

# Discussion: Regulating Artificial Intelligence Systems

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# Scherer's Proposal

## Artificial Intelligence Development Act (AIDA)

- Federal agency to certify safety of AI systems
- Tort-law approach: Strict liability for uncertified algorithms; negligence liability for certified algorithms
- Fund to compensate victims of insolvent firms that created harmful algorithms

Matthew U. Scherer, *Regulating Artificial Intelligence Systems: Risks, Challenges, Competencies, and Strategies*, 29 *Harv. J.L. & Tech.* 353 (2016).

# Public Risk & Financial Markets

Scherer's use of the concept of public risk (threats that are mass-produced, broadly distributed, and largely outside of individual risk bearer's direct understanding or control) is a helpful way to view the risks posed by algorithmic trading and automated systems in the financial markets.

# Public Risk & Financial Services AI

The financial markets have become electronic ecosystems occupied by competing algorithms and automated systems. Numerous “flash crashes” have occurred in recent years.

- May 6, 2010, Dow Jones Index fell by approx. 1,000 points
- Oct. 15, 2015, US Treasury bond market
- Oct. 6, 2016, UK pound fell to 31-year low

# Public Risk & Financial Services AI

- “Applications of AI and machine learning could result in new and unexpected forms of interconnectedness between financial markets and institutions[.]”
- Increased use of, or dependence on, AI systems could “lead to the emergence of new systemically important players that could fall outside the regulatory perimeter.”

Artificial Intelligence & Machine Learning in Financial Services, Financial Stability Board (Nov. 1, 2017).

# Common Ground

Confession: Although the focus of my scholarship has been on automated systems in the financial markets rather than on AI regulation, I have advanced arguments that are generally in agreement with the regulatory proposals in Scherer's article.

# Negligent failure to supervise

- Duty to diligently supervise automated trading systems (ATSs)
- Objective reasonableness standard (tort law negligence) – duty to take the same amount of care as a reasonable market intermediary
- Regulators and courts would gauge the reasonableness of a firm's behavior based on, inter alia, industry best practices

Gregory Scopino, Do Automated Trading Systems Dream of Manipulating the Price of Futures Contracts, 67 Fla. L. Rev. 221 (2015).

# Tort law & digital intermediaries

- “Congress and the CFTC ought to consider adopting a negligence standard using concepts imported from tort law.”
- “For a negligence standard to be effective, however, the CFTC-- perhaps in conjunction with the [Nat’l Futures Assoc.] and market participants--would have to promulgate specific best practices for designing, monitoring, and operating ATs and digital intermediaries. Those guidelines would then set the appropriate standard of care.”

Gregory Scopino, Preparing Financial Regulation for the Second Machine Age, 2015 Colum. Bus. L. Rev. 439 (2015).

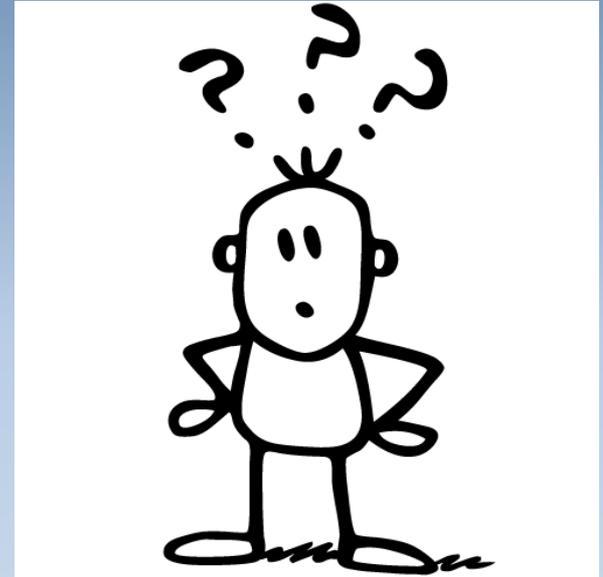
# ATSs identification program

- “[A]n ATS and algorithm identification program is a worthwhile endeavor.”
- Under such a program, the CFTC could develop regulations for ATSs and algorithms that mirrored the regulations of intermediaries, with a disqualification system for unfit ATSs, proficiency standards for ATSs, etc.

Gregory Scopino, Preparing Financial Regulation for the Second Machine Age, 2015 Colum. Bus. L. Rev. 439 (2015) (discussing ATS & algorithm identification program suggested in the CFTC’s 2013 Concept Release on Risk Controls and System Safeguards for Automated Trading Environments).

# What Is AI?

Definitions, especially ones that trigger an agency's jurisdiction, are frequently contested, if not controversial. But AI systems likely will attract regulatory attention because of the activities they engage in, not simply because they are acting "intelligent."



# Automated trading advice

For example, a person who sells a software program that, when loaded onto customers' computers, tells them when to buy and sell futures contracts, is a commodity trading advisor and subject to regulation as such.

CFTC v. Vartuli, 228 F.3d 94 (2d Cir. 2000).

Issue: How far should the regulatory perimeter be extended to cover, e.g., software developers?

# Digital financial intermediaries

- In the near term, and especially for the people in this room, the primary issue will be similar to the following:
- Is the AI system acting like an investment company?
- Is the AI system acting like a broker?
- Is the AI system acting like a bank?

# Independent agency for AI

- An independent agency to govern AI probably would not be the best regulator for AI systems operating as financial market intermediaries or institutions (e.g., banks, brokers, hedge funds, investment advisors).
- Of course, the AI regulator could work cooperatively with financial regulators, but I expect a different outcome.

# Financial regulators = AI regulators

- Financial markets already are mostly a series of connected, automated systems, from exchanges to clearing houses to brokers.
- Leaders of exchanges like Nasdaq and investment banks like Goldman Sachs already view themselves as tech companies, their businesses tied to data.
- Financial regulators already are on their way to becoming full-blown AI regulators, given that financial markets are becoming less and less human-centered.

# Failure of liability

- Argues that existing liability framework is unable to effectively deter and compensate harms in algorithmic markets.
- “[A] basic level of error is endemic to the operation of algorithmic markets[.]”
- Proposes exchange liability, coupled with a joint fund, to address market disruptions

Yesha Yadav, *The Failure of Liability in Modern Markets*, 102 Va. L. Rev. 1031 (2016).

# Limits of liability regimes

- Financial market infrastructures such as trading platforms, clearing houses, and data repositories are largely operated by computerized and automated systems.
- Tort-liability regime would appear to be an inefficient way to regulate bank capital levels and standards, or exchange and clearing house internal rules and procedures.

# Ethics, proficiency, & fitness

Current laws and regulations governing financial markets require ethics training, proficiency standards, and fitness requirements that, e.g., prohibit individuals with prior convictions for fraud or deceit from holding certain positions within financial intermediaries.

Are those requirements still necessary? If so, how should they administered for AI systems?

# Ethics, proficiency, & fitness

AI systems, in the form of chatbots, automated email solicitations, and more, are selling people mortgages, loans, and investment advice. That is only going to increase.



# Prohibiting fraud & related acts

- The concept of fraud covers more than just misrepresentations, but includes material omissions and trading practices that give other market participants a false impression as to the supply of, and demand for, financial products.
- Beyond fraud: Suitability requirements & prohibitions against high-pressure sales tactics

# Practical issue: Industry resistance

- CFTC proposed source code repository for trading algorithms experienced strong pushback from industry.
- Concerns: (i) proprietary info & IP; (ii) agency “revolving door;” (iii) federal government has been hacked.
- Not politically feasible at this time.
- Requiring firms to submit their AI systems to a federal agency for “certification” likely would face similar resistance.

# Regulatory robots

- What about AI systems used by regulators?
- How should agency use of AI systems to be governed?

# Thank you!

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# Appendix (Additional Thoughts)

It is difficult to fit the discussion of important issues related to the challenges of regulating AI systems that operate in the financial markets into a one-hour session.

# AI agents, robots, algorithms

- YLS Prof. Jack Balkin rightly lumps robots, “AI agents, and algorithms, including machine learning algorithms” together.
- People think of robots as “self-contained entities [b]ut today we know that many robots and AI agents are connected to the cloud” so “the laws of robotics, whatever they are, are also likely to be the laws of cloud intelligences that are connected to the Internet.”

Jack Balkin, *The Three Laws of Robotics in the Age of Big Data*, 78 Ohio St. L.J. 1217 (2017).

# AI agents, robots, algorithms

- Robots probably will not look like metal versions of ourselves.
- For example, a “robot” house painter likely would be a collection of drones and sensors directed by a “brain” in the cloud.

Jerry Kaplan, *Humans Need Not Apply* 43 (2015).



# Tort law, fund, & certification

The European Parliament Committee on Legal Affairs in its Report on Civil Law Rules on Robotics in January 2017 proposed introducing a strict liability system for robots and AI backed by a licensing fund and a certification agency.

See <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+TA+P8-TA-2017-0051+0+DOC+PDF+V0//EN>; John Buyers, Artificial Intelligence: The Real Legal Issues, OsborneClarke.com, Oct. 23, 2017, <http://www.osborneclarke.com/insights/artificial-intelligence-the-real-legal-issues-an-article-by-john-c-buyers-osborne-clarke-llp/>.

# Rules for humans, not robots

Prof. Balkin believes that “[w]hen we talk about robots, or AI agents, or algorithms, we usually focus on whether they cause problems or threats[, b]ut in most cases, the problem isn’t the robots; it’s the humans.”

Jack Balkin, *The Three Laws of Robotics in the Age of Big Data*, 78 Ohio St. L.J. 1217 (2017).

# Rules for humans, not robots

“The laws of robotics that we need in our Algorithmic Society are laws that control and direct the human beings who create, design, and employ robots, AI agents, and algorithms. And because algorithms without data are empty, there are also laws that control the collection, collation, use, and distribution and sale of the data that make algorithms work.”

Jack Balkin, *The Three Laws of Robotics in the Age of Big Data*, 78 *Ohio St. L.J.* 1217 (2017).

# Rules for humans, not robots

“In sum, the laws of robotics that we need are laws governing the humans who make and use robots and the data that robots use.”

“[T]he laws we need are obligations of fair dealing, nonmanipulation, and nondomination between those who make and use algorithms and those who are governed by them.”

Jack Balkin, *The Three Laws of Robotics in the Age of Big Data*, 78 *Ohio St. L.J.* 1217 (2017).

# Rules for humans, not robots

“[A]ny attempt to require futures market digital intermediaries to act within the bounds of ethics and the law will likely involve holding existing types of legal persons--i.e., business entities and individuals--responsible for the actions of their digital intermediaries.”

Gregory Scopino, Preparing Financial Regulation for the Second Machine Age, 2015 Colum. Bus. L. Rev. 439 (2015).