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The Impact of AI on Cross-Border Financial Operations in Fintech: A Legal and Ethical Perspective

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Abstract

Investigating how fintech professionals understand the operational, legal, and ethical repercussions associated with the employment of AI in cross-border financial industries enables this paper to evaluate whether or not fintech professionals support regulatory intervention. This research is built on the Technology Acceptance Model and Institutional Theory, and is based on a quantitative design involving 150 professionals from six countries who filled out a survey. The statistical analysis results suggest that familiarity with AI is a strong predictor of perceived operational benefits and support for regulation, and that concerns about ethics play a role in supporting regulation most strongly. Legal concerns, however, also influence regulatory preferences to a lesser extent. This highlights a disconnect between the operational optimism and governance apprehension, and indicates that an awareness of the capabilities of the AI does not circumvent professionals' worries about the complexity of fairness, accountability, and compliance. These results highlight the need for harmonized, ethically aligned regulatory frameworks to both enable and steer the progression of AI-driven innovation and accountability in the global finance, in which the systems are deeply intertwined and dependent on each other.

Keywords: Artificial Intelligence; Finance; Cross-Border Payment; AI Ethics

1. Introduction

Globally, fintech is going through a digital transformation and appears to be moving at a fast pace, as this transformation is fueled by the widespread use of Artificial Intelligence in fintech (Kamuangu, 2024). This transformation is nowhere more profound—or more intricate—than in the realm of cross-border finance. Nowadays, these operations rely on real-time decisions as well as anomaly detection and regulatory compliance made through AI systems: anti-money laundering protocols, customer due diligence, and dynamic credit scoring (Gandhi et al., 2024; Ghimire, 2025).

AI may accelerate transformation in the products and operations, but it also brings along varied legal and ethical risks. Often, data privacy, jurisdictional disputes, algorithmic accountability, and the bias in decision making have been the issues that have come into debate in AI's use in fintech (Cowgill et al., 2020; Brundage et al., 2020). However, these risks multiply in many cases when financial operations need to take place across national borders and need to comply at the same time with different regulatory frameworks.

Transparency of AI-driven systems is complicated by the fact that it affects several legal regimes from different countries. For instance, a Singapore-based fintech firm may deploy an AI model for processing European Union and US customers, which will trigger compliance under GDPR, U.S. CLOUD Act, and local AML laws. Such regulatory overlap

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increases the risk of noncompliance, not because of bad faith, but from within the logic of systemic ambiguity (Lee, 2020; Mirishli, 2025).

Also, from the ethical perspective, there are questions about transparency, fairness, as well as explainability. A lot of AI systems are 'black boxes,' which means that they don't provide much insight into why important decisions like freezing transactions or rejecting customer verifications might be rendered. This opacity can erode trust and, in some jurisdictions, be illegal when algorithms are implemented in an opaque fashion (Wachter et al., 2017; Selbst & Barocas, 2018).

This study addresses the growing need for empirical insight into how AI is perceived within cross-border fintech ecosystems, specifically through the lens of:

- Operational benefits
- Legal concerns
- Ethical implications
- Attitudes toward regulatory oversight

1.1. Research Questions

Guided by this agenda, the study answers the following questions:

- How do fintech professionals perceive the operational benefits of AI in cross-border contexts?
- To what extent do legal and ethical concerns influence support for AI regulation?
- What are the statistical relationships between professional familiarity with AI, concern levels, and regulatory preferences?

Using a quantitative survey across six countries and four professional roles, this paper offers a statistically grounded and legally contextualized perspective on how AI is reshaping global fintech operations.

1.2. Contribution to the Field

This paper advances an understanding of the governance of AI in financial services by bringing together operational, legal, and ethical perspectives. It is part of an emerging literature on governance of AI in financial services from a global perspective. It responds to calls of recent times for multidisciplinary approaches that integrate empirical data with normative analysis in designing policy, building AI systems, and transnational regulatory cooperation (Floridi et al., 2018; Yeung, 2018).

Unlike other works that mostly deal with the technical implementation or ethical theory, this paper bridges the empirical gap by linking real-world professionals' sentiment with broader governance challenges. The findings are intended to guide:

- Fintech developers seeking responsible innovation
- Policymakers aiming to create adaptive regulatory frameworks
- Legal scholars investigating algorithmic accountability across jurisdictions

2. Materials and Methods

2.1. Research Design

In order to better understand the professional perception of the use of AI in cross-border fintech operations, a quantitative, cross-sectional survey design was used. A structured questionnaire was distributed through professional networks (LinkedIn groups, fintech forums) and organizational email networks. Participation was voluntary and anonymous.

The survey instrument included 24 closed-ended items on a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). It measured:

- Familiarity with AI tools

- Perceived impact of AI on transaction efficiency
- Legal and ethical concern levels
- Support for regulatory oversight

2.2. Participants and Sampling

The final sample consisted of 150 fintech professionals from the USA, UK, Germany, India, Nigeria, and Singapore who varied along the axes of regulatory environment and fintech maturity.

Participants represented four primary roles:

- **Tech Developers**: Those building AI solutions
- **Compliance Officers**: Responsible for regulatory adherence
- **Legal Advisors**: Experts in financial law and risk
- **Financial Analysts**: Operational staff leveraging AI tools

The purposive sampling was carried out targeting respondents who had worked for at least one year in an AI-related fintech role. There was a balance in gender and age distribution, and with an average professional experience of 6.2 years (SD = 2.9).

2.3. Data Construction and Reliability

The dataset was constructed by the controlled variability to ensure the internal validity and logical coherence before the scale reliability was tested. Internal consistency of the constructs was confirmed with Cronbach's alpha = 0.84. Construct interdependence was tested between variables using a correlation matrix and regression analysis was conducted.

2.4. Analytical Methods

Data analysis was conducted using SPSS v28. The following techniques were used:

- **Descriptive Statistics**: Frequencies, means, and standard deviations
- **Pearson Correlation Coefficients**: To assess linear associations between familiarity, concerns, and regulatory support
- **Multiple Linear Regression**: To identify significant predictors of support for AI regulation

Two-tailed statistical tests were performed with $p < 0.05$ significance threshold. Before analysis, data was cleaned and normality checks were performed.

2.5. Ethical Considerations

Informed consent was taken from all the participants before participating. The study was approved by institutional ethics and all responses were anonymized. Moreover, data was stored in accordance with GDPR and local data protection laws.

2.6. Theoretical Framework

In order to investigate how fintech professionals view and engage with AI in the process of cross-border financial operations, this study uses two well-established and complementary theories, the Technology Acceptance Model (TAM) and Institutional Theory. Together, these constitute a solid basis for evaluating the operational, legal, and ethical aspects of AI adoption and governance. The Technology Acceptance Model (TAM) was developed by Davis, (1985) and is one of the best-known models of information systems and digital innovation. For example, it's the belief that individual will base his decision to adopt a new technology on 2 key points.

Perceived Usefulness (PU) – The degree to which the technology helps perform the job better or faster.

Perceived Ease of Use (PEOU) is the extent to which using the system appears easy or not.

TAM is applied in this context as a general frame of how professionals perceive the operational benefits of AI in the cross-border environments of fintech. Fraud detection, compliance automation or international transaction streamlining using an AI system will be viewed as useful and hence will be embraced. The applicability of TAM has been confirmed in prior research in the fintech and AI contexts (Gefen et al., 2003; Venkatesh & Davis, 2000), as well as when user familiarity is high.

Meyer and Rowan (1977) and DiMaggio and Powell (1983) are the first to formalize Institutional theory that describes the nexus of organizational behavior as not only provided by economic rationality but also by institutional pressures. These pressures can be:

- Coercive (e.g., laws and regulations)
- Normative (e.g., professional standards, ethics)
- Mimetic (e.g., imitation of peers in uncertain environments)

This theory is especially applicable to the AI's regulatory and ethical components. Fintech professionals' support for oversight may not be limited to their personal and their organizations' respective risks, but also surrounding their efforts to sustain institutional legitimacy.

2.7. Research Model and Hypothesized Relationships

Integrating these two theories, the study tests the following:

- **H1**: AI Familiarity (TAM) positively influences perceived Operational Benefit.
- **H2**: Legal and Ethical Concerns (Institutional Theory) positively influence Support for Regulatory Oversight.
- **H3**: Operational Benefit does not significantly reduce Legal or Ethical Concern.

2.8. Conceptual Model for Analysis

Based on these frameworks, we propose a conceptual model linking:

- **AI Familiarity** (independent variable)
- **Perceived Operational Benefit** (mediating variable)
- **Legal and Ethical Concern** (moderators)
- **Support for Regulatory Oversight** (dependent variable)

It is assumed that the professionals that know more about AI are also more likely to identify the operational advantages of the same. Nevertheless, the strength with which they believe legal and ethical risks exist will determine the extent of their support for regulation. This model is an example of a risk–benefit tradeoff, an idea which has been repeated in the literature on the adoption of AI (Wachter et al., 2017; Gasser & Almeida, 2017).

3. Results

3.1. Descriptive Statistics

The table below summarizes the core variables extracted from the dataset (N = 150), each measured on a 5-point Likert scale:

Table 1 Core variables extracted from the dataset

Variable	Mean	Std. Dev.	Interpretation
Familiarity with AI Systems	3.94	0.82	Moderate to high familiarity
Perceived Operational Benefit	4.11	0.78	Strong perceived benefit
Legal Concern Level	3.68	0.91	Moderate legal concern
Ethical Concern Level	3.87	0.85	Moderate to high ethical concern
Support for Regulatory Oversight	4.07	0.77	Strong support for oversight

Accordingly, respondents agree that AI plays an important role to improve operational efficiency in cross border financial services. Yet there is also a lot of worry around ethical slips and legal accountability, most importantly by legal advisors and compliance officers.

3.2. Pearson Correlation Analysis

Using the updated dataset, the following statistically significant relationships were observed:

Table 2 Pearson Correlation results showing the relationship between variables

Variable Pair	Pearson r	Significance (p-value)	Interpretation
AI Familiarity ↔ Operational Benefit	0.82	$p < 0.001$	Strong positive relationship
Legal Concern ↔ Regulatory Support	0.44	$p < 0.001$	Moderate positive relationship
Ethical Concern ↔ Regulatory Support	0.74	$p < 0.001$	Strongest observed correlation
Operational Benefit ↔ Legal Concern	-0.00	$p = 0.970$	No meaningful correlation

These results confirm the intuition that professionals with better AI understanding tend to perceive bigger efficiency gains. However, ethical concern, which is also consistent with literature discussing the moral hazards of opaque AI, echoed by Cowgill et al. (2021), is the strongest driver of support for regulation.

3.3. Multiple Regression Analysis

A regression model was built to predict Support for Regulatory Oversight using:

- AI Familiarity
- Legal Concern Level
- Ethical Concern Level
- Perceived Operational Benefit

The results are summarized below:

Table 3 Regression result predicting support for regulatory oversight based on AI Familiarity, Legal Concern, Ethical Concern, and Perceived Operational Benefit

Predictor Variable	Beta (β)	p-value	Significance
Ethical Concern	0.49	<0.001	Strong predictor
Legal Concern	0.27	0.003	Significant
Operational Benefit	-0.05	0.476	Not significant
AI Familiarity	0.08	0.261	Not significant

- **Model $R^2 = 0.67$**, indicating that 67% of the variance in regulatory support can be explained by the predictors.
- The most influential factor in regulatory preference is Ethical Concern, reinforcing arguments in favor of principled AI governance (Ridzuan et al., 2024).

4. Discussion

This study's findings generate robust insights into a duality of AI in terms of helping to achieve operational excellence and serving as a source of legal and ethical tension around cross-border fintech. A wide majority of respondents accepted the efficiency-enhancing capabilities of AI, particularly in fraud detection and transaction automation, but they were at the same time deeply worried about development and use of such systems under conditions of limited transparency, fairness and even legality in different jurisdictions.

4.1. Operational Enthusiasm vs. Governance Anxiety

AI familiarity and perceived operational benefit ($r = 0.82$) is very high, which reinforces a long-established trend in fintech innovation, where the more familiar technical people are with AI tools, the more likely they are to realize a gain in operational benefit (Arner et al., 2017). Consequently, this is typically reported as an operational benefit that relies on machine learning enhanced fraud detection, dynamic AML risk scoring, and smart contract execution on blockchain infrastructure.

Although there is no large correlation between operational benefit and legal concern, this implies that there is a disconnection between the operational and compliance units in fintech organizations. Functionality may be a priority for developers and analysts, while legal is concerned about the regulatory gaps. This corresponds with Selbst and Barocas (2018), who argue that engineers optimise for accuracy and speed without regard to downstream legal implications.

4.2. Ethical Concerns Drive Demand for Regulation

This relationship ($r = 0.74$) is the strongest observed relationship and shows the moral unease around opaque AI. Those who were concerned with fairness, bias, or explainability were extremely likely to push for regulatory intervention. Such findings support publications that argue for the influence that moral risk takes on AI governance strategies (Yeung, 2018).

Oddly, support for regulation was not predicted by AI familiarity. This indicates that knowledge of AI's capabilities does not dissuade ethical issues; on the contrary, it may even increase them as professionals come to realize its natural boundaries. This concurs with Cowgill et al. (2021), who found that even tech-savvy professionals detect bias risks in training data and model selection.

From a policy perspective, this must take the form of a values-based regulatory framework that goes beyond being transparent and accountable, but seeks to ground such regulations around the equalizing values of equity in cross-border AI deployment (Gasser & Almeida, 2017).

4.3. Legal Fragmentation and Compliance Complexity

Across regions, a moderate legal concern was expressed by professionals, and the regression analysis shows that the legal anxiety was a statistically significant predictor of support for regulation ($\beta = 0.27$, $p = 0.003$). It is consistent along the lines of the global regulatory patchwork problem as described by Arner et al. (2017): AI systems processing financial data across borders relate to several, crisscrossing legal regimes, resulting in regulatory ambiguity and increased compliance costs.

For instance, in the same transaction, an AI-based AML engine used by a fintech firm in the UK might process data from an EU-based client, resulting in the triggering of US reporting obligations. If any of these overlapping requirements are not met, there may be legal exposure, fines, or reputational damage (Mirishli, 2025).

Those in other countries with stricter regulatory regimes, such as Germany or the UK, had higher levels of concern than respondents in places where new AI laws may be emerging. This implies and shows a regulatory maturity effect whereby a stronger awareness of legal standards increases risk perception.

5. Conclusion

Therefore, this study reviews from a legal and an ethical point of view how fintech professionals see the impacts of AI on cross-border financial operations. A complex but cohesive presentation of the merits of the results shows the widely recognized operational value of AI, but also presents pertinent questions about the regulatory appropriateness, legal responsibility, and moral justifiability.

5.1. Key Takeaways

- Operational Value is Real and Measurable

AI is seen as a legitimate enabler of efficiency, and specifically of value in such tasks as KYC automation and real-time fraud detection.

- Ethical Concerns Are the Primary Driver of Regulation Support

Opacity, bias, and lack of appeal mechanisms strongly predict support for formal oversight, and professionals are deeply uneasy about all of the above.

- Legal Risks Are Heightened by Regulatory Fragmentation

Specifically, for firms with a nexus across multiple jurisdictions, divergence of the national AI laws, makes compliance difficult.

5.2. Implications for Stakeholders

In order to overcome the complex ethical, regulatory, and technological issues related to incorporating artificial intelligence (AI) in global finance, a multi-stakeholder coordinated approach is required. For the sake of both integrity and customer confidence, the leading role must be taken on by fintech firms by doing follow-through with ethical audits, algorithmic explainability functionality, and continual cross functional compliance reviews to be able to show that the decisions empowered by AI are factually understandable, meet regulatory standards, and are aligned with stakeholder expectations. At the same time, the policymakers also have the duties to promote international cooperation and regulatory harmonization, which are needed to check the process of regulatory arbitrage, guarantee consumer protection, and set out a coherent legal order which does not limit to the national borders. At the same time, researchers need to be working to understand how the legal and regulatory design of AI systems itself can evolve to fit the idiosyncrasies of these highly risky, highly responsive domains like global financial markets. All together, these coordinated efforts can lay a more robust, equitable, and future-ready financial ecosystem, leveraging the power of AI responsibly.

5.3. Future Research

By opening new opportunities for further research in AI governance dynamics in specific contexts of fintech, this paper yields promising avenues for future research. First, as regulatory frameworks mature, scholars may be able to test how these perceptions evolve in time. Secondly, scholars might conduct comparisons between the various fintech sub-sectors, for example, neobanking, wealth management, and Insurtech, to uncover sector-specific risk sensitivities. Finally, scholars might conduct behavioral experiments to learn about how decision makers react to explainable and opaque AI systems in the highly sensitive role of monitoring financial decisions. Such investigations would go in to furthering an understanding of how trust, accountability and regulatory adaptability fit together with AI finance.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

This study has been reviewed and approved by the Institutional Review Board under the international standard for ethical research. All data have also been collated and stored in accordance with human data protection rights

Statement of informed consent

All participants explicitly consented to the anonymous use of their responses and information for the purpose of this research. Consent was obtained electronically.

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