

May 4, 2021

Memorandum

To: Members, Committee on Financial Services
From: FSC Majority Staff
Subject: May 7, 2021, “Equitable Algorithms: How Human-Centered AI can Address Systemic Racism and Racial Justice in Housing and Financial Services”

The Task Force on Artificial Intelligence of the House Financial Services Committee will hold a hearing entitled, “Equitable Algorithms: How Human-Centered AI can Address Systemic Racism and Racial Justice in Housing and Financial Services,” on May 7, 2020 at 12:00 p.m., on the virtual meeting platform Cisco Webex. This single-panel hearing will have the following witnesses:

- **Stephen Hayes**, Partner, Relman Colfax PLLC
- **Melissa Koide**, CEO, FinRegLab
- **Lisa Rice**, President and CEO, National Fair Housing Alliance
- **Kareem Saleh**, Founder, FairPlay AI
- **Dave Girouard**, Founder & CEO, Upstart

Overview

The expanded use of Artificial Intelligence (AI), Machine Learning (ML), and related emerging technologies in the financial services and housing sectors in recent years has raised concerns with racial biases embedded in these technologies.¹ Although the use of AI lending models has the potential to expand opportunities and reduce discrimination, companies using AI and ML algorithms and datasets increasingly have to consider and test for underlying historical bias, lest they produce the unintended consequence of exacerbating systemic racism due to the use of automated activities in the financial and housing sectors.² Prior hearings in the 116th Congress held by this Task Force identified algorithmic biases as considerable threats, requiring detailed policy and technical solutions.³ This hearing will discuss regulatory solutions and best practices for AI/ML lending models that protect against bias while fostering responsible innovation.

Artificial Intelligence and Machine Learning in Financial Services and Housing

Financial institutions and housing companies have long used algorithms—pre-coded sets of instructions and calculations executed automatically—to enable computers to make decisions, notably in the lending and investment management industries.⁴ Faster computing power, cheaper data storage, and internet-based products have increased the prevalence of algorithms across all sectors of the economy, including financial services and housing.⁵ ML, which is a subfield of AI

¹ See e.g. Forbes, [The State Of AI Adoption In Financial Services](#) (Oct. 31, 2020).

² See e.g., MIT Technology Review, [How our data encodes systematic racism](#) (Dec. 10, 2020).

³ See FSC, [Equitable Algorithms: Examining Ways to Reduce AI Bias in Financial Services](#) (Feb. 12, 2020).

⁴ For a background on financial technology policy issues (sometimes referred to as fintech) see, CRS, [Fintech: Overview of Innovative Financial Technology and Selected Policy Issues](#) (Apr. 28, 2020).

⁵ Financial Stability Board, [Artificial Intelligence and Machine Learning in Financial Services](#) (Nov. 1, 2017).

technologies⁶ in which algorithms automatically improve their performance through experience with little or no human input, has also grown in usage and sophistication.⁷ In particular, ML models and other AI technologies have been used by financial institutions to: (1) flag unusual transactions for fraud detection and financial crime monitoring; (2) personalize consumer services; (3) make credit decisions; (4) inform risk management forecasting and auditing; and (5) identify potential cybersecurity threats.⁸ Taken together, AI and ML models can potentially improve efficiency and performance and reduce costs for financial institutions, but they can also introduce risks.⁹ In particular, the use of AI may be problematic due to a lack of explainability, which is when it is difficult to fully understand or properly explain why programs made certain decisions. ML models can also have training data biases, which is when a model has biases due to the limited or incorrect dataset it was developed on.¹⁰

Relevant Laws and Recent Rulemaking on AI and ML

As AI and ML become more prevalent, regulators have struggled to adapt their oversight processes, especially since many of these laws did not contemplate the use of these emerging technologies when they were enacted.¹¹ Recently, the five members of the Federal Financial Institutions Examination Council (Federal Reserve, Federal Deposit Insurance Corporation, National Credit Union Administration, Office of the Comptroller of the Currency, and Consumer Financial Protection Bureau) put out a request for information to financial institutions and stakeholders on the use of AI, including ML, in the financial services space, and how laws and regulations related to housing, credit, and consumer lending are implicated.¹² Additionally, the Federal Trade Commission recently provided guidance to companies on how to use artificial intelligence with an aim for “truth, fairness and equity.”¹³

Financial institutions using algorithms are now increasingly being asked to explain to regulators why something happened or didn’t happen, how failure and success were defined, and how errors were corrected.¹⁴ These factors translate into regular audits of algorithms for bias and discrimination by regulators or independent third-parties.¹⁵ For instance, in the European Union, the General Data Protection Regulation (GDPR) requires organizations to be able to explain their algorithmic decisions.¹⁶ Some observers have argued that the lack of explainability and transparency of AI and ML models poses a significant challenge for companies to ensure they will

⁶ See CRS, [Overview of Artificial Intelligence](#) (Oct. 24, 2017) (providing more background on artificial intelligence).

⁷ See McKinsey Quarterly, [The Economics of Artificial Intelligence](#)” (Apr. 2018).

⁸ Federal Reserve, FDIC, CFPB, NCUA, OCC, [Request for Information and Comment on Financial Institutions' Use of Artificial Intelligence, Including Machine Learning](#) (Mar. 29, 2021).

⁹ American Banker, [AI in banking: Where it Works and Where it Doesn't](#) (Apr. 7, 2020).

¹⁰ *Id.*

¹¹ McKinsey Global Institute, [Notes from the AI frontier: Tackling bias in AI \(and in humans\)](#) (Jun. 2019).

¹² Federal Reserve, FDIC, CFPB, NCUA, OCC, [Request for Information and Comment on Financial Institutions' Use of Artificial Intelligence, Including Machine Learning](#) (Mar. 29, 2021).

¹³ FTC, [Aiming for truth, fairness, and equity in your company's use of AI](#) (April 19, 2021).

¹⁴ DARPA, [Explainable Artificial Intelligence](#) (last accessed Apr. 28, 2021).

¹⁵ See Brookings Institute, [Algorithmic bias detection and mitigation: Best practices and policies to reduce consumer harms](#) (May 9, 2019).

¹⁶ James Guszcza, Ilyad Rahwan, et al., “[Why We Need to Audit Algorithms](#),” Harvard Business Review (Nov. 28, 2018).

produce outcomes that comply with applicable laws and regulations, and for regulators to effectively carry out their oversight duties.¹⁷

Racial Bias Concerns in AI and ML Technology

Historical data used as inputs for AI and ML can reveal longstanding biases, potentially creating models that discriminate against protected classes, such as race or sex, or proxies of these variables. The use of ML models on new data sources, often called alternative data, has also been shown in some instances to result in discriminatory decisions.¹⁸ For example, lenders using alternative data to offer private student loans or income share agreements have been accused of violating federal fair lending laws by penalizing borrowers of color who attended Historically Black Colleges or Universities, or other minority-serving institutions (MSIs).¹⁹

Racial discrimination in ML housing models have also been found to be discriminatory. For example, research from UC Berkeley indicated that, with the emergence of online marketplace lending, lending discrimination had shifted from human bias to algorithmic bias, leading to Black and Latinx being charged higher rates.²⁰ Technologically-enabled discrimination has led to legal action from regulators. For instance, on August 13, 2018, the U.S. Department of Housing and Urban Development (HUD) filed a complaint against Facebook alleging that its algorithms were using personal data characteristics (e.g., race, color, national origin, religion, familial status, sex, and disability) to exclude certain users from viewing housing advertisements in violation of the Fair Housing Act.²¹

Rather than helping to take human biases out of decision-making, new types of algorithmic underwriting technologies may continue to result in, or exacerbate, disparate impacts on protected groups.²² Even when the data collected do not explicitly ask for or record protected characteristics, data may still act as a proxy for protected characteristics.²³ For example, zip codes can be used in loan applications and related lending decision processes, and since the populations of residential areas have been found to be highly correlated with race and ethnicity, this variable can lead to disparate racial lending outcomes even though zip codes appear to be neutral.²⁴

Although Congress has enacted laws to combat historic racism and discrimination in housing and lending, such as the Equal Credit Opportunity Act (ECOA),²⁵ the Fair Housing Act

¹⁷ American Banker, [Can AI's 'black box' problem be solved?](#) (Jan. 1, 2019).

¹⁸ American Banker, [Proceed with Caution on Credit Scoring with Alternative Data](#) (Jun. 11, 2015).

¹⁹ Student Borrower Protection Center, [New Evidence Underscores the Fair Lending Risks Inherent to Income Share Agreements](#) (Mar. 25, 2021).

²⁰ UC Berkeley, [Mortgage algorithms perpetuate racial bias in lending, study finds](#) (Nov. 13, 2018).

²¹ See [USA Department of Housing and Urban Development v. Facebook](#), (Mar. 27, 2019).

²² See Robert Bartlett, Adair Morse, Richard Stanton, et al., [Consumer Lending Discrimination in the Era of Fintech](#), University of California-Berkeley (Oct. 2018).

²³ See Talia Gillis, [False Dreams Of Algorithmic Fairness: The Case Of Credit Pricing](#), Harvard University (Nov. 1, 2019); see also Ninareh Mehrabi, et al., "[A Survey on Bias and Fairness in Machine Learning](#)," (Sep. 17, 2019).

²⁴ Lu Zhang, Yongkai Wu and Xintao Wu, [A Causal Framework for Discovering and Removing Direct and Indirect Discrimination](#), Association for the Advancement of Artificial Intelligence (2017).

²⁵ 15 U.S.C. §§1691-1691f. Historically, ECOA has been interpreted to prohibit both intentional discrimination and disparate impact discrimination, in which a facially neutral business decision has a discriminatory effect on a protected class.

(FHAct),²⁶ and the Fair Credit Reporting Act (FCRA),²⁷ regulators and advocates have expressed concern that the regulatory framework needs to keep pace with AI/ML developments. Regulators such as the CFPB have noted that the existing regulatory framework – and ECOA in particular – allows built-in flexibility for AI and ML algorithms, but also acknowledge that regulatory uncertainty remains an issue and may need to be addressed, and that financial institutions should work with regulators to address any compliance issues.²⁸

Digital Tools to Address Racial Bias in Housing, Mortgage Servicing, and CRA Compliance

Proptech (property technology), which refers to the adoption of digital big data and AI/ML technologies, in the real estate industry, has also grown in usage over the past several years.²⁹ Proptech encompasses markets for real estate, markets to finance real estate, and numerous markets for related services. Online platforms, such as Redfin and Zillow Group, use ML technologies to sell, buy, rent, appraise, and finance real estate properties.³⁰ Over time, online real estate platforms have amassed databases with vast amounts of information on housing characteristics (such as square footage, numbers of bedrooms and bathrooms, or zip codes) that can subsequently be incorporated into ML models to predict housing prices.³¹ For instance, Zillow’s estimate of home market values, known as a Zestimate, is often used as a starting point for buyers or sellers in housing transactions, or by appraisers and other real estate professionals as estimates of comparable property values when preparing home valuations. This has led to concerns about the possibility of digital bias, with algorithmically produced home price estimates exacerbating existing racial disparities in home values.³² Additionally, concerns about data privacy for tenants remain, especially when facial recognition devices have been utilized by Proptech landlords.³³

Some financial institutions have also used technological tools to boost compliance with community development and reinvestment requirements, including those required by the Community Reinvestment Act (CRA), the civil rights law that addresses how banks meet the credit and capital needs of the communities they serve. CRA was passed in response to redlining, a practice by which banks discriminated against communities and prospective customers based primarily on a neighborhood’s racial or ethnic composition, or based on an individual’s racial or ethnic background, rather than creditworthiness.³⁴ Some financial institutions use private-sector technology such as the CRA Wiz³⁵ and Fair Lending Wiz³⁶ to comply with CRA and fair lending laws. However, while this technology predicts whether a lending activity was in compliance, regulators make their own determinations independent from what the technology may predict.

²⁶ 42 U.S.C. §3601, §3605.

²⁷ 15 U.S.C. §1681.

²⁸ CFPB, [Fair Lending Report of the Bureau of Consumer Financial Protection](#) (Apr. 2020).

²⁹ Proptech may also refer to bringing technological innovations to the construction industry, specifically referred to as Contech. See Forbes, [Proptech And Contech VCs Predict What Is In Store For 2021](#) (Jan. 10, 2021).

³⁰ See [Zillow Tech Hub: AI, Machine Learning & Research](#) (last accessed Apr. 28, 2021).

³¹ Orton Babb, [A Comparison of Machine Learning Approaches to Housing Value Estimation](#), Department of Mathematics, George Mason University, (Nov. 18, 2019).

³² James A. Allen, [The Color of Algorithms: An Analysis and Proposed Research Agenda for Detering Algorithmic Redlining](#), 46 Fordham Urb. L.J. 219 (2019).

³³ Thomson Reuters Foundation News, [Good business or digital bias? The divisive rise of 'proptech'](#) (Jul. 15, 2020).

³⁴ P.L. 95-128, 91 Stat. 1147, title VIII of the Housing and Community Development Act of 1977, 12 U.S.C. § 2901.

³⁵ See [CRA Wiz](#) (last accessed Apr. 28, 2021).

³⁶ See [Fair Lending Wiz](#) (last accessed Apr. 28, 2021).

Solutions for Oversight and Responsible Use of Artificial Intelligence and Machine Learning

The use of algorithms by the financial and housing sectors has raised a number of policy issues for financial regulators and Congress. The ability of regulators or other outside parties why an ML program acted the way it did has implications on how to properly oversee these activities using the existing regulatory framework. Some observers have recommended regulators set standards for how AI programs are developed, tested, and monitored.³⁷ Until regulatory standards are set, some financial institutions, particularly banks or other highly regulated parts of the financial system, may choose not to use ML programs, even if they are deemed to be accurate or efficient, due to regulatory risks.³⁸ In other circumstances, such as in the case of HUD’s attempted oversight of Facebook’s discriminatory use of algorithms in its ad delivery systems, the lack of clear regulatory standards and the role of proprietary data can serve as legal shields for bad actors.³⁹

Financial services and housing regulators play an essential role in ensuring that products using AI and ML technology are being used in a responsible and fair manner that does not discriminate against protected groups. Regulators can encourage regulatory technology (Regtech) algorithms to better analyze and help identify discriminatory patterns in large data sets, and therefore improve risk assessment and compliance outcomes.

Some stakeholders have argued that financial institutions deploying algorithmic decision-making, AI, and ML technologies should have access to regulatory sandboxes, with several states enacting such programs.⁴⁰ These regulatory sandboxes could allow for certainty that they would not face enforcement for non-compliance of regulations for a certain period if they met certain conditions. However, consumer protection advocates have raised concerns about sandboxes due to bad actions that could arise if participants have immunity from enforcement actions by federal or state authorities, as well as from lawsuits brought by private parties.⁴¹

Relatedly, federal regulators such as the CFPB have developed and issued No Action Letter letters, relaxing supervisory or enforcement actions against specific companies that provide products or services under certain facts and circumstances.⁴² In at least one instance, a company granted a No Action Letter by the CFPB was later found by several organizations to be using alternative data that could lead to discriminatory lending to borrowers who had attended Historically Black Colleges or Universities – investigations by advocates in the space led the company to agreeing to having its underwriting model be examined by a neutral fair lending monitor.⁴³

³⁷ NIST, [U.S. Leadership in AI: A Plan for Federal Engagement in Developing Technical Standards](#) (Aug. 9, 2019).

³⁸ See Pinsent Masons, [Risk issues before considering AI for financial services](#) (Mar. 31, 2020).

³⁹ Committee on Financial Services, [Committee Majority Slams Carson’s Proposal to Gut the Fair Housing Act](#) (Nov. 22, 2019).

⁴⁰ See e.g., State of Arizona, House of Representatives, 53rd Legislature, Second Regular Session 2018, [House Bill 2434](#); State of Wyoming, House of Representatives, 65th Legislature, 2019 General Session, [Enrolled Act 34](#).

⁴¹ NCLC, [Consumer Bureau’s Shocking New “No Consumer Protection” Policy](#) (Dec. 11, 2018).

⁴² See e.g. CFPB, [CFPB Announces First No-Action Letter to Upstart Network](#) (Sep. 14, 2017). Also see CFPB, [Innovation spotlight: Providing adverse action notices when using AI/ML models](#) (Jul. 7, 2020).

⁴³ Relman Law, [Fair Lending Monitorship of Upstart Network’s Lending Model](#) (Apr. 14, 2021).