Volume 2, No. 1 | January–February 2019

The Journal of Robotics, Artificial Intelligence & Law

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The Journal of Robotics, Artificial Intelligence & Law
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THE JOURNAL OF ROBOTICS, ARTIFICIAL INTELLIGENCE & LAW (ISSN 2575-5633 (print) /ISSN 2575-5617 (online) at $495.00 annually is published six times per year by Full Court Press, a Fastcase, Inc., imprint. For customer support, please contact Fastcase, Inc., 711 D St. NW, Suite 200, Washington, D.C. 20004, 202.999.4777 (phone), 202.521.3462 (fax), or email customer service at support@fastcase.com.

Publishing Staff
Publisher: Morgan Morrissette Wright
Journal Designer: Sharon D. Ray
Cover Art Design: Juan Bustamante

Cite this publication as:

The Journal of Robotics, Artificial Intelligence & Law (Fastcase)

A Full Court Press, Fastcase, Inc., Publication

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https://www.fastcase.com/

POSTMASTER: Send address changes to THE JOURNAL OF ROBOTICS, ARTIFICIAL INTELLIGENCE & LAW, 711 D St. NW, Suite 200, Washington, D.C. 20004.

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ISSN 2575-5633 (print)
ISSN 2575-5617 (online)

Treasury Report Embraces Machine Learning and Artificial Intelligence in Financial Services

Pamela L. Marcogliese, Colin D. Lloyd, Sandra M. Rocks, and Lauren Gilbert*

In its report on Nonbank Financials, Fintech, and Innovation, the U.S. Treasury Department generally embraced artificial intelligence and recommended facilitating the further development and incorporation of such technologies into the financial services industry to realize the potential the technologies can provide for financial services and the broader economy. The authors of this article discuss the report and how it will likely help further focus regulators on the use and appropriate regulation of the technology in the financial industry.

Artificial intelligence and machine learning (for simplicity, we refer to these concepts together as "AI")[1] have been hot topics in the financial services industry in recent years as the industry wrestles with how to harness technological innovations. In its report on Nonbank Financials, Fintech, and Innovation[2] released on July 31, 2018, the Treasury Department ("Treasury") generally embraced AI and recommended facilitating the further development and incorporation of such technologies into the financial services industry to realize the potential the technologies can provide for financial services and the broader economy.

Key Drivers for the Increased Importance of AI

AI was one of the top three areas of technology investment for financial services firms in 2017.[3] Treasury highlighted two key drivers for the increased importance of AI in the financial sector: (1) the sheer amount of data that is now available to financial institutions *requires* the use of AI in order to make use of such data and (2) firms view AI as a driver of competitive advantage that can increase efficiency, reduce costs, and enhance quality of services.

Robotics, Artificial Intelligence & Law / January–February 2019, Vol. 2, No. 1, pp. 25–29.

ISSN 2575-5633 (print) / ISSN 2575-5617 (online)

This rapid growth of AI raises important policy considerations for regulators.

Policy Considerations

In its report, Treasury grouped these policy considerations into four main topics:

Benefits and Risks from Competition in AI and Big Data

Multi-facetted competition may provide benefits for end users and consumers as smaller firms are able to compete by providing new algorithms, traditional players can leverage product expertise, technology firms can leverage experience with AI in other contexts and investment managers can employ AI to deliver improved investment performance. However, the competitive advantages created by AI may also harm competitive markets if it leads to high levels of market concentration.

Legal and Employment Challenges

- *Fraud*: While currently being used to enhance fraud protection, AI could potentially be used to circumvent these same fraud detection capabilities.
- *Integrity of Algorithmic Decision Making*: Models are only as good as the data underpinning such models. AI may compound existing biases through training models with biased data and models may make decisions based on incorrect or fraudulent data.
- *Role of Humans*: A decision-making process informed by models may be unable to provide explanations for decisions or self-correct for biases built into the design without human intervention.
- *Employment*: AI may result in significant job losses in the financial services industry as models are able to process information more efficiently. On the other hand, there will likely be widespread demand for employees skilled in AI and related fields.

Data Privacy

The volume of data required to effectively develop AI raises data privacy concerns as consumer data is increasingly shared without informed consent. Further, AI's ability to analyze data and identify users may in fact increase the sensitivity of data that was previously considered sufficiently anonymous.

Regulatory Challenges Related to Transparency, Auditability, and Accountability

The complexity of AI models raises challenges for transparency and auditing of such models, which undermines traditional regulatory frameworks that rely on an expectation of transparency. For example, the Fair Credit Reporting Act requires that companies notify a consumer if consumer report information is used to deny credit. It may be difficult for firms using AI to make credit decisions to provide notifications and rationales for such decisions.

Benefits of AI

Despite recognizing potential issues and challenges in fully implementing AI into the financial services industry, Treasury indicated that the increased use of AI would provide significant benefits to the U.S. economy by "improving the quality of financial services for households and businesses and supplying a source of competitive strength for U.S. firms" and, therefore, recommended that regulators "should not impose unnecessary burdens or obstacles to the use of [AI] and should provide greater regulatory clarity that would enable further testing and responsible deployment of these technologies by regulated financial services companies as the technologies develop."

In supporting the development of AI in the financial services sector, Treasury specifically recommended that agencies pursue interagency efforts to advance AI and enable research and development, including engaging with the Select Committee on Artificial Intelligence, an interagency committee chaired by the White House Office of Science and Technology Policy, the National Science Foundation and the Defense Advanced Research Projects Agency,

and permit real-world experimentation (with appropriate limits) to better understand the benefits and risks of AI and how such technology should be appropriately regulated.

Other regulatory agencies and self-regulatory organizations are expressing similar interest in AI. For example, on July 30, 2018, the Financial Industry Regulatory Authority ("FINRA") requested comment on "Financial Technology Innovation in the Broker-Dealer Industry,"[4] noting the current use of AI to augment market research and expressing a desire to support fintech development consistent with its mission of investor protection and market integrity. FINRA highlighted the following use cases for AI in the broker-dealer industry:

- Anti–money laundering and know your customer compliance;
- Trading (e.g., algorithmic trading strategies);
- Data management; and
- Customer service (e.g., chatbots).

FINRA requested additional information on other current or potential uses of AI by broker-dealers and comments in particular on "supervisory processes concerning the use of artificial intelligence" as FINRA noted that broker-dealers have "grappled" with how to utilize AI within the existing regulatory framework.

In addition, Federal Reserve vice chair for supervision Randal Quarles recently said that the Federal Reserve is "paying a lot of attention" to machine learning[5] and the Basel Committee on Banking Supervision and the Financial Stability Board both published papers related to the use of AI in the financial services industry in the past year.[6]

Conclusion

The regulation of AI, in particular how AI will fit into existing regulatory frameworks or require the development of new frameworks, is a topic that will continue to grow in prominence in the near future. The Treasury report and its recommendations will likely help further focus regulators on the use and appropriate regulation of AI in the financial industry. However, we expect such progress to be gradual and for regulators to focus on developing

specific standards for applying AI to particular use cases (e.g., regulating the use of AI in credit screenings, regulating the use of chatbots).

Notes

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1. The contours of artificial intelligence and machine learning are not well defined, but generally, "artificial intelligence" refers to machines designed to act intelligently and mimic human decision making and "machine learning" refers to the ability of software to learn and self-improve.

2. https://home.treasury.gov/news/press-releases/sm447.

3. PricewaterhouseCoopers, Redrawing the Lines: FinTech's Growing Influence on Financial Services (2017), at 9, *available at* https://www.pwc.com/gx/en/industries/financial-services/assets/pwc-global-fintech-report-2017.pdf.

4. http://www.finra.org/industry/special-notice-073018.

5. Fed's Quarles says paying "a lot" of attention to spread of machine learning in finance, Reuters, *available at* https://www.reuters.com/article/us-usa-fed-quarles/feds-quarles-says-paying-a-lot-of-attention-to-spread-of-machine-learning-in-finance-idUSKBN1I8003.

6. BCBS, Sound Practices: Implications of fintech developments for banks and bank supervisors (Aug. 2017), *available at* https://www.bis.org/bcbs/publ/d415.pdf; Financial Stability Board, Artificial intelligence and machine learning in financial services (Nov. 2017), *available at* http://www.fsb.org/2017/11/artificial-intelligence-and-machine-learning-in-financial-service/.