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Forensic accounting and firm performance: An empirical investigation on emerging markets

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The current study aimed at exploring the impact of supply chain internal and external integration on the operational performance of manufacturing companies operating in Jordan, as well as addressing the possibility of a mediation effect of lean operations and practises on the proposed relationship. Achieving the study objectives necessitated using the deductive approach and the descriptive survey approach. Using a well-designed questionnaire, the primary data was collected from a 315-manager sample randomly selected from the companies. Accordingly, the nature of how supply chain integration, lean operations, and operational performance impact each other was investigated. The study results revealed that integrating the supply chain both internally and externally could increase the opportunity to attain a more desirable operational performance, particularly in terms of quality performance measures. Moreover, in the vein of adopting lean practices among manufacturing companies, a positive mediation effect was found. Thus. In light of these results, it is concluded that lean operations, as a mediating variable, positively influence the association between internal and external supply chain integration on quality measures of operational performance.

1. Introduction

Firm performance is a multidimensional notion that includes both financial and non-financial aspects of a company's operations (Saha et al., 2020). Firms ought to attempt to attain and maintain high levels of performance in today's dynamic and competitive business environment by emphasizing sustainable growth, efficiency, and providing value to stakeholders (Almashhadani & Almashhadani, 2022). It assesses how well a company uses its resources, manages its operations, and creates value for its stakeholders, which include employees, clients, investors, and the whole community (Puni & Anlesinya, 2020). Taouab and Issor (2019) mentioned that a firm's performance often plays a significant role in shaping its reputation and standing within its industry. Moreover, it is essential for firms to continually monitor and evaluate their performance, identify areas for improvement, and take proactive measures to enhance their overall effectiveness (Aziz & Abbas, 2019).

Forensic accounting is a specialty that combines accounting knowledge, investigative abilities, and legal comprehension to discover financial fraud, give litigation assistance, and aid in legal proceedings (Kaur et al., 2022). It is an essential instrument for preserving the integrity of financial systems and achieving justice in situations involving financial malfeasance (Rehman & Hashim, 2021). Consequently, forensic accountants are educated to examine complicated financial transactions, track down cash, and rebuild financial records to detect abnormalities, discrepancies, or patterns of fraudulent conduct (Ebaid, 2022). Because of the growth in financial crimes and the demand for openness and accountability in company activities, the relevance of forensic accounting has grown in recent years. Forensic accounting is not restricted to the business sector; it also includes government entities, non-profit organizations, and regulatory authorities (Ahakhatreh & Al-Hawary, 2023). To guarantee the

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integrity and dependability of financial reporting, these specialists frequently interact with law enforcement authorities, internal audit departments, and external stakeholders (Rechtman, 2020).

Insurance firms in Jordan operate in a complicated and regulated environment where financial transparency and the prevention of fraudulent activities are critical. As a specialist profession, forensic accounting can greatly affect the firm performance of insurance businesses by discovering and preventing financial malfeasance. However, the exact influence of forensic accounting methods on the performance of Jordan's insurance business remains largely unknown. The objective of this research is to determine if using forensic accounting techniques and measurements improve financial transparency, risk reduction, and overall performance of insurance businesses. By addressing this issue, useful insights on the efficacy and applicability of forensic accounting procedures for enhancing the firm performance of Jordanian insurance businesses may be achieved. The findings could educate stakeholders, such as insurance regulators, policymakers, and insurance companies, about the possible advantages and obstacles of implementing forensic accounting practices, as well as guide future strategies to improve financial governance and reduce fraud risks in the insurance sector.

2. Literature review

2.1 Forensic accounting

Forensic accounting's theoretical framework encompasses a variety of disciplines and concepts that contribute to its foundation. Chukwuma et al. (2022) said that it relies on fundamental accounting and auditing concepts and procedures such as Generally Accepted Accounting Principles (GAAP), International Financial Reporting Standards (IFRS), and Generally Accepted Auditing Standards (GAAS). Furthermore, forensic accounting is highly influenced by the discipline of fraud investigation (Kaur et al., 2022). It encompasses the theories, methodologies, and techniques used to detect, investigate, and prevent fraudulent activities, such as researching fraud theories, comprehending the fraud triangle (opportunity, pressure, and justification), and employing forensic techniques to gather evidence and build a case against perpetrators (Elizabeth & Edobor, 2019).

Forensic accounting is defined as a subset of accounting that entails using accounting principles, investigative tactics, and legal expertise to evaluate financial data, detect and prevent fraud, and give expert opinions and evidence in court procedures (Nasiru et al., 2020). Forensic accounting is the application of accounting abilities to detect fraud or embezzlement and to evaluate financial data for use in judicial procedures (Rechtman, 2020). Rehman and Hashim (2021) described it as the integration of accounting principles, theories, and discipline to facts or hypotheses in dispute in a legal dispute, and it encompasses every field of accounting knowledge, practice, and method utilized by accountants to resolve legal disputes. While Ebaid (2022) referred to forensic accounting as “the application of professional accounting skills in matters involving actual or anticipated disputes or lawsuits”.

Forensic accounting is centred on four mechanisms that represent its technical dimensions (Ewa, 2022). Trend analysis is a statistical approach for examining and identifying patterns, trends, or changes in data across time. It entails evaluating historical data points or observations to assess the direction, amplitude, and consistency of a certain trend (Elizabeth & Edobor, 2019). Data mining involves the process of identifying patterns, correlations, and insights in massive amounts of data. It entails collecting usable and actionable information from large amounts of data using a variety of techniques, algorithms, and statistical methodologies (Rechtman, 2020). Financial ratios assessment is a process of evaluating a company's financial performance and condition by analyzing various financial ratios derived from its financial statements. Financial ratios are quantitative metrics that provide insights into a company's liquidity, profitability, solvency, efficiency, and overall financial health (Kaur et al., 2022). Reasonableness testing, also known as substantive analytical procedures, is an auditing technique used to assess the reasonableness and validity of financial information. It involves evaluating financial data, relationships, and trends to determine if they are consistent with expectations, industry norms, or previous periods (Chukwuma et al., 2022).

2.2 Firm performance

The theoretical foundation of firm performance encompasses ideas and concepts from diverse domains such as economics, strategic management, organizational theory, and finance. Economic theories such as agency theory, transaction cost economics, and the resource-based view (RBV) provide light on the variables influencing company performance (Aziz & Abbas, 2019). The link between principals (owners) and agents (managers) is examined in agency theory, as is how the alignment of interests influences performance (Kyere & Ausloos, 2021). Transaction cost economics studies the costs of executing commercial transactions and how they impact firm performance (Um & Kim, 2019). The RBV highlights the importance of internal corporate resources and competencies as sources of competitive advantage and performance (Puni & Anlesinya, 2020). Financial views, on the other hand, use indicators such as profitability, return on investment, shareholder value, and market evaluation to analyze a firm’s performance (Shen et al., 2020).

Conceptually, the examination and evaluation of a company's overall effectiveness, efficiency, and success in attaining its strategic objectives and delivering value to its stakeholders is referred to as firm performance (Almashhadani & Almashhadani, 2022). It includes a variety of financial and non-financial statistics and indicators that give information on a company's profitability, growth, productivity, market position, innovation, customer happiness, and social and environmental impact (Um & Kim, 2019). In a similar context, Saha et al. (2020) stated that firm performance is the result of a company's activities, plans, and decisions, and it reflects its capacity to create profits, gain market share, maintain growth, and fulfil the expectations of its stakeholders. According to Taouab and Issor (2019), firm performance denotes a company's capacity to produce superior financial outcomes, market position, and long-term competitive advantage.

The evaluation of the firm performance includes three main aspects mentioned by Aziz et al. (2023). Operational performance refers to the efficacy and efficiency with which an organization manages its operational procedures and resources to achieve its goals. It evaluates an organization's capacity to carry out its day-to-day activities and produce goods, services, or results in accordance with defined standards, objectives, and customer expectations (Um & Kim, 2019). Financial performance is the examination and measurement of a company's financial results and outcomes. It evaluates an organization's financial health, profitability, and efficiency by examining its financial statements, which include the income statement, balance sheet, and cash flow statement (Puni & Anlesinya, 2020). Marketing performance involves a review and assessment of a company's marketing efforts and activities to identify their efficacy in attaining marketing objectives and creating desired results. It entails monitoring and evaluating numerous marketing metrics and indicators to determine the impact and ROI of marketing operations (Nasiru et al., 2020).

2.3 Forensic accounting and firm performance

Financial irregularities, fraud, and misbehaviour inside businesses are detected, investigated, and prevented through forensic accounting. Investing in forensic accounting mechanisms enhances financial accountability and transparency in a way that improves financial performance by attracting investors and customers alike. Chukwuma et al. (2022) sought to investigate how forensic accounting can be used to predict the financial performance and growth of the mobile telecom operator MTN in Nigeria. Through the ordinary least squares regression model, the results showed that the model is statistically significant, which confirms the existence of a significant relationship between criminal accounting tools and growth in financial performance. Nasiru et al. (2020) evaluated the effect of forensic accounting on firm performance using return on assets, return on equity, and net profit margin for a cement company in Northern Nigeria. Using multiple regression analysis of 34 responses, it was revealed that forensic accounting was positively and significantly associated with return on assets, return on equity, and net profit margin. Elizabeth and Edobor (2019) treated the impact of forensic accounting on the performance of the Nigerian banking sector. The data was collected from a sample of annual reports and accounts for a series of 12 years. Using the multiple regression method, the results showed that forensic accounting has a significant impact on the net profit margin of the selected Nigerian banks. Moreover, the study also revealed that forensic accounting has a significant impact on retained earnings and dividends. Based on above, the hypotheses can be suggested as follows:

Hypothesis 1 (H1): *Trend analysis has a significant effect on firm performance*.
Hypothesis 2 (H2): *Data mining has a significant effect on firm performance.*
Hypothesis 3 (H3): *Financial ratios assessment has a significant effect on firm performance.*
Hypothesis 4 (H4): *Reasonableness testing has a significant effect on firm performance.*

Fig. 1 illustrates the research framework employed in this study, which elucidates the research hypotheses regarding the connection between forensic accounting and firm performance.

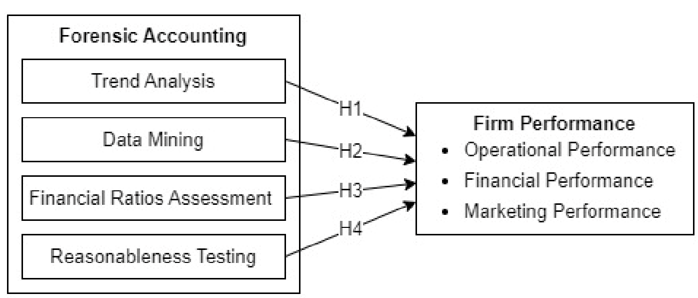

Fig. 1. Research framework.

3. Methodology

3.1 Research design and data collection

The chosen research methodology for this investigation was the cross-sectional design, a deliberate selection made to meticulously explore the interrelation between forensic accounting practices and firm performance within the Jordanian insurance sector. Cross-sectional studies, renowned for providing a snapshot of relationships at a specific point in time, were considered optimal for the research objectives at hand, aligning with established practices in scholarly inquiry (Savitz &

Wellenius, 2023). In implementing this design, primary data acquisition was executed through a meticulously crafted questionnaire, tailored to elicit relevant information pertaining to forensic accounting and its impact on firm performance. This questionnaire was disseminated electronically to a targeted population of 280 professionals, comprising accountants associated with insurance companies. The data collection phase unfolded over a defined timeframe, spanning from June 3, 2023, to July 11, 2023. The utilization of electronic communication channels, such as email, facilitated the prompt and efficient distribution of the questionnaire to the identified participants. The response rate was noteworthy, with 235 completed questionnaires received, signifying an impressive engagement of approximately 83.9%. However, in the meticulous process of data cleansing, 17 responses exhibiting duplicative patterns were identified and subsequently excluded from the analytical dataset. Following the resolution of the duplicate response issue, the final dataset for analysis comprised 218 valid responses. This refined subset, constituting 77.8% of the initially distributed questionnaires, was strategically chosen to ensure the research's analytical robustness and to provide a representative sample conducive to drawing meaningful and statistically significant conclusions. The methodological approach, from research design to data collection, was meticulously structured, reflecting a commitment to a rigorous and scholarly exploration of the nexus between forensic accounting practices and firm performance within the distinct context of the Jordanian insurance sector.

3.2 Measures

The electronic questionnaire utilized in the present research comprised a comprehensive structure, encompassing an introduction elucidating the research objectives and the author's explicit commitment to research ethics. This foundational section served as a preamble to the subsequent segments dedicated to measuring the exogenous and endogenous constructs of the study. The predictor construct of forensic accounting, integral to the research inquiry, was delineated through 18 items, aligning with the work of Ewa (2022). This construct was intricately designed to encapsulate the multifaceted nature of forensic accounting and was organized into four distinct dimensions. Specifically, these dimensions included four items devoted to trend analysis (TA), another four items focusing on data mining (DM), an additional five items centered around financial ratios assessment (FRA), and a further five items dedicated to reasonableness testing (RT). Concomitantly, the predicted construct of firm performance, a pivotal facet of the research framework, comprised 15 items, in harmony with the conceptualization proposed by Aziz et al. (2023). This construct was thoughtfully structured to encompass three discernible dimensions. These dimensions consisted of five items gauging operational performance (OP), another five items evaluating financial performance (FP), and a final set of five items probing marketing performance (MP).

2.4 Analytical approach

This research utilized Structural Equation Modeling (SEM) to investigate the intricate connections between forensic accounting and firm performance. The analysis employed a theoretical model incorporating dimensions of forensic accounting (Trend Analysis, Data Mining, Financial Ratios Assessment, and Reasonableness Testing) and firm performance (Operational, Financial, and Marketing). The measurement model established relationships between latent variables and their indicators, ensuring reliability and validity (Afthanorhan et al., 2020). The structural model explored how forensic accounting dimensions influenced firm performance, estimating parameters using advanced statistical techniques like Maximum Likelihood Estimation. Model fit indices assessed alignment with observed data, while hypothesis testing gauged the significance of relationships (Ju et al., 2022). Post-hoc analyses refined the model, and the interpretation of results considered both statistical and practical significance, offering insights into the nuanced interplay between forensic accounting practices and firm performance in the Jordanian insurance sector.

3. Findings

3.1 Measurement model

Confirmatory Factor Analysis (CFA) is a valuable statistical technique employed in this research to rigorously evaluate the validity and reliability of the latent constructs related to forensic accounting and firm performance. CFA, a subset of structural equation modeling, is particularly apt when researchers have a well-defined theory or prior understanding of the latent constructs and their interrelationships (Al-Hawary & Al-Rasheedy, 2021). It serves the crucial role of assessing whether the observed data align with the theoretical assumptions regarding the latent constructs (Al-halalmeh et al., 2022). The application of CFA in this research involved the examination of the measurement model associated with forensic accounting and firm performance. The objective was to validate the measurement model by assessing how well the observed indicators (items or questions in the questionnaire) reflected the underlying latent constructs. The results of this analysis, providing insights into the validity and reliability of the measurement model, are detailed in Table 1. The findings presented in Table 1 underscore the robustness of the relationship between the observable variables and their corresponding latent constructs, as evidenced by factor loadings ranging from 0.662 to 0.821. These values comfortably surpass the lower limit of 0.50, as advocated by Bader et al. (2022), thereby affirming the appropriateness of the selected indicators in capturing the essence of the latent constructs. Convergent validity, a key criterion for the quality of the measurement model, was unequivocally established through the Average Variance Extracted (AVE) values, all of which exceeded the designated threshold of 0.50 (Rahamneh et al., 2023). This substantiates the notion that the indicators within each construct converge effectively, providing a coherent representation of both forensic accounting and firm performance.

The measurement model further demonstrated discriminant validity, as supported by AVE values surpassing the maximum shared variance (MSV) and the square root values of AVE exceeding the minimum of 0.70. This aligns with the criteria outlined by Al-Rwaidan et al. (2023), confirming that the constructs are distinct and not excessively correlated. Reliability assessment, employing MacDonald's omega coefficients, showcased values ranging from 0.838 to 0.868. These coefficients comfortably exceeded the 0.70 threshold commonly used for composite reliability (Kurdi et al., 2023), reinforcing the internal consistency and dependability of the measurement model.

Table 1
Validity and reliability of the research instrument.

Constructs	Items	Loadings	AVE	MSV	√AVE	CR	VIF
Trend analysis	TA1	0.702	**0.575**	**0.438**	**0.758**	**0.844**	**2.135**
	TA2	0.781					
	TA3	0.755					
	TA4	0.792					
Data Mining	DM1	0.821	**0.565**	**0.443**	**0.752**	**0.838**	**1.887**
	DM2	0.725					
	DM3	0.683					
	DM4	0.771					
Financial Ratios Assessment	FRA1	0.662	**0.544**	**0.407**	**0.737**	**0.856**	**2.067**
	FRA2	0.715					
	FRA3	0.798					
	FRA4	0.741					
	FRA5	0.764					
Reasonableness Testing	RT1	0.733	**0.578**	**0.387**	**0.760**	**0.872**	**2.116**
	RT2	0.717					
	RT3	0.784					
	RT4	0.802					
	RT5	0.761					
Operational Performance	OP1	0.811	**0.569**	**0.415**	**0.755**	**0.868**	**---**
	OP2	0.764					
	OP3	0.715					
	OP4	0.704					
	OP5	0.774					
Financial Performance	FP1	0.735	**0.533**	**0.428**	**0.730**	**0.851**	**---**
	FP2	0.716					
	FP3	0.792					
	FP4	0.681					
	FP5	0.722					
Marketing Performance	MP1	0.739	**0.537**	**0.455**	**0.733**	**0.853**	**---**
	MP2	0.716					
	MP3	0.705					
	MP4	0.778					
	MP5	0.723					

On the other hand, the examination of multicollinearity within the exogenous constructs, specifically the forensic accounting constructs, was conducted through the Variance Inflation Factor (VIF). The results convincingly demonstrated that VIF values were notably lower than the upper limit of 5, as suggested by AL-Zyadat et al. (2022). This implies that the exogenous constructs were free from multicollinearity issues, thereby ensuring the stability and reliability of the relationships modeled in the subsequent structural equation modeling analyses.

3.2 Structural model

Structural Equation Modeling (SEM) as the analytical framework to investigate the impact of forensic accounting constructs on firm performance within the Jordanian insurance sector. SEM is a versatile statistical technique that enables the rigorous testing of hypotheses concerning both direct and indirect effects between latent constructs (Al-Nawafah et al., 2022). This approach provides a comprehensive platform for assessing the relationships postulated in the theoretical model. One of the distinctive features of SEM is its capacity to evaluate the goodness of fit. Different fit indicators are utilized for this purpose, offering insights into how well the proposed model aligns with the empirical evidence (Saraireh et al., 2022). These fit indicators, as depicted in Figure 2, help researchers assess the overall reliability and validity of the structural model.

The results derived from Fig. 2 were subjected to a comprehensive fitness evaluation of the structural model, utilizing several fit indices. The chi-squared test (CMIN/DF) yielded a value of 2.211, falling below the commonly accepted threshold of 3. This indicates a favorable fit, suggesting that the observed data align well with the hypothesized structural model. The Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) both exceeded the lower threshold of 0.90. Specifically, these indices demonstrated values indicative of a robust fit, further supporting the appropriateness of the structural model in explaining the relationships between forensic accounting constructs and firm performance. Additionally, the Root Mean Square Error of Approximation (RMSEA) yielded a value of 0.031, well below the highest accepted value of 0.80. This indicates a close fit between the proposed model and the observed data, reinforcing the model's validity in capturing the complexities of the relationships under investigation (Alkhlifat et al., 2023). Accordingly, the impact coefficients between forensic accounting and company performance were extracted and listed in Table 2.

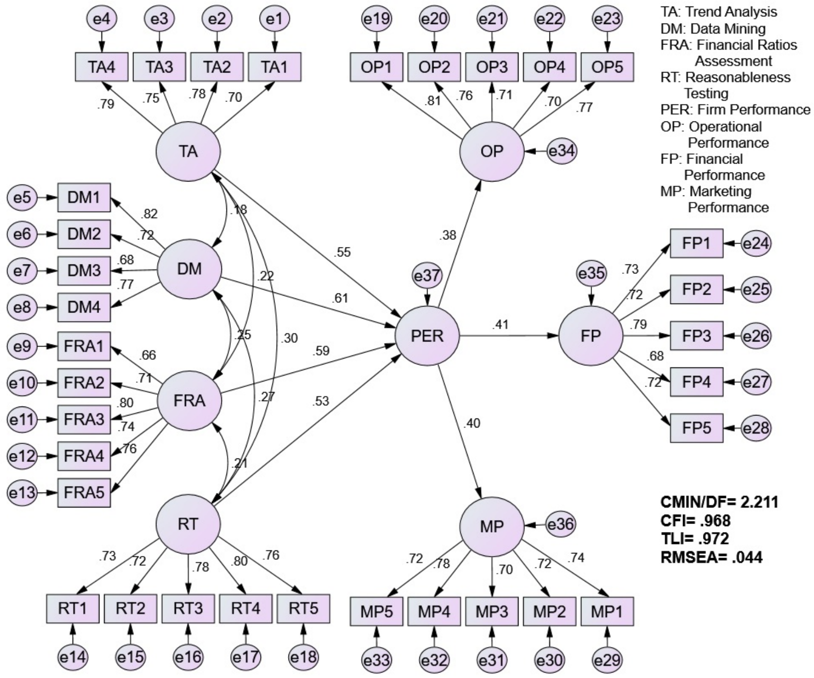

Fig. 2. Structural model.

Table 2
Path coefficients

Hypotheses			B	S.E	Beta	t	p
Trend Analysis	→	Firm Performance	0.560	0.059	0.551	9.49	0.005
Data Mining	→	Firm Performance	0.625	0.058	0.615	10.77	0.000
Financial Ratios Assessment	→	Firm Performance	0.603	0.061	0.588	9.88	0.000
Reasonableness Testing	→	Firm Performance	0.541	0.063	0.528	8.59	0.008

Table 2 provide robust support for the research hypotheses about the impact of forensic accounting constructs, specifically trend analysis, data mining, financial ratios assessment, and reasonableness testing, on financial performance within the Jordanian insurance sector. The impact of data mining emerged as the most substantial, with a path coefficient (β) of 0.625. This indicates a strong positive effect on financial performance, and the statistical significance was pronounced with a t-value of 10.77 ($p < 0.001$). Following closely, financial ratios assessment exhibited a significant impact, with a β of 0.603 and a t-value of 9.88 ($p < 0.001$). Trend analysis, while still demonstrating a substantial effect, had a slightly lower β of 0.560, with a t-value of 9.49 ($p = 0.005$). Finally, reasonableness testing displayed a notable impact, as evidenced by a β of 0.541 and a t-value of 8.59 ($p = 0.008$). These results not only confirm the positive associations between forensic accounting dimensions and financial performance but also unveil the varying degrees of influence each dimension exerts.

4. Discussion

The core objective of this research was to investigate the relationship between forensic accounting and firm performance in the Jordanian insurance sector. The empirical aspect of the research included the insurance companies listed on the Amman Stock Exchange. The results indicated that the dimensions of forensic accounting had a significant positive impact on the firm's performance. Hence, forensic accounting is critical in detecting and preventing fraudulent activity inside insurance companies. Forensic accountants could discover instances of fraud, such as insurance fraud, financial statement manipulation, and money theft, by using forensic techniques such as data analysis, transaction tracing, and internal control evaluations. Elizabeth and Edobor (2019) argued that detecting and avoiding fraud protects insurance businesses' financial integrity, reduces financial losses, and improves overall company performance. According to Ewa (2022), forensic accounting methods increase financial transparency inside insurance companies. Forensic accountants assure the integrity and dependability of financial reporting by performing rigorous and detailed financial assessments. This transparency fosters confidence among stakeholders such as policyholders, shareholders, regulators, and future investors, resulting in improved corporate performance.

Furthermore, forensic accounting assists insurance businesses in meeting regulatory and accounting standards. Forensic accountants are well-versed in Jordan's legal and regulatory frameworks governing the insurance industry. Their knowledge guarantees that insurance businesses follow applicable laws, regulations, and accounting rules, lowering the risk of penalties, legal conflicts, and reputational harm. Compliance with rules improves insurance businesses' general reputation and trustworthiness, which has a beneficial influence on their company performance (Chukwuma et al., 2022). In insurance-related disputes and legal actions, forensic accountants provide invaluable litigation support. They can provide impartial financial analysis, expert views, and facts to assist court arguments as expert witnesses. Their participation increases the company's legal position, enables good outcomes, and lowers financial damages. Rechtman (2020) explained that effective litigation support improves insurance firms' overall performance and reputation.

In conclusion, the positive effect of forensic accounting on the firm performance of Jordan's insurance industry includes fraud detection and prevention, greater financial transparency, regulatory and standard compliance, effective risk management, and useful litigation assistance. Forensic accounting provides for the overall financial health, stability, and performance of Jordanian insurance businesses by assuring financial integrity, transparency, and compliance.

5. Implications

The positive influence of forensic accounting on the firm performance of Jordan's insurance business has various implications. In theory, forensic accounting helps alleviate agency concerns and aligns managers' interests with those of shareholders by discovering and preventing fraud within insurance businesses. This alignment increases corporate governance while also lowering agency expenses and improving business performance. Furthermore, it aligns with the institutional context by fostering financial transparency, regulatory compliance, and ethical norms. This congruence strengthens insurance businesses' credibility and reputation within Jordan's institutional structure, favorably boosting company performance. In the empirical aspect, insurance companies should create a forensic accounting unit or team to focus on fraud detection, prevention, and investigation. This team should include trained forensic accountants with insurance sector experience and an understanding of local rules. Having a specialized staff guarantees that forensic accounting processes are consistently addressed and increases the company's capacity to identify and handle financial anomalies. To avoid fraudulent activity, insurance companies could build and maintain robust internal controls. This involves creating division of roles, evaluating, and monitoring financial procedures on a regular basis, performing surprise audits, and putting in place whistleblower methods. Companies may reduce the occurrence of fraud and improve overall business performance by implementing strong internal controls. Furthermore, they should engage in ongoing staff training programs to raise their workers' awareness and understanding of fraud threats and forensic accounting procedures. Topics covered at training sessions may include spotting red flags, reporting suspicions, and fostering ethical conduct. Raising staff awareness and understanding fosters a culture of fraud prevention and increases the effectiveness of forensic accounting operations.

References

Afthanorhan, A., Awang, Z., & Aimran, N. (2020). An extensive comparison of CB-SEM and PLS-SEM for reliability and validity. *International Journal of Data and Network Science, 4*(4), 357-364.

Ahakhatreh, L.M., & Al-Hawary, S. (2023). Impact of Business Intelligence Capabilities on the Competitive Performance of Islamic Banks in Jordan. *Journal of Hunan University Natural Sciences, 49*(10), 204-217.

Alhalalmeh, M., Alkhawaldah, R. A., Mohammad, A., Al-Quran, A., Hijjawi, G., & Al-Hawary, S. (2022). The effect of selected marketing activities and promotions on the consumers buying behavior. *Business: Theory and Practice, 23*(1), 79-87.

Al-Hawary, S. I. S., & Al-Rasheedy, H. H. (2021). The effect of strategic learning for human resources on dynamic capabilities of airlines companies in Kuwait. *International Journal of Business Information Systems, 37*(4), 421-441.

Alkhlifat, M. A., Al-Nsour, S. N., Aldaihani, F. M. F., Ababneh, R. I., Alkhawaldeh, M. I. G., Alshurideh, M. T., Al-Hawary, S. I. S. (2023). The Impact of Social Media on Purchase Intention at Jordanian Women Clothing Sector. *In The Effect of Information Technology on Business and Marketing Intelligence Systems* (pp. 205-221). Cham: Springer International Publishing.

Almashhadani, M., & Almashhadani, H. A. (2022). Internal mechanisms features, unfavourable behaviour and firm performance. *International Journal of Business and Management Invention, 11*(4), 1-6.

Al-Nawafah, S., Al-Shorman, H., Aityassine, F., Khrisat, F., Hunitie, M., Mohammad, A., & Al-Hawary, S. (2022). The effect of supply chain management through social media on competitiveness of the private hospitals in Jordan. *Uncertain Supply Chain Management, 10*(3), 737-746.

Al-Rwaidan, R., Aldossary, N., Eldahamsheh, M., Al-Azzam, M., Al-Quran, A., & Al-Hawary, S. (2023). The impact of cloud-based solutions on digital transformation of HR practices. *International Journal of Data and Network Science, 7*(1), 83-90.

AL-Zyadat, A., Alsaraireh, J., Al-Husban, D., Al-Shorman, H., Mohammad, A., Alathamneh, F., & Al-Hawary, S. (2022). The effect of industry 4.0 on sustainability of industrial organizations in Jordan. *International Journal of Data and Network Science, 6*(4), 1437-1446.

Aziz, N. A., Long, F., & Wan Hussain, W. M. H. (2023). Examining the Effects of Big Data Analytics Capabilities on Firm Performance in the Malaysian Banking Sector. *International Journal of Financial Studies, 11*(1), 23.

Aziz, S., & Abbas, U. (2019). Effect of debt financing on firm performance: A study on non-financial sector of Pakistan. *Open Journal of Economics and Commerce, 2*(1), 8-15.

Bader, D.M., Aityassine, F., Khalayleh, M., Al- Quran, A. Z., Mohammad, A., Al-Hawary, S.I. & Alkhawaldah, R.A. (2022). The Impact of E-marketing on Marketing Performance as Perceived by Customers in Jordan. *Information science letters, 11*(6), 1897-1903.

Chukwuma, O. V., Ugwu, J. I., & Babalola, D. S. (2022). Application of forensic accounting in predicting the financial performance growth of MTN mobile communication in Nigeria. *Journal of Environmental Science and Economics, 1*(1), 67-76.

Ebaid, I. E. S. (2022). An exploration of accounting students' attitudes toward integrating forensic accounting in accounting education. *International Journal of Law and Management, 64*(4), 337-357.

Elizabeth, O. E., & Edobor, O. N. A. (2019). Effect of Forensic Accounting on the Performance of Nigerian Banking Sector. *International Journal of Academic Management Science Research, 3*(9), 8-13.

Ewa, U. E. (2022). Forensic accounting and fraud management in Nigeria. Journal of Accounting, *Business and Finance Research, 14*(1), 19-29.

Ju, H. B., Jang, B. S., Choi, J., Kim, J., & Jeon, S. B. (2022). Simplified contact-based segment expansion (CBSE) method for assessment of crashworthiness of double-hulled ship structure. *Ships and Offshore Structures, 17*(1), 188-204.

Kaur, B., Sood, K., & Grima, S. (2022). A systematic review on forensic accounting and its contribution towards fraud detection and prevention. *Journal of Financial Regulation and Compliance, 31*(1), 60-95.

Kurdi, B., Alquqa, E., Alzoubi, H., Alshurideh, M., & Al-Hawary, S. (2023). The effect of process quality improvement and lean practices on competitive performance in the UAE healthcare industry. *Uncertain Supply Chain Management, 11*(1), 261-266.

Kyere, M., & Ausloos, M. (2021). Corporate governance and firms financial performance in the United Kingdom. *International Journal of Finance & Economics, 26*(2), 1871-1885.

Nasiru, A., Modibbo, A., & Abdulhadi, N. (2020). Forensic Accounting and Firms Performance of Cement Companies in Nigeria: A Study of Cement Company of Northern Nigeria. *International Journal of Research and Innovation in Social Science, 4*(1), 6-13.

Puni, A., & Anlesinya, A. (2020). Corporate governance mechanisms and firm performance in a developing country. *International Journal of Law and Management, 62*(2), 147-169.

Rahamneh, A., Alrawashdeh, S., Bawaneh, A., Alatyat, Z., Mohammad, A., & Al-Hawary, S. (2023). The effect of digital supply chain on lean manufacturing: A structural equation modelling approach. *Uncertain Supply Chain Management, 11*(1), 391-402.

Rechtman, Y. M. (2020). The past, present, and future of forensic accounting. *The CPA Journal, 90*(3), 10-12.

Rehman, A., & Hashim, F. (2021). Can forensic accounting impact sustainable corporate governance?. *Corporate Governance: The International Journal of Business in Society, 21*(1), 212-227.

Saha, R., Shashi, Cerchione, R., Singh, R., & Dahiya, R. (2020). Effect of ethical leadership and corporate social responsibility on firm performance: A systematic review. *Corporate Social Responsibility and Environmental Management, 27*(2), 409-429.

Saraireh, S., Owais, W., Abbas, N., Matar, G., Aryan, L., ALRahamneh, A., & Al-Hawary, S. (2022). The effect of corporate social responsibility and board diversity on earnings management: Evidence from Jordanian listed firms. *Uncertain Supply Chain Management, 10*(4), 1253-1260.

Savitz, D. A., & Wellenius, G. A. (2023). Can cross-sectional studies contribute to causal inference? It depends. *American Journal of Epidemiology, 192*(4), 514-516.

Shen, H., Fu, M., Pan, H., Yu, Z., & Chen, Y. (2020). The impact of the COVID-19 pandemic on firm performance. *Emerging Markets Finance and Trade, 56*(10), 2213-2230.

Taouab, O., & Issor, Z. (2019). Firm performance: Definition and measurement models. *European Scientific Journal. 15*(1), 93-106.

Um, K. H., & Kim, S. M. (2019). The effects of supply chain collaboration on performance and transaction cost advantage: The moderation and nonlinear effects of governance mechanisms. *International Journal of Production Economics 217*, 97-111.