Intelligent financial system: How AI is transforming finance*

I Aldasoro (BIS), L Gambacorta (BIS), A Korinek (U of Virginia), V Shreeti (BIS) and M Stein (U of Oxford)
20 June 2024, SUERF-Unicredit workshop, Vienna

*Views are the authors’ and not necessarily of the BIS
Overview

❖ Finance through the lens of information processing.

❖ Opportunities & challenges of AI in finance.

❖ Financial stability and the real economy.

❖ Implications for regulation.
The role of the financial sector
The role of the financial sector
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Dispersed information → Financial sector
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Dispersed information → Financial sector → Price signals
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BIS
The role of the financial sector

- Dispersed information
- Financial sector
- Price signals
- Allocation of scarce resources
The role of the financial sector

Finance as the **brain** of the economy: enables efficient flow of capital, manages risk, maintains liquidity.
Finance and the evolution of information processing technology

Ancient Sumerians developed the abacus to address financial needs.
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Code of Hammurabi laid out laws to govern financial transactions.
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History of computation and information processing intertwined with history of commerce and finance.
The journey to modern AI

Financial sector among the first to adopt and use the earliest **computers** (e.g. IBM 650).
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Earliest AI, **rule-based expert systems** led to efficiency improvements in finance & shaped tech development.
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New frontier for finance is **generative AI**. Vast potential, new risks?
Decoding AI: what’s new for the financial sector?

- What are the emerging opportunities and challenges of using Gen AI in banking and finance?
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Financial stability and AI

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Financial stability and AI

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Machine learning increases network interconnectedness, data uniformity, model herding.

Gen AI leads to the fat tail problem, third party dependencies, model herding and uniformity,
Spillovers from the real economy
Spillovers from the real economy

AI adoption

Positive productivity shock and small labor market disruptions
Spillovers from the real economy

AI adoption → Positive productivity shock and small labor market disruptions → Limited financial stability concerns
Spillovers from the real economy

Optimistic scenario

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Land in the middle?
Upgrading financial regulation for AI

- Social and environmental well-being

*Based on Bradford (2023)
Upgrading financial regulation for AI

Principles for AI regulation

- Social and environmental well-being
- Transparency and accountability

Regulatory models for AI*

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Thank you! Questions?
Vatsala.Shreeti@bis.org
Using AI for prudential policy

**Microprudential policy**

- Supervision of individual financial institutions.
- AI powerful for recognizing patterns in large volumes of cross-sectional data.
- Better risk assessment, spotting market manipulation.
- Easier regulatory reporting and compliance for firms.
- Risks: explainability, bias, privacy

**Macroprudential policy**

- Supervision of the financial system as a whole.
- AI less effective to spot and measure systemic risk without human judgement.
- Financial crises are unique and rare – data availability is limited.
- The problem of “unknown-unknowns.”
- Future advances in AI may open up new avenues.
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