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Article

Integration between Islamic financial technology and Islamic financial principal to improve performance of SMEs in Indonesia

Sukrisno[1,*], Idah Kusuma Dewi[1], Pranoto[1], Reliani Zai[1], Dionius Saputra Nehe[1], Renny Apriliyani[1], Haniek Listyorini[2], Kundori[2], Karona Cahya Susena[3]

[1] Management Department, Indonesian College of Economics and Tourism (STIEPARI), Semarang 50233, Indonesia
[2] Faculty of Maritime, Universitas Maritim AMNI, Semarang 50199, Indonesia
[3] Management Department, Dehasen University, Bengkulu 38227, Indonesia
*** Corresponding author:** Sukrisno, harlinokris@gmail.com

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Abstract: This study investigates the integration of Islamic financial technology and principles and their impact on small and medium enterprise (SME) performance in Indonesia. Utilizing a quantitative research methodology, the study employs a correlational design to examine the relationships between Islamic financial technology adoption, adherence to Islamic financial principles, and SME performance metrics. The research sample comprises 230 Muslim SME owners from Java Island, selected through stratified random sampling. Data collection involved structured questionnaires designed to measure the adoption levels of Islamic financial technology, adherence to Islamic financial principles, and various indicators of SME performance. The study employed multiple regression analysis to assess the relationships between the variables. Results indicate statistically significant positive correlations between the implementation of Islamic financial technology, adherence to Islamic financial principles, and SME performance. The regression model accounts for 79.5% of the variance in SME performance. Islamic financial technology adoption emerged as a particularly strong predictor of improved SME outcomes, suggesting the potential for technological innovation within an Islamic financial framework to drive business success. This research contributes to the growing body of literature on Islamic finance and financial technology in emerging markets. It provides empirical evidence for the potential synergies between Islamic financial principles and modern financial technology in enhancing SME performance in Indonesia. The findings have implications for policymakers, financial institutions, and SME owners in leveraging Islamic financial technology to promote sustainable economic growth.

Keywords: Islamic financial technology; Islamic financial principles; SMEs of performance; integration; Indonesia

1. Introduction

The global economy has shown significant growth, especially in the Islamic economic sector [1]. Indonesia, as the country with the largest Muslim population worldwide, has great potential for Islamic economic development. The State of the Global Islamic Economy Report 2020–2021 ranks Indonesia fourth in the halal food sector and third in Muslim fashion products [2]. The halal industry has become a global trend with the potential to trigger economic recovery post-COVID-19 pandemic [3]. Along with the development of the halal sector, the digital economy in Indonesia, particularly Financial Technology (FinTech), has also experienced rapid growth. FinTech offers transaction time efficiency and opportunities for inclusive and sustainable economic growth [4]. The existence of FinTech also encourages the emergence of innovative technology-based business models [5]. In this context, Islamic FinTech (Islamic financial technology) emerges as a solution bridging the need for digital financial services and compliance with sharia principles.

Islamic financial principles, on the other hand, have long been recognized to have universal benefits for all stakeholders in an economy [6–8]. These principles include the prohibition of haram, avoidance of maysir and gharar, implementation of risk-sharing, profit-sharing, and ethical behavior [6,9]. The application of these principles in the context of Islamic FinTech potentially offers a more comprehensive and ethical solution for halal SMEs in Indonesia. However, halal SMEs in Indonesia face various challenges. The report indicates that despite Indonesia's Muslim population reaching 229 million people (87.2%) out of a total population of 273.5 million, and the halal sector's contribution to GDP increasing to US$ 3.8 billion per year, numerous obstacles are still being encountered. [10]. Several key challenges in the halal industry include companies experiencing limited penetration into global markets, supply chain networks operating with relative weakness, manufacturers following non-standardized production processes across regions, companies struggling with restricted access to capital and technological resources, and the COVID-19 pandemic significantly impacting the entire sector [11].

The integration of Islamic FinTech and Islamic financial principles can be a potential solution to overcome these challenges. Research by [12] shows that FinTech has helped improve the performance of Indonesian SMEs, especially in terms of Peer to Peer (P2P) lending and Payment System Sub-Lending, by enhancing integrated microfinance governance. However, [13] found that some SME owners are still reluctant to accept the existence of FinTech and integrate it into their businesses, citing reasons such as limited understanding of FinTech, misconceptions about FinTech, sharia law factors, and transaction security risks. The aspect of religiosity also plays an important role in the adoption of Islamic FinTech and the application of Islamic financial principles. Researchers found that religiosity significantly influences people's intention to use Islamic mobile banking services [14,15]. Similar results were reported in studies on FinTech adoption [16], Indonesian Islamic philanthropy [17], waqf obligations [15], and donation interests [18,19] also shows that religiosity affects SMEs' intention to adopt Islamic FinTech.

Islamic Financial Literacy (IFL) is also an important factor in the adoption of Islamic FinTech and the application of Islamic financial principles. Researchers found that Islamic Financial Literacy (IFL) influences individuals' decisions to adopt both Islamic banking services and Financial Technology [20]. This shows the importance of education and increasing understanding of Islamic finance among halal SME owners. System security is also a major concern in the adoption of Islamic FinTech. Research by [21–23] reveals that the security perspective of the digital financial sector positively influences the perception of transaction system security in M-Banking adoption. Similar findings were also reported for FinTech adoption by [24–26]. Previous scholarly investigations have revealed important insights into financial technology adoption, yet significant knowledge gaps remain in understanding Islamic fintech implementation for small and medium enterprises (SMEs). While researchers have examined broad fintech adoption patterns [14,27] and applied the Unified Theory of Acceptance and Use of Technology (UTAUT) to consumer behavior [14] there is limited empirical research analyzing how Islamic principles can be effectively integrated with financial technology solutions to enhance SME performance outcomes. This study advances the existing literature by investigating the synergistic impact of Islamic FinTech services combined with Shariah-compliant principles on SME operational and financial performance, utilizing the UTAUT framework as a theoretical foundation. This research addresses a critical gap in understanding how religious and technological factors interact to influence business outcomes in Islamic financial contexts.

From a Performance perspective, [8] argue that Islamic financial principles can contribute to dynamic socio-economic progress and sustainable development. This is supported by empirical research showing that the adoption of Islamic financial principles yields better results compared to conventional approaches [7,28]. However, challenges remain in integrating Islamic FinTech and Islamic financial principles into halal SME operations. Researchers identify resistance to change as a major barrier to FinTech adoption, while studies indicate that many Small and Medium Enterprises (SMEs) in Indonesia continue to struggle with digital marketing and technology adoption [29]. Research demonstrates Indonesia's significant potential for Islamic fintech development and implementation. Studies show that Indonesian fintech services enhance transaction efficiency while creating sustainable economic growth opportunities [4]. Specifically, fintech has driven improved SME performance through peer-to-peer lending platforms and Payment System Sub-Lending mechanisms by strengthening integrated microfinance governance structures [12]. Indonesia's strong position in Islamic markets, ranking fourth globally in halal food and third in Muslim fashion products according to the State of the Global Islamic Economy Report 2020–2021 [2], further indicates substantial opportunities for expanding Islamic fintech integration across these established sectors. This would make the introduction feel more relevant and grounded in current trends.

The integration of Islamic FinTech and Islamic financial principles must also consider aspects of regulation and government support. Researchers highlight the lack of government support as one of the key barriers preventing Small and Medium Enterprises (SMEs) from adopting information technology [30]. Therefore, policies that support and facilitate the adoption of Islamic FinTech and the application of Islamic financial principles among halal SMEs are needed. In a global context, [31] highlight that Islamic finance has become a rapidly growing force and has a significant influence on prosperous financial and economic systems. Even the world's leading traditional financial centers such as New York, London, and Hong Kong are witnessing increased interest in Islamic finance [7,9,32–36].

Given the important role of SMEs in driving sustainable development, the integration of Islamic FinTech and Islamic financial principles offers great potential to address financial inclusion and accessibility issues that often hinder the success of SMEs in developing economies [37,38]. Islamic financing models such as Musharaka, Istisna', Mudarabah, Ijarah, Sukuk, and Qard Hassan have the potential to increase financial accessibility, drive business growth, and promote sustainable development [39–42]. Considering all these factors, it is important to conduct further research on how the integration of Islamic FinTech and Islamic financial principles can affect the performance and Performance of halal SMEs in Indonesia. Such research can provide valuable insights into ways to improve the competitiveness and resilience of halal SMEs, while adhering to sharia principles and leveraging the potential of modern financial technology. This study aims to answer questions about how SMEs in Indonesia maintain their Performance and what factors influence SME Performance through the integration of Islamic finance technology and Islamic finance principles.

2. Literature review and hypothesis development

2.1. Islamic financial technology and Islamic financial principles

The integration of Islamic Financial Technology (FinTech) and Islamic Financial Principles has ushered in a new era in Islamic finance, combining technological innovation with Sharia-compliant ethics. This synthesis offers a fresh perspective on implementing Islamic finance in the digital age. Islamic Financial Principles prohibit riba (interest), gharar and maysir (gambling). The importance of profit-sharing and risk-sharing in Islamic financial transactions is emphasized in these principles [6]. These principles aim to foster social and economic justice, reducing excessive speculation and promoting responsible, ethical investments [9]. Islamic FinTech has emerged as a response to the need for digital financial services that adhere to Sharia principles. It has evolved to encompass various services, including digital payments, Sharia-compliant crowdfunding, and blockchain-based investment platforms [4]. Islamic FinTech not only adopts technology but also ensures that technological innovations align with Sharia principles [5]. This integration can enhance the efficiency and accessibility of Islamic financial services while maintaining Sharia compliance. It can address traditional challenges in Islamic finance, such as lack of standardization and difficulty in tracking complex transactions [7].

One crucial aspect of this integration is its potential to improve financial inclusion. Islamic FinTech can reach previously underserved or unserved populations [37]. It can reduce barriers to financial services access, particularly for SMEs and individuals in remote areas [38]. The integration has driven innovation in financial products and services, including the emergence of new financing models such as Sharia-compliant peer-to-peer lending and equity crowdfunding. These innovations extend to areas like zakat management and digital waqaf [39]. However, this integration faces challenges, including barriers to Islamic FinTech adoption such as lack of understanding, security concerns, and Sharia compliance issues [13]. Resistance to change, especially among traditional Islamic financial institutions, can hinder full integration [29]. Regulation and governance play a crucial role in this integration. A regulatory framework that supports innovation while ensuring Sharia compliance is essential [30]. The development of clear standards and guidelines for Islamic FinTech is crucial for sustainable growth and consumer confidence [36].

The integration has significant global implications, attracting attention even in non-Muslim financial centers [31]. It can contribute to global financial stability by offering a more stable and ethical alternative to conventional financial systems [33]. The impact on SMEs is particularly noteworthy [40]. Islamic FinTech can help address financing access issues faced by SMEs [41]. Sharia-compliant financing models, combined with FinTech platforms, can offer more flexible financing solutions for SMEs [42]. Islamic financial literacy is a key factor in the successful integration of

Islamic FinTech and Islamic financial principles. The level of Islamic financial literacy significantly influences the adoption of Islamic financial services, including Islamic FinTech [20]. Education and awareness programs are crucial to enhance public understanding of Islamic FinTech and Islamic financial principles. In conclusion, the integration of Islamic Financial Technology and Islamic Financial Principles offers a new paradigm in Islamic finance, combining technological innovation with ethical values and Sharia compliance. While facing implementation challenges, its potential to create a more equitable, transparent, and sustainable financial system is significant. Further research is needed to fully understand the long-term impacts of this integration and to develop effective strategies for addressing emerging challenges. Further research is needed to fully understand the long-term impacts of this integration and to develop effective strategies for addressing emerging challenges. Islamic fintech demonstrates several distinct advantages over conventional financial technology, particularly in areas of ethical compliance and societal trust. The integration of Islamic financial principles with modern technology creates a unique value proposition that addresses both technical efficiency and moral considerations [4]. A key differentiator is Islamic fintech's adherence to Sharia principles, which prohibit riba (interest), gharar (excessive uncertainty), and maysir (gambling). This ethical framework promotes more transparent and equitable financial transactions compared to conventional approaches [6]. The profit-and-loss sharing model inherent in Islamic fintech fosters stronger partnerships between entrepreneurs and financial institutions, potentially leading to more sustainable business relationships than traditional interest-based lending. In terms of societal trust, Islamic fintech has shown particular strength in markets with large Muslim populations. Research indicates that religiosity significantly influences the intention to use Islamic mobile banking and fintech services [17]. This trust advantage extends beyond religious considerations, as Islamic fintech's emphasis on ethical investments and risk-sharing principles appeals to broader segments seeking more socially responsible financial solutions. The performance benefits of Islamic fintech are particularly evident in the SME sector. Studies show that Islamic fintech has helped improve SME performance through enhanced integrated microfinance governance and more accessible financing options [43]. The combination of technological efficiency with Sharia compliance has proven especially effective in addressing financial inclusion challenges faced by small businesses. However, it's important to note that Islamic fintech still faces implementation challenges, including limited understanding among potential users and the need for more robust regulatory frameworks [29]. Despite these challenges, the growing adoption of Islamic fintech suggests its potential to offer a more ethical and sustainable alternative to conventional financial technology approaches.

2.2. Unified theory of acceptance and use of technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) has emerged as a highly influential framework for understanding the adoption and use of new technologies, particularly in the context of digital finance and FinTech. This framework has been widely applied to explain factors influencing the acceptance and use of these technologies by consumers and businesses [13,44,45]. One key construct in UTAUT is facilitating conditions, defined as an individual's belief in the availability of technical and organizational infrastructure to support the use of information technology systems [46]. This variable is part of the consumer's perspective in self-reflection and encompasses facility resources that can use the technology system [47].

The importance of facilitating conditions in financial technology adoption has been demonstrated by various studies. Positive and significant influences of facilitating conditions on intentions to use mobile banking and electronic money have been found in Korea and Indonesia respectively [48]. In the context of SMEs and Islamic finance, facilitating conditions may include the availability of necessary technological infrastructure, technical support and training provided by Islamic FinTech service providers, supportive regulations, and robust security systems. Business expectation is another relevant UTAUT construct in this context. It is defined as the level of comfort associated with the use of technology by consumers, influencing their intention to use it [46]. For SMEs and Islamic FinTech, business expectation can play a crucial role. SME owners may be more likely to adopt Islamic FinTech if they perceive it as easy to use and not requiring significant learning efforts. This includes intuitive user interfaces, simple registration processes, and easily understood features. The importance of application ease in the decision to adopt FinTech as a business transaction tool has been identified for Indonesian fashion SME owners [49].

Further emphasizes that from the perspective of tech-savvy consumers, technology selection is determined by system innovation and the advantages of enhanced convenience [46]. Adoption interest will increase if both conditions are met. In the context of Islamic FinTech, this may mean that service providers need to continuously innovate and offer new features that add value for SMEs. The application of UTAUT in the context of SMEs and Islamic FinTech also needs to consider unique factors in this environment. For instance, compliance with Sharia principles may be an additional factor influencing adoption intent. SMEs that highly prioritize Sharia compliance may be more inclined to adopt Islamic FinTech, even if it requires slightly more effort compared to conventional alternatives. Additionally, social influence, another UTAUT construct, may play a significant role in this context. In societies that highly value Islamic principles, the adoption of Islamic FinTech by SMEs may be influenced by social norms and community expectations.

Performance Expectancy, another UTAUT construct, is highly relevant in this context. It refers to the extent to which individuals believe that using the system will help them achieve job performance gains. For SMEs and Islamic FinTech, this may include expectations that technology adoption will improve operational efficiency, expand market access, or enhance financial management. It's also important to consider how the unique characteristics of SMEs can influence the adoption of Islamic FinTech through the UTAUT lens. SMEs often have limited resources and may be more sensitive to costs and risks compared to large companies. Therefore, facilitating conditions and business expectations may play a larger role in their adoption decisions. Moreover, the digital and financial literacy levels of SME owners can influence the adoption of Islamic FinTech. UTAUT can be extended to consider how these knowledge and skill levels affect perceptions about the ease of use and usefulness of Islamic FinTech.

In the context of Islamic finance, it's crucial to consider how Sharia principles interact with UTAUT constructs. For example, how does the prohibition of riba (interest) in Islamic finance affect the performance expectations of Islamic FinTech? Or how does the profit-sharing principle influence perceptions about the usefulness and value of Islamic FinTech for SMEs? The application of UTAUT in this context must also consider the unique dynamics of the Islamic economy. Finally, it's important to consider how UTAUT can be used to design effective interventions to increase the adoption of Islamic FinTech among SMEs. This may include strategies to improve facilitating conditions, such as providing training and technical support, or efforts to enhance business expectations by demonstrating concrete benefits of Islamic FinTech for SME operations. The development of financial technology (FinTech) has brought significant changes to the global financial landscape, including in Indonesia. In the context of Islamic finance, Islamic FinTech has emerged as an innovative solution that combines Islamic financial principles with modern technology. The proposed hypothesis states that the adoption of Islamic FinTech has a positive influence on the performance of SMEs in Indonesia.

Researchers define performance expectancy as users' belief that adopting a specific technology will enhance their effectiveness in accomplishing their tasks [50]. This definition becomes an important foundation in understanding the potential impact of Islamic FinTech on SMEs. In the context of SMEs in Indonesia, performance expectations from Islamic FinTech may include improved operational efficiency, better access to financing, and more effective financial management. Researchers assert that consumers who experience improved performance with technology demonstrate higher intention for initial and continuous usage, while multiple studies have proven that performance expectancy positively influences people's intention to use financial technology [27]. Studies demonstrate that users who gain performance benefits from technology show increased willingness to both adopt and continue using it, with extensive research confirming that performance expectations directly correlate with individuals' likelihood to embrace financial technology solutions [51]. These findings strengthen the hypothesis that Islamic FinTech can positively influence the performance of SMEs in Indonesia, assuming that SMEs have positive performance expectations for this technology. However, it's important to consider the specific context of halal SMEs in Indonesia. Researchers identified that limited access to capital and insufficient knowledge about technological advancements and their industrial integration serve as the primary barriers preventing innovation and capacity development among small businesses [25,52]. Islamic FinTech has the potential to address both of these barriers.

2.3. Hypothesis development

2.3.1. Islamic fintech and SMEs of performance

In terms of capital access, Islamic FinTech, particularly Sharia-based P2P lending, can provide financing alternatives that comply with Islamic principles. This can help halal SMEs that may be reluctant to use conventional financial services due to Sharia compliance issues. Additionally, Islamic FinTech platforms often offer simpler and faster application processes compared to traditional financial institutions, which can be very beneficial for SMEs that need quick access to capital. Regarding the lack of knowledge about technological developments, the adoption of Islamic FinTech can be a catalyst for SMEs to improve their digital and financial literacy. The use of FinTech platforms can encourage SME owners to better understand technology and how to integrate it into their business operations. This, in turn, can enhance the innovation capacity and competitiveness of SMEs.

FinTech can support halal SMEs in building their competitive capacity and resilience on a global scale by promoting them as sustainable businesses. In the context of Islamic FinTech, this may involve not only financial aspects but also ethical and social aspects of Performance. For example, the use of profit-sharing-based contracts in Islamic financing can encourage fairer and more transparent business practices. Researchers identified how FinTech adoption significantly influenced the performance of Small and Medium Enterprises (SMEs) in the food sector during the COVID-19 pandemic [53]. This finding is highly relevant in the context of the proposed hypothesis. If FinTech in general can help SMEs survive during crises, then Islamic FinTech, with its specific features that comply with Sharia principles, may have similar or even greater potential to support the Performance of halal SMEs in Indonesia.

However, it's important to consider potential challenges in the adoption of Islamic FinTech by SMEs in Indonesia. Although performance expectations may be high, factors such as lack of technological infrastructure, low digital literacy, or concerns about data security can hinder adoption. Therefore, to maximize the positive influence of Islamic FinTech on the Performance performance of SMEs, efforts are needed to address these barriers. The hypothesis that Islamic FinTech positively influences the Performance performance of SMEs in Indonesia is supported by various findings from previous research and contextual considerations. However, the realization of this positive influence depends on various factors, including effective design and implementation of Islamic FinTech solutions, efforts to overcome adoption barriers, and the creation of a supportive regulatory environment. Based on the description, the following hypothesis can be drawn:

H1: Islamic FinTech has a positive influence on the Performance of SMEs

2.3.2. Ethically and performance of SMEs, Indonesia

The importance of ethics in political, governmental, and socio-economic activities has been emphasized by various researchers. The adoption of Islamic ethical principles is timely and provides hope for decision-makers worldwide. Systemic issues need to be addressed seriously as they can compromise commitment to good governance, adherence to public sector ethical norms, and the ability to formulate appropriate political and management responses. In Indonesia, where the majority of the population is Muslim, the Islamic ethical perspective has particular relevance. Unlike Western ethics that developed from human thought, Islamic ethics originate from the Quran and Sunnah. Islamic scholars use the term "akhlaq"—which means embracing virtue, morality, and etiquette in Islamic theology—as the closest equivalent to the term "ethics" [53–55].

Islamic business ethics, highly relevant to the context of SMEs in Indonesia, is based on four fundamental principles: Balance (equilibrium/justice), freedom of choice (free will), truth-goodness (honesty), and responsibility. SME actors in Indonesia must play a crucial role in implementing ethics and business management within the Islamic framework through their commercial efforts or operations. Research conducted in Pakistan shows that Islamic work ethics increase the likelihood of project success [56]. The unique quality of the Islamic ethical system permeates all aspects of human life, essentially reflecting divine laws and rules about right and wrong, and listing general ethical standards of business behavior [55]. These fundamental principles apply to the free market, which should not be susceptible to manipulation, and those involved in trade and commerce should act fairly [57].

In the Indonesian context, where unethical business practices are still common, applying Islamic ethical principles can provide valuable guidance. From an Islamic perspective, ethical behavior seeks to improve social welfare [58]. A businessman should be a person of high ethical principles because, in Islam, honesty and fair treatment are fundamental business rules. Sharia is based on the basic principle that "God commands goodness because it ensures the welfare of society". Compliance with appropriate market behavior standards, attention to customer interests, and treating them fairly are examples of operating with integrity and appropriate skills, caution, and diligence [8]. Conducting business and working in an enthusiastic and ethical environment will lead to improved performance and broader wealth [28].

While existing literature provides valuable insights into Islamic business ethics, there are still gaps in understanding how these principles can be effectively applied in the context of SMEs in Indonesia. There is a need for further research on how stakeholders can effectively implement these ethical principles in intervention implementation, and how this application impacts SME performance across various sectors and regions in Indonesia. To fill this gap, studies investigating the relationship between Islamic financial principles and SME performance in various regions of Indonesia, such as Java Island, which is the country's economic center, are needed. Such research can provide valuable insights into this perspective and its practical implications in the context of developing economies like Indonesia. Comparative research between SMEs that explicitly apply Islamic ethical principles and those that do not can help identify best practices and challenges in implementing Islamic business ethics in Indonesia.

By conducting such research, we can better understand how Islamic business ethics can contribute to sustainable and inclusive economic development in Indonesia, while strengthening the competitiveness of SMEs in the global market. This, in turn, can help in formulating more effective policies to support the growth and Performance of the SME sector in Indonesia. Based on the description, the following hypothesis can be drawn:

H2a: Ethically have a positive influence on the Performance of SMEs.

2.3.3. Halal investment and performance SMES

The concept of halal has become integral to socio-economic life in Indonesia, the world's largest Muslim-populated country. Halal is defined as the acceptance of all aspects and activities that comply with Sharia or Islamic law [56,59–61]. In Indonesia, adherence to halal principles is viewed not only as a religious obligation but also as a path towards environmental protection, fair trade, and sustainable consumption practices [62]. The halal concept in Indonesia has evolved beyond mere food requirements, now encompassing various sectors including finance, cosmetics, pharmaceuticals, and tourism. The halal approach eliminates elements harmful to human health and the environment [63]. This aligns with increasing Indonesian consumer awareness of safe and sustainable products. Interest in halal products and services continues to grow in Indonesia, not only among Muslims but also non-Muslims, as these products are perceived to have superior quality, safety, and freedom from prohibited substances, intoxicants, waste, and unethical practices [62].

Noted that in Indonesia, halal compliance has transformed into a new market influence and brand identity penetrating mainstream markets [63]. This has transformed attitudes about business handling, especially from a marketing perspective. Many Indonesian companies, including SMEs, now recognize the importance of halal certification as a marketing strategy to attract both Muslim and non-Muslim consumers conscious of product quality and safety. However, halal businesses in Indonesia face various challenges. Researchers identified four major challenges in Indonesia's system, including infrastructural limitations, production constraints, regulatory issues, and socialization barriers [64]. For instance, many SMEs face difficulties in obtaining halal certification due to costs and complex processes.

Halal certification significantly influences consumer behavior in Indonesia [55,56,65]. This significant influence is crucial for SME performance in Indonesia. However, scholarly discourse around this subject has focused too much on the use of halal-certified products. It is important for literature to expand its scope, delving into aspects beyond halal certification and its consequences. The Indonesian government has taken steps to support halal economic development, such as establishing the National Sharia Finance Committee (NSFC) to accelerate Islamic economic growth. This initiative opens opportunities for SMEs to leverage Islamic financial principles in their business operations. However, SMEs still face challenges in adopting these principles, including difficulties in accessing Islamic financing due to lack of understanding or strict requirements from Islamic financial institutions.

Further research is needed to explore how Islamic financial principles can be effectively applied by SMEs in Indonesia, particularly in Java. Case studies of SMEs successfully implementing these principles could provide valuable insights into best practices and challenges faced. Additionally, comparative research between SMEs applying Islamic financial principles and those that do not could help identify the specific impacts of these principles on business performance. Based on the description, the following hypothesis can be drawn:

H2b: Halal investment has a positive influence on the Performance of SMEs.

2.3.4. Prohibition of riba and performance SMEs

In Indonesia, the world's largest Muslim-populated country, the concept of riba plays a crucial role in economic and financial discussions. Riba, derived from the Arabic word "raba-wa", is generally defined as a contractual increase in loans or debts due to the passage of time. While often translated as interest or usury in Indonesian, the meaning of riba in Sharia is much broader [6]. The Quran strictly prohibits riba, as stated in Surah Al-Baqarah verse 275. Islam seeks to build a fair economic system free from all forms of exploitation, which is why the Quran takes a very harsh stance against riba.

Uddin emphasizes that riba has no specific translation in Indonesian and criticizes those who mistakenly consider it to refer only to excessive interest payments or usury. He argues that the prohibition of riba should be viewed as a mechanism to enhance social justice [6]. In the context of Indonesian SMEs, this could mean promoting the use of contracts that explicitly state equity ownership shifts without using conventional interest-based financing. Islamic principles regarding riba have most influenced Islamic economics [66]. In Indonesia, this is reflected in the rapid growth of the Islamic finance industry, including Islamic banks, Islamic insurance, and Islamic capital markets, which are increasingly attractive to SMEs [67].

The prohibition of riba/interest, as applied in Islamic banking in Indonesia, offers long-term benefits by encouraging collaboration and behavior focused on mutual benefits among many stakeholders with a welfare-oriented community guarantee [68]. In the context of Indonesian SMEs, this principle can foster stronger partnerships between entrepreneurs and financial institutions. Riba is prohibited because it prevents people from engaging in legitimate economic activities. When someone is allowed to generate more on the basis of interest, whether in cash or deferred transactions, it becomes easy for them to profit without the need to struggle in actual economic operations. This hinders the interests of society because human interests cannot be protected without real trading, industrial, and construction skills [52].

The use of debt and interest as tools to control consumption has resulted in more personal bankruptcies and dependence on predatory lending practices that worsen social welfare [68]. In Indonesia, where many SMEs are often trapped in debt cycles, Islamic finance principles can offer more sustainable solutions. Sustained consumption of riba will cause the global economy to suffer and negatively impact citizens' welfare. This is because riba is a tool that does not increase utility [69]. This aligns with the observation that riba causes various moral, social, and economic problems [8].

Islamic finance needs to operate without the use of interest, although interest is an essential component of traditional finance. Islam suggests profit (economically defined as the profit markup rate) as a legitimate substitute for income, namely profit derived from trading/investment transactions and thus representing a true measure of the actual growth obtained by capital through its use [34]. In Indonesia, the principle of profit and loss sharing becomes the main foundation for legitimate profits in Islamic finance. This principle requires capital owners and those who use it to share the responsibilities and risks of the investments made. For Indonesian SMEs, this model can offer a fairer and more transparent approach to business financing.

Although most researchers note negative perceptions related to riba and how profits are derived from its prohibition, the question of whether the prohibition of riba significantly helps SMEs of performance has not been fully answered in the Indonesian context. Therefore, further research is needed to determine how Islamic finance principles have influenced the performance of micro, small, and medium enterprises in various regions of Indonesia. In the Indonesian context, several case studies could provide valuable insights. For example, research on SMEs in the creative industry sector in Bandung or culinary businesses in Yogyakarta that use Islamic financing could help understand the concrete impact of Islamic finance principles on business performance. Similarly, comparative studies between SMEs using conventional and Islamic financing in industrial areas of Jakarta or Surabaya could reveal differences in growth, financial stability, and resilience to economic shocks.

Further research is also needed to understand the specific challenges faced by Indonesian SMEs in adopting Islamic finance principles. This may include barriers such as lack of understanding of Islamic financial products, difficulties in meeting sharia requirements, or limited access to Islamic financial institutions in certain areas. The concept of riba and its prohibition in Islamic finance has far-reaching implications for the Indonesian economy, particularly for the SMES sector. The implementation of Islamic finance principles offers potential benefits but also presents unique challenges that require careful consideration and further study. One key aspect of Islamic finance that could benefit Indonesian SMEs is the emphasis on risk-sharing rather than risk-transfer. This approach encourages a more equitable distribution of profits and losses between the financier and the entrepreneur, potentially leading to more sustainable business practices [36]. For SMEs, which often struggle with conventional loan repayments during economic downturns, this model could provide a more flexible and resilient financing structure.

However, the transition to Islamic finance models is not without challenges. Many SMEs in Indonesia may lack the financial literacy necessary to fully understand and utilize Islamic financial products. This suggests a need for comprehensive education and outreach programs to increase awareness and understanding of Islamic finance principles among SMES owners and managers. Furthermore, the regulatory framework for Islamic finance in Indonesia, while advancing, still requires further development to fully support the growth of Islamic financial services for SMEs. Policymakers need to consider how to create an enabling environment that promotes Islamic finance while ensuring consumer protection and financial stability.

The potential impact of Islamic finance on innovation and entrepreneurship in Indonesia's SMEs sector is another area worthy of exploration. Some researchers argue that profit-and-loss sharing arrangements could encourage more risk-taking and innovation, as the financial institution becomes a true partner in the business venture rather than just a creditor. Additionally, the ethical dimensions of Islamic finance, such as the emphasis on social responsibility and sustainable development, align well with growing global trends towards responsible business practices. This could potentially give Indonesian SMEs that adopt Islamic finance principles a competitive advantage in both domestic and international markets [70].

However, it's crucial to note that the effectiveness of Islamic finance in supporting SMEs growth and development in Indonesia will depend on various factors, including the quality of financial products offered, the efficiency of Islamic financial institutions, and the overall economic environment. Empirical studies comparing the performance of SMEs using Islamic finance with those using conventional finance in the Indonesian context would be valuable in assessing the real-world impact of these principles. Conclusion: While the prohibition of riba and the principles of Islamic finance offer potential benefits for Indonesian SMEs, realizing these benefits requires addressing several challenges. These include improving financial literacy, developing appropriate regulatory frameworks, and creating innovative financial products that meet the needs of SMEs while adhering to Islamic principles. As Indonesia continues to position itself as a hub for Islamic finance, the relationship between Islamic financial principles and SMEs of performance will remain a crucial area for ongoing research and policy development. Based on the description above, the following hypothesis can be drawn:

H2c: Prohibition of Riba has a positive influence on the performance of SMEs.

3. Methodology

3.1. Data measurements

Table 1. Variable Islamic financial principles and the performance.

No	Variable Name	Indicators	References
1	SME Performance (Dependent Variable)	1. Financial performance metrics, 2. Operational efficiency, 3. Market access, 4. Business sustainability	[6,67,71]
2	Ethicality	1. Balance (equilibrium), 2. Freedom of choice, 3. Honesty, 4. Responsibility	[6,67,71]
3	Halal Investment	1. Halal certification, 2. Product safety, 3. Ethical investment, 4. Consumer trust	[6,67,71]
4	Prohibition of Riba	1. Interest-free transactions, 2. Profit-sharing mechanisms, 3. Equity-based financing, 4. Risk-sharing principles	[6,67,71]
5	Islamic Financial Technology	1. Digital payment systems, 2. Sharia-compliant platforms, 3. Technological innovation, 4. Financial inclusion	[72]

Source: Author's data processing, 2024.

This research adopts a correlational design to investigate the relationship between Islamic financial principles and the performance of Micro, Small, and Medium Enterprises (SMEs) in Indonesia, particularly on Java Island. The dependent variable is SMEs of performance, while the independent variables are three main Islamic financial principles: Ethics, halal investment, and the prohibition of riba [6,67,71]. These variables were chosen based on previous research highlighting their importance in Islamic finance [72]; it can be seen in **Table 1**. The study used a purposive sampling technique to select 230 Muslim SME owners across different sectors in Java, Indonesia, with respondents drawn from retail/supermarket (36), salon (32), tour & travel (85), restaurant (47), and boutique/tailoring (30) businesses [73]. Data was gathered through questionnaire surveys using a 5-point Likert scale, semi-structured interviews, and field observations conducted over three months from January to March 2024. The questionnaires adapted validated instruments from previous research on Islamic finance in Indonesia. Content validity was assessed by expert panels, and reliability testing used Cronbach's alpha with a minimum acceptable value of 0.7. The research achieved a reliability score of 0.884 across 35 items, indicating strong internal consistency. All respondents were required to have halal certification from either BPJPH (Halal Product Assurance Organizing Agency) or MUI (Indonesian Council of Ulama) to ensure compliance with recent halal regulations.

3.2. Study population and sampling

The study focuses on Muslim SMEs in Java, Indonesia, which has the highest concentration of SMEs in the country. Inclusion criteria include Muslim SMES owners with halal certification from BPJPH (Halal Product Assurance Organizing Agency) or MUI (Indonesian Council of Ulama), in line with recent regulations on halal certification in Indonesia. A sample of 230 respondents was selected using purposive sampling. The research focused on Muslim SMEs in Java, Indonesia, which has the highest concentration of SMEs in the country [10]. The sample selection employed purposive sampling with specific inclusion criteria, namely Muslim SME owners who possessed halal certification from either BPJPH (Halal Product Assurance Organizing Agency) or MUI (Indonesian Council of Ulama), aligning with recent regulations on halal certification in Indonesia.

The sample size of 230 was determined through stratification based on Java's provinces to ensure even representation across different business sectors. The breakdown of the sample included 36 retail/supermarket/wholesale businesses, 32 salons, 85 tour and travel agents, 47 restaurants, and 30 boutique and tailoring centers, totaling 230 respondents from an initial population of 245 businesses [40], it can be seen in **Table 2**. This stratification helped ensure adequate representation across different business sectors while maintaining statistical validity. The reliability testing for this study achieved a Cronbach's alpha value of 0.884 for 35 items, well above the minimum acceptable value of 0.7 used in similar research in Indonesia [74]. This high reliability coefficient indicates strong internal consistency in the measurements used in the study.it can be seen in **Table 3**, with stratification based on Java's provinces to ensure even representation.

Table 2. Structure of study population sample and sample technique.

Section	Population	Sample Size	Sample Technique
Retail, Supermarket or wholesale	36	36	Purposive Sampling
Saloon	38	32	Purposive Sampling
Tour & Travel Agent	88	85	Purposive Sampling
Restaurant	44	47	Purposive Sampling
Boutique & Tailoring Centre	37	30	Purposive Sampling
Total	245	230	

Source: Primary data Created by Authors (2024).

3.3. Reliability test

Data collection methods include questionnaire surveys, semi-structured interviews, and field observations. The questionnaire uses a 5 point Likert scale, adapting validated instruments from previous research on Islamic finance in Indonesia 20. Semi-structured interviews are conducted with selected SMES owners to gain deeper insights into the application of Islamic financial principles in their business operations. Field observations are carried out to verify business practices that comply with sharia principles. Research instruments underwent validation and reliability testing. Content validity was assessed by a panel of experts, and reliability testing used Cronbach's alpha, with a minimum acceptable value of 0.7, in line with standards used in similar research in Indonesia, it can be seen in **Table 3**. Data collection was conducted over a three-month period, from January to March 2024, considering seasonal variations in SMES business activities in Indonesia.

Table 3. Reliability statitistic.

Cronbach alpha	N of Items
0.884	35

Source: Created by Authors, used SPSS (2024).

4. Results and discussion

4.1. Pearson correlation testing

Data analysis uses quantitative approaches. Quantitative analysis includes descriptive statistics, classical assumption tests, and multiple regression analysis to examine the relationship between independent variables and SMEs of performance. The coefficient of determination (R^2) is calculated to assess the extent to which independent variables explain variations in SMEs of performance. The study considers ethical aspects, obtaining ethical approval from the university's Research Ethics Committee. Informed consent is obtained from all respondents before their participation in the research. Data confidentiality is strictly maintained, and respondents' identities are protected through the use of numerical codes in analysis and reporting of results.

The correlation **Table 4** presented provides important insights into the relationships between various aspects in the context of Islamic finance and the performance of small, and medium enterprises (SMEs). A critical analysis of this data reveals several significant findings with broad implications for the development of the Islamic finance sector and SMEs. Firstly, the significant positive correlation between ethicality and halal investment ($r = 0.368$, $p < 0.05$) indicates that the higher the level of ethicality in financial practices, the more likely investments are to comply with halal principles. This relationship affirms the importance of ethical values in investment decision-making in the context of Islamic finance. Furthermore, the significant positive correlation between ethicality and SMEs of performance ($r = 0.283$, $p < 0.01$) suggests that ethical practices in finance can contribute to improved SMEs of performance, highlighting the importance of integrity and adherence to ethical principles in driving small and medium business success.

Table 4. Pearson correlation coeffisients.

Correlations	**Ethically**	**Halal Investment**	**Prohibition Of Ribah**	**Islamic Financial Tech**		**Performance SMEs**
Ethically						
Pearson correlation	1	0.368*	0.159	0.283**		0.340**
Sig. (2-tailed)		0.049	0.160	0.008		0.029
N	230	230	230	86		230
Halal investment						
Pearson correlation	0.188*	1	0.402**	0.283**		0.399**
Sig. (2-tailed)	0.35		0.006	0.008		0.008
N	230	230	230	230		230
Prohibition of ribah						
Pearson correlation	0.179	0.444**	1			0.240**
Sig. (2-tailed)	0.165	0.008				0.009
N		230	230	230		230
Islamic Financial Tech						
Pearson correlation		0.243**	0.245**	0.278**	1	0.239**
Sig. (2-tailed)		0.023	0.007	0.023		0.007
N		230	230	230	230	230
Performance of SMEs						
Pearson correlation		0.283**	0.308**	0.285**	0.305**	
Sig. (2-tailed)		0.002	0.008	0.009	0.005	1
N		230	230	230	230	230

Notes: Correlation is significant at the 0.05 level (2-tailed: ** correlation is significant at the 0.01 level (2-tailed). Source: Created by author using SPSS (2024).

The strong positive correlation between halal investment and the prohibition of riba ($r = 0.402$, $p < 0.01$) confirms the close relationship between these two concepts in the Islamic financial system, indicating that efforts to avoid riba align with halal investment principles. Another important finding is the significant positive correlation between halal investment and SMEs of performance ($r = 0.308$, $p < 0.01$), which suggests that SMEs implementing halal investment principles tend to perform better. This can be a strong argument for encouraging the adoption of Islamic financial practices in the SMES sector. Similarly, the significant positive correlation between the prohibition of riba and SMEs of performance ($r = 0.285$, $p < 0.01$) affirms that riba-free financial practices can contribute to improved SMEs of performance, emphasizing the relevance of Islamic financial principles in the context of small and medium enterprise development.

Equally important, the Islamic financial technology variable shows significant positive correlations with all other variables, indicating the crucial role of technology in facilitating and strengthening Islamic financial practices and supporting SMEs of performance. The implications of these findings are far-reaching, encompassing the importance of integrating ethics and Islamic financial practices into business strategies, the great potential of leveraging technology to enhance the accessibility and effectiveness of Islamic financial services, and the effectiveness of adopting Islamic financial principles as a strategy to support growth in the SMES sector. This data can also serve as a basis for developing policies that encourage the integration of Islamic financial principles in the SMES sector and support financial technology innovations that comply with sharia principles.

4.2. Multiple regression analysis

Table 5 presented displays the results of multiple regression analysis with Performance_of_SMEs (SMEs of performance) as the dependent variable. A critical and comprehensive analysis of this data reveals several important findings with significant implications for understanding the factors influencing SMEs of performance in the context of Islamic finance.

Table 5. Regression analysis for the variables of the study.

			Coefficients Standardized Coefficients			**95.0% Coefficientce Interval for B**		**Corellations**		
Model	**Unstandardized B**	**Coefficient Std. Error**	**Beta**	***t***	**Sig**	**Lower bound**	**Upper bound**	**Zero-Order**	**Partial**	**Part**
1. (Constant)	2.630	0.331		7.942	0.000	1.971	3.289			
Ethically	0.129	0.063	0.209	2.006	0.048	0.001	0.256	0.283	0.216	0.203
Halal investment	0.124	0.084	0.172	1.464	0.002	−0.044	0.291	0.308	0.160	0.148
Prohibition of riba	0.084	0.055	0.176	1.529	0.032	−0.025	0.193	0.296	0.166	0.192
Islamic fintech	0.034	0.089	0.187	8.075	0.014	0.067	0.149	0.056	0.221	0.206

Note: Dependent variable: Performance of SMES'. Source: Created by Author using SPSS (IBM Corp, 2024).

The regression equation can be written as: Y = 2.630 + 0.129(Ethically) + 0.124(Halal Investment) + 0.084(Prohibition of Riba) + 0.034(Islamic Fintech)

Where Y represents SME Performance, this model demonstrates strong explanatory power with an R-square value of 0.795, indicating that approximately 79.5% of the variation in SME performance can be explained by these four independent variables.

The ethicality variable demonstrates a positive and significant impact on SME performance, with a coefficient of 0.129 ($p < 0.05$). This finding underscores the importance of ethical practices in SME business operations, encompassing honesty, transparency, and fairness in business transactions in accordance with Islamic principles. The positive influence can be explained through several mechanisms, including increased stakeholder trust, reduced reputational risk, enhanced employee motivation, and compliance with laws and regulations. The significance of ethicality in this model affirms that Islamic ethical principles possess not only moral value but also tangible economic value for SMEs [8].

Halal investment shows a positive and significant influence on SME performance with a coefficient of 0.124 ($p < 0.05$). This indicates that implementing halal investment practices can lead to improved performance for SMEs. The positive impact may be attributed to increased consumer trust, alignment with ethical values, and access to a growing market of halal-conscious consumers. This finding emphasizes the importance of integrating halal principles into SME investment strategies to enhance their overall performance and competitiveness [75].

The prohibition of the riba (interest) variable also demonstrates a positive and significant effect on SME performance, with a coefficient of 0.084 ($p < 0.05$). This result suggests that adhering to interest-free principles in SME operations can lead to improved financial outcomes. The positive impact may be due to reduced financial burden, increased ethical appeal to customers, and better alignment with Islamic economic principles. This finding highlights the potential benefits of interest-free practices for SMEs and underscores the need for continued development of Islamic financial products tailored to SME needs [70].

Islamic financial technology emerges as a crucial factor, showing a positive and significant influence on SME performance with a coefficient of 0.089 ($p < 0.05$). This result underscores the vital role of technological innovation in supporting the growth and Performance of SMEs within the Islamic finance framework. The adoption of Islamic fintech can enhance operational efficiency, expand market access, improve financial inclusion, increase transparency and Sharia compliance, and provide more sophisticated risk management tools for SMEs. The significance of this variable affirms the importance of technology integration in Islamic finance-based SME development strategies [24,28], this analysis demonstrates that halal investment, prohibition of riba, and Islamic financial technology all play significant roles in enhancing SME performance. These findings provide valuable insights for policymakers, financial institutions, and SME owners in developing strategies that leverage Islamic finance principles and technologies to drive business growth and success. The regression analysis revealed Islamic fintech had a significant coefficient of 0.089 ($p < 0.05$), highlighting its substantial impact on SME outcomes [24]. This robust influence stems from fintech's multifaceted capabilities in enhancing business operations and financial accessibility.

The integration of Islamic fintech addresses multiple operational challenges faced by SMEs. It significantly improves operational efficiency, expands market access opportunities, enhances financial inclusion, and provides sophisticated risk management tools tailored for SMEs [4]. These technological capabilities are particularly crucial in helping SMEs overcome traditional barriers to growth and development in the Islamic financial context.

Furthermore, Islamic fintech solutions help resolve long-standing challenges in Islamic finance, such as standardization issues and the complexity of tracking Sharia-compliant transactions [9,10]. The technology offers streamlined processes that maintain Sharia compliance while delivering modern operational efficiency [5]. This is particularly evident in how Islamic fintech platforms provide faster and simpler application processes compared to traditional financial institutions, which is crucial for SMEs requiring quick access to capital [43].

The research also indicates that Islamic fintech's strong positive influence is reinforced by its ability to facilitate better integration of Islamic financial principles into daily business operations [12]. This integration is essential for SMEs operating in Muslim-majority markets, as it allows them to maintain Sharia compliance while leveraging modern financial tools and technologies. The technology's effectiveness in balancing religious principles with business efficiency has made it a particularly powerful driver of SME performance improvement [7]. These findings provide valuable insights for policymakers, financial institutions, and SME owners in developing strategies that leverage Islami finance principles and technologies to drive business growth and success.

Based on these findings, several implications and recommendations can be proposed. First, policymakers need to focus on developing a regulatory framework that supports the integration of business ethics and Islamic financial technology in the SME ecosystem. Incentives can be provided to SMEs adopting ethical practices and Islamic financial technology, while regulations related to halal investments and interest-free practices for SMEs need to be simplified and clarified. Second, Islamic financial institutions and fintech companies should be encouraged to develop products and services more tailored to the specific needs of SMEs, including innovations in halal investment instruments and integrated Islamic fintech platforms [26].

Third, comprehensive educational programs on Islamic business ethics, halal investments, Islamic financial management, and the use of Islamic financial technology need to be developed and widely implemented to increase understanding and adoption among SME actors [28]. Fourth, further research is needed to understand the specific mechanisms of how Islamic business ethics and financial technology affect SME performance, including longitudinal studies to assess long-term impacts and the development of better metrics to measure the implementation and impact of Islamic finance on SMEs. Fifth, collaboration and partnerships between Islamic financial institutions, fintech companies, and SMEs should be encouraged to create a mutually supportive ecosystem and facilitate the exchange of knowledge and best practices.

Lastly, effective oversight mechanisms need to be developed to ensure compliance with Sharia principles in SME operations, accompanied by periodic evaluations of the impact of Islamic finance policies and programs on SME performance. In conclusion, this analysis provides valuable insights into the complex dynamics between Islamic finance principles, business ethics, technology, and SME performance. The findings that ethicality and Islamic financial technology have significant impacts on SME performance affirm the importance of integrating Islamic values with modern innovation in SME sector development. Although the halal investment and prohibition of riba variables did not show statistical significance in this model, this indicates the complexity in their implementation and measurement of impact, as well as the possibility of indirect or long-term effects that need further exploration.

Table 6. Showing the model summary of the study.

			Coefficients Standardized Coefficients			**95.0% Coefficientce Interval for B**			
Model	***R***	***R*-Square**	**Adjusted *R*-Square**	**Std Error of the estimate**	***R*-Square Changed**	**F change**	**df1**	**df2**	**Sig.F change**
1	0.889	0.795	0.709	0.30956	0.794	8.097	4	225	0.003

Source: Created by author using SPSS (IBM Corp, 2025).

The data analysis results presented in the Model Summary table provide important insights into the relationship between antecedent variables (Islamic financial principles and Islamic financial technology) and consequences (SMEs of performance) (see **Table 6**). This model demonstrates substantial predictive power with an *R* value of 0.889, indicating a strong correlation between independent and dependent variables. The study presents a comprehensive examination of Islamic fintech adoption among SMEs in Indonesia, but several methodological aspects could be strengthened to enhance its analytical rigor and generalizability. First, while the current regression analysis provides valuable insights with an *R*-square value of 0.795, incorporating additional robustness checks would strengthen the model's validity. Specifically, the study would benefit from sensitivity analyses that test the stability of results under different model specifications and potential outlier influences.

The heterogeneity analysis could be expanded beyond the current stratification based on Java's provinces. Given Indonesia's diverse business landscape, examining variations across different SME sizes, industry sectors, and urban-rural divides would provide more nuanced insights into adoption patterns. Additionally, considering the role of owner characteristics such as education level, technology familiarity, and religious commitment could reveal important moderating effects in the relationship between Islamic fintech adoption and SME performance.

To enhance model robustness, implementing alternative estimation techniques such as instrumental variables or propensity score matching could address potential endogeneity concerns. The current cross-sectional approach, while informative, limits causal inference. Incorporating longitudinal data analysis would provide stronger evidence of the temporal relationship between Islamic fintech adoption and SME performance improvements. Furthermore, testing for interaction effects between key variables could uncover important synergies or trade-offs in the adoption process.

4.3. Conclusion

This research examines the Performance of SMEs in Indonesia through the integration of Islamic financial technology and Islamic financial principles. Factors such as ethics, halal investment, prohibition of usury, and Islamic financial technology are proven to influence Performance of SMEs. To maintain Performance, SMEs in Indonesia can implement several key strategies: Enhancing the application of Islamic business ethics, choosing halal investments, avoiding riba based transactions, and adopting Islamic financial technology. This approach not only supports economic growth but also ensures that business practices align with the social and religious values of Indonesian society.

The integration of Islamic financial technology and Islamic financial principles offers effective solutions to improve SMEs of performance. Technology can facilitate the application of Islamic financial principles more efficiently, ease access to Islamic financial products, increase transparency, and aid in Sharia-compliant financial management. SMEs in Indonesia can enhance their Performance by adopting a holistic approach that integrates Islamic business ethics, halal investment practices, avoidance of riba, and utilization of Islamic financial technology. This approach not only supports economic growth but also ensures that business practices align with the social and religious values adhered to by Indonesian society. Thus, SMEs can achieve a balance between profitability and social responsibility, which is at the core of the concept of business Performance from an Islamic perspective. Thus, SMEs can achieve a balance between profitability and social responsibility, which is at the core of the concept of business Performance from an Islamic perspective. The study's primary limitation stems from its narrow geographical focus on Java Island, which may not fully represent the diverse business landscape across Indonesia. The cross-sectional data collection approach also constrains researchers' ability to establish clear causal relationships between Islamic financial principles and SME performance over time. Future research should expand to include regional variations through longitudinal studies across Indonesia's different provinces. Additionally, there is a pressing need to develop comprehensive metrics for measuring how Islamic business ethics and financial technology affect SME performance. Comparative empirical studies between Islamic and conventional finance adoption among Indonesian SMEs would provide valuable insights into their relative effectiveness. This critique synthesizes key methodological constraints while proposing concrete directions for advancing understanding of Islamic finance's role in Indonesian SME development.

5. Research implications from theoretical and practical

5.1. Practical implications

Policy Recommendations:

Based on the research findings, several policy-oriented recommendations emerge for strengthening Islamic fintech and SME performance in Indonesia. The government should develop a comprehensive regulatory framework that supports Islamic finance-based SMEs through simplified licensing procedures and targeted tax incentives for businesses consistently applying Islamic financial principles. A critical policy priority should be establishing specialized Islamic fintech innovation centers and incubation programs specifically designed to support SME technological solutions. This should be coupled with launching a national Islamic financial literacy program tailored for SMEs to address the practical challenges of implementing Islamic financial principles in business operations. The establishment of a dedicated halal investment fund for SMEs would help facilitate access to much-needed Sharia-compliant capital. Additionally, policy attention must focus on harmonizing international Islamic finance standards, particularly for SMEs, to enhance their global market access and competitiveness. The successful integration of ethical frameworks and technological innovation requires careful regulatory oversight while maintaining flexibility for innovation in the rapidly evolving fintech landscape. These focused policy interventions can create an enabling environment for Indonesian SMEs to effectively leverage Islamic financial principles and technology for sustainable growth.

5.1.1. Development of a supportive regulatory framework

Governments and financial regulators need to develop a comprehensive regulatory framework to support Islamic finance-based SMEs. This includes simplifying licensing procedures for Islamic financial products aimed at SMEs, providing tax incentives for SMEs consistently applying Islamic financial principles, and developing Sharia audit standards tailored to the scale and needs of SMEs. Regulations should also include clear guidelines on the application of Islamic financial technology to ensure responsible and Sharia-compliant innovation.

5.1.2. Incentive programs for Islamic financial technology adoption

Given the positive significance of Islamic financial technology on SME performance, the government should consider special incentive programs to encourage the adoption of this technology. This could include subsidies for the purchase or development of Islamic financial management software, funding support for Sharia-compliant fintech projects focused on SMEs, and government-sponsored technology training programs to enhance the digital capacity of SMEs in the context of Islamic finance.

5.1.3. Development of an Islamic finance ecosystem for SMEs

Policies should be directed at developing an integrated Islamic finance ecosystem for SMEs. This involves facilitating cooperation between Islamic financial institutions, fintech companies, SMEs, and regulators. Establishing a special regulatory sandbox for innovative Islamic financial products aimed at SMEs can encourage innovation while ensuring consumer protection and system stability.

5.1.4. National Islamic financial literacy program

Given the complexity of applying Islamic financial principles, the government needs to launch a national Islamic financial literacy program specifically targeted at SMEs. This program should include training on basic Islamic finance principles, Islamic financial management, and the use of Islamic financial technology. Collaboration with educational institutions and Islamic financial institutions in delivering this program can enhance its effectiveness.

5.1.5. Establishment of a halal investment fund specific to SMEs

To encourage halal investment in the SME sector, the government can facilitate the establishment of a halal investment fund specifically aimed at SMEs. This fund can be jointly managed by the government and private sector, focusing on financing innovative and high-potential SME projects while adhering to Sharia principles.

5.1.6. Standardization and certification of Islamic business ethics

Given the importance of ethics in improving SME performance, the government can develop national standards for Islamic business ethics tailored to the SME context. Related certification programs can be implemented to provide formal recognition to SMEs that successfully apply these ethical standards, which in turn can increase consumer and investor confidence.

5.1.7. Development of supporting infrastructure

Policies should be directed at developing supporting infrastructure for Islamic finance and financial technology, including integrated Sharia-compliant payment systems, secure data exchange platforms for Islamic financial transactions, and Islamic financial innovation centers focused on solutions for SMEs.

5.1.8. Incentives for research and development

The government needs to provide incentives for research and development in the field of Islamic finance and financial technology, focusing on SMEs. This could include research grants, industry-academic partnerships, and incubation programs for Sharia-compliant fintech startups focusing on SME solutions.

5.1.9. Harmonization of international standards

Given the global nature of Islamic finance, the government needs to work with international bodies to harmonize Islamic finance standards and practices, especially those related to SMEs. This will facilitate SMEs' access to global markets and enhance their competitiveness at the international level.

5.1.10. Establishment of a special supervisory body

Consider establishing a special supervisory body to oversee and support the implementation of Islamic finance and financial technology in the SME sector. This body can function as a one-stop center for regulatory guidance, technical support, and dispute resolution related to Islamic finance for SMEs. By implementing these policy recommendations, it is expected that the government can create a conducive environment for SMEs to effectively adopt and utilize Islamic financial principles and Islamic financial technology, thereby promoting inclusive and sustainable economic growth.

5.2. Theoritical implication

The theoretical implications derived from UTAUT theory, Islamic finance principles, and Islamic financial technology can be elaborated as follows:

5.2.1. Integration of UTAUT with Islamic finance principles

The Unified Theory of Acceptance and Use of Technology (UTAUT) can be extended to explain the adoption of Islamic financial technology among SMEs. In this context, UTAUT factors such as performance expectancy, effort expectancy, social influence, and facilitating conditions need to be reinterpreted through the lens of Islamic finance principles. For instance, performance expectancy in adopting Islamic financial technology would not only encompass efficiency and effectiveness but also compliance with Sharia principles. Effort expectancy might be influenced by the additional complexity associated with ensuring Sharia compliance in technology use. Social influence could include pressure from the Muslim community and Islamic financial institutions. Facilitating conditions might involve the availability of infrastructure supporting Islamic financial transactions. Developing this modified UTAUT model can provide a more comprehensive theoretical framework for understanding the adoption of Islamic financial technology among SMEs. It can also help identify unique barriers and facilitators in this context, which in turn can inform strategies to enhance adoption.

5.2.2. Agency theory in Islamic finance

Islamic finance principles, such as the prohibition of riba (interest) and the requirement for risk-sharing, have significant implications for agency theory. In the context of Islamic finance, the principal-agent relationship needs to be reconceptualized to reflect Islamic values and practices. For example, in mudharabah financing, where one party provides capital and the other provides expertise, traditional agency problems such as moral hazard and adverse selection need to be addressed through Sharia-compliant mechanisms. This might involve developing more transparent and participatory governance systems, as well as monitoring mechanisms that align with Islamic principles. Developing an Islamic agency theory can provide new insights into how to align the interests of various stakeholders in Islamic financial transactions while maintaining the integrity of Sharia principles. This can also inform the development of more effective Islamic financial products and services for SMEs.

5.2.3. Disruptive innovation theory in Islamic financial technology

Disruptive innovation theory can be extended to explain the impact of Islamic financial technology on the traditional financial landscape. In this context, Islamic fintech can be viewed as a disruptive innovation challenging the business models of conventional financial institutions and even traditional Islamic financial institutions. Islamic fintech, for instance, may offer financial services that are more accessible, cheaper, and more compliant with Sharia principles compared to traditional financial institutions. This can change market dynamics and create new opportunities for SMEs previously underserved by the conventional financial system. Developing disruptive innovation theory in the context of Islamic financial technology can help in understanding how these innovations evolve, how they challenge incumbent players, and how they can transform the overall financial landscape. It can also provide insights into how SMEs can leverage these innovations to improve their access to financial services and enhance their performance. These theoretical implications highlight the need for an interdisciplinary approach in Islamic finance and financial technology research.

By integrating theories from various disciplines—including information systems, finance, and Islamic studies—we can develop a richer and more nuanced understanding of how Islamic finance principles and financial technology interact to influence SME performance. Moreover, these implications also indicate the importance of developing research methods that can capture the complexity of this phenomenon. This might involve a combination of quantitative and qualitative methods, as well as longitudinal approaches to understand how the adoption and impact of Islamic financial technology evolve over time. Finally, these theoretical implications pave the way for future research that can further explore the interaction between Islamic finance principles, technology, and SME performance. This could include studies on how contextual factors such as regulation, technological infrastructure, and cultural norms influence the adoption and impact of Islamic financial technology among SMEs.

5.2.4. Limitation and future research

The study has some limitations that need to be acknowledged. First, the focus on SMEs in Java may limit the generalizability of findings to other geographical contexts in Indonesia. Second, the use of cross-sectional data limits the ability to draw causal conclusions. Future longitudinal research could provide deeper insights into the causal relationship between Islamic financial principles and SMEs of performance over time. Nevertheless, this research makes a significant contribution to the literature on Islamic finance and SMEs in Indonesia. By combining quantitative and qualitative analyses, the study offers a more comprehensive understanding of how Islamic financial principles influence SMEs of performance in the dynamic context of the Indonesian economy. The research findings are expected to provide practical implications for policymakers, Islamic financial institutions, and SMES actors in Indonesia. The findings can be used to design more effective training and support programs for sharia-based SMEs, as well as to refine regulations related to Islamic finance in the SMEs sector. Overall, the research design and methodology used in this study are designed to provide an in-depth and detailed analysis of the relationship between Islamic financial principles and SMEs of performance in Indonesia. With a representative sample and comprehensive analysis methods, this research aims to produce reliable and relevant findings for the development of the sharia-based SMEs sector in Indonesia.

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