Finance and Artificial Intelligence

Finance 612: Corporate Finance

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Why Finance and AI?

- Both are all about predictions.
- Finance has always been technologically advanced.
  - Early adopter: mainframes, Bloomberg terminals.
- We can measure success and performance in finance.
  - This is one reason mutual funds are so interesting to study.
- AI actually isn't that new to finance, so we may be able to learn something about other industries.

Finance is important and a unique lab to study AI.

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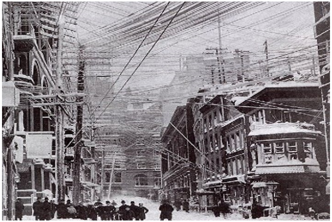

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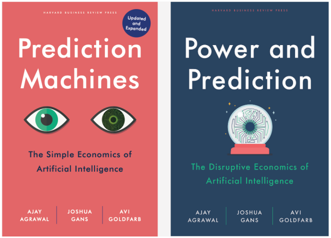
The Economics of AI – Prediction Machines

- All chatGPT does is make predictions.
  - What would a human write in response?
  - What would a human want me to do for them?
  - What word should follow this word?
- The innovation is the quality, speed, and low cost of the predictions.
  - Also, the novel use of predictions to write things.
- When predictions are better, faster, and cheaper, people do more of it!

The core task of AI isn't new. It's really just prediction.

The Economics of AI – General-Purpose Technology

- Certain technologies have reshaped entire economies.
  - Electricity.
  - Computers.
  - Internet.
- But the reshaping can take decades.
  - Culture changes slowly.
  - Infrastructure changes slowly.
  - Human capital changes slowly.
- AI is a GPT and is making waves, but the real effects will take a long time to see.



Will we have another Solow Paradox?

History of AI in Finance

- Prediction machines aren't new.
  - Algo Trading (1980s–2000s).
    - Jim Simons and Renaissance Tech.
  - Risk Management (1990s).
    - Credit Scores?
  - High-Frequency Trading (2000s).
  - Robo-Advisors (2010s).
- Most of this tech has made markets better!
  - Priced more accurately.
  - Priced more quickly.
  - Reduced trading costs.

Are financial markets better off now?

Current Uses of AI in Finance

- Investment Management.
  - Active v Passive Mutual Funds.
- Finding new trading strategies in real time.
- Fraud Detection.
- NLP for Financial Analysis.
- Risk Management and Compliance.
- Personalized Financial Services.
  - Personalized anything is huge!
- Programming... anyone can code!

The low-hanging fruit may have been picked. What's next?

Future Uses of AI in Finance

- Autonomous AI-Driven Trading.
  - What about an AI stock exchange?
- Quantum Computing in Finance.
- Predictive Analytics for Customer Behavior.
- Blockchain and AI in DeFi.
- Banking.
- Retail investing.
  - Buffet-bot in your pocket?

MB and MC analysis is helpful here.

Potential Benefits of AI in Finance

- Efficiency and speed.
- Reduced operational costs.
- Better risk management and fraud detection.
- Democratization of financial services.
    - Anyone can invest like a pro!
- Enhanced personalization of customer services.

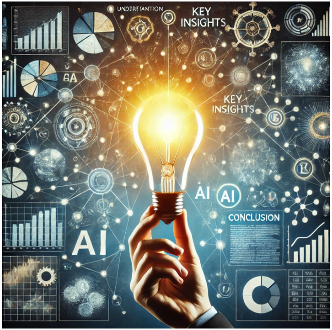
The MC of "informed" trading has gone down.

Potential Dangers of AI in Finance

- Market instability and flash crashes.
  - 2010 Flash Crash took 36 minutes and the Dow dropped 9%.
  - HFT algorithms trading with feedback loops and one large trade made, probably, in error.
- Homogenization of strategies and herd behavior.
- Algorithmic bias.
- Job displacement.
  - Yes... some labor is at risk!
- Regulatory and ethical challenges.

What about data monopolies?

How MBA Students Can Harness the Power of AI



- Learn the fundamentals.
  - You should be an expert in how to use AI.
- Develop data skills.
- Experiment with AI tools in projects and internships.
  - Don't be shy about it!
- Keep up with AI news.
- Focus on human skills like leadership and creativity.
  - Judgment will be valuable!
- Use AI to learn.
  - Have y'all used the "read to me" feature?

AI is a very powerful tool.

Some questions to consider

- ChatGPT (and other LLM chatbots) were a huge innovation. What's next?
- How can I invest (financially) in this innovation?
- How can I best invest (personally) in this innovation?
- How do I pick an AI (or LLM) to use?
- As AI automates more tasks, how can I differentiate myself in the job market?
- In a world of amazing prediction machines, how do I improve my judgment?
  - What even is judgment in this context?

What am I going to do today?!