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Article

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Cogent Business & Management

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Suggested Citation: Alharasis, Esraa Esam et al. (2023) : Corporates' monitoring costs of fair value disclosures in pre- versus post-IFRS7 era: Jordanian financial business evidence, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 10, Iss. 2, pp. 1-31,
<https://doi.org/10.1080/23311975.2023.2234141>

This Version is available at:

<https://hdl.handle.net/10419/294531>

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To cite this article: Esraa Esam Alharasis, Manal Alidarous, Abeer F. Alkhwaldi, Hossam Haddad, Nidal Alramahi & Husni K. Al-Shattarat (2023) Corporates' monitoring costs of fair value disclosures in pre- versus post-IFRS7 era: Jordanian financial business evidence, Cogent Business & Management, 10:2, 2234141, DOI: [10.1080/23311975.2023.2234141](https://doi.org/10.1080/23311975.2023.2234141)

To link to this article: <https://doi.org/10.1080/23311975.2023.2234141>



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Published online: 27 Jul 2023.



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Received: 07 May 2023
Accepted: 04 July 2023

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Reviewing editor:
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ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

Corporates' monitoring costs of fair value disclosures in pre- versus post-IFRS7 era: Jordanian financial business evidence

Esraa Esam Alharasis^{1*}, Manal Alidarous², Abeer F. Alkhwaldi³, Hossam Haddad⁴, Nidal Alramahi⁴ and Husni K. Al-Shattarat⁴

Abstract: This study proposes a new auditing model that takes Fair Value Accounting (FVA) into account as a unique complexity and risk factor. It gives new empirical data on audit firm monitoring in Jordan over two periods: before and after the implementation of IFRS7 (pre- vs. post-IFRS7). The Ordinary Least Squares regression, which used 1470 firm-year observations from 2005 to 2018, reveals that post-IFRS7 positively impacts audit fees, whereas pre-IFRS7 has no effect. According to the change analysis, increasing Fair Value Disclosure (FVD) is the primary driver of rising audit expenses in the post-IFRS7 era (particularly for Level2 assets). An additional test using firms with and without FVDs corroborated these findings even more. The moderating influence of the presence of FVA on each pre-and post-IFRS7 and audit fees shows that the use of FVA is the primary cause of Jordan's high audit fees during the mandated FVA period. This research is the first to present fresh empirical evidence on audit firms monitoring expenses before and after FVD regulations using a sample from Jordan. The study's findings provide regulators with up-to-date practical information regarding adopting FVA. The outcomes help lawmakers monitor the audit profession and regulate FVA audit procedures.

Subjects: Economics; Finance; Business, Management and Accounting;

Keywords: IFRS7; audit fees; fair value accounting; Jordan; developing countries

1. Introduction

This paper examines the changes in audit fees paid by external auditors in Jordan to assure financial disclosures, particularly after adopting Fair Value Accounting (FVA), during two distinct periods before and after the introduction of IFRS7 using Jordanian data. It is motivated by the lack of research on FVA in developing nations and by the analysis of Tahat et al. (2016). Following the implementation of IFRS7, Tahat et al. (2016) report an increase in the quantity of FV-related data. The increasing use of financial instruments by Jordanian firms and the media coverage of financial instrument losses further motivate us to concentrate on the FVA of financial assets in Jordan (Tahat et al., 2016). Since the implementation of Jordan's ten-year plan, titled "Jordan 2025," the emphasis on auditing and accounting professionals to increase conformity with IFRS/FVA

disclosure standards and the quality and quantity of enterprises' financial reports in Jordan have increased significantly (Baksaas et al., 2019). To address this issue, we investigate the main effects of FVA on the Jordanian auditing profession. As a result, we are focusing on the Middle East (ME) and Jordan, which have historically had a high prevalence of FVs.

Several factors prompted us to choose Jordan as the starting point for our investigation. First, the findings of this evaluation apply to the entire ME. The accounting literature in the ME is expanding due to the region's shared history, legal institutions, customs, and culture (Tahat et al., 2018; Alharasis et al., 2022a, 2022b). Second, Jordan's open economy policy enables Arab and non-Arab nations to invest in its capital market (Al-Htaybat et al., 2011). Third, Jordan's exceptional economic reforms, such as the liberal market privatisation program and international economic links accord with the "European Union (EU)" and "World Trade Organization (WTO)", thereby promoting significant research in developing countries (Al-Okaily et al., 2022). Fourth, Jordan's use of IAS/IFRS for over 30 years provides valuable information regarding the production and auditing of FVMs in various contexts (Al-Htaybat, 2018). Fifth, we concentrate on the FVA of financial assets because there has been extensive media coverage of financial instrument losses and an increase in the use of these instruments by businesses in Jordan (Tahat et al., 2016). Sixth and finally, Jordan is the first Arab country since 2001 to require public companies to disclose the amount they spent on auditing fees in their annual reports. As a result, this study aims to address the following research question(s): Does the cost of an audit differ between the pre-IFRS7 era and the era after the implementation of IFRS7's FVD rules in Jordan? How much of an impact did FVD have on the audit fees paid by Jordanian firms?

FVA was emphasised by the "International Accounting Standards Board (IASB)" after the issuance of the "International Financial Reporting Standards (IFRSs)" (Masoud & Ntim, 2017; Terzi et al., 2013). Significant auditing issues in preparing and establishing fair values have been added since FVA became an essential component of the IASB with the 2005 amendment to IAS39- "Financial Instruments: Recognition and Measurement" (Barth & Landsman, 2018). As a result of alterations made to IFRS7- "Improving Disclosures about Financial Instruments" in 2008, more disclosure requirements on FVA for financial instruments were sought through the three input levels (Enahoro & Jayeoba, 2013; Griffith, 2020, IAS Plus, 2022b; Nguyen, 2019). Level1 input data (market-based) provide the prices in current marketplaces for equivalent liabilities or assets that the firm may obtain on the measurement date. Level2 input data (market-related information) includes asset and liability inputs that can be observed directly or indirectly. Level3 input (mark-to-model) relies on unobservable data to calculate the fair values of liabilities and assets (IAS Plus, 2019c; Song, 2015).

FVA estimations are becoming more sophisticated, which can lead to managerial bias and an increased need for thorough audits (Cannon & Bedard, 2017). Therefore, auditors must use more effort and time to ensure the reliability of financial statements, leading to higher audit fees. It is much harder to put FVA into practice in less developed nations (Ajibade et al., 2022). FVA is commonly utilised in Jordan to help managers achieve their objectives despite agency conflict (Abdullatif, 2016; Alharasis et al., 2021; Alkhwalidi & Abdulmuhsin, 2022). In response to the high volatility in Jordan's stock market, the country's government enacted new rules governing the measurement and disclosure of FVAs. The expanding demand for independent Fair Value Measurement (FVM) assurance to prevent profit manipulation has led to higher audit costs. As a result, this research aims to determine whether audit fees charged by Jordanian external auditors fluctuate between the pre-and post-IFRS7 eras of Fair Value Disclosure (FVD) regulations. It also seeks to determine whether the use of FVD significantly impacted the amount of audit fees paid by Jordanian enterprises.

In addition, the IASB's recent need for more study on auditing practices post-IFRS13 - "Fair Value Measurement" (IASB, 2017) and its alignment with FVD-mandated eras like IFRS13 (2013), IFRS7 (2008), and IAS39 (2005), encouraged us to do this study. While there are fewer studies for

established economies and a sizable untapped market for emerging economies, particularly in the ME, there is a rising quantity of empirical research after FVA adoption (Sangchan et al., 2020). The effect of FV for financial assets on audit fees in the United States and the European Union was studied sequentially by Ettredge et al. (2014) and Alexeyeva and Mejia-Likosova (2016). Ettredge et al. (2014), for example, used US GAAP rather than IFRS standards, but Alexeyeva and Mejia-Likosova (2016) examined the EU. Their conclusions, however, were not the same. Inconsistent and ambiguous results were found in how FVA affected audit pricing. To the best of the authors' knowledge, however, no study had examined audit fees in the eras before and after IFRS7, where FVA was either optional or required. The inconsistency of the findings motivates this research to understand more about how FV application affects the audit profession.

Consequently, the current paper seeks to contribute to the existing literature. First, it enriches our understanding of FVA audits by shedding light on the previously unexplored variation in monitoring costs over periods that substantially enhanced the underlying accounting and auditing framework and discourse requirements. It evaluates the influence of IFRS7 implementation on audit pricing. Since 2005, when FVD standards were first introduced under IFRS (Sangchan et al., 2020), this connection has been lacking. Second, investigate the difference in auditing prices between pre-IFRS7 and post-IFRS7 eras of voluntary and mandatory FVA. Third, it fills a gap in our understanding by analysing the impact of FVD on audit fees in Jordan from 2005 to 2018. Fourth, this investigation emphasises the financial sector, which has been mostly ignored in the auditing literature (see Ettredge et al., 2014). Fifth, the implications of FVA on audit fees across various business types are evaluated, drawing on insights from the literature's integration of agency, signalling, and stakeholders' theories. Since the signalling theory has not been studied in emerging economies concerning IFRS/FVD compliance, this paper aims to fill the theoretical need mentioned by Samaha and Khelif (2016). Sixth and finally, instead of focusing on a rules-based framework (i.e., US GAAP), this study focuses on a principles-based framework (i.e., IFRS).

The authors are unaware of any published work comparing the monitoring costs of FVDs in the pre-and post-IFRS7 eras using Jordanian Financial Business information. Due to variations in empirical relationships, institutional differences between countries raise concerns about the applicability of auditing methodologies in advanced economies (Alhababsah, 2019). As a result, this study focuses on the characteristics of Jordanian capital markets and the issues that have arisen since the FVM's initial implementation in 2005.

Due to significant advances in the quality and quantity of financial instrument disclosures (Eneh et al., 2021), conducting this assessment throws light on external auditors' demands and expectations from the Jordanian government. Audit fees indicate FVD compliance and management practices related to fair valuation (Samaha & Khelif, 2016). Since the first implementation of the IFRSs/FVD laws in Jordan in 2005, there have been both expectations and concerns about changes in the accounting and auditing professions. Higher audit fees reflect a high level of FV compliance and, as a result, greater client complexity and risk due to managers' increased use of questionable estimates to create fair values. High audit fees suggest that auditors put in more effort and time to ensure the quality of financial reports (Huang et al., 2020). In general, analysing the repercussions of FVA implementation and its implications for the audit profession has been a critical subject in recent years (Bradley & Sun, 2021; Griffith, 2020; Sangchan et al., 2020).

Using data from 105 (1470 company-year observations) Jordanian-listed firms in the financial sector from 2005–2018, we test our hypotheses using an OLS regression with a company-clustered standard error technique. The research reveals that the post-IFRS7 period positively substantially impacted the audit fees charged by Jordanian external auditors, while no effect was reported for the pre-IFRS7 period. The change analysis results also show that companies with more significant FVD percentages must pay higher audit fees. The F-test shows that audit fees are significantly affected by the level of FV input used in the calculation. According to the findings, auditors have difficulty keeping up with FVA due to the complex adjustments and estimates made while

appraising assets. The high expense of an audit reflects the severe challenges and dangers of handling financial assets. Therefore, auditors provide a platform for stakeholders to keep an eye on significant matters, helping to lessen the information gap that results from agency conflict. To protect shareholders, auditors charge more when they must spend more time and effort conducting a thorough evaluation of the fair worth of an organisation's assets (Huang et al., 2020; Sangchan et al., 2020).

The investigation is driven by the “New Fair Value” laws implemented in Jordan between 2008 and 2015 to further regulate FVA use and auditing and accounting processes. Some studies (Abdullatif, 2016; Al-Htaybat, 2018; Hassan et al., 2014; Alharasis, Alidarous, et al., 2023; Tahat et al., 2016) point to the region's potential as an entry point for foreign direct investments. Even though the ME business climate is undergoing radical change, this study was partly inspired by a desire to contribute to ongoing and future government initiatives by authorities to create welcoming financial reporting environments in line with the recently announced “Jordan 2025” initiative. Integration and promotion of the ME and Jordan in the global economic scene may help achieve this goal. Therefore, the findings of this study have implications for a range of authorities since they provide up-to-date empirical data gathered in Jordan on the use of the FVA. As a result of FVA adoption, existing audit pricing models may need to be modified to assess auditing expenses, which is expected to attract the attention of both clients and auditors (Alharasis, Alhadab, et al., 2023).

This study is primarily driven by the scarcity of comprehensive studies on the post-implementation expenses of FVD and their effects on the auditing profession in general. This study is necessary for the context of Jordan, particularly with the first adoption of IFRS standards for revealing the detailed amounts of fair valued assets in the firms' annual reports, for example, IAS 39 and the modified IFRS 7— Financial Instruments: Disclosures. Since most results in this stream of research derive mostly from more extensive and more developed countries, such as the US, EU and Australia (i.e., Alexeyeva & Mejia-Likosova, 2016; Ettredge et al., 2014; Goncharov et al., 2014; Sangchan et al., 2020; Yao et al., 2015) where the nature of the audit market in which financial statements auditing are performed is different than that in small, developing countries, like Jordan. It has previously been stated that institutional affiliations and differences in fundamental features contribute to differing judgements about the sufficiency of audit data supporting fair value verifications (Glover et al., 2019). As a result, the current study's findings provide alternate implications of the effect of FVD on auditing price, given the particular peculiarities of the Jordanian market scenario. Given the disparities in nature and risk between developed and emerging markets, the impact of complete fair value application for financial assets on audit fees is worth investigating.

As a result, this study is prompted by the extensive acceptance of IFRS in emerging economies as a result of several financial, political, and technological variables that have been observed over the last decades (Al-Htaybat, 2018). The audit services market in poor nations, such as Jordan, differs significantly from that in larger, more developed countries (Abu Risheh & Al-Saeed, 2014). Consequently, Karim and Moizer (1996) proposed that some of the findings linked to traditional audit fee determinants acquired in Western audit fee research may not be applicable in a less-developed nation environment.

This paper continues with the following structure. Section 2 outlines the study background. Section 3 details the theoretical foundation of the study. Section 4 contains the literature review and hypothesis development. Section 6 presents the research design. Section 7 presents the results and discussion. Section 7 offers the conclusion.

2. Background

The first application of FVA was incarnated with issuing of IAS 39: Financial Instruments: Recognition and Measurement in 2005, which highly affected the banking industry worldwide

(Fiechter & Novotny-Farkas, 2017). Based on IAS 39, FV for financial assets has been categorised into three classifications which are: held-for-trading (HFT), available-for-sale (AFS), and the reasonable value option (FVO). The primary purpose of the three proper value categories is to inform financial information users about managers' purpose on how appropriate values will be realised from financial instruments (IAS Plus, 2006). Therefore, in this way, market participants can efficiently process and impound this information in their valuations. FVD of financial assets has been required by several IASs/IFRSs, such as IAS39, IFRS7, IFRS13, and IFRS9 (Alharasis et al., 2021).

For example, "IAS39: Financial Instruments: Recognition and Measurement" was published in 2004 to emphasise the requirements for recognising and measuring financial assets, liabilities, and some contracts to acquire or sell non-financial objects (IAS Plus, 2019a). The FV option was then updated to IAS39 on 15 June 2005, and it went into effect on 1 January 2006. IAS39 requires businesses to adopt FVA following a three-level hierarchy for determining the FV of financial instruments. IAS39 also mandates corporations to account for most of their financial assets and liabilities at FV on their balance sheets (IAS Plus, 2019a). Under IAS39, financial assets must be categorised as one of the following (IAS Plus, 2019a, Para 34.45): "Financial assets at FV through profit or loss, Available-for-sale financial assets, Loans and receivables, and Held-to-maturity investments." Those categories are required to be used when establishing how a particular financial asset is realised and measured in the financial statements. In this regard, the requirements for their implementation and the recognition of unrealised FV gains or losses varied between those categories (IAS Plus, 2019a).

First, financial assets at FV through profit or loss have two subcategories: designated, which refers to any financial asset that is established on initial recognition as being measured using FV, including appropriate value changes in profit or loss, and held for trading, which refers to financial assets acquired to sell in the short term to maintain shorter-term profits that are fit for trading, such as all derivatives except hedge. Second, available-for-sale financial assets (AFS) are non-derivative financial assets marked as available for sale at initial recognition. Such assets also include any additional instruments that are not classified as loans and receivables, held-to-maturity investments, or financial assets valued at FV after profit or loss. Under IAS39, AFS assets are measured at FV and recorded in the balance sheet, with changes in FV recorded immediately in the equity statement. Third, non-derivative financial assets with particular payments not quoted in an active market are measured at amortised cost. Finally, held-to-maturity investments (HTM) are the final category of financial assets that indicate specific payments financial assets that entities intend to hold until maturity other than those assets that meet the definition of loans and receivables. These assets are not designated as assets at FV through profit or loss or as available for sale on initial recognition. HTM investments are calculated using amortised cost (IAS Plus, 2019a).

On 12 November 2009, "IFRS9: Financial Instruments" superseded IAS39's earlier classification and measurement of financial assets (IAS Plus, 2019c). One of the most notable improvements in this regard is the publication of IFRS9, which is part of the IAS39 replacement effort. The issued version partially replaces IAS39, and other components on impairment and hedging are still to be provided. The primary purpose for adopting IFRS9 is to simplify the financial instruments standard (Barnoussi et al., 2020).

All necessary financial instrument disclosures were relocated to "IAS32: Financial Instruments: Presentation" in 2003. The IASB issued "IFRS7: Financial Instruments: Disclosures" in 2005 to replace the disclosure elements of IAS32 on 1 January 2007. "IAS30: Disclosures in Financial Statements of Banks and Similar Financial Institutions" was similarly replaced by IFRS7. Under IFRS 7, firms must report information about their financial instruments in particular classes. IFRS7 requires all listed enterprises operating in either the economic or non-financial industries to adopt FVA (IAS Plus, 2019b). It also broadened the scope of financial instrument disclosure by forcing

entities to publish details of all forms of financial instruments and related risks (Tahat et al., 2016). Since 2008, the amended version of IFRS7 has required clear disclosure of FVM via three levels of the FV hierarchy: level1 represents unadjusted quoted prices for identical assets or liabilities in active markets; Level2 represents quoted prices for assets or liabilities that are observable directly or indirectly; and level3 is based on estimated unobservable inputs to determine the costs of assets and liabilities using several valuation techniques (IAS Plus, 2019b).

On 13 October 2008, IAS39 and IFRS7 were amended to necessitate the reclassification of financial assets from one category to another. As a result, entities must disclose information on the significance of financial instruments under IFRS7 to correctly represent the entity's financial position and performance (Kafidipe et al., 2021). This includes disclosures for each of the following categories: financial assets measured at FV through profit and loss, distinguishing between those held for trading and those designated for initial recognition; held-to-maturity investments; loans and receivables; available-for-sale assets; financial liabilities measured at FV through profit and loss, distinguishing between those held for trading and those designated for initial recognition, and financial liabilities measured at amortisation.

"IFRS13: fair value measurement" was published in May 2011 and became effective for annual reports submitted after 1 January 2013. It is the outcome of a collaboration between the IASB and the FASB. Firms must give more specific information about the FV hierarchy under IFRS13. The concept of a FV hierarchy and the definition of each level is identical to that of earlier standards. Because it expands appropriate value measurement to non-financial assets and liabilities, IFRS13 is a broader application of IFRS7. The standard is regarded as an IASB response to the emergence of the credit crisis in 2008. The principle-based framework directing entities to measure or disclose the FV of their assets, liabilities, or equity instruments is represented by IFRS13. IFRS13 defines FVA as follows (IAS Plus, 2020):

The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date

3. Theoretical literature review

The applicability of FVA is investigated in this study by combining agency, stakeholder, and signalling theories (Samaha & Khelif, 2016). FVA is a dominant organisational concept with solid ties to signalling and stakeholder theories. The organisational context makes the application of FVA principles challenging due to the use of intricate and unpredictable estimations and managers' proclivity for exploitation—agency theory. While agency and signalling frameworks are used to understand accounting system selection (Khelif & Achek, 2016; Samaha & Khelif, 2016), stakeholder theory allows us to evaluate the use of FVA in its larger social structure, where managers are accountable to stakeholders (Huang et al., 2020).

Since historical accounting was no longer critical for economic decision-making, the IASB established FVA to improve the quality and usability of accounting information (Beisland, 2009). The goal of fair asset valuation is to arrive at market prices that reflect the entity's actual economic condition (Penman, 2007). As a result, FVA helps to enhance financial information quality and accounting uniformity (Boolaky et al., 2018). Adding FVs increases the volume of information and, as a result, leads to a more complicated auditing method (Glover et al., 2019). This is due to the inherent uncertainty risks caused by managerial bias in cost estimation (Griffith et al., 2015). As a result, auditors identify increased complexity and uncertainty in analysing FVs and devote additional time, effort, and resources, resulting in higher audit fees (Bratten et al., 2013). FVA allows for a considerable lot of flexibility in management assessments. As a result, agency fees grow, as do reputation risk, lawsuit risk, and auditing time spent certifying FVEs (Sangchan et al., 2020).

In contrast to previous research on FVD and audit fees (Alexeyeva & Mejia-Likosova, 2016; Ettredge et al., 2014; Goncharov et al., 2014; Sangchan et al., 2020), this study applies signalling theory and stakeholder theory to Jordan to supplement agency theory in evaluating this issue. The rationale for combining these three theories is justified by the study's goal, which is to investigate the difference in audit fees between two periods of FV application: pre- vs. post-IFRS7, voluntary vs mandatory application, by connecting the above theories to different parts of the theoretical framework. Agency theory describes corporate disclosure in the theoretical framework (Samkin & Schneider 2010). Signalling theory and stakeholder theory are utilised to explain the FVD's communication element and user engagement. While the stakeholder theory captures the general goal of disclosure, the signalling theory justifies subjective judgments in FV evaluation. Signalling theory adds another reason for FVD to be used as a credibility mechanism and monitoring tool (Khlif & Achek, 2016).

The theoretical framework describes the aim of Jordanian enterprises to reveal FVs of financial assets in their annual reports, as well as the relationship with audit fees. The framework demonstrates the intrinsic reason for attempting to acquire assurance from an independent party (i.e., an external auditor) on the quality of financial reports provided by those companies. Audit fees, according to De George et al. (2013) and Marden and Brackney (2009), are a critical instrument for ensuring organisations' IFRS compliance. Similarly, in the context of developing countries, several academics (Abu Rishah & Al-Saeed, 2014; Al-Akra et al., 2010; Samaha & Stapleton 2008) have demonstrated the favourable influence of auditing on the level of IFRS compliance. FVA and additional information related to FV are associated with risk and complexity (Khlif & Achek, 2016). Higher audit fees represent remuneration for the effort and time (auditor working hours) expended in the auditing process (Simunic, 1980).

Due to the considerable uncertainty surrounding FVA, high levels of compliance with FVA following the disclosure requirements of IFRS7 require external auditors to expend additional time and effort. Auditors are becoming increasingly important in protecting stakeholders' rights and interests, addressing the agency dilemma between owners and managers, and ensuring proper compliance (Griffith et al., 2015). Audit fees are a monitoring tool that indicates firms' FVD compliance (Samaha & Khlif, 2016). Signalling theory has not been evaluated in developing nations regarding IFRS FVD compliance (Samaha & Khlif, 2016); more research is needed to fill this gap in the emerging economies literature. As a result, this research aims to bridge the theoretical gap.

Jordan, the study's location, benefits. In 2005, Jordanian enterprises began using FVA with IAS39, causing various capital market issues. Jordanian share prices rose sharply when FVA recognised unrealised gains (Siam & Abdullatif, 2011). This circumstance attracted many investors to enter the market and invest, but following a severe share price decline, they suffered substantial losses, which increased market volatility (Alharasis et al., 2021). In 2008, Jordan's government passed "new fair value regulations" on FV practices. Therefore, increasing risk and uncertainty of FVs, understanding and meeting regulatory requirements and expectations in Jordan motivated external auditors to invest more time and effort to offer high-quality audits. High-quality audit companies helped some Jordanian institutions reduce information asymmetry and protect stakeholders by verifying management-provided financial information. To compensate for their time and effort, auditors charge greater audit fees. Higher audit costs reflect client complexity and risk, indicating financial report quality (Alhababsah, 2019). Financial reports send stakeholders good signals (Nawaiseh et al., 2019). To the best of the researchers' knowledge, this study is the first to integrate the above theories with FV proxies to establish and evaluate the relationship between voluntary and mandatory FVDs and audit fees in Jordan.

4. Empirical literature review and hypotheses

Since 2005, when IAS39 was modified to include a provision for "fair value option," the first time FVA was applied, and ever since then, the use of FVA and other earnings management approaches

has increased. According to Ettredge et al. (2014), this resulted in an increased requirement for independent audits of FVEs. Businesses decided to use FV to achieve the goals of management, which is an example of agency conflict (Davidson et al., 2004; Healy & Wahlen, 1999; Jiraporn et al., 2008). According to Alexeyeva and Mejia-Likosova (2016), various stock markets throughout the world have witnessed increasing volatility as a result of the growing usage of complicated estimations of FVA, as well as the problem of managerial bias and unethical activity. This is because there are not enough markets, poor firm governance, and a lack of agreed-upon standards for evaluating FV in developing contexts like Jordan (Siam & Abdullatif, 2011). Jordan is one of the countries that is considered to be in this category.

Although a revision to IAS39 for the FV option compelled its use throughout that time period (Abdullatif, 2016), most Jordanian financial institutions adopted FV usage of their own volition between 2005 and 2008. As a result of the information asymmetry problem, Jordanian auditors anticipate having to expend more effort and spend more time in order to unearth management dishonesty and false assertions. According to signalling theory (Lennox, 1999; Spence, 1973), increased confidence in a company's financial reporting is a positive signal that helps shareholders make informed decisions. This confidence is a signal that helps shareholders make informed decisions.

According to Alhababsah (2019), businesses in Jordan make an effort to present their stakeholders with high-quality financial information. It is more challenging to implement FVA in economies that are still in the process of developing, such as Jordan's (Hasan et al., 2022; He et al., 2012; Nguyen, 2019). Concerns have been raised about Jordan due to a number of factors, including the absence of efficient market regulation, the country's emphasis on the expansion of the financial industry, and the prevalence of FVA (Abdullatif, 2016). During the recession, unrealized losses and profits on the FV of financial assets were recognized, which led to a rise in stock values that reached all-time highs. According to Abdullatif and Al-Khadash (2010), this caused a precipitous drop in share values. According to Siam and Abdullatif (2011), this predicament was brought about by the dishonesty and incorrect use of FVA on the part of management. Therefore, as a result of the low degree of compliance with FVA as a voluntary disclosure duty over the time period 2005–2008, which shows that there is a limited opportunity for FVM fraud and misrepresentation, the agency theory predicts that there will be a negative impact on audit fees during the period in which FV is voluntary. The following hypothesis has been developed on the basis of the theoretical considerations that have been given previously:

H1: The optional fair value disclosure period results in lower audit fees being levied among Jordan's financially listed corporations.

External auditors spend a greater amount of time and effort reviewing FV figures due to the complexity and dangers they encounter during audits caused by the high level of information asymmetry problem (Jensen & Meckling, 1976; Lennox, 1999; Sangchan et al., 2020). This is based on the agency theory, which states that external auditors spend greater amounts of time and effort assessing FV statistics. According to Ettredge et al. (2014)'s argument, the growing use of ambiguous fair-valued assets is to blame for the increase in audit costs that have been incurred. In a similar vein, Bratten et al. (2013) and Xu et al. (2013) noted that audit costs increased because auditors had to spend more time on each audit due to the higher risk, particularly for Level2 and Level3 inputs. This resulted in an increase in the total amount of time spent on each audit. Based on the signalling and stakeholders theories, hefty audit fees indicate a high degree of assurance in FV data and in the quality of financial reporting in general (Sangchan et al., 2020; Spence, 1973).

Following the publication of IFRS7 in 2009, the scope of FV was expanded, and it subsequently became mandatory. Following the implementation of IFRS7, corporations were forced to

disclose their valuation methodology, which led to the mandate for further hierarchy disclosure (Alexeyeva & MejiaLikosova, 2016). Because of the additional complexity and danger involved in utilizing the FV model, it is anticipated that audit fees will go up throughout the mandated FV era. Due to the increased potential for FV bias and misstatements, the agency theory hypothesizes that businesses that implement FVA and the hierarchy disclosures will seek out higher-quality auditors and pay higher audit fees. This is because there is a shortage of experts who possess the necessary technical and professional skills to produce FVs, as well as because of agency competition, which could result in considerable information asymmetry. Another reason for this shortage is that preparing FVs is time-consuming and labour-intensive. Only auditors can provide assurances about the accuracy of prepared FVs; hence, it is possible that auditors will charge higher audit fees. Therefore, as a result of the high level of FVA application as a compulsory disclosure duty since 2009, which signals high potential FVM fraud and misrepresentation, the agency theory predicts a favourable influence on audit fees during the compulsory FV era. This impact will take place during the period in which FVs are required to be performed. The following hypothesis has been developed on the basis of the theoretical considerations that have been given previously:

H2: The mandatory fair value disclosure period results in higher audit fees being levied among Jordan's financially listed corporations.

The goal of this research is to evaluate whether or not there was a shift in the total sums that audit clients paid both before and after the implementation of IFRS7, which mandated both voluntary and mandatory FVDs. Studying the aspects of the FVA time periods that are voluntary as well as those that are necessary contributes something novel to the existing body of information. This is the first study that makes a comparison and contrast between the two FVD periods and their possible effect on audit costs. Few research (Busso, 2014; Feldmann, 2017) look at how implementing FVA affects the audit profession in developed countries, and the authors are unaware of any similar analysis concentrating on the financial industry in emerging economies. The issue with these publications is that they only focus on the time period immediately following the implementation of FVA. They do not test to see if there is a difference in audit fees paid between the pre-IFRS7 and post-IFRS7 eras of optional and required use of FVA.

5. Research design

5.1. Data selection

This study's sample comprises the Jordanian financial firms registered on the ASE between 2005 and 2018. Consistent with Abdullatif (2016), this study focused on the financial firms due to the thought that most Jordanian financial institutions voluntarily adopted FV usage between 2005 and 2008 following the change to IAS39 for the FV throughout that time period. Thus, there is very limited data available on FV for non-financial firms over the voluntarily FV period. Therefore, the difference in the regulatory framework and financial reporting between financial and non-financial sectors motivated this study to focus on the financial sector. This study starts on the year 2005 because it was the first year in which Jordan implemented the voluntary FV for financial assets as required by the modified IAS39. As a result, the current research period was chosen to correlate with the voluntary and mandatory FVD requirements timeframes defined by many IASs/IFRSs, such as IAS39 in (2005), IFRS7 in (2009), IFRS9 in (2018), and IFRS13 in (2013). To limit the effect of the COVID-19 crisis on the analysis data, the analysis stops at the year 2018. Secondary data was collected manually from the firms' audited annual reports from Jordanian-listed companies annual reports on the Amman Stock Exchange (ASE) website over the period 2005–2018.

Table 1 shows the sample selection criteria for the current study. Panel A of Table 1 shows the total population sample of 235 operating businesses in ASE belonging to 22 different industry

Table 1. Sample selection criteria

Panel A: Selection of Samples		
	Total Companies	Pooled
Total population	235	3290
(-) Companies with missing financial data	(13)	(182)
(-) Firms with missing FVA disclosures	(14)	(196)
(-) Manufacturing and service industry	(103)	(1442)
Total final accepted sample	105	1470
Panel B: Industry Distribution		
Sub-Sector	Total Accepted Firms	Per cent
Real Estate	392	26.67
Diversified Financial Services	532	36.19
Banks	224	15.24
Insurance	322	21.90
Total	1470	100

sectors. To select an appropriate sample for this investigation, we excluded the firms with missing financial data of 13 firms, firms with missing FVDs of 14 firms and firms belonging to the non-financial industry 103 firms. Thus, the remaining approved sample for this study is 105. Panel B assigns the final approved observations to one of the major sub-industries. The total selected firms accepted from; the financial real estate sector are 28 firms, diversified financial services 38, banks 16 and finally, insurance 23.

5.2. Model specification and variables measurement

5.2.1. Model specification

5.2.1.1. *Main model.* This analysis employs a quantitative methodology and extends the previous FVA-based auditing models devised by Ettredge et al. (2014) and Alexeyeva and Mejia-Likosova (2016). We employ OLS regression with firm-clustered standard errors and fixed effects for years and industry to examine our hypotheses. Employed here for the first time are the FV voluntary and compulsory factors by adding FVA_VOLUNTARY and FVA_COMPULSORY variables as part of audit pricing models with reference to FVA under IFRS, as a proxy of client complexity and risk.

Our research period runs from 2005 to 2018, which corresponds to the FVD requirement time-frames mandated by a variety of IFRSs. Therefore, in order to exploit the long time period covered by the current study, the impact of FV voluntary and compulsory on audit fees is conducted by adding FVA_VOLUNTARY and FVA_COMPULSORY variables into one regression estimation. Therefore, this analysis modifies previous auditing models to the following equation to test the first two developed hypotheses, as follows:

$$\begin{aligned} \ln AFEEES = & \delta_0 + \delta_1 FVA_VOLUNTARY + \delta_2 FVA_COMPULSORY + \delta_3 SIZE + \delta_4 SUBS + \delta_5 ROI \\ & + \delta_6 GROWTH + \delta_7 EFFICIENCY + \delta_8 CURR + \delta_9 INST_OWN + \delta_{10} GOV_OWN + \delta_{11} FAM_OWN \\ & + \delta_{12} BIG4 + \delta_{13} TENURE + \delta_{14} OPINION + IndFE + YearFE + \varepsilon. \end{aligned} \quad (1)$$

5.2.1.2. *Change analysis.* Moreover, to get more explanations on the trend of the number of audit prices paid over the tested two periods, change analysis has been applied using FV proxies: the percentage of fair-valued assets and FV hierarchy input levels (Level1, Level2 and Level3) using the following equations:

$$\begin{aligned} \Delta \text{LnAFEES} = & \delta_0 + \delta_1 \Delta \text{FVA_TA} + \delta_2 \Delta \text{SIZE} + \delta_3 \Delta \text{SUBS} + \delta_4 \Delta \text{ROI} + \delta_5 \Delta \text{GROWTH} + \delta_6 \Delta \text{EFFICIENCY} \\ & + \delta_7 \Delta \text{CURR} + \delta_8 \Delta \text{INST_OWN} + \delta_9 \Delta \text{GOV_OWN} + \delta_{10} \Delta \text{FAM_OWN} + \delta_{11} \Delta \text{BIG4} + \delta_{12} \Delta \text{CHANGE} \\ & + \delta_{13} \Delta \text{OPINION} + \text{IndFE} + \text{YearFE} + \varepsilon. \end{aligned} \quad (2)$$

$$\begin{aligned} \Delta \text{LnAFEES} = & \delta_0 + \delta_1 \Delta \text{FVA1_TA} + \delta_2 \Delta \text{FVA2_TA} + \delta_3 \Delta \text{FVA3_TA} + \delta_4 \Delta \text{SIZE} + \delta_5 \Delta \text{SUBS} + \delta_6 \Delta \text{ROI} \\ & + \delta_7 \Delta \text{GROWTH} + \delta_8 \Delta \text{EFFICIENCY} + \delta_9 \Delta \text{CURR} + \delta_{10} \Delta \text{INST_OWN} + \delta_{11} \Delta \text{GOV_OWN} \\ & + \delta_{12} \Delta \text{FAM_OWN} + \delta_{13} \Delta \text{BIG4} + \delta_{14} \Delta \text{CHANGE} + \delta_{15} \Delta \text{OPINION} + \text{IndFE} + \text{YearFE} + \varepsilon \end{aligned} \quad (3)$$

5.2.1.3. *Moderating FVA.* The presence of FVA and the moderating role of each time period (FVA_VOLUNTARY & FVA_COMPULSORY) with the FVA variable is also applied in this study to examine whether the number of audit fees paid by companies differ among the companies with FVDs vs. companies with no FVDs using the following equations:

$$\begin{aligned} \text{LnAFEES} = & \delta_0 + \delta_1 \text{FVA} + \delta_3 \text{SIZE} + \delta_4 \text{SUBS} + \delta_5 \text{ROI} + \delta_6 \text{GROWTH} + \delta_7 \text{EFFICIENCY} + \delta_8 \text{CURR} \\ & + \delta_9 \text{INST_OWN} + \delta_{10} \text{GOV_OWN} + \delta_{11} \text{FAM_OWN} + \delta_{12} \text{BIG4} + \delta_{13} \text{TENURE} + \\ & \delta_{14} \text{OPINION} + \text{IndFE} + \text{YearFE} + \varepsilon \end{aligned} \quad (4)$$

$$\begin{aligned} \text{LnAFEES} = & \delta_0 + \delta_1 \text{FVA} + \delta_2 \text{FVA_VOLUNTARY} + \delta_3 \text{FVA} * \text{FVA_VOLUNTARY} + \delta_4 \text{SIZE} + \delta_5 \text{SUBS} \\ & + \delta_6 \text{ROI} + \delta_7 \text{GROWTH} + \delta_8 \text{EFFICIENCY} + \delta_9 \text{CURR} + \delta_{10} \text{INST_OWN} + \delta_{11} \text{GOV_OWN} + \\ & \delta_{12} \text{FAM_OWN} + \delta_{13} \text{BIG4} + \delta_{14} \text{TENURE} + \delta_{15} \text{OPINION} + \text{IndFE} + \text{YearFE} + \varepsilon \end{aligned} \quad (5)$$

$$\begin{aligned} \text{LnAFEES} = & \delta_0 + \delta_1 \text{FVA} + \delta_2 \text{FVA_COMPULSORY} + \delta_3 \text{FVA} * \text{FVA_COMPULSORY} + \delta_4 \text{SIZE} \\ & + \delta_5 \text{SUBS} + \delta_6 \text{ROI} + \delta_7 \text{GROWTH} + \delta_8 \text{EFFICIENCY} + \delta_9 \text{CURR} + \delta_{10} \text{INST_OWN} + \delta_{11} \text{GOV} \\ & \text{OWN} + \delta_{12} \text{FAM_OWN} + \delta_{13} \text{BIG4} + \delta_{14} \text{TENURE} + \delta_{15} \text{OPINION} + \text{IndFE} + \text{YearFE} + \varepsilon \end{aligned} \quad (6)$$

5.2.2. Variables measurement

5.2.2.1. *Dependent variable: audit fees.* This study utilized external audit fees as the dependent variable (LnAFEES). Consistent with previous studies on audit pricing, LnAFEES is computed as the natural log of total audit fees (Abernathy et al., 2019; Sangchan et al., 2020).

5.2.2.2. *Independent variables: voluntary and compulsory fair value.* Similar to Badia et al. (2017), FVA_VOLUNTARY and FVA_COMPULSORY are variables examining the effect of FVA application during pre-and post-IFRS 7 for voluntary and compulsory FVD requirements. The term pre-IFRS7 refers to the period of the voluntary requirements of FVM and disclosure (2005–2008) while post-IFRS 7 refers to the compulsory period (2009–2018).

5.2.2.3. *Control variables.* Following prior auditing research, we will also adjust our model for other factors that have been found to influence audit price (Alexeyeva & Mejia-Likosova, 2016; Alhababsah, 2019; Ettredge et al., 2014; Sangchan et al., 2020). The first is client characteristics. LnASSET is a business metric that is calculated as the natural log of a company's total asset size. When a company's structure is decentralized, it is believed that it will encounter agency concerns and increased audit fees. As a result, auditors must devote more time and energy to reducing information asymmetry (Alhababsah, 2019). Client subsidiaries (SUBS) are the number of branches and subsidiaries owned by a corporation. Due to challenging customers, SUBS raises audit fees. As a result, auditors demand higher fees to compensate for the time spent comprehending client disclosure requirements and the risk of financial misstatements, such as lawsuit risk and reputational damage (Simunic, 1980).

We also limit our model to Return on Investments (ROI), sales growth (GROWTH), current ratio (CURR), and efficiency ratio (EFFICIENCY), all of which are client characteristics. The net income received on an investment divided by the total assets is referred to as the ROI. GROWTH is calculated by dividing the current year's revenue by the previous year's revenues. CURR is the current asset-to-current liability ratio. The EFFICIENCY ratio is the ratio of total expenses to net revenues. High-profit firms, according to auditing theory, pay more for auditing services. Such businesses must provide more financial data to demonstrate their profitability and reduce agency costs (Alzoubi, 2018). External auditors of companies with bad financial results, on the other hand, charge a higher fee. Auditors charge more for high-debit clients because they demand additional attention when analyzing audit risk (Alzoubi, 2018).

Our model was further controlled by Jordan's most common ownership groups (i.e., institutional, governmental, and family ownership) (Alhababsah, 2019; Alzoubi, 2016). The fraction of a company's total number of shares owned by institutional investors is referred to as institutional ownership (INST_OWN). The proportion of a company's total number of shares controlled by the government is referred to as government ownership (GOV_OWN). The percentage of a company's total number of shares owned by family members is referred to as family ownership (FAM_OWN). Such owners anticipate higher monitoring expenses to avert reputational harm (Alhababsah, 2019; Alzoubi, 2016).

Second, BIG4 is in charge of auditor characteristics. It is scored as a dichotomous variable with a score of 1 if the audit firm is one of the Big Four audit firms (Deloitte, PwC, E&Y, and KPMG) and 0 otherwise. Audit fees are greatly increased by the Big-4 factor (Huang et al., 2016). To avoid litigation and broaden their customer base, Big-4 firms charge more for high-quality audits (Salehi et al., 2019). Third, we correct auditor tenure (TENURE) and unqualified auditor opinion (OPINION). TENURE is the auditor's three-year tenure, denoted by a 1 if the audit company did not change and a 0 otherwise. Long-tenured auditors obtain client-specific knowledge and do better audits, allowing them to charge greater rates. OPINION is a dichotomous variable that has a value of 1 if the company receives an unqualified opinion and a value of 0 otherwise. Fair financial statements have unqualified views and are simpler to audit, resulting in lower auditor fees (Abernathy et al., 2019). The variables are defined in Table 2.

6. Empirical results and discussion

6.1. Descriptive and correlation statistics

Table 3, Panels A and B provides a summary of statistical analysis for all factors employed. Audit fees constitute the outcome variable (LnAFEES). Panel A (Panel B) LnAFEES has an average of 9.398 (9.259). With respect to the independent experimental variables, the pre-IFRS7 factor (FVA_VOLUNTARY) has a mean value of 0.286 while the post-IFRS7 factor (FVA_COMPULSORY) has a mean value of 0.786.

In Panel B, the existence of the FVA indicator reveals that about 0.88 per cent of Jordanian financial enterprises are FV-oriented, whereas 0.22 per cent are not. The average value of the fraction of total fair-valued assets, FV_TA, is 0.131. The results indicate that the proportion of fair-valued assets in Jordanian enterprises is close to 0.13 per cent of total assets, which is somewhat less than the proportions found by Ettredge et al. (2014) in the United States and Alexeyeva and Mejia-Likosova (2016) in the European Union. The financial markets of these countries are notably distinct from those of tiny and emerging states like Jordan. Regarding the fraction of total fair-valued assets represented by the three-level hierarchy inputs Level1 (FV1_TA), Level2 (FV2_TA), and Level3 (FV3_TA), the indicators have corresponding average scores of 0.110, 0.012, and 0.004. The findings of the research indicate that Level1 assets are the most prevalent form of fair-valued assets owned by Jordanian enterprises, accounting for 0.11 per

Table 2. Variables measurements

Variable	Label	Expected sign	Description	Source
Panel A: Dependent variable: Audit fees				
Audit fees	LnAFEEs		Total audit fees' natural logarithm.	Ettredge et al. (2014), Alexeyeva and Mejia-Likosova (2016), Badia et al. (2017) and Sangchan et al. (2020)
Panel B: Independent variables and measurements: voluntary and compulsory fair value				
Pre_IFRS7	FVA_VOLUNTARY	(-)	A dichotomous variable set to a value of 1 for the voluntary FVA disclosure requirements of (IAS 39) period (2005–2008), and 0 otherwise.	Ettredge et al. (2014), Alexeyeva and Mejia-Likosova (2016), Huang et al. (2016) and Huang et al. (2020)
Post_IFRS7	FVA_COMPULSORY	(+)	Dichotomous variable coded as 1 for the mandatory FVA disclosure requirements (IFRS 7) period (2009–2018), 0 otherwise.	
Panel C: Independent variables of additional analyses: fair value proxies				
The presence of fair-valued assets	FVA	(+)	Dichotomous variable coded as 1 for the firm with FVA disclosures, 0 otherwise.	Sangchan et al. (2020), Alexeyeva and Mejia-Likosova (2016) and Huang et al. (2020)
The percentage of fair-valued assets	FVA_TA	(+)	Total fair-valued assets of the company deflated by total assets.	
The percentage of fair-valued assets using Level1, Level2 and Level3	FVA1_TA, FVA2_TA, FVA3_TA	(±)	Total fair value of the company's assets based on Level1, Level2, and Level3 inputs Deflated by total assets.	
Panel D: Control variables and measurements				
Client size	LnASSET	(+)	The natural Log of a company's total assets.	Griffith (2020), Bradley and Sun (2021)
Subsidiaries Number	SUBS	(+)	The number of a company's branches and subsidiaries.	Alhababsah (2019)
Return on investment	ROI	(+)	The net income by total assets.	Hay et al. (2006) and Abernathy et al. (2019)

(Continued)

Table 2. (Continued)

Variable	Label	Expected sign	Description	Source
Growth ratio	GROWTH	(-)	It compares the current year's revenues to those of the previous year.	Alzoubi (2018), Hay et al. (2006)
Current ratio	CURR	(-)	The percentage of current assets to current liabilities	Abernathy et al. (2019) and Griffith (2020)
Efficiency ratio	EFFICIENCY	(+)	The percentage of total expenses by net revenues	Alzoubi (2018), Hay et al. (2006)
Institutional ownership percentage	INST_OWN	(+)	The proportion of a company's total number of shares owned by institutional investors.	Alhababsah (2019), Abdullatif (2016), Nawaiseh et al. (2019) and Alhababsah (2019)
Government ownership percentage	GOV_OWN	(+)	The proportion of a company's total number of shares controlled by the government.	
Family ownership percentage	FAM_OWN	(-)	The proportion of a company's total number of shares owned by family members.	
Big 4 audit firms	BIG4	(+)	Dichotomous variable given a score of 1 if the audit company is one of the Big 4 audit companies (Deloitte, PwC, E&Y, and KPMG), and 0 otherwise.	Abernathy et al. (2019), Sangchan et al. (2020) and Khlif and Achek (2016)
Auditor tenure	TENURE	(+)	Three-year auditor tenure, labeled 1 if the audit company did not change and 0 otherwise.	Sangchan et al. (2020), Griffith (2020) and Bradley and Sun (2021)
Unqualified opinion	OPINION	(-)	Dichotomous variable with the value 1 if the company obtains an unqualified opinion and 0 otherwise.	Abernathy et al. (2019), and Abdullatif (2016)

cent of the overall percentage of fair-valued assets, followed by Level2 and Level3, which together account for no more than 0.016 per cent.

The findings of the Spearman correlation matrix for the outcome and predictor variables are shown in Table 4. The test for multicollinearity assures that explanatory variables included in the regression equations are not correlated. The average of the VIF test does not indicate a potentially

Table 3. Descriptive statistics

Variable	Panel A: Table (6)			Panel B: Tables (7–8)		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
LnAFES	9.398	9.196	1.085	9.259	9.071	1.111
FVA_VOLUNTARY	0.286	0.000	0.452	0.286	0.000	0.452
FVA_COMPULSORY	0.786	1.000	0.410	0.786	1.000	0.410
SIZE	17.330	16.913	1.972	17.211	16.849	1.938
SUBS	2.254	1.000	3.458	2.172	1.000	3.429
ROI	1268.633	1226.500	762.507	1211.919	1136.500	764.550
GROWTH	1.636	1.007	3.357	1.606	1.000	3.397
EFFECENCY	3.856	0.835	17.323	4.081	0.839	18.117
CURR	6.951	1.615	17.996	7.131	1.618	19.287
INST_OWN	0.336	0.265	0.277	0.328	0.260	0.275
GOV_OWN	0.050	0.000	0.119	0.046	0.000	0.114
FAM_OWN	0.222	0.166	0.217	0.223	0.158	0.220
BIG4	0.405	0.000	0.491	0.385	0.000	0.487
TENURE	0.533	1.000	0.499	0.526	1.000	0.499
OPINION	0.877	1.000	0.329	0.869	1.000	0.337
FV				0.882	1.000	0.322
FV_TA				0.131	0.054	0.176
FV1_TA				0.110	0.040	0.156
FV2_TA				0.012	0.000	0.039
FV3_TA				0.004	0.000	0.012
N		1470			1666	

Notes: In order to eliminate the impact of outliers, all continuous variables are annually winsorized at 0.01 and 0.99.

Table 4. Correlation matrix

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. LnAFFES	1														
2. FVA_VOLUNTARY	-0.132***	1													
3. FVA_COMPULSORY	0.142***	-0.826***	1												
4. SIZE	0.830***	-0.0371	0.0452	1											
5. SUBS	0.229***	-0.132***	0.127***	0.250***	1										
6. ROI	0.330***	0.121***	-0.126***	0.357***	-0.161***	1									
7. GROWTH	-0.0752**	0.112***	-0.0820**	-0.0558*	-0.00592	0.0536*	1								
8. EFFICIENCY	-0.112***	0.0105	-0.0163	-0.141***	-0.0368	-0.182***	0.0111	1							
9. CURR	-0.178***	0.0763**	-0.0455	-0.147***	-0.0298	-0.049	-0.00186	0.0448	1						
10. INST_OWN	0.232***	-0.0209	0.0138	0.173***	-0.0128	0.115***	0.0607*	0.0105	-0.0455	1					
11. GOV_OWN	0.0934***	-0.0269	0.0207	0.106***	0.031	0.0760**	-0.0175	0.0491	0.0878***	0.0777**	1				
12. FAM_OWN	-0.132***	0.0213	-0.0163	-0.105***	0.00868	0.0554*	0.0177	-0.0162	-0.0908***	-0.416***	-0.0179	1			
13. BIG4	0.575***	-0.0767**	0.0895***	0.514***	0.0628*	0.223***	-0.0614*	-0.0950***	-0.0749**	0.295***	0.133***	-0.129***	1		
14. TENURE	0.167***	-0.382***	0.325***	0.131***	0.0879***	0.013	-0.035	-0.0363	-0.00182	0.0861***	-0.0362	-0.0405	-0.0276	1	
15. OPINION	0.0531*	0.155***	-0.130***	0.0438	-0.147***	0.235***	0.006	-0.00963	0.0634*	0.126***	0.0573*	0.123***	0.0897***	-0.0149	1

Notes: This table shows the Spearman correlation matrix values between the outcome and explanatory variables.

The correlation coefficients ** and * are statistically significant at the 0.01 and 0.05 levels (2-tailed), respectively.

In order to eliminate the impact of outliers, all continuous variables are annually winsorized at 0.01 and 0.99. Table 2 defines all variables.

Where: Dummy variable set to 1 during the IAS 39 phase (2005-2008) and 0 elsewhere for the FVA VOLUNTARY variable. In the IFRS 7 phase (2009-2018), the dummy variable FVA COMPULSORY is entered as 1, while in the rest of the time, it is written as 0.

Table 5. Univariate analysis: Audit fees

Panel A		FVA_VOLUNTARY=1 Industry- Year observations = 420		FVA_VOLUNTARY=0 Industry- Year observations = 1050		Mean difference	t - stat
		Mean	SD	Mean	SD		
LnAFEEES		9.172	1.079	9.488	1.075	0.316	5.0872***
Panel B		FVA_COMPULSORY =1 Industry- Year observations = 1155		FVA_COMPULSORY =0 Industry- Year observations = 315			
		Mean	SD	Mean	SD		
LnAFEEES		9.494	1.127	9.119	1.147	-0.375	-5.210***

Notes: The symbols *, **, and *** imply significance levels of 0.10, 0.05, and 0.01 correspondingly.

major multicollinearity issue, since the mean of each model's VIF is around 2. The Spearman correlation matrix statistics of the other analyses are not disclosed but are available if needed.

6.2. Univariate analysis

Table 5 summarizes the independent t—test (Welch's approximation) of the mean difference in log audit fees between two periods of time: FV voluntary vs mandatory. Panel A displays the t—test findings for the two periods. FVA_VOLUNTARY and FVA_COMPULSORY are factors employed to distinguish the two subsamples and investigate the impact of adopting pre-IFRS7 and post-IFRS 7. FVA_VOLUNTARY spans 2005 to 2008 and represents the first implementation of FV by companies in Jordan following IAS39, which corresponds to the pre-IFRS seven eras. During this time period, IAS39 mandated the use of FV without responsibilities, hence FV was a choice made voluntarily by companies in Jordan and was primarily utilized by the finance sector. However, FVA_COMPULSORY spans the years 2009 through 2018. Since 2009, the implementation of FV has increased considerably as a result of the release of the amended form of IFRS7, which compelled companies to offer three levels of hierarchical disclosure on FVM (Level1, Level2 and Level3). Consequently, hierarchy disclosure has been mandatory since then. Clearly, the average audit fees for the optional period are 9 per cent, which is lower than the 9.50 per cent average for the post-IFRS7 period. The variation in mean audit fees is statistically significant (t—value = 5.087, t—value = -5.210). On the basis of this finding, it can be concluded that Jordanian enterprises have paid higher audit costs after the amendment of IFRS7, which led to a significant increase in the FV application by firms. As a result of the conflict of interest between managers and stakeholders, the larger FVD resulted in more deliberate and/or inadvertent misrepresentation and fraud by management teams. In this regard, when an agency issue emerges, auditors need additional time to assure management's judgments of questionable FVEs, necessitating costly audit costs (Alshbiel & Tahat, 2014; Ettredge et al., 2014; Glover et al., 2019; Goncharov et al., 2014; Griffith et al., 2015).

6.3. Regression analysis

The findings of the OLS regression are summarized in Table 6. As can be seen in the table, the P—the value of the tested Model (1) is extremely significant at the 0.01 level (Prob > F = 0.000) with an adequate explanatory power of 80%, which is comparable to recent research by Ettredge et al. (2014) and Alexeyeva and Mejia-Likosova (2016). Consistent with the univariate analysis, the FV voluntary factor is found insignificantly impacted the amount of audit fees paid by Jordanian firms in the finance industry with a negative sign at the 0.05 level (Coeff. = -0.063, t = -0.950). The insignificant nature of the FV voluntary period (FVA_VOLUNTARY) on audit fees is mainly caused by the low level of compliance with FVMs by Jordanian firms during that period.

The FV approach, according to agency theory, increases the information burden, resulting in a more complex auditing process (Beisland, 2009; Griffith et al., 2015; Penman, 2007). This is because of the hazards associated with inherent uncertainty produced by management bias (Glover et al., 2019). As a result of the increased complexity of auditing FVs, auditors respond by offering more time, and effort, and deploying their own valuation specialists, resulting in higher audit fees (Boolaky et al., 2018). Audit fees are regarded as part of agency costs in response to the agency problem between the principal and the corporate agent (Jensen & Meckling, 1976). Audit costs are primarily determined by anticipated future risks and losses, as well as the cost of audit resources (Davidson et al., 2004; Healy & Wahlen, 1999; Jiraporn et al., 2008). Unlike FVA, conventional accounting approaches, such as the historical cost approach, rely on historical pricing with no judgments or managerial discretion risks (Tunyi et al., 2020). Thus, the possible future risks and losses in the case of voluntary FVA are lower than those in the succeeding years of mandatory application (Ettredge et al., 2014; Alexeyeva & MejiaLikosova, 2016).

The findings are comparable with those of Tahat et al. (2016), who discovered that the use of fair-valued assets by Jordanian enterprises improved considerably post-IFRS7 (periods following 2009). Similarly, this finding is consistent with Siam and Abdullatif's, (2011) claim that in Jordan in 2005, only a few banks and other financial institutions used FVMs for the first time under IAS39. As a result,

Table 6. The moderating voluntary and compulsory fair value analysis results

DV = LnAFEES Variables	Model (1) Coeff.
Intercept	5.079
	(8.70)***
FVA_VOLUNTARY	-0.063
	(-0.950)
FVA_COMPULSORY	0.298
	(5.05)***
SIZE	0.210
	(6.11)***
SUBS	0.035
	(2.80)***
ROI	0.000
	(0.700)
GROWTH	-0.003
	(-0.630)
EFFICIENCY	0.001
	(0.500)
CURR	-0.002
	(-2.45)**
INST_OWN	0.022
	(0.170)
GOV_OWN	0.029
	(0.100)
FAM_OWN	-0.274
	(-1.680)
BIG4	0.287
	(4.55)***
TENURE	0.076
	(1.500)
OPINION	-0.076
	(-0.810)
Std. Error Adj.	Firm clustering
Industry and Year Effects	Controlled
N	1470
Prob>F	(37.77)***
Adj. R2	80%
Mean VIF	2.00

Notes: The symbols *, **, and *** imply significance levels of 0.10, 0.05, and 0.01 for two-tailed test correspondingly. This table shows the outcomes of OLS regression of logarithm of audit fees (LnAFEES) on pre- and post-IFRS7 components with firm- specific standard errors and fixed effects for years and industry according to Badia et al. (2017). Table 2 defines all variables.

during the optional FVD era, a limited percentage of organizations met FVMs and disclosure standards, resulting in a lower degree of audit complexity and risk encountered by auditors, resulting in lower audit fees being paid. Overall, the analytical conclusion was influenced by Jordanian enterprises' use of FVs due to inadequate enforcement measures (Abdullatif, 2016). The findings support the argument that the poor degree of compliance with FV hierarchy disclosures was caused by the IASB's lack of clear guidance (Ettredge et al., 2014). Overall, the research reveals, as expected, that voluntary FV application has a negative influence on audit prices, reflecting a low level of potential future risks and impairment losses (Huang et al., 2020). As a result, the analysis accepts H1.

In regard to FV compulsory (FVA_COMPULSORY), the regression result confirms the significant positive role of the FV compulsory (FVA_COMPULSORY) on the audit fees at the 0.01 level (Coeff. = 0.298, $t = 5.05$). As previously stated, significant progress has been made in terms of FVD requirements following the implementation of IFRS7. Firms were compelled to use FV and submit hierarchy disclosures via the three FV input levels (Level1, Level2, and Level3). This finding verifies the agency theory premise that the compulsory and wider application of FVA increased complexity and risk in the auditing process, as well as the function of such extra requirements of FV disclosures had led to increasing the workload of auditors, who are subsequently charged greater fees (Jensen & Meckling, 1976; Lennox, 1999; Sangchan et al., 2020). Auditors are more likely to demand large audit fees after IFRS7, according to the agency, signalling, and stakeholder theories combined. Auditing less verifiable assets (Level2 and Level3) in accordance with FVA requires the payment of large auditing fees.

The findings are consistent with Badia et al. (2017), Tahat et al. (2016), Abu Risheh and Al-Saeed (2014), Alexeyeva and Mejia-Likosova (2016), Ettredge et al. (2014) Bratten et al. (2013) and Xu et al. (2013) who significantly showed that greater disclosures for uncertain FVs increased auditor workloads and consequently pushed up audit costs. Overall, the results are consistent with the t-test stated above and support the agency explanation, in which the use of uncertain FVs plays a significant role in driving audit prices up and worries about subjective FVs rising post-IFRS7 (Tahat et al., 2016).

FVA implementation is more difficult in developing countries (He et al., 2012; Nguyen, 2019). Similarly, Abdullatif (2016) argued that the presence of fair-value financial assets generates major challenges in Jordan's capital market due to a lack of efficient markets. The recognition of unrealised gains/losses on the FV of financial assets drove share prices to all-time highs during the economic boom. As a result, share prices fell precipitously thereafter (Abdullatif & Al-Khadash, 2010; Ahmad & Aladwan, 2015). This issue has prompted the government to take various corrective efforts in order to minimize the effects of FV on market pricing (Abdullatif, 2016). The main cause of this issue was FV fraud and abuse by managers as a result of Jordanian enterprises' agency problem (Siam & Abdullatif, 2011). As a consequence, the demand for independent assurance for FVEs has increased in order to restrain earnings management practices in Jordanian enterprises, resulting in higher monitoring charges (Abu Risheh & Al-Saeed, 2014). As a result, Jordanian enterprises' high audit fees become a signal of the high-quality financial information presented to stakeholders (Alhababsah, 2019). Overall, the analysis reveals that the mandatory use of FVA has a considerable impact on audit practices, particularly audit prices. As a result, the analysis accepts H2.

This analysis gives the first result comparing the optional vs. mandatory term of FVA application and its impact on the audit profession, namely audit price. The investigation triangulated the most prevalent theories in the area, agency, signalling, and stakeholder theories, using data from one developing nation, Middle Eastern Jordan. To the best of the authors' knowledge, this is the first attempt of its kind to compare monitoring expenses between the two separate periods of FVA use. It is intended to help authorities control and manage the auditing business. The findings could help alter the legislation that governs Jordan's auditing business. Furthermore, the findings are applicable to other Middle Eastern countries.

Table 7. Change analysis

DV =Δ LnAFEES Variables	Model (2) Coeff. (robust t)	Model (3) Coeff. (robust t)
Intercept	0.970	0.921
	(4.57)***	(4.26)***
Δ FVA_TA	0.634	
	(7.56)***	
Δ FVA1_TA		0.713
		(7.33)***
Δ FVA2_TA		0.401
		(1.98)**
Δ FVA3_TA		-0.186
		(-0.420)
Δ SIZE	0.449	0.452
	(38.89)***	(38.37)***
Δ SUBS	0.013	0.013
	(2.81)***	(2.70)***
Δ ROI	0.000	0.000
	(5.05)***	(4.81)***
Δ GROWTH	0.000	0.000
	(2.16)**	(2.20)**
Δ CURR	0.000	0.000
	(0.150)	(0.270)
Δ EFFICIENCY	0.000	0.000
	(0.850)	(0.790)
Δ GOV_OWN	0.278	0.294
	(1.710)*	(1.800)*
Δ INST_OWN	0.282	0.285
	(4.16)***	(4.19)***
Δ FAM_OWN	-0.050	-0.056
	(-0.560)	(-0.640)
BIG4	0.024	0.024
	(0.590)	(0.600)
TENURE	-0.027	-0.026
	(-0.740)	(-0.720)
OPINION	-0.059	-0.063
	(-1.170)	(-1.250)
Robust	Yes	Yes
Industry and Year Effects	Controlled	Controlled
N	1662	1662

(Continued)

Table 7. (Continued)

DV = Δ LnAFEES Variables	Model (2) Coeff. (robust t)	Model (3) Coeff. (robust t)
Prob>F	(118.97)***	(115.44)***
Adj. R2	69%	69%
Mean VIF	1.59	1.57

Coefficient comparisons for Model (3) F-stat

FVA1_TA = FVA2_TA = FVA3_TA (2.63)*

Notes: The symbols *, **, and *** imply significance levels of 0.10, 0.05, and 0.01 for two-tailed test correspondingly. This table displays the OLS regression analysis of a change in variables. According to Sangchan et al. (2020), robust t-statistics are clustered by year and industry fixed effects. Where: Δ FVA_TA, Δ FVA1_TA, FVA2_TA, FVA3_TA = the change in the total fair-valued assets of the company utilizing Level1, Level2, and Level3 valuation methods from t to (t-4). Table 2 defines all variables.

6.4. Change analysis

Using robust standard errors and year and industry-fixed effects, OLS estimates of change analysis for two Models (2–3) are shown in Table 7. The purpose of this test is to get more insight into the reason/cause of increasing the number of audit fees paid by Jordanian firms in the period after the application of IFRS7 (post-IFRS7). Model (2) examines whether the proportion of FV (FVA_TA) causes expensive audit fees, whereas Model (3) uses FV input levels (FV1_TA, FV2_TA, and FV3_TA) as independent variables instead (3). Change values for all continuous variables are specified in equation modifications, but the dummy variables remain unchanged.

Model (2) is evaluated throughout the period 2009–2018 (the years 2005–2008 are removed due to the change specification/year transition to mandatory FVD post-IFRS7). From the auditor’s perspective, the initial application of FV included significant complications and risks, such as the need to acquire and comprehend these new standards, as well as incur additional reconciliation expenses relating to the prior year of implementation (Cairns et al., 2011, Cameran & Perotti, 2014; Ferguson & Stokes, 2002). As a result, the purpose of this analysis is to determine the reason for the variation in audit prices throughout these time periods and to determine if the usage of FVA is the primary source of this variation. Table 7 shows that the P—value for Models (2–3) is statistically significant at the 0.01 level, with the models’ R—squared average of 70%, demonstrating appropriate explanatory power. There is no evidence to substantiate the existence of a Multicollinearity problem. The average VIF of all models is less than 2.

In Model 2, the change in the percentage of overall fair-valued assets (FV_TA) has a positive and highly significant coefficient (Coeff. = 0.634, Robust t = 7.56), which is in accordance with the finding that the more fair-valued assets are used, the more audit costs are made to fulfil auditor time and effort invested auditing complex accounting issues.

The final set of findings in Table 6 evaluates Model (3) in a change model specification by decomposing FV_TA into FV1_TA, FV2_TA, and FV3_TA and evaluating if the coefficients on all of these factors vary. FV utilizing Level1 (Level2) was determined to be significantly positive at the 0.01 level (0.05), however, the Level3 coefficient is not significant. This finding is related to the fact that FV via Level1 is the most prevalent kind of FV portfolio among Jordanian enterprises during the research period, followed by Level2 assets and a mean of less than 1 per cent for Level3 assets. According to Ettredge et al. (2014), FVA proxies with a smaller mean are often more likely to have limited audit fee explanatory power. Using extremely uncertain FVs raises the difficulty and risk levels in auditing, ultimately resulting in expensive audit costs. More often than not, hefty audit costs are necessitated to compensate for auditing assets that are difficult to verify (Level2 in this

Table 8. The impact of the presence of FVA

DV = LnAFEES Variables	Model (4) Coeff	Model (5) Coeff	Model (6) Coeff
Intercept	4.653	4.685	5.346
	(8.15)***	(8.46)***	(9.60)***
FVA	0.583	0.837	-0.130
	(5.24)***	(6.65)**	(-0.990)
FVA_VOLUNTARY		0.594	
		(4.28)**	
FVA* FVA_VOLUNTARY		-0.890	
		(-6.70)**	
FVA_COMPULSORY			-0.609
			(-4.62)***
FVA* FVA_COMPULSORY			0.907
			(7.19)***
SIZE	0.197	0.194	0.194
	(5.90)***	(5.93)***	(5.91)***
SUBS	0.037	0.036	0.037
	(3.35)***	(3.24)***	(3.28)***
ROI	0.000	0.000	0.000
	(0.380)	(0.650)	(0.700)
GROWTH	-0.004	-0.003	-0.004
	(-1.090)	(-0.950)	(-1.040)
EFFICIENCY	-0.000	0.000	0.000
	(-0.010)	(0.490)	(0.440)
CURR	-0.002	-0.002	-0.002
	(-1.580)	(-1.950)*	(-2.11)**
INST_OWN	0.009	0.001	-0.003
	(0.080)	(0.010)	(-0.020)
GOV_OWN	0.087	0.087	0.090
	(0.290)	(0.290)	(0.300)
FAM_OWN	-0.259	-0.260	-0.274
	(-1.660)	(-1.720)*	(-1.810)*
BIG4	0.249	0.250	0.250
	(3.46)***	(3.69)***	(3.66)***
TENURE	0.071	0.089	0.087
	(1.470)	(1.870)*	(1.810)*
OPINION	0.044	0.010	0.019
	(0.430)	(0.110)	(0.200)

(Continued)

Table 8. (Continued)

DV = LnAFEES Variables	Model (4) Coeff	Model (5) Coeff	Model (6) Coeff
Std. Error Adj.	Firm clustering	Firm clustering	Firm clustering
Industry and Year Effects	Controlled	Controlled	Controlled
N	1666	1666	1666
Prob>F	(37.91)***	(41.29)***	(40.12)***
Adj. R2	0.0000	0.0000	0.0000
Mean VIF	79 %	80 %	80 %
Std. Error Adj.	1.75	2.37	2.55

Notes: The symbols *, **, and *** imply significance levels of 0.10, 0.05, and 0.01 for two-tailed test correspondingly.

Notes: This table shows the outcomes of Regression analysis of log of audit fees (LnAFEES) charged by companies in Jordan between 2005 and 2018 on the existence of fair value disclosure on companies' yearly reports and the mediating role of the existence of FVA on the relationship between pre- and post-IFRS7 indicators and audit fees with firm-clustered standard errors and fixed effects for years and industry according to Badia et al. (2017).

Table 2 defines all variables.

case). The F-test was used to determine the variations in coefficients between the different levels of the hierarchy. For all three input levels, F—the test finds a significant difference (P-value = 0.0296) between the null hypothesis that the coefficients of change are identical and refuses the null hypothesis. This indicates that the three input levels have different impact on audit fees.

Altogether, the findings of the change analysis provide more evidence that the FVD and audit fees charged by Jordanian enterprises are inextricably linked since the adoption of the new FVD laws following the 2009 revision to IFRS7. Prior to IFRS7, FV application was voluntary and freely used by Jordanian businesses. However, with the adoption of IFRS7, FV application and hierarchy disclosures became necessary, giving further proof and clarification for our key Model 1 outcome.

6.5. FVA vs. non-FVA

Model (4) of Table 8 below presents the firm cluster OLS regression results which test the relationship between the presence of FVA and audit fees. This analysis aims to explore whether the audit fees paid by firms with FVDs are more likely to afford higher audit fees relative to the firms that do not. In order to find whether there is a moderating role of the presence of FVA (FVA) among the association between each tested period of pre-and post-IFRS7, Models (5–6) of Table 8 below, moreover, show the results of the OLS regression of the regulating impact of FVA on the relationship between each period of FV application and audit fees. As the table shows, the P-values of the models tested are strongly significant at the 0.01 level, and each model does a great job of explaining between 79% and 80% of the data.

The regression analysis results in Model (4) confirm, as expected, that FVA has a positively significant coefficient at the 0.01 level (Coeff.=0.485, $t=18.79$). This demonstrates that the presence of FVD by Jordanian firms is strongly and positively related to audit fees. Sangchan et al. (2020), arrived at the same conclusion. In terms of theory, the regression analysis is consistent with the incorporation of both the agency and signalling theories. This implies that implementing FVD enhances agency costs because audit fees are considered an agency cost. Auditors had to undertake additional work to ensure that managers' FVs were unbiased. This was done to address the issue of insufficient information (Griffith, 2020). As a result, they serve as a monitoring tool and send signals to stakeholders to assist them in making decisions. As a result, auditors charge high audit fees to compensate for the additional effort required to assess reputational risks and the time required to confirm FVEs (Oyewo, 2020; Oyewo et al., 2020).

Table 9. Endogeneity test

DV = LnAFEES Variables	Coeff.
Intercept	5.079
	(8.70)***
FVA_VOLUNTARY	-0.063
	(-0.950)
FVA_COMPULSORY	0.298
	(5.05)***
SIZE	0.210
	(6.11)**
SUBS	0.035
	(2.80)***
ROI	0.000
	(0.700)
GROWTH	-0.003
	(-0.630)
EFFICIENCY	0.001
	(0.500)
CURR	-0.002
	(-2.45)**
INST_OWN	0.022
	(0.170)
GOV_OWN	0.029
	(0.100)
FAM_OWN	-0.274
	(-1.680)
BIG4	0.287
	(4.55)***
TENURE	0.076
	(1.500)
OPINION	-0.076
	(-0.810)
INMILLS	0.290
	(4.46)***
Std. Error Adj.	Firm clustering
Industry and Year Effects	Controlled
N	1470
Prob>F	(28)***
Adj. R2	49%
Mean VIF	1.26

The findings of the OLS regression of the moderating influence of FVA on the connection between each period of FV application and audit fees are presented in Models (5–6). As expected, the connection between audit fees and the proportion of fair valued assets has a significant negative sign at the 0.05 level, affecting the moderating impact of FV voluntarily (Coeff. = -0.890 , $t = -6.70$). The negative nature of the moderating FV voluntary (FVA_VOLUNTARY) is mostly due to Jordanian enterprises' low level of compliance with FVMs at the time. Again, the findings are congruent with those of Tahat et al. (2016), who discovered that the use of fair-valued assets by Jordanian enterprises improved considerably post-IFRS7 (periods following 2009). Similarly, this conclusion is consistent with Siam and Abdullatif's (2011) findings, which confirmed that only a subset of Jordanian financial institutions was required to apply FVA following the implementation of IAS39 in 2005. As a result, during the optional FVD era, a limited percentage of organizations met FVMs and disclosure standards, resulting in a lower degree of audit complexity and risk encountered by auditors, resulting in lower audit fees being paid. Overall, the analytical conclusion was influenced by Jordanian enterprises' use of FVs due to inadequate enforcement measures (Abdullatif, 2016).

The regression result in Model (6) indicates the significant positive influence of the moderating FV obligatory (FVA_COMPULSORY) on the association between the presence of FVA and audit fees at the 0.01 level (Coeff. = 0.907 , $t = 7.19$). As previously stated, significant advancements in FVD criteria occurred. Firms were required to use FV and make hierarchical disclosures via the three FV input levels (Level1, Level2, and Level3). This finding shows the increased complexity and risk in auditing, as well as the function of such extra disclosures in increasing the workload of auditors, who are subsequently charged greater fees.

7. Sensitivity analysis

7.1. Managing endogeneity in the context of auditor type

"Heckman two-stage" estimator is used to account for the self-selection bias in the major auditing costs models. As shown in Table 9, the tested model is updated by adding the Inverse Mills Ratio variable (INMILLS) calculated from the probit regression in the first step (see Sangchan et al., 2020). After adjusting for self-selection bias, the analysis results of the second-stage estimation remain unaltered.

7.2. Alternative measure of audit fees

The analysis was re-run using different measures of the dependent variable, the log of total audit fees. This robustness analysis employed the audit fees deflated by total assets as an alternative measure of that utilised in the main analysis. The analysis results presented in Table 10 confirm that the alternative measure shows similar findings to those documented in the main analysis verifying the main analysis results.

7.3. Excluding BIG4 variable

Following earlier research (Lawrence et al., 2011; Behn et al., 2008), Models (1) and (2) were re-evaluated to confirm that the primary analysis findings were not influenced by an auditor-type factor (BIG4). All findings are the same as those published in the original analysis, where pre-IFRS7 (post-IFRS7) was shown to be insignificant (significant) with a negative (positive) sign at the 0.01 level (Coeff. = -0.072 , $t = -1.06$; Coeff. = 0.336 , $t = 5.69$). The findings are not publicized but are accessible upon request.

Notes: The symbols *, **, and *** imply significance levels of 0.10, 0.05, and 0.01 for two-tailed test correspondingly. this table presents the results of OLS regression of log of audit fees (LnAFEEES) charged by companies in Jordan between 2005 and 2018 on the existence of fair value disclosure on companies' yearly reports and the mediating role of the existence of FVA on the relationship between pre- and post-IFRS7 indicators and audit fees with firm- clustered standard errors and fixed effects for years and industry according to Badia et al. (2017) after controlling for potential auditor self-selection bias with Robust t - statistics and standard errors adjusted for both the firm and year cluster effects following Sangchan et al. (2020).

Table 2 defines all variables.

Table 10. Alternative measure of audit fees

DV = LnAFEES	Coeff.
Variables	
Intercept	0.013
	(5.11)***
FVA_VOLUNTARY	-0.000
	(-1.830)
FVA_COMPULSORY	0.000
	(3.46)***
SIZE	-0.001
	(-5.15)***
SUBS	0.000
	(1.460)
ROI	0.000
	(0.270)
GROWTH	0.000
	(1.940)
EFFICIENCY	0.000
	(0.770)
CURR	0.000
	(1.850)
INST_OWN	0.000
	(0.630)
GOV_OWN	0.000
	(0.530)
FAM_OWN	0.000
	(0.280)
BIG4	0.000
	(1.690)
TENURE	0.000
	(0.100)
OPINION	0.000
	(0.880)
INMILLS	
Std. Error Adj.	Firm clustering
Industry and Year Effects	Controlled
N	1470
Prob>F	(28)***
Adj. R2	53%
Mean VIF	2.00

Notes: The symbols *, **, and *** imply significance levels of 0.10, 0.05, and 0.01 for two-tailed test correspondingly.

this table presents the results of OLS regression of the proportion of audit fees (LnAFEES) to total assets over the period 2005 and 2018 on the existence of fair value disclosure on companies' yearly reports and the mediating role of the existence of FVA on the relationship between pre- and post-IFRS7 indicators and audit fees with firm- clustered standard errors and fixed effects for years and industry according to Badia et al. (2017).

Table 2 defines all variables.

7.4. Excluding the banking industry

The analysis was rerun removing the banking sector sample (224 firm-year observations), and the findings remained the same as those presented in the initial analyses, where pre-IFRS7 (post-IFRS7) was shown to be non-significant (significant) with a negative (positive) sign at the 0.01 level Coeff.=−0.022, and $t=0.27$ (Coeff.=0.304, and $t=5.07$). The findings are not publicized but are accessible upon request.

8. Summary and conclusion

This research looks at the difference in audit prices charged by Jordanian external auditors over two different time periods of pre-and-post-IFRS7. The regression results confirm that the post-IFRS7 has a significant positive effect on audit fees, but the analysis failed to find any significant effect of the pre-IFRS7 on audit fees. Furthermore, the change analysis suggests that increased audit fees for the post-IFRS7 period are mostly due to a greater level of FVD. Firms with higher amounts of subjective FVDs are more likely to pay higher audit fees (i.e., Level2 assets). Furthermore, the study reveals that organizations with FVDs are more likely to pay greater audit fees than those without. The moderating effect of FVA on the association between the studied periods (pre-and post-IFRS7) further confirms that the use of FVA is the primary source of the high audit fees paid by Jordanian financial enterprises during the mandatory FVA period. Overall, the findings support the notion that firms that prioritize FV have higher levels of audit risk and complexity, leading to higher audit costs.

This research offers a new audit fee model considering FVA as a new complexity and risk element for auditors and clients. It's the first to present fresh empirical information on audit firms monitoring expenses before and after the mandatory FVD regulations using a sample from Jordan. This study serves academics, the auditing community, and Jordanian government organizations in charge of FVA implementation. This research aids regulatory organizations in Jordan that govern and monitor the external audit business. Furthermore, the findings could provide the basis for establishing audit fees. This modification broadens the analysis's conclusions' feasibility and relevance to a broader range of scenarios, such as ME nations with comparable institutional and cultural characteristics, as well as auditing and accounting standards.

Due to the challenges generated by the usage of FVA, this study advises Jordanian and other nations' politicians to update and enact necessary auditing industry regulations. It provides assistance to auditing standard setters, government authorities, and investors. The sample and timeline may limit the relevance of the conclusions, and future studies should extend the sample timeframe to include data for the untested years 2019–2023. This will aid in the compelling analysis of stable and unstable periods of time, leading to more definitive results. Furthermore, the study's findings open up new options for future research, such as investigating the impact of COVID-19 on measuring and disclosing the complex numbers of FVA. Furthermore, it is worthwhile to broaden the existing empirical evidence of FVA and assess the impact of additional FVA proxies, corporate governance, and ownership structure mechanisms on the auditing profession. Such concerns contribute to a thorough understanding of FVA's post-implementation consequences. For more conclusions, this research should be expanded to include other ME countries.

Acknowledgments

The authors are grateful to Zarqa University, Zarqa, Jordan, for the financial support granted to cover the publication fee of this article.

Funding

This work is supported by Zarqa University, Zarqa, Jordan.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

The data that support the findings of this study are available from the corresponding author, Dr Esraa Esam Alharasis, upon reasonable request.

Citation information

Cite this article as: Corporates' monitoring costs of fair value disclosures in pre- versus post-IFRS7 era: Jordanian financial business evidence, Esraa Esam Alharasis, Manal Alidarous, Abeer F. Alkhwaldi, Hossam Haddad, Nidal Alramahi & Husni K. Al-Shattarat, *Cogent Business & Management* (2023), 10: 2234141.

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