

AI in Finance: Evolution, Outlook, Strategy and Governance

Douglas W. Arner

Cambridge Centre for Alternative Finance / University of Hong Kong /
Queen Mary University of London

d.arner@jbs.cam.ac.uk

Overview

- AI in finance: context
- Survey data
- Taxonomy: Governance approaches
- Framework: Building a risk-based approach to AI in finance
- Risks and approaches
- Strategies

AI and Finance

- Digitisation, storage, power, communications, analytics
- Digitisation
- Data: standardisation
- Incentives / resources
- Theory / experts
- [Artificial Intelligence in Finance: Putting the Human in the Loop by Dirk A. Zetsche, Douglas W. Arner, Ross P. Buckley, Brian Tang :: SSRN](#) (CFTE Mar. 2020)

- [BIS: Intelligent financial system: how AI is transforming finance \(BIS June 2024\)](#)
- BIS: [Artificial intelligence in central banking](#)
- BIS: [Generative artificial intelligence and cyber security in central banking](#)
- [BIS: Quantum computing and the financial system: opportunities and risks](#)
- [BIS: The AI supply chain](#)
- [BIS: Managing explanations: how regulators can address AI explainability](#)
- [BIS: Starting with the basics: a stocktake of gen AI applications in supervision](#)

- [The Financial Stability Implications of Artificial Intelligence - Financial Stability Board](#)
- [Monitoring Adoption of Artificial Intelligence and Related Vulnerabilities in the Financial Sector - Financial Stability Board](#)
- [IOSCO: CR/01/2025 Artificial Intelligence in Capital Markets: Use Cases, Risks, and Challenges](#)
- [Artificial intelligence in Asia's financial sector | OECD](#)
- [Generative artificial intelligence in finance | OECD](#)
- [Regulatory approaches to Artificial Intelligence in finance | OECD](#)
- [Industries in the Intelligent Age White Paper Series | World Economic Forum](#)
- [2025 IIF-EY Annual Survey Report on AI Use in Financial Services > The Institute of International Finance](#)
- [Hong Kong Monetary Authority - Report on “Financial Services in the Era of Generative AI: Facilitating Responsible Adoption”](#)
- [IMF: Regulatory Considerations Regarding Accelerated Use of AI in Securities Markets](#)
- [IMF: AI Projects in Financial Supervisory Authorities: Toolkit for a Successful Implementation, WP/25/199, October 2025](#)

- [State of SupTech Report 2025 by Simone di Castri, Matt Grasser, Maryeliza Barasa :: SSRN](#) (CCAF Dec. 2025): four-year view of how financial authorities are digitalising supervision, drawing on a dataset covering 312 authorities across 172 countries. 2025: 148 authorities from 105 countries
- [AI in Financial Services 2030 Global Surveys - Live research surveys - Cambridge Judge Business School](#)
- Open until end January 2026
- Current: approximately 300 financial institutions (60/40 fintech / tradfi)
- 125 regulators, 80 countries
- 110 vendors, 34 countries

- Governing Artificial Intelligence in Finance: <div> Strategies for Balancing Sustainable Development, Innovation, Risk, and Competitiveness </div> by Douglas W. Arner, Christine Meng Lu Wang :: SSRN

Governance approaches: Taxonomy

- New or existing?
- Strategy?
- Horizontal or vertical?
- Mandatory?
- Use of AI by public authorities: Regtech / supotech?

*FinTech:
Finance, Technology and Regulation*

Cambridge University Press 2024



Ross P. Buckley

UNSW Sydney

ross.buckley@unsw.edu.au

Douglas W. Arner

University of Hong Kong

douglas.arner@hku.hk

Dirk A. Zetsche

University of Luxembourg

dirk.zetsche@uni.lu

Regulatory approaches: Options

Traditional framework: permissive / restrictive, rules / principles, risk-based

Pre and Post-Crisis environment: innovation and Volcker

Doing nothing: permissive / restrictive, intentional / unintentional

Cautious exploration: forbearance / leniency

Structured experimentation: sandboxes

Regulatory design: payments, crowdfunding, digital financial institutions, digital assets, data

FinTech and new technologies: Approaches and lessons

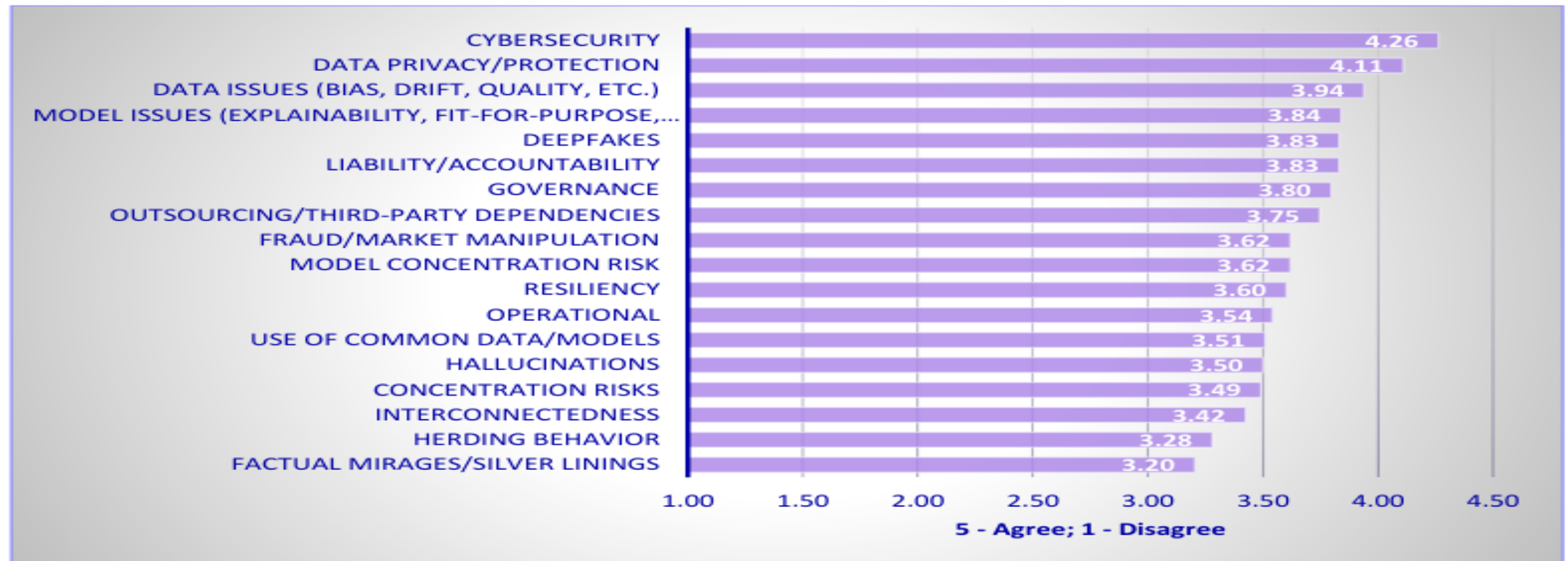
- AI
 - DLT / Blockchain
 - DeFi
 - Data
-
- Lessons
 - Innovation hubs, sandboxes, pilots, test and learn
 - Regulatory design
 - Graduated proportional risk-based approach
 - RegTech / SupTech

Risks

In addition to surveying use cases, AMCC asked respondents whether eighteen different enumerated risks were material to deploying or using AI. Respondents ranked each risk on a 5-point scale, as follows: agree, somewhat agree, neutral, somewhat disagree, disagree, or N/A.

[CR/01/2025 Artificial Intelligence in Capital Markets: Use Cases, Risks, and Challenges](#) (IOSCO Mar. 2025)

The below chart compares the relative respondent scores for all eighteen risks included in the survey across all respondent types.



AI risks and governance

- Macro: scenario analysis
- Micro / sectoral: finance as a regulated industry, human in the loop, external validation / monitoring
 - Sandboxes / testing
- Infrastructure: resilience / competitiveness / security
 - [The AI supply chain](#)
- Malicious actors: regtech / supotech / cooperation
- Culture: education
 - [Our Hong Kong: Nearly 1 in 4 Hong Kong students can't finish homework without AI, study shows | South China Morning Post](#)
 - [Digital Education Council | Home](#)
 - [Online Fintech Courses & Certifications - CFTE](#)

Contemporary financial regulatory objectives

- Monetary stability
- Financial stability: macro and micro
- Efficiency
- Consumer / investor / depositor protection / conduct
- Market integrity
- Developmental objectives: growth, innovation, competition, capital formation, financial inclusion, sustainable development etc

Finance and Innovation: Strategies

- Regulatory approaches
- Infrastructure
- Wider ecosystem

- Data
- AI
- Digital transformation

Looking forward