

# Capturing Fintech's Role in Optimising Financial Risk Management

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## Abstract

As Financial Technology (Fintech) continues to evolve rapidly, financial institutions recognise the need to integrate innovative solutions to enhance their risk management strategies. This acknowledgement stems from the potential benefits that Fintech offers in mitigating financial risks. However, despite this growing recognition, empirical research, particularly in emerging markets such as Jordan, remains scarce. To this end, this study aims to evaluate how Fintech applications impact the enhancement of financial risk management practices in Jordan. A questionnaire survey was developed and administered to 11 financial risk experts in Jordan to assess the effects of Fintech adoption on financial risk management. Participants evaluated the potential of Fintech applications, such as digital lending and credit, mobile banking, mobile payments, cryptocurrency, blockchain, and online trading, to improve financial risk management practices. The study findings indicate a perceived positive impact of Fintech adoption on enhancing the efficacy of financial risk management practices in Jordan. This study significantly contributes to the literature by shedding light on the positive impact of Fintech adoption on financial risk management, particularly in emerging markets like Jordan. Moreover, this study has important implications for policymakers, regulators, and banking practitioners, highlighting the importance of creating an enabling environment for Fintech adoption to address financial risks proactively.

**Keywords:** fintech, financial risk management, blockchain, emerging markets, artificial intelligence, Jordan.

## 1. The Emergence of Fintech in Financial Risk Management

The rapid proliferation of Financial Technology (Fintech) is engendering a paradigm shift in the financial services sector, introducing innovative solutions that not only enhance operational efficiency but also address the hitherto unmet risk management needs (Senyo et al., 2023). The applications of Fintech are particularly salient in the domain of financial risk management, offering sophisticated tools that facilitate the identification, analysis, and mitigation of

risks in increasingly complex and interconnected financial markets (Al Janabi, 2022). Traditional risk management strategies, often encumbered by legacy systems, exhibit limitations in their responsiveness to contemporary challenges (Al-Mhdawi et al., 2024). In contrast, Fintech solutions, exemplified by blockchain technology, digital lending platforms, and mobile banking applications, can imbue financial institutions with the requisite agility to manage risks more efficaciously (Putrevu & Mertzanis, 2024). AI's role in enhancing decision-making within complex projects (Dacre, 2024; Hsu et al., 2023) extends to financial risk management, where it aids in processing vast amounts of data and offering predictive insights. This capability is crucial for Fintech applications that aim to mitigate financial risks efficiently (Dacre & Kockum, 2022). These AI applications help bridge the gap between traditional risk management methods and the adaptive, data-driven (Brookes et al., 2020; Kockum & Dacre, 2021) approaches that modern Fintech solutions can provide.

Emerging markets present a dichotomy of unique opportunities and challenges for Fintech adoption (Senyo et al., 2023). While these markets may grapple with limited digital infrastructure and regulatory impediments, they concomitantly stand to benefit significantly from Fintech's capacity to circumvent traditional developmental stages, thus enabling a more direct trajectory towards advanced, digitally-driven financial systems (Al Janabi, 2024). In Jordan, the adoption of Fintech remains in its nascent stages, however, its potential to enhance financial inclusion and optimise risk management processes has garnered increasing attention (Putrevu & Mertzanis, 2024). For instance, the growing adoption of cryptocurrencies reflects the broader interest in leveraging Fintech to manage financial and security risks, underscoring the crucial aspect of financial literacy and trust in fostering the proliferation of these technologies (Shuhaiber et al., 2023).

Digital payment systems, for instance, offer the capability to conduct secure transactions, thereby mitigating fraud risks and enhancing the transparency of financial operations (Putrevu & Mertzanis, 2024). In this vein, machine learning applications in Fintech contribute to more sophisticated credit risk assessment, potentially refining credit approval processes by providing nuanced insights into the risk profiles of borrowers, even in data-limited settings characteristic of emerging markets (Lusinga et al., 2021). Furthermore, this integration with big data analytics and machine learning models equips financial institutions with advanced tools for liquidity risk assessment, contributing to the reliability of financial systems (Al Janabi, 2021).

Notwithstanding these potential advantages, empirical research on its impact in emerging markets remains sparse. This research therefore aims to address this gap by examining the efficacy of Fintech solutions such as blockchain and digital lending in enhancing risk management practices in Jordan. The findings from this

study will contribute to the corpus of knowledge regarding Fintech's role in emerging markets and offer valuable insights for policymakers and regulators on fostering an environment conducive to Fintech innovation and proactive risk management (Devidze, 2022).

## **2. Bridging the Gap: Fintech's Potential and Limitations in Financial Risk Management within Emerging Markets**

Kriebel and Stitz (2022) posit that deep learning models can significantly improve credit risk assessment by analysing user-generated data. However, their research is grounded in contexts where data infrastructure is consistent and data quality is reliable, which represent conditions not always present in emerging markets. These settings are often characterised by limited access to reliable data, raising questions about the real-world feasibility of such approaches in countries such as Jordan. Mamun et al. (2020) advocate blockchain-based solutions for Know Your Client (KYC) processes, arguing that these systems can reduce redundancy and enhance security. While this framework is theoretically positioned, the practical implementation of blockchain technology faces significant hurdles in less developed markets, where regulatory and technological infrastructures may be inadequate (Senyo et al., 2023). This disconnect between theoretical potential and practical feasibility reveals a recurring theme in Fintech literature, which is that there exists an overemphasis on the capabilities of the technology itself, with insufficient consideration of the environmental factors that influence its effectiveness (Elliott et al., 2021).

Artificial intelligence and machine learning present additional complexities, particularly in terms of explainability and trust (Hsu et al., 2023). Elliott et al. (2021) and Adams and Hagrais (2020) critique the opacity of AI systems, which can obfuscate decision-making processes. While explainable AI (XAI) has emerged as a solution to this issue, its implementation is not simple, particularly in the financial sector where accuracy may be prioritised over transparency (Hsu et al., 2023). Moreover, the black-box nature of many AI models may exacerbate existing concerns about fairness and accountability (Hsu et al., 2021), especially in markets where regulatory oversight is still evolving. This raises critical questions about the appropriateness of deploying such technologies in emerging markets, where trust in financial systems may already be fragile.

This gap in the literature underscores the need for a focused investigation into the applicability of Fintech innovations in such contexts. Specifically, it is essential to understand how Fintech innovations, such as blockchain and AI, impact financial risk management in Jordan, and what contextual factors influence their effectiveness in emerging markets. Predictive capabilities of AI, such as those seen in recurrent neural networks, have been found to enhance project outcomes by accounting for inter-project dependencies (Hsu et al., 2021). In Fintech, similar AI

models can provide predictive insights into financial risks, which is particularly valuable in markets with limited historical data.

The impetus for undertaking this research stems from the recognition that while Fintech offers a suite of innovative tools for financial risk management, its applicability in diverse market contexts remains poorly understood. The tendency to generalise Fintech's benefits without acknowledging the nuances of different financial environments results in a body of research that is both optimistic and incomplete. As such, by delving into these overlooked contextual factors, we seek to contribute to a more nuanced understanding of Fintech's role in financial risk management, ultimately informing more context-sensitive and relevant applications of these technologies in emerging markets.

### **3. Surveying Expert Perspectives on Fintech for Financial Risk Management**

A structured questionnaire survey was administered to a targeted sample of 11 financial risk experts in Jordan. This expert survey approach is a well-established method for capturing informed perspectives on emerging technologies, especially when dealing with specialised topics where domain expertise is crucial (Rowley, 2014). The survey was designed to capture experts' perceptions of Fintech applications, including digital lending, mobile banking, cryptocurrency, blockchain, and online trading, and to assess their effectiveness in mitigating financial risks. The collected data were analysed to identify recurring themes and patterns, with particular attention to the Fintech applications viewed as most advantageous for risk management.

The collected data were analysed to identify recurring themes and patterns, with particular attention to the Fintech applications viewed as most advantageous for risk management. The integration of qualitative insights from open-ended responses provides a richer understanding of the contextual factors impacting Fintech adoption, offering a more nuanced view than quantitative measures alone (Bazeley, 2013). The study adheres to ethical guidelines, with all participants providing informed consent and assurance of data confidentiality, which aligns with best practices in survey research (Dillman, Smyth, & Christian, 2014).

### **4. Discussion of Expert Insights on Fintech's Potential and Challenges in Emerging Markets**

The survey responses reveal several insights into how financial risk experts in Jordan perceive Fintech's role in enhancing risk management. Blockchain and mobile banking emerged as the most promising technologies, with blockchain particularly valued for its potential to improve transparency and secure financial transactions. Experts noted that blockchain's decentralised nature could address issues of fraud and identity verification, reflecting broader views in the literature

about blockchain's ability to enhance data integrity (Mamun et al., 2020). However, respondents also emphasised the challenges involved in implementing blockchain, particularly in a context where regulatory frameworks are still evolving. AI tools like ChatGPT, which have been evaluated for their adherence to standards such as ISO 31000, also demonstrate the capability of AI-driven solutions to offer structured risk management processes, making them particularly relevant for these contexts (Al-Mhdawi et al., 2023).

Adoption of Fintech in emerging markets face several barriers, including infrastructural and regulatory challenges, which are also evident in other sectors undergoing digital transformation (Corbin et al., 2024). Mobile banking was similarly highlighted for its capacity to expand access to financial services and support efficient risk management. Experts cited mobile banking's ability to facilitate real-time transaction monitoring, which enhances risk assessment, being a key advantage acknowledged by the participants. Yet, concerns were raised about Jordan's digital infrastructure and varying levels of financial literacy, both of which could limit widespread adoption. This mirrors findings from studies on Fintech deployment in emerging markets, which frequently underscore the importance of infrastructure and literacy in supporting digital finance (Al Janabi, 2024).

Cryptocurrency elicited mixed responses from participants, who acknowledged its potential for financial diversification but expressed apprehension about its volatility and the lack of regulatory clarity. Such hesitance aligns with broader concerns within emerging markets, where regulatory adaptation to cryptocurrencies has been slower compared to more established financial technologies (Tseng et al., 2021). For many experts, the uncertainty surrounding cryptocurrency underscores the need for a supportive regulatory environment that can effectively manage associated risks.

In emerging markets such as Jordan, these challenges are particularly pronounced. Regulatory constraints, for example, can stifle the adoption of new technologies like cryptocurrency, as financial systems often lack clear guidelines or legal frameworks to govern their use (Tseng et al., 2021). Similarly, the lack of robust infrastructure may hinder the scalability of mobile banking solutions, reducing their potential to reach underserved populations and mitigate risk (Al Janabi, 2024). As such, by mapping these relationships, the conceptual framework visually captures the barriers that must be addressed to fully leverage Fintech's capabilities in these contexts (Figure 1).

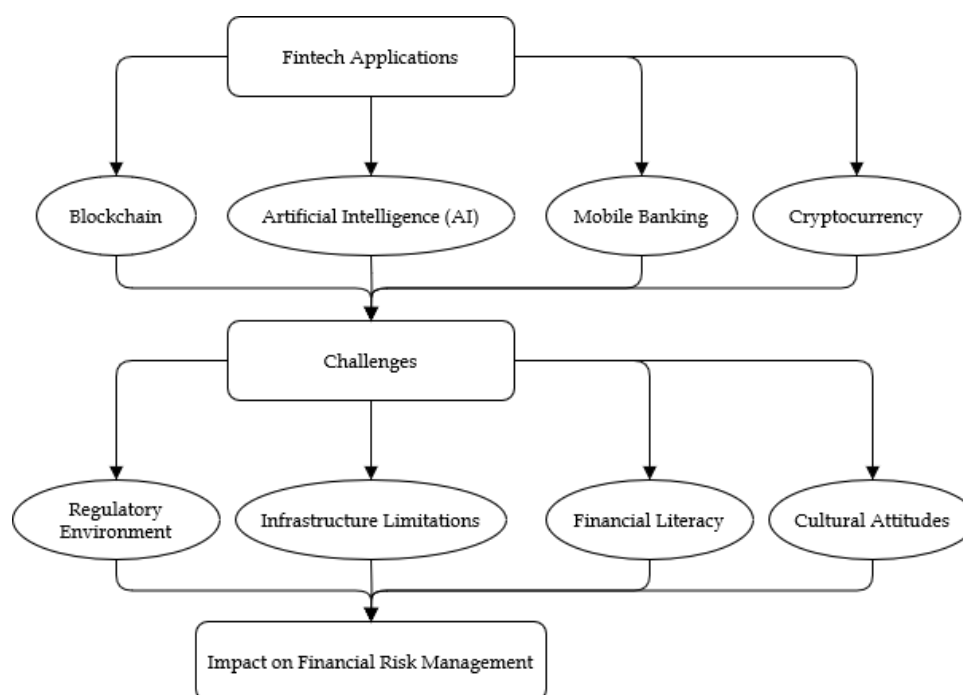


Figure 1: Fintech Applications and Challenges in Financial Risk Management within Emerging Markets

This synthesise outlines the key elements, highlighting how each Fintech application, blockchain, artificial intelligence, mobile banking, and cryptocurrency, faces distinct yet interconnected challenges. These challenges, such as regulatory limitations, infrastructure deficiencies, low levels of financial literacy, and cultural attitudes towards technology, can significantly influence the effectiveness of Fintech in managing financial risks.

Analysis of open-ended responses further highlighted that regulatory uncertainty is perceived as a significant barrier to Fintech adoption. Experts consistently pointed to the need for clear policies to support safe and effective Fintech integration, a concern that echoes general findings in Fintech literature, where regulatory adaptation is considered crucial for successful implementation (Elliott et al., 2021).

While the experts expressed optimism about the potential of Fintech to enhance financial risk management, they also identified critical challenges that must be addressed to realise these benefits fully. The preliminary findings suggest that although Fintech offers promising tools, its effectiveness in Jordan will depend on targeted improvements in digital infrastructure, financial literacy, and regulatory support. While the potential of AI in Fintech is widely recognised, there is a need to balance optimism with a realistic assessment of its capabilities and limitations. As discussed, AI can enhance risk management significantly, but its successful integration depends on a supportive organisational and regulatory environment (Dacre, 2024). This underscores the importance of a nuanced approach that considers both technological potential and the contextual factors unique to emerging markets.

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