Paper Discussion
"Innovative Financial Technologies and Financial Inclusion"

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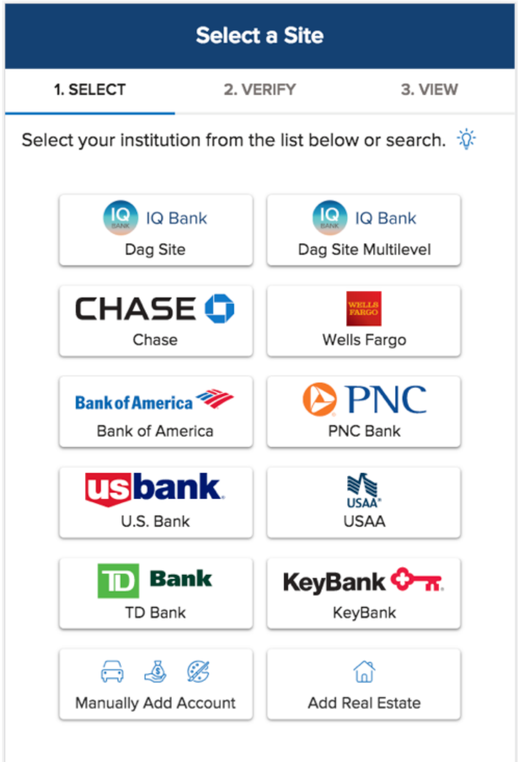
"Innovative Financial Technologies and Financial Inclusion"

by Emily Williams, Harvard Business School

- A very nice paper -- exploring fintech and financial inclusion – focusing on specific measure of financial inclusion (banking fees to income) in this version of the paper.
- Impressive datasets – proprietary bank statements data from a data aggregator – 59 million bank statements and 90 billion bank transactions.
- Future Plan – with ambitious/impressive plan to explore this further – e.g. to incorporate fees to nonbanks and fintechs as well.
- My favorite topics. It was fun reading the paper. Appreciate the opportunity to discuss this interesting paper. Have a few comments/suggestions.



Background:

Important Aspects of Financial Inclusion

- Evolving Fintech – P2P loans, blockchain for payments, crypto-based lending, instant mortgage approval, RWA tokenization, etc.
- Products and services vary across fintechs – e.g. loan rate varies 10%-250% APR.
- Millions of Americans are financially excluded:
  - Unbanked – relying on cash for payments
  - Thin files; no credit scores; short credit history – no access to credit to meet emergency needs
  - Poor – living paycheck to paycheck – need faster access to earned income (to avoid relying on payday lenders)
  - Rent payments vs. mortgage payments
- Not all nonprime consumers are risky – 40% default
- Fintech could identify the "invisible Prime" consumers from the nonprime pool.

The Potential Roles of Fintech in Enhancing Financial Inclusion

- Fintechs utilize **better data** (cash flows, bank and credit card transactions, investments, education, location, online footprints, rent & utility payments) and **better technology** (blockchain, Web3, Ai/ML, quantum computing, etc.)
- Through fintechs, more people can be financially included:
  - Access to low-cost bank account
  - Faster access to earned income (no OD fees)
  - Loan approval -- faster and at lower rate
  - Financial products -- fair, transparent, competitive
- Fintech makes it easier for traditional financial firms to serve the “underserved” through partnership and BaaS
  - Banks use fintechs to originate a large number of small (nonprime) loans
  - Millions of Americans have opened a bank account through fintech neobanks

Empirical Measure of Fintech and Financial Inclusion

Using Google Search on Fintech (County) and Ratio of Banking Fees to Income

The Data

- Fintech – Google search on fintech (a proxy for fintech awareness in the county)
- Financial Inclusion – Banking fees paid by consumers in the county
- Data source: Fees data are from individual bank statements – proprietary data from a data aggregator – e.g. with consumer permission to access bank data when applying for a loan.

Data Concerns

- The dataset exclude unbanked population
- Banking fees only (not total fees for financial services).
- Large number of consumers with bank account through fintech Neobanks are excluded.
  - Chime (22 million bank accounts), Upgrade, Credit Karma, etc.

Note: bank accounts connected to fintech use (e.g. Coinbase, Robinhood) are included in the analysis.

The Empirical Findings

Impacts of Fintech on Reduced Banking Fees are Likely Underestimated?

Empirical Results:

- Fintech awareness is related to reduced banking fees to income overall.
- No fintech-related reductions in bank account fees in **counties characterized by minority populations, lower median income, or higher poverty rates**.

Weak Results due to Data Limitation?

- Minorities and low-income population are more likely to be unbanked (excluded from the analysis)
- Underbanked – e.g. small a/c through Chime (direct deposits $200/mo) -- with no OD fees -- are excluded. Yodlee has no API into Chime statements.
- However, as people switch from banks to fintechs, the fintech fees are not included in the analysis.

Some Suggestions

- It would be awesome if we could perform the analysis at the **consumer level** – rather than summing up banking fees data to the **county** level.
- With consumer-level analysis, additional analysis would be interesting:
  - Switching banks or switching between banks and nonbanks/fintechs?
  - Type of activities that resulted in reduced fees? Include fintech fees?
  - Use consumer-level data from CCP (subject to data contract limitation): credit score, number of years and financial products already have access to, financial performance, etc.
- Internet access may not be a concern for some type of financial inclusion – China, India, Kenya where people have a simple phone but no bank account/credit history.

Major Regulatory Concerns Around Fintech

- Consumer privacy protection is needed – to bring data ownership to consumers
- Data have often been reused and sold without consumer permission
- Currently no official examination/review process to monitor for compliance on data collection and sharing. Lawsuits have been filed. FTC issued enforcement actions. Data get removed from tech firm’s database (some have been sold) on a case-by-case basis, in response to specific lawsuits.
- Potential unfair credit decisions – due to data issues -- biased data, obsolete data, inappropriate data, data based on behavior of others (like your neighbors or zip codes characteristics), and explainability.
  - Focusing on mortgage lending, Bartlett, Morse, Stanton, Wallace (*Journal of Financial Economics*, 2022) show that the degree of **bias** in mortgage fintech lending was smaller than that of traditional process for some FHA mortgages and FHA refi mortgages.

Fintech Role in Shaping the Future of Finance

- Fintechs played a role in bringing OD fees down – starting around COVID where fintechs (like Chime) opened millions of new accounts for consumers who have direct deposits – with early access to paycheck and no OD fees.
- Fintech has set new **higher standards** for banks –JPMC reduce/eliminate OD fees in 2021-- followed in 2022 by BOA, CapOne, Citi, Wells, US Bank, etc.
- So far, fintechs (disruptors) have not driven banks out of business. Instead, we see more partnerships. Several fintechs have become or acquired a bank. Several fintechs are now operated within a bank or nonbank financial firms.
- As we move from digital economy to **tokenized economy**, banks and fintechs become more similar. Banks have invested in technology to stay relevant – JPMC Onyx blockchain, JPM coin, tokenized deposits/Treasuries, BNY spot BTC ETP, Web3 and metaverse, etc.

Appendix:
Additional Evidence Supporting Fintech Roles in Enhancing Financial Inclusion

Previous Research on Fintech and Financial Inclusion

Nonprime consumers could receive A-rated by fintech and get access to credit at lower rate.

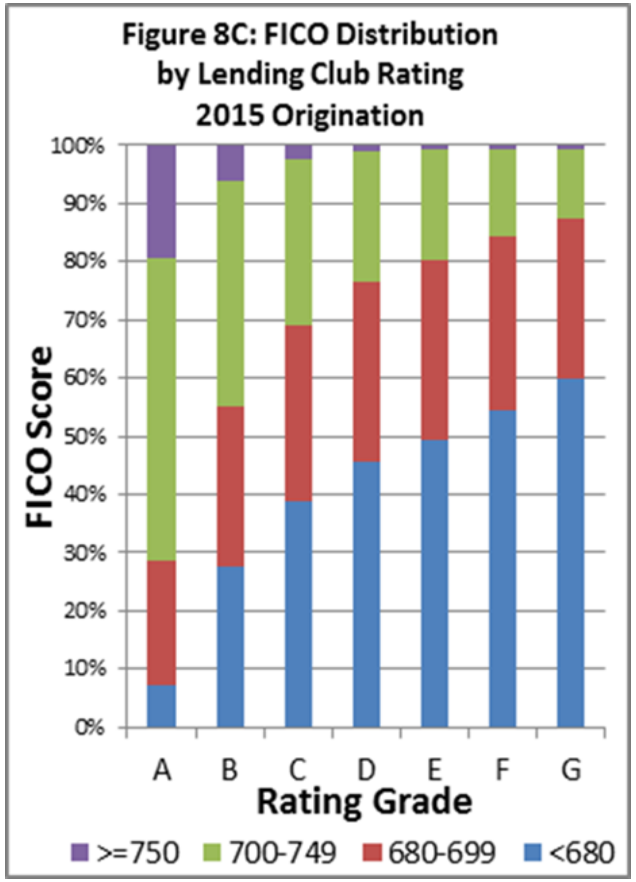
While fintechs are better and more efficient in identifying the invisible primes, some underserved consumers are too risky to fit the credit box of fintechs that are committed to charge no more than their own imposed ceilings of 36% APR.

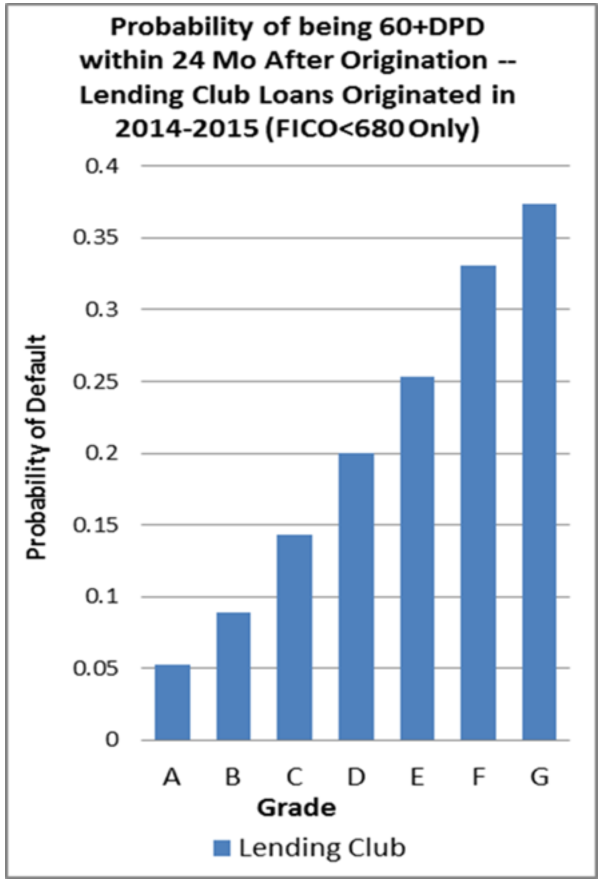
Banks that partner with relevant fintech vendors tend to be more willing to grant credit to nonprime customers, and some did extend a larger mortgage loan or larger credit limit on cards.

There is a also a potential to reduce default rate on nonprime loans at traditional lenders after they partner with relevant fintech vendors.

Fintech and Financial Inclusion -- Personal Loans

Source: Jagtiani and Lemieux (*Financial Management*, 2019)



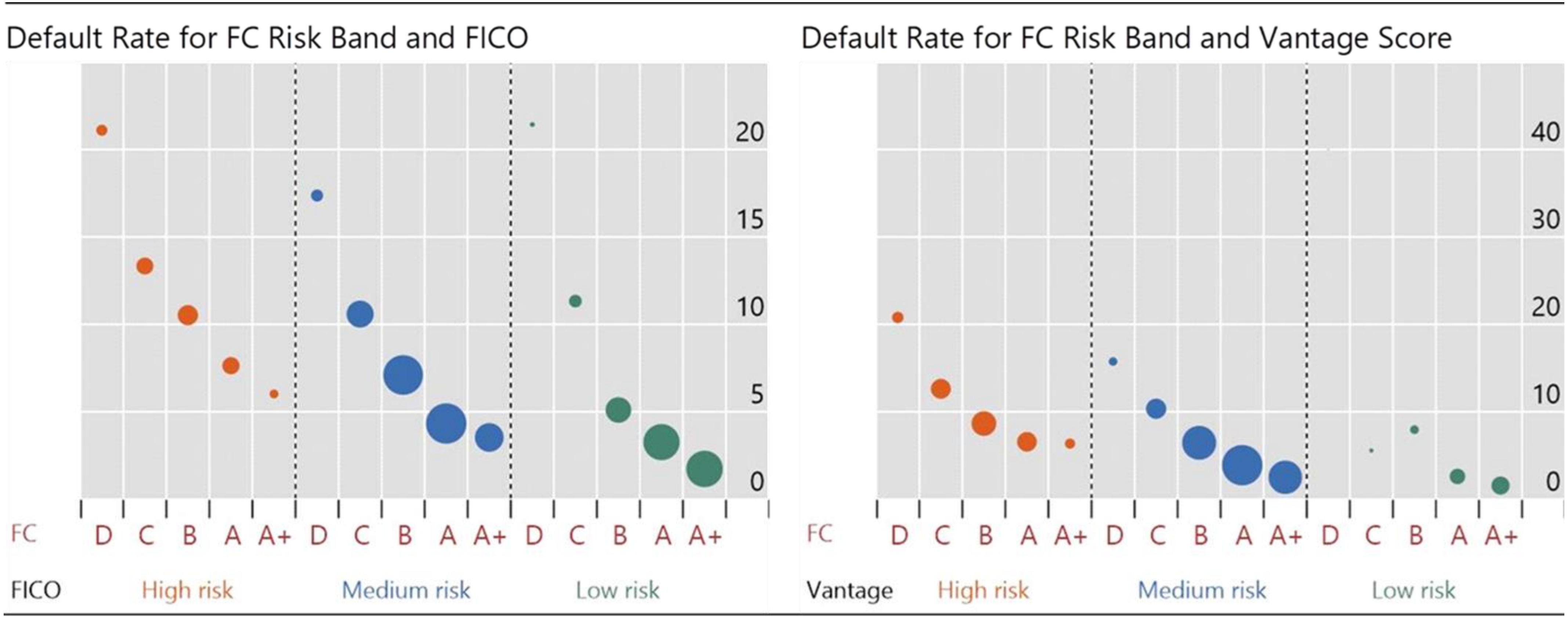


FICO Segment At Origination	% APR Average Spread (Origination Fees Included) LendingClub		% Ave Spread Bank Y-14M Revolvers Only
	3Year Maturity	5 Year Maturity	
660-679	15.336	18.113	20.1923
680-699	13.756	16.764	19.8465
700-719	12.013	15.351	19.1418
720-739	10.432	14.033	18.4180
740-759	9.125	12.818	17.6569
760-779	8.236	11.972	16.8312
780-799	7.604	11.338	16.1820
800+	6.9519	10.699	16.1668

Fintech and Financial Inclusion – Small Business Loans

Source: Cornelli, Frost, Gambacorta, and Jagtiani (*J. of Financial Stability*, 2024)

More accurate default prediction by fintech lenders – allowing funding access to some small business owners who may not get funding through traditional channels.



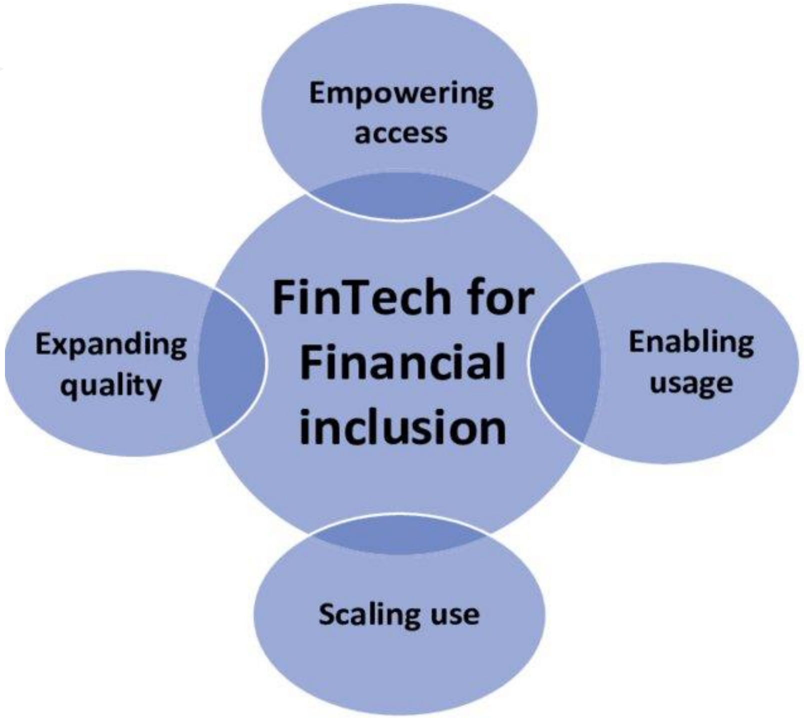
Fintech and Financial Inclusion – Mortgage Loans and Bank/Fintech Partnership

Chernoff and Jagtiani (*Journal of Digital Banking*, 2024)

- Banks are more likely to offer **credit cards and personal loans** (and grant larger credit limits) to the credit-invisible and below-prime consumers after the FinTech partnership period.
- FinTech partnerships also result in banks being more likely to originate **mortgage** loans (and grant larger loan amount) to nonprime homebuyers.

Jagtiani, Lambie Hanson, Lambie Hanson (*The Journal of FinTech*, 2022)

- Unlike in SBL and consumers lending, fintech **mortgage** lenders do not have the same flexibility to use alternative data for credit decisions (because of stringent GSE mortgage origination requirements).
- However, we find that mortgage fintech lenders have greater market shares in areas with **lower credit scores** and **higher mortgage denial rates.**



Looking forward to reading the next version of the paper.

Thank You!