Fair Lending Implications of AI and Big Data

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Big Data – What is it?

• Traditional and alternative
• Lots of individuals or transactions
• Many characteristics about the individuals or transactions
  – Consider a credit score vs all the data on a credit bureau
• Frequently updated
  – Monthly vs daily vs real time
• You’ve been using some big data for years
  – Credit report data
Alternative Data

• Data that has not traditionally been used in modeling lending activity
  – Social Media Data
  – Bank Account Transaction Data
  – Accounting Software Data

• Some may be capturing similar concepts as traditional data

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Traditional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overdrafts in a bank account</td>
<td>30/60/90 day delinquency</td>
</tr>
<tr>
<td>Current status of utility bills</td>
<td>Current status of trade-lines</td>
</tr>
<tr>
<td>Major in college</td>
<td>Level of educational attainment</td>
</tr>
<tr>
<td>Active invoices in accounting software</td>
<td>Dunn and Bradstreet ratings</td>
</tr>
</tbody>
</table>
Examples of Alternative Data

- Payday and non-prime loan information
- Check cashing services
- Rent-to-own transactions
- Rental applications and evictions
- Utility accounts & payments
- Property-related public records
- Mobile phone account openings & payments
- Propensity Scores (informed by alt data)
- Payday and non-prime loan information

- Bank account transaction data
- Social media and web surfing data
- Address stability score
- Number and age of e-mail addresses
- Name of Institution or degree
- Profession
- Direct link to borrower bank accounts, small business accounting software or merchant payment processing systems
- Bank account transaction data
Artificial Intelligence vs Machine Learning

• Artificial Intelligence: Machines that can perform task that are characteristic of human intelligence.” –John McCarthy, 1956
  – Playing chess
  – Understanding languages
  – Underwriting/Pricing loan applications

• Machine Learning: “the ability to learn without being explicitly programmed.” –Arthur Samuel, 1959
  – ML is potentially a powerful approach to achieving AI.
  – ML ‘requires’ Big Data and Alternative Data.
Who Uses Alternative, Big data and AI/ML?

• Fintechs / Marketplace lenders
  – Unsecured personal loans & credit lines
  – Education lending
  – Small business loans, credit lines and receivables finance
  – Vehicle secured
  – Real estate secured

• Large Banks

• Small and Midsized Banks
  – Largely via vendors and partnerships
Where are Big Data and AI Used

• Marketing
• Underwriting
• Fraud Detection
• Verification of Income and Assets
• Processing
• Pricing
• Line Setting
• Servicing and Collections
• Portfolio Risk Assessment
Potential Fair Lending Benefits

- Reduced discretion leads to lower potential for implicit bias or disparate treatment
- Increased access to credit for potential borrowers that can not qualify using traditional methods or data
  - UltraFICO
Some AI and Big Data in Other Industries have Received Press for Potential Disparate Impact

• Accusations in the press:
  – An employment screening tool downgraded women
  – Job advertisements shown to males were more likely to be for senior positions
  – Police surveillance cameras are less accurate for African Americans, and the databases underpinning the cameras may be more likely to have African Americans
  – Algorithms used to allocate policing resources disproportionately allocate police to African American neighborhoods
  – An Algorithm for determining eligibility for parole has a disparate impact on African American defendants
  – Voice recognition software worked better for women than men
Process for Assessing Your Fair Lending Risk from AI / Big Data

• Step 1: Identify all of the models you currently use or are developing
  – Don’t forget marketing (do you use facebook look-alike audiences?)
• Step 2: Determine which of the models have the potential to create differences in outcomes for current or potential customers
  – a model you have for determining the current value of your portfolio is unlikely to create differences in outcomes for your customers unless it feeds into servicing decisions
• Step 3: Determine which of the models that have the potential to create differences in outcomes are developed in-house and which are outsourced
If the model is outsourced

• Has the vendor or business partner performed a fair lending review of their model and process?
  – What was the result of that review?
• If not, is the business partner willing to share their methodology or at least a list of factors they consider with you for review?
• In your own data, has there been a demographic shift that you can observe before and after implementing the vendor’s model?
If the model is developed in-house be involved early

- Be Involved
- Help Determine What Factors are Considered

- Review Outcomes and Test Factors

- Be Involved
- Help Review and Statistically Test for Potential Disparate Impact
Key Areas of Potential Fair Lending Risk

- Does your model partially re-engineer societal bias?
- Does your model have specific factors that are likely to correlate highly with protected classes?
  - If so, are they acting as a proxy for different groups? Are they adding meaningfully to the model’s predictive ability? Are there potentially less discriminatory alternatives?
- Does your model create the potential for redlining risk?
  - Geographic controls and neighborhood characteristics would not likely concern a modeler without fair lending experience
  - Online marketing models may unintentionally target different audiences with different products, or not target some audiences as much as they should
- Almost all statistical testing outside of the mortgage market has to be done using proxies.
Don’t Turn Your Back on Fair Lending

“Reports of my death have been greatly exaggerated.” -- commonly attributed to Mark Twain.

By Alex Lakatos

1. The ECOA has two principal theories of liability. First, disparate treatment, which occurs when a creditor treats an applicant differently based on a prohibited basis, such as race or national origin. Second, disparate impact, which occurs when a creditor employs facially neutral policies or practices that have an adverse effect or impact on a member of a protected class (unless the policy meets a legitimate business need that cannot reasonably be achieved with a policy that has less disparate impact). The BCFP remains focused on disparate treatment, with Director Mulvaney stating “[w]e will vigorously enforce fair lending laws in our jurisdiction, and will stand on guard against disparate treatment of borrowers.” Accordingly, the BCFP’s recent expressions of skepticism about disparate impact theory do not provide any assurance that the BCFP has abdicated its fair lending enforcement responsibilities. Indeed, many earlier BCFP fair lending enforcement actions do not even specify whether they were based on a disparate impact or a disparate treatment theory.

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1 Alex Lakatos is a partner in the Financial Services Regulatory and Enforcement Group at Mayer Brown LLP. He focuses on artificial intelligence and machine learning for financial institutions.
Fortunately, there are several things that lenders can do now to get a jump on fair lending compliance and stay ahead of the curve.

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