** (0.108)	-0.539 (0.442)	0.484*** (0.146)		-2.845 (37.99)	-123.5 (0)	-82.58 (327.8)	7.451*** (2.022)	0.666 (0)	4.017 (0)	-2.454 (13.68)
Restatement	5.510 (4.085)	-0.598 (7.360)	3.190 (5.220)		-0.00613 (0.0680)	1.884 (0)	0.692 (1.243)	-0.200 (0.214)	3.535 (0)	-12.32 (0)	-0.00799 (0.422)
Year FE	Yes	Yes	Yes	Yes	-7.912 (6.046)	373.8 (0)	-15.24 (11.88)	7.947 (6.392)	Yes	Yes	-7.665 (10.23)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	96.83* (58.12)	20.66 (141.7)	60.21 (38.03)	Yes	78.84 (453.1)	-165.8 (0)	1.452 (1.893)	438.6*** (140.3)	-263.1 (0)	-11.141 (0)	144.5* (80.49)
Observations	107	57	112	96	96	21	51	105	10	24	89
R-squared	0.817	0.746	0.704	0.925	0.925	1.000	0.719	0.799	1.000	1.000	0.839

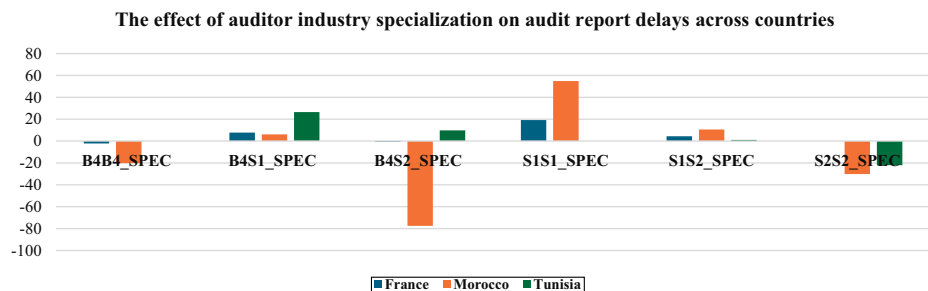


Figure 13. Effect of auditor industry specialization on audit report delays in the French, Moroccan and Tunisian companies across joint audit pairs
Source: Authors’ own creation

Tunisian firms across almost all pairings, except for the Tunisian S1S1 pair, which outperforms every French combination. Moroccan firms consistently show shorter delays than French and Tunisian firms (again, excepting S1S1TU). Additional tests reveal that differences across joint-audit pairs largely disappear among large firms in all three countries, and auditor industry specialization has no material effect on most of the joint audit pairs’ delay.

This study contributes to the literature on audit report delays, both in general and in joint audits, by clarifying the role of joint audits in reducing them. It considers their impact not only in advanced economies but also in developing economies. In such economies, audited financial reports are a primary source of information for various stakeholders (Al-Ajmi, 2008). Delays in issuing audit reports are significant because media outlets and press conferences are not yet sufficiently developed (Khasharmeh and Aljifri, 2010). This study also contributes by examining how audit report delays vary by joint audit pair composition across developed and developing contexts. It classifies these pairs into broader categories than previous studies. This classification enables examination of different types and sizes of joint audit pairs, and shows that delays vary with pair composition and across institutional contexts. The study emphasizes the significant role of institutional context in audit report delays and shows that the effectiveness of large audit firms in reducing delays varies across contexts. Furthermore, this study offers a deeper analysis of firm size, showing that large firms have an advantage over small and medium-sized enterprises in reducing audit report delays across most pair types and contexts. Finally, the study assesses the role of industry specialization in reducing delays in joint audits and finds that it rarely affects delays, suggesting it may not be central to joint audits.

The findings of this study offer practical implications and recommendations for researchers, regulators, audit firms, companies and policymakers regarding delays in mandatory joint audit reporting, especially in weaker corporate environments. The results provide valuable insight and point to new directions for future research on joint audits. These findings also suggest that regulators should select joint audit pairs based on demonstrated effectiveness, not reputation and should not assume Big-N firms’ involvement always reduces delays. It also recommends strengthening auditor independence through legislation to improve efficiency and attract international investment to MENA economies. Countries with mandatory joint audits should establish clear guidelines for coordination to address collaboration challenges and maximize benefits. These findings also enable audit firms to assess and improve joint audit collaboration, considering industry specialization to gain a competitive edge and achieve better results. Moreover, audited firms can enhance audit

strategies by meeting reporting deadlines. For instance, French companies may experience reduced delays when audit teams consist of two Big Four firms (B4B4FR). Tunisian companies may achieve better on-time compliance with international audit teams outside the Big Four (S1S1TU). Moroccan companies are likely to minimize audit report delays when teams include at least one local firm, especially when two local firms are involved (S2S2MO).

Furthermore, our findings confirm the general benefits of joint audits in timely financial report publication. This evidence can guide global decisions about adopting, enhancing or removing joint audit mandates, including boosting auditor independence and attracting investment. The lack of standardized joint audit guidelines suggests that standard-setters should update audit standards. Minimal differences in audit report delays across large companies suggest that policymakers can recommend joint audits for large companies. Our study also indicates a lack of direct disclosure of audit fees in published Tunisian financial reports, which limited our ability to include audit fees as a control variable. Therefore, we recommend that regulators and policymakers increase the disclosure of audit fees in Tunisian companies. This would allow researchers to examine variations in audit fees across the three countries studied and their impact on audit reporting delays.

Like all research, this study has limitations that identify directions for further investigation. The sample covers only 2014–2023, focuses solely on audit report delays, and is constrained by small subsamples in Morocco and Tunisia. Future research could extend the analysis and replicate the study in other mandatory joint-audit jurisdictions (e.g. Taiwan) or compare mandatory versus voluntary joint audits. Moreover, this study focused only on the nonfinancial sector; future research can replicate it by extending it to the financial sector, especially the banking sector.

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