

AI's Impact on Finance: Reshaping Information and Its Consequences

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Why AI Matters for Finance?

- A key function of financial intermediaries is to produce information to overcome informational frictions ([Levine, 1997, JEL](#)):

“Financial markets and institutions may arise to ameliorate the problems created by information and transactions frictions.”

- **Artificial intelligence (AI):** Data Abundance (Alternative Data, Market Data) + New Algorithms to transform data into signals and decisions + Cheaper computing power.
 1. Changes how financial information is produced and used in the financial industry (human judgment → machines).
 2. Reduces the cost of producing financial information (more accurate forecasts at lower cost).
- ⇒ AI matters for finance.

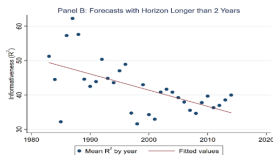
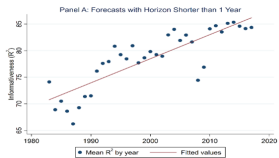
Gains and Risks of AI Adoption in Finance

- **Potential Gains:** Lower costs of information production about asset cash-flows and returns ⇒
 1. Lower cost of risk sharing and financing (financial intermediation)
 2. Faster and more precise trading signals: More informative securities prices.
 3. Better project screening and monitoring: More efficient capital allocation.

- **Potential Risks**
 1. Misallocation of information production capacity: AI changes the composition of information production.
 2. Increased informational asymmetries
 3. Increased market power for intermediaries
 4. Increased fragility arising from unpredictable behavior of AI-powered agents.

Misallocation of Information Production Capacity

- Exploiting information in **market data** (second-hand) for trading \Rightarrow Lower returns on producing fundamental information (first hand).
- Trading **fast on imprecise** signals vs. **slowly on precise** signals \Rightarrow Lower returns on producing more precise signals.
- Alternative data tend to contain more **short-term rather than long-term** information \Rightarrow Trading signals are more short-term focused.
- **Herding**: Using the same datasets and same algorithms for signal extraction \Rightarrow More correlated signal errors.



Dessaint et al. (2024, JoF)

Asymmetric Information and Market Power

- Using AI tools requires large investments in data infrastructures (computing power, datasets, storage capacity) and skilled labor.
 - Prop trading firms with greater AI investments may obtain more precise signals and execution capabilities.
 - ⇒ Greater informational asymmetries and increasing returns to scale in liquidity provision and proprietary trading.
 - ⇒ Potential concentration of market-making activity and larger informational rents.
 - ⇒ Potentially larger adverse selection costs and trading frictions.

Unintended Consequences and Unpredictability

- Self-learning algorithms can learn to sustain supra-competitive prices, even if not explicitly designed to do so.

"Finding ways to prevent collusion between self-learning algorithms might be one of the biggest challenges that competition law enforcers have ever faced [...]" Financial Times, "Policing the digital cartels," January 21, 2017

- Experimental evidence in product markets supports this concern (see [Calvano et al. \(2020\), AER](#)).
 - Recent experimental evidence shows that similar problems can arise in financial markets ([Colliard et al. \(2025\), RFS](#))
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- Predicting and understanding the behavior of self-learning algorithms is difficult ⇒
 1. Interactions among AI agents may generate unexpected systemic behavior
 2. This complicates policy intervention and market oversight
 3. Need for more research on the market-wide interactions of AI-powered trading agent.