Evaluating Blockchain's Impact on Financial Reporting: Opportunities and Threats in Fintech's Input, Processing, and Output Phases

Abstract

Purpose:

The current study investigates the effects of opportunities and threats of using blockchain on the input, processing, and output components of the financial reporting process within the fintech landscape.

Methodology:

This study administered a questionnaire in Iran to 121 university lecturers in accounting and auditing, independent auditors, financial managers, and internal auditors to better understand the effect of blockchain on financial reporting. The responses were analysed using SPSS and Smart PLS Software.

Findings:

This study demonstrates how blockchain technology can improve the financial reporting process in the fintech industry by providing opportunities for remote labour, improved accountant roles, and task automation. Threats include the requirements for blockchain expertise, standardisation, security issues, and decreased flexibility. Limited R&D resources pose problems for small businesses. The main advantages of outputs are continuous, timely financial reporting and comparability; the risks associated with customised reports and regulatory difficulties in managing non-financial and financial data are the main disadvantages. The results show that all indicators of opportunities to use blockchain positively and significantly affect financial reporting opportunities within the fintech context. In addition, all the indicators of the threats of using blockchain have a positive and significant effect on the threats of financial reporting in the fintech context.

Originality:

The present study is designed to meet the needs of a blockchain-based financial reporting system in the fintech context. Rapid growth and transformation into an advanced digital system has increased the importance of understanding the effects of the opportunities and threats of applying blockchain technology.

Keywords: blockchain, fintech, financial reporting process

1. Introduction

Blockchain technology has emerged as a key component driving innovation in the fintech sector, enabling secure and efficient transactions (Domashenko et al., 2023). Fintech, the fusion of digital innovations and traditional financial services, has revolutionised transactions, financial services, and financial information management (Sandhu et al., 2023). Financial reporting, which is the central pillar of transparency and accountability in the financial world, is not immune to these developments (Domashenko et al. 2023). Fintech has emerged as a transformative force in the financial services industry, fundamentally altering traditional financial reporting practices (Harsono & Suprapti, 2024). The rise of these technologies, particularly in the past decade, has led to significant changes in the collection, processing, and analysis of financial data. These advancements not only enhance the accuracy and speed of financial reporting but also increase the transparency and reliability of financial information (Kumari and Devi,2022).

Financial reporting plays a crucial role in promoting efficient capital distribution and in improving investment decisions (Shahzad et al. 2019). Corporate financial statements are essential for planning, controlling, decision-making, and promoting company welfare (Collis & Jarvis, 2002). They provide vital information for investors and economists to assess their companies and economic health (Arens et al. 2012). High-quality financial reporting is fundamental to strong capital markets and sustainable economic growth (International Federation of Accountants, 2011). The financial reporting supply chain, involving third parties and processes in preparing, approving, auditing, analysing, and using financial reports, is crucial for increasing report reliability, comprehensibility, and relevance (International Federation of Accountants, 2009). To achieve high-quality financial reporting, all parts of the supply chain must maintain high quality (IAASB, 2014).

Manual methods in financial reporting have limitations, such as errors, lengthy report preparation, lack of fast and quality services, reliability issues, and disconnection from regulatory bodies (Sina et al., 2021). The next two decades are expected to see significant changes in financial reporting owing to the adoption of big data, blockchain technology, artificial intelligence, and machine learning (Ahmad et al., 2024).

Blockchain technology offers exciting features for both producers and users of financial reports, and may become a critical infrastructure element in the reliability and flexibility of accounting and

32 reporting information (Smith, 2020). Blockchain can improve the reliability and integrity of
33 financial information at the entry level, and it is highly likely that many accounting activities
34 (bookkeeping, budgeting, reconciliation, etc.) will be reduced or eliminated through automation.
35 (Roszkowska, 2021). The decentralised database provides detailed analyses and continuous
36 information flow, allowing fraud control and budgeting in accounting, thereby increasing
37 transparency and trust among shareholders (Secinaro et al. 2022). Blockchain-based accounting
38 systems can allow real-time financial statement adjustments, eliminating reliance on quarterly
39 reports and addressing the time gap issue in current accounting systems (Yermack, 2017). Despite
40 these challenges, blockchain's potential in accounting and continuous reporting is significant, with
41 concepts such as distributed accounting records and three-way accounting methods gaining
42 traction (Bonsón & Bednárová, 2019). Blockchain can address current accounting challenges by
43 shifting to multiparty transaction validation, increasing trust, and making it suitable for digital
44 corporate reporting (Han et al., 2023).

45 However, existing literature, including a bibliometric study by Sina et al. (2021), Abu Huson
46 (2024), and Rabbani (2024) explored blockchain applications in accounting, auditing, and
47 accountability, and no study has investigated the financial reporting process in terms of input,
48 processing, and output factors in a blockchain environment. This study examines the effects of
49 blockchain technology on the threats and opportunities in these aspects of financial reporting. This
50 study explores how blockchain affects the variables involved in the financial reporting process by
51 identifying both opportunities and threats. The study is organised into sections covering theoretical
52 foundations and literature review, research methodology, findings, discussion, conclusions, and
53 practical suggestions.

54

55 **2. Theoretical principles and review of related literature**

56 *2.1. Financial technology*

57 The term "fintech" emerged in the early 1990s when banks began proposing projects aimed at
58 using technological tools to streamline banking services. Originally, fintech referred to the
59 operational technology of financial institutions, but its scope was later expanded to encompass
60 initiatives in financial literacy and digital currencies (Schueffel, 2016). Currently, fintech is being
61 widely integrated into the operations of nearly all financial institutions. Moreover, it has become
62 a dependable tool that small- and medium-sized businesses utilise for transactions and asset

management (Jalal et al., 2023). Fintech has the potential to affect the quality of companies' financial reporting through the dissemination of information. Embracing fintech innovations allows more efficient access to information from diverse sources, thus improving the overall quantity and quality of information available to financial markets. By reducing information friction through fintech, external observers can acquire broader and superior knowledge, managerial incentives, or capabilities for corporate misconduct, and opportunistic financial reporting can be mitigated (Wen et al., 2023). Fintech has transformed the financial services industry, leveraging innovative technologies such as blockchain, digital currencies, XBRL, artificial intelligence, and robotics advisors. These emerging financial technologies play a vital role in restructuring and enhancing the efficiency and quality of financial services by minimising human errors and processing time (Mosteanu and Faccia, 2020).

2.2. Blockchain

A blockchain is a decentralised records database or a public ledger of digital transactions and events shared among participating parties. Most participants in the system confirm each transaction in the ledger (Crosby et al. 2016). According to Swan (2015), blockchain is a large spreadsheet that records all assets and functions as a global-scale accounting system for all types of assets belonging to parties worldwide. The practical implementation of this technology was initiated by an anonymous person or entity using the pseudonym Satoshi Nakamoto in 2009, with the launch of Bitcoin as the first electronic cash system using blockchain for transaction tracking and verification, as detailed in the article "Bitcoin: A Peer-to-Peer Electronic Cash System."

Blockchain technology has evolved since then, leading to the development of more advanced applications beyond Bitcoin. The versions of blockchain are categorised into three types, with version 2 focusing on the use of blockchain in companies. Blockchain version 2 involves a layer of complex smart contracts that extend beyond the currency, representing shares of stocks, bonds, options, mortgages, and digital assets. While blockchain type 1 signifies the decentralisation of money, blockchain type 2 aims to decentralise markets, encompassing technologies that decentralise the relationships of various parties, such as clearing houses, banks, and companies (Swan, 2015). Various applications, including peer-to-peer lending services, crowdfunding platforms, Bitcoin prediction markets, and smart assets fall under this concept. The second version of the blockchain introduced a new smart contract application to expand transactions from simple digital currencies to a wide array of products. These blockchain-based smart contracts are

94   computer programs that operate on the blockchain platform and automatically fulfil, obligate, and

95   implement the terms and conditions set in the contract (Dai and Vasarhelyi, 2017).

96

97   *2.3. The use of blockchain in the financial reporting process in the fintech context*

98   The Financial Accounting Standard Board (2008) stresses the importance of financial reporting in

99   the Statement of Financial Accounting Concepts No. 1, which emphasizes that "financial reporting

100   should provide information that is beneficial to current and potential investors and creditors as

101   well as other users." This aids in making informed investments, credit, and similar decisions.

102   Unbiased financial reporting is crucial for financial markets, and regulatory bodies such as the

103   Public Company Accounting Oversight Board are continuously seeking ways to enhance the

104   efficiency of financial reporting. Providing financial information and data to users is a fundamental

105   role and service offered by accountants. Blockchain technology transforms how data are reported

106   through various stages of programs and projects. Because the information and data stored in the

107   blockchain are updated when added to existing blocks, they are consistently distributed among the

108   network members (Smith, 2020). Blockchain technology in accounting is used to identify the

109   transfer of asset ownership and maintain a ledger of financial information. As the transparency of

110   financial information is essential for ensuring accounting activities, this technology assists in

111   reducing the costs of maintaining offices and ensuring the history of assets. Blockchain reduces

112   office maintenance costs by efficiently allocating financial resources (Yeoh, 2017). Blockchain has

113   expanded the scope of accounting as it helps eliminate waste (Ducas and Wilner, 2017). Encrypted

114   blockchain processes enable the immutability and irreversibility of data and enhance the

115   transparency of ledger systems, thereby promoting a sturdy control environment and facilitating

116   the provision of real-time financial reports (Deloitte, 2020). Because the information stored in the

117   blockchain has been verified, encrypted, and exchanged between the involved parties, analysis and

118   reporting can be continuous, not just periodic. In addition to the ongoing potential provided by

119   technology, errors can be resolved before they become significant or pose a threat to the

120   organisation. Another outcome of the implementation and extensive development of blockchain,

121   from reporting to various types of information, is companies' ability to report comprehensive

122   information (Smith, 2020). The decentralised and transparent nature of blockchain presents

123   opportunities to enhance the efficiency, transparency, and security of financial reporting.

124   Blockchain has the potential to revolutionise traditional accounting practices and reduce fraud risk

125 by eliminating the need for intermediaries and introducing a distributed ledger system (Chowdhury
126 et al. 2023).

127 The financial reporting paradigm still requires incorporation into the digital business world
128 through the utilisation of new technologies as part of a shift in methods, despite technological
129 advancements in the past decade (Rahman and Ziru, 2023). Therefore, it is imperative to explore
130 the impact of blockchain on the financial reporting process within the fintech context. This study
131 introduces a theoretical framework for financial reporting in the blockchain environment to
132 identify the factors involved in the financial reporting process within the blockchain environment.
133 Previous studies have indicated that the use of blockchain technology can lead to a reduction in
134 transaction costs, enhanced efficiency and security of financial transactions, substitution of some
135 accounting responsibilities with blockchain technology, and a more strategic role for accounting
136 professionals in the context of financial reporting (Kotishwar, 2020; CGMA, 2018). Qin (2022)
137 demonstrated that distributed ledger and timestamp technologies can effectively enhance
138 accounting procedures and resolve traditional accounting issues that are both time-consuming and
139 susceptible to manipulation. Digital signature technology, timestamps, and real-time data transfer
140 technology can enhance a company's timeliness, security, and reliability. Innovative contract
141 technology can automatically complete and record inter-company transaction procedures in real-
142 time, thereby digitising financial data and achieving the goal of enterprise economic integration.
143 Rashid (2023) elucidated the fundamental principles of blockchain, emphasizing its decentralized,
144 transparent, and immutable nature. Additionally, it explores how these characteristics can bolster
145 the reliability and integrity of financial information and foster trust among stakeholders. Serag
146 (2022) asserts that blockchain can herald the next phase in digital accounting and, owing to its
147 characteristics and benefits such as post-validation, verification of financial and non-financial
148 information, and time-saving capabilities, plays a pivotal role in the quality of financial reports. A
149 key distinguishing feature of blockchain technology is its ability to verify without reliance on a
150 trusted third party. Wu et al. (2019) demonstrate that blockchain technology can significantly
151 enhance communication, impartial presentation, timeliness, comparability, and other qualitative
152 aspects of accounting information. The decentralised blockchain platform, which has already been
153 applied in other financial and commercial domains, including digital currencies, is harnessed in
154 financial reporting to reduce errors and enhance the quality of reports. Blockchain provides
155 privacy, security, transparency, and anonymity using protocols and cryptographic techniques.

156 Nevertheless, these benefits also present a list of challenges and limitations that need to be explored

157 (Fernandez-Vazquez et al. 2019). A review of the thematic literature in this area as well as the

158 bibliometric study of Sina et al. (2021), Abu Huson (2024) and Rabbani (2024) in the field of

159 blockchain application in accounting, auditing, and accountability, suggests that to date, research

160 has not sufficiently explored the opportunities and constraints of blockchain on the financial

161 reporting process within the fintech context. This study aims to investigate the effects of

162 opportunities and threats of using blockchain on the input, processing, and output components of

163 the financial reporting process within the fintech landscape. Consequently, we endeavoured to

164 answer the following questions regarding financial reporting in the blockchain environment: What

165 opportunities does blockchain present for the financial reporting process? What threats do

166 blockchains pose to the financial reporting process?

167

168 **3. Research methodology**

169 In the first stage, data related to the theoretical part of this research were collected using the library

170 method and data collection. The variables involved in the research topic were extracted by studying

171 the research literature and by using interviews with experts, the factors were extracted. After the

172 ethics approval, the second stage involved a survey of the statistical population using a

173 questionnaire (Appendix A). The opinions of experienced and knowledgeable professors were

174 used to measure the questionnaire's validity. The sample includes university lecturers in

175 accounting and auditing, independent auditors, financial managers, and internal auditors in Iran.

176 Cochran's formula is useful in determining the sample size for statistical analysis. Based on

177 Cochran's formula, the sample size reached 92, and a questionnaire was distributed via an online

178 survey and in-person interviews using a simple random sampling method. Ultimately, 121

179 completed questionnaires were included in data analysis.

180 The first part of the questionnaire, with five questions, comprised the general information in the

181 questionnaire. It includes gender, education level, age, field of study, and employment history. The

182 second part includes 52 specialised questions, 32 of which are about the opportunities for using

183 blockchain in the financial reporting process and 21 questions about the threats of using blockchain

184 in the financial reporting process, as shown in Table 1. Each question was rated on a five-choice

185 scale. Table 1 shows the components of the opportunities and threats of the audit process inputs,

186 processing, and outputs, which include 52 components.

187 **Insert Table 1 here**

188 The data collected through the questionnaire were analysed to determine the research model and

189 to discover the relationship between the variables and research questions. For data analysis, the

190 collected data were first entered into Excel and then analysed using SPSS and SmartPLS. In this

191 section, descriptive statistics are first presented and the frequency of the data is discussed. The

192 following research questions were analysed using different statistical methods; the basis for

193 inferring the significance levels was the standard.

194

195 **4. Research findings**

196 In the designed questionnaire, the first five questions were about the participants' demographic

197 information, and Table 2 shows the frequency of demographic data. One hundred twenty-one

198 participants completed the questionnaire. Most respondents were men, and most were between 30

199 and 39 years old with a working experience of 11–20 years. Most were accounting and auditing

200 graduates with a master's degree. The other demographic information is shown in Table 2.

201 **Insert Table 2 here**

202 The questionnaire consists of two main sections: demographic sections and the effects of

203 blockchain on the financial reporting process in the fintech context. The effects of blockchain on

204 financial reporting have 52 questions and include three parts: input, processing, and output, each

205 divided into opportunity and threat.

206 The validity of the questionnaire was assessed by examining its content and structure. Construct

207 validity was evaluated using the average variance index and the Fornell-Larcker test. Table 3

208 indicates that the average variance extracted for each model dimension exceeded 0.5, confirming

209 the convergent validity of the model. The AVE value for the model's variables in Table 3 is also

210 greater than 0.5, indicating that the convergent validity of the measurement model was assessed

211 using the cross-validation community index.

212 **Insert Table 3 here**

213 Goodness-of-fit indices were used to assess the fit of the hypothetical model with the observed

214 data. The goodness-of-fit indices for the measurement models are presented in Table 4, concluding

215 that the model fit is appropriate for the data and that the results can be trusted.

216 **Insert Table 4 here**

217 Table 5 displays the components and number of questions in each component, with each
218 component obtained through averaging. Additionally, Table 5 presents Cronbach's alpha for each
219 part of the questionnaire, indicating that the questionnaire possessed a sound internal structure, as
220 Cronbach's alpha ranged from 0.731 to 0.941.

221 **Insert Table 5 here**

222 **Insert Table 6 here**

223 Table 6 presents descriptive statistics for each variable. The total number of participants included
224 in the study was 121. Since each of these variables has several questions, the hidden variables were
225 obtained by averaging the received answers to get the hidden variables of the research. In addition,
226 the variable of financial reporting opportunities was calculated by averaging the sub-indices of
227 blockchain opportunities, and the variable of financial reporting threats was calculated by
228 averaging the sub-indices of blockchain threats.

229 **Insert Table 7 here**

230 A t-test was used to make the comparison of averages more justified and reliable; since the third
231 option, "I have no idea", has been defined, the hypothesis of comparing the average effect with a
232 3 and less has been tested according to the arrangement of the answers. According to the t-test
233 results in Table 7, the null hypothesis of equality is less than 3 for all opportunities and threats of
234 the financial reporting process, which is rejected at a confidence level of 99%. In addition, this
235 hypothesis was rejected for the input, processing, and output components at the 99% confidence
236 level. Therefore, as mentioned, the participants in the questionnaire agreed with the effect of
237 blockchain on the financial reporting process in the fintech context.

238 In Figure (1), the output and the effect of the hidden and apparent variables of the questionnaire
239 are drawn according to the previous results to show the effect of blockchain technology on the
240 opportunities and threats of the financial reporting process in the fintech context. As shown in
241 Figure 1, the opportunities and threats of using blockchain technology positively affect the
242 financial reporting process. In this research, the opportunities financial reporting process (OFRP)
243 is considered as the independent variable, and their relationship with opportunities financial input
244 (OFI), opportunities financial processing (OFP), and opportunities financial output (OFO) as
245 dependent variables are examined. Similarly, threats to the financial reporting process (TFRP) are
246 defined as the independent variables, and their relationship with threats to financial input (TFI),

247   threats to financial processing (TFP), and threats to financial output (TFO) as dependent variables

248   are analysed.

249   <center>**Insert Figure 1 here**</center>

250   In the following, an analysis of covariance is performed using the Mancova; to use this method,

251   the normality of the distribution of the variables was checked using the Kolmogorov-Smirnov test.

252   According to the results, all the variables had a normal distribution. Considering the establishment

253   of the presuppositions mentioned above, the necessary conditions for using covariance analysis in

254   the current study are available to investigate the impact of blockchain on the financial reporting

255   process in the fintech context. The results of the one-way covariance tests are presented in Table

256   8. Table 9 presents the results of the intergroup effects test.

257

258   <center>**Insert Table 8 here**</center>

259   <center>**Insert Table 9 here**</center>

260   The correlation test results show that the F-value at the 99% level is significant for the impact of

261   blockchain technology on the financial reporting process (i.e. opportunities and threats).

262   Subsequently, ordinary least squares (OLS) regression is used to investigate the effect of

263   blockchain on financial reporting threats and opportunities. In Table 10, the fitting results are

264   shown by the principal components, and the first model (FRPO Model) shows the effect of

265   blockchain technology on input opportunities, processing, outputs, and control variables in

266   financial reporting opportunities. All three components–input, processing, and output

267   opportunities–positively and significantly affect financial reporting opportunities. Meanwhile, the

268   effect of output opportunities was greater than that of processing opportunities, and processing

269   opportunities were greater than input opportunities.

270   In the second model (TFRP Model), the effects of threats of inputs, processing, and outputs, as

271   well as control variables on threats of financial reporting using blockchain technology are shown.

272   All three components–input, processing, and output threats–positively and significantly affect

273   financial reporting threats. Meanwhile, the impact of input threats is greater than that of processing

274   threats, and processing threats are more significant than output threats. In addition, educated

275   participants evaluated financial reporting threats more than others.

276   <center>**Insert Table 10 here**</center>

277

278

4.2 Discussion

The possibility of working remotely, cooperating with technology companies, and changing the role of accountants to work with more added value are among the opportunities enabled by blockchain in the inputs of the financial reporting process, particularly within the fintech industry. As a cornerstone of fintech innovation, blockchain technology facilitates decentralisation in accounting and financial reporting processes, allowing accountants and other financial professionals to work remotely. This finding can increase efficiency, reduce costs, and access top talent worldwide, which is consistent with Weerawarna et al. (2023) and Abhishek et al. (2024). Danach et al.'s (2024) discussion on the opportunity to cooperate with technology companies is consistent with the results of this research. Collaboration with leading fintech and blockchain technology companies can help firms upgrade their IT infrastructure, develop new applications, and gain access to the expertise and knowledge needed to use blockchain in financial reporting processes. Another opportunity blockchain technology created is changing accountants' role towards more value-added work, which Sheela et al. (2023) discussed. By automating basic accounting and financial reporting tasks using blockchain, financial professionals in the fintech industry can spend time on more value-added activities, such as financial analysis, consulting, and financial strategy.

The use of blockchain in the financial reporting process for the input of this process brings challenges, such as increased costs, including employee training and software updates, and the need to change accounting standards in line with the conditions of the blockchain environment. Implementing blockchain technology in financial reporting requires training employees on new concepts and technologies and how to use blockchain-based tools, which can entail significant costs, especially if employees require comprehensive and specialised training. In addition to training costs, companies must also consider the costs of updating existing software and purchasing new blockchain-based software. These challenges are critical in the fintech industry, where rapid technological advancements and the need for seamless integration define a competitive landscape. Fintech firms must balance these costs with the benefits of innovation to ensure sustainable implementation. This conclusion is consistent with the findings of Riedel (2024), Anis (2023) and Baiod and Hussain (2024).

308   Among the opportunities for financial reporting processing, the most agreed upon are increasing

309   flexibility in working hours and the early detection of fraud and mistakes. Blockchain automation

310   allows real-time access to financial information, enabling employees, managers, and various

311   stakeholders to retrieve and analyse data anytime and anywhere. This feature enhances operational

312   agility in the fintech industry, allowing firms to provide uninterrupted services that meet global

313   demand. Sheela et al. (2023) showed that blockchain can increase time flexibility in financial

314   reporting by allowing transactions to be performed at any time and place. Moreover, the

315   immutability of blockchain aligns with fintech's core objective of delivering secure and reliable

316   solutions. This immutability significantly reduces fraud and manipulation risk by creating a

317   transparent record of financial transactions. Increasing transparency in the financial processing

318   process using blockchain enables various stakeholders to monitor financial activities, quickly

319   identify anomalies, and detect suspicious activities, which is a critical advantage in fintech fraud

320   prevention strategies. The ability to trace transactions in the blockchain also supports regulators

321   and compliance teams in investigating fraud and financial mistakes, which is consistent with the

322   findings of Almadany and Khair (2023) and Kolisnyk et al. (2023).

323

324   Reducing the flexibility of the financial reporting process owing to systematic blockchain

325   protocols and security concerns, including the possibility of a virus attack or hacking, is one of the

326   challenges of using blockchain in the processing stage of the financial reporting process. Although

327   blockchain enhances security and transparency, its immutable nature and reliance on digital

328   infrastructure can present challenges for fintech companies seeking adaptable and user-friendly

329   solutions. Security remains one of the most critical concerns when implementing blockchain

330   technology in fintech. To mitigate risks, firms must adopt strong encryption, strict access controls,

331   and regular employee training to safeguard financial information against cyber-attacks, human

332   errors, and other vulnerabilities. These measures align with FinTech's ongoing commitment to

333   leveraging cutting-edge technologies, while maintaining robust security standards. Sheela et al.

334   (2023) also highlighted that blockchain, like any IT-based system, remains susceptible to

335   cybersecurity threats, necessitating continuous updates and innovations in fintech security

336   frameworks.

337   Increasing user trust in the quality of financial reports, the possibility of providing financial and

338   non-financial information, the availability of reliable and timely information stored in the

blockchain for analysis, and improving information integrity are among the opportunities created by the blockchain for output. Trust in the quality of financial reports is crucial for various users such as investors, creditors, and regulators. In the fintech context, blockchain's ability to provide transparency, traceability, and error reduction strengthens the credibility and usability of financial reports. This finding is consistent with those reported by Dashkevich et al. (2024) and Sarram et al. (2024). Furthermore, blockchain supports the integration of non-financial data such as sustainability metrics and supply chain information, which are increasingly relevant in fintech's drive to offer holistic financial solutions. This capability enables fintech firms to cater to diverse stakeholder demands, as Müller and Fischer (2024) highlight. Additionally, blockchain technology improves the efficiency of financial analysis by ensuring timely, accurate, and valid information, thus enabling better financial decisions. Ahmad et al. (2024) show that blockchain supports more precise and up-to-date financial reporting, which is critical in the fast-paced environment of fintech. Blockchain fosters greater transparency and accountability by enhancing the integrity of financial information through reliable records, as supported by Ajayi-Nifise et al. (2024).

The most critical challenge regarding financial reporting output is the increasing complexity of meeting diverse user needs with targeted financial reports. In the fintech industry, this challenge requires balancing customisation with standardisation to ensure that financial reports meet the needs of various users, while maintaining efficiency. This challenge is reflected in the findings of Sheela et al. (2023).

5. Conclusion

Blockchain technology is an emerging technology that has attracted the attention of experts and researchers owing to its security, speed, transaction tracking, and other features. Blockchain technology is currently one of the most vital technologies that can change and revolutionise the recording of events and reports. Finance and the interactions of companies with each other are among the most critical advantages of blockchain technology, which is a decentralised technology in front of centralised networks and the exchange of transactions without dependence on a third party. In addition, this network provides data completeness, that is, data correctness, accuracy, authenticity, and validity. The present study is designed to meet the needs of a blockchain-based financial reporting system in the fintech context. The rapid growth and transformation of traditional financial reporting and auditing systems into advanced digital systems have increased

369 the importance of understanding blockchain technology. This study investigated the effects of
370 opportunities and threats of using blockchain on financial reporting in the fintech context.

371 Research indicates that blockchain technology positively influences the financial reporting
372 mechanism within the fintech sector, presenting substantial opportunities and risks throughout the
373 input, processing, and output phases. In the realm of inputs, significant opportunities encompass
374 the automation of tasks, the reallocation of accountants' responsibilities towards higher-value
375 functions, and the attraction of highly skilled professionals. Conversely, notable threats pertain to
376 the imperative of comprehending blockchain technology and smart contracts, the necessity of
377 modifying accounting standards, and the ongoing requirement for knowledge enhancement.
378 Advantages such as remote working arrangements, partnerships with technology firms, and
379 temporal flexibility are widely acknowledged in terms of processing. By contrast, reducing costs,
380 reconciling expectation discrepancies, and assessing internal controls received comparatively less
381 consensus. Threats are characterised by risks associated with unauthorised access, security
382 vulnerabilities (e.g. hacking incidents), and diminished flexibility stemming from more stringent
383 systems. Smaller enterprises encounter obstacles because of restricted resources allocated to
384 research and development.

385 Concerning outputs, the most broadly accepted opportunities include the continuous and punctual
386 provision of comprehensive financial data, alongside improved comparability with the financial
387 statements of other organisations. Nevertheless, there is less consensus regarding reducing
388 distortions, the dual provision of financial and non-financial information, and enhancing integrity.
389 The most significant threat associated with outputs is the risk of customising reports for diverse
390 user requirements. In contrast, the least concerning threat pertains to the challenges faced by
391 regulatory bodies in formulating classifications that adequately encompass both the financial and
392 non-financial dimensions.

393 This study's findings have several significant implications. Blockchain revolutionises the
394 accounting sector by automating chores, freeing companies to hire top personnel, and focusing on
395 strategic decision-making. To be competitive, accountants must keep up with the latest
396 developments in blockchain and smart contract technology. Therefore, development of ongoing
397 skills is crucial. The blockchain's potential for remote cooperation is undermined by security
398 issues, which means that businesses need to put strong security in place for their financial data.
399 Small accounting businesses may find it challenging to implement blockchain because of their

400   limited resources, which could widen the innovation gap with larger companies. Regulators must

401   navigate the complexities of blockchain technology to ensure transparency and prevent financial

402   reporting containing false information.

403   This study had several limitations stemming from the nascent nature of blockchain technology and

404   the characteristics of the study population. Due to the novelty and specialised nature of the subject,

405   a portion of the population lacked a comprehensive understanding of the field. Moreover, the legal,

406   cultural, and institutional differences between Iran and other countries that may influence the

407   adoption and implementation of blockchain have limited the comparability and generalisability of

408   the findings. The evolving and emerging nature of blockchain has also posed challenges to

409   developing a comprehensive understanding of its opportunities and threats. Consequently, future

410   research should focus on expanding the sample size and conducting a more comprehensive

411   analysis of Iran's environmental and institutional differences, to provide a deeper understanding of

412   this technology.

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Appendix A

Evaluating Blockchain's Impact on Financial Reporting: Opportunities and Threats in Fintech's Input, Processing, and Output Phases

Dear Participants,

We appreciate your involvement in this survey. Here are the key details regarding this research:

Purpose: This study investigates how various factors, particularly technology and reporting methods, influence companies' financial reporting. We are examining financial reporting in a blockchain environment, focusing on input, processing, and output factors. As an expert in this field, we kindly request 15 to 20 minutes of your time to answer the following questions, which will help us achieve our research objectives.

Privacy: Your responses will be securely stored and treated with the utmost confidentiality. The research team will not share your information with any third parties. For publication purposes, the research findings will be anonymised and presented in summary form.

Optional participation: Your involvement in this survey is entirely voluntary, and you may withdraw at any point without any repercussions. By continuing with the survey, you are consenting to participate.

Ethical clearance: The Ferdowsi University of Mashhad Research Ethics Committee has officially reviewed and approved this study's purpose, ensuring that all ethical standards are met for research involving human participants.

Contact information: If you have any questions or concerns, please feel free to contact:

Email: *pourrabbi@pnu.ac.ir*

We once again thank you for the time and contribution to this research.

Sincerely

Mir Vahid Pourrabbi

A) Respondent Profile

a) Education Level: 1) Less than Bachelor's   2) Bachelor's   3) Master's   4) Doctorate

b) Age: 1) 29-0years   2) 30-39 years   3) 40-59 years   4) 60 years or older

c) Job Title: 1) University Lecturer   2) Independent Auditor   3) Internal Auditor   4) Finance Manager   5) Other: ....

d) Field of Study: 1) Accounting and Auditing   2) Financial Management   3) Other

e) Years of Experience: 1) Less than 5 years   2) 5-10 years   3) 10-20 years   4) More than 20 years

B) The Impact of Blockchain on the Financial Reporting Process

No.	Description	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Inputs of the financial reporting process						
Opportunities:						
1	Skills need to be developed in areas where automation is challenging.					
2	The role of accountants has shifted towards higher value-added tasks such as consulting and financial analysis.					
3	If accounting standards change, it is possible to implement them immediately in the blockchain environment.					
4	Blockchain will provide greater job stability and higher wages for accountants with advanced technical knowledge.					
5	The recruitment of talented accounting professionals will increase in the blockchain environment.					
Inputs of the financial reporting process						
Threats:						
6	Accountants need to be familiar with blockchain technology and smart contracts.					

7	There will be resistance to change among accountants.					
8	Blockchain will alter the needs of financial information users.					
9	Rapid changes in blockchain and smart contracts require continuous learning efforts.					
10	In the blockchain environment, anxiety and fear of losing the social aspect of work will increase.					
11	There is uncertainty about the future of the accounting profession in the blockchain environment.					
12	Costs such as employee training and software updates will increase in the blockchain environment.					
13	There is a need to change accounting standards to align with the blockchain environment.					
process of the financial reporting process						
Opportunities:						
14	The use of blockchain helps in the comprehensive evaluation of internal controls over financial reporting and the preparation of periodic reports including key observations.					
15	The use of blockchain facilitates remote work opportunities.					
16	The use of blockchain increases flexibility in working hours.					
17	The use of blockchain enables better workload distribution.					
18	Blockchain saves costs in the financial reporting process.					
19	Blockchain leads to collaboration with technology companies.					
20	Blockchain enhances the productivity of accounting services.					
21	Utilizing financial and non-financial data and big data analysis in auditing helps reduce the expectation gap.					

22	Applying blockchain in internal auditing aids in properly analysing and logically interpreting collected data.					
23	Blockchain enables early detection of fraud and errors.					

process of the financial reporting process

Threats:

24	Small accounting firms, lacking resources for research and development, may struggle to operate.					
25	Blockchain reduces the revenue of accounting firms.					
26	The blockchain environment reduces the segregation of duties.					
27	Blockchain decreases the flexibility of the financial reporting process due to more systematic processes.					
28	In the blockchain environment, accessing information with someone else's key is risky.					
29	In the blockchain environment, there is a risk of accidental and intentional entry of incorrect data.					
30	In the blockchain environment, security concerns such as the risk of virus attacks or hacking exist.					

outputs of the financial reporting process

Opportunities:

31	Using blockchain in accounting ensures that financial reports are free from distortions and misstatements.					
32	Using blockchain increases users' trust in the quality of financial reports.					
33	Using blockchain leads to the comprehensive and continuous disclosure of information in financial reports.					
34	Using blockchain enhances the impartiality of the information in financial reporting.					
35	Implementing blockchain helps users of financial statements predict economic events more effectively.					

36	Using blockchain provides timely information for economic decision-making for users of financial reports.					
37	Blockchain aids in users' decision-making in financial reporting.					
38	With blockchain, it is possible to provide both financial and non-financial information to users.					
39	Implementing blockchain helps verify the accuracy of information in financial reporting.					
40	Reliable and timely information stored on blockchain can be used for analysis.					
41	Using blockchain improves the integrity of information.					
42	Blockchain enhances real-time data availability, predictability, and planning.					
43	Blockchain reduces the time required for financial reporting due to smoother information flows.					
44	Blockchain increases the comparability of reports with the financial statements of other companies.					
45	Blockchain enhances credibility and reduces errors in financial reports.					
46	Blockchain facilitates the traceability of accounting data.					
outputs of the financial reporting process						
Threats:						
47	In the blockchain environment, challenges arise in implementing new reporting requirements and costs for reorganizing financial reports.					
48	The expectation to provide financial reports for diverse user objectives increases in the blockchain environment.					

49	Providing a classification system covering both financial and non-financial data is a significant challenge for regulators in the blockchain environment.					
50	Reporting non-financial information alongside financial statements in the blockchain environment raises reporting costs.					
51	Transactions recorded on the blockchain might not be classified into appropriate accounts, leading to potential misclassification.					
52	There are challenges in controlling access to internal and external reports in the blockchain environment.					