Foundations of FinTech

Peer-to-Peer Lending

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UCF

Role of credit

- Why do people need credit?
  - Consumer goods spending (big & small)
  - Education loans
  - Mortgages & home improvements
  - Medical expenses

- FICO score below 670 is called Sub-prime
- See also: https://www.federalreserve.gov/releases/g19/current/

Subprime and Prime Consumer Debt Comparison 2021

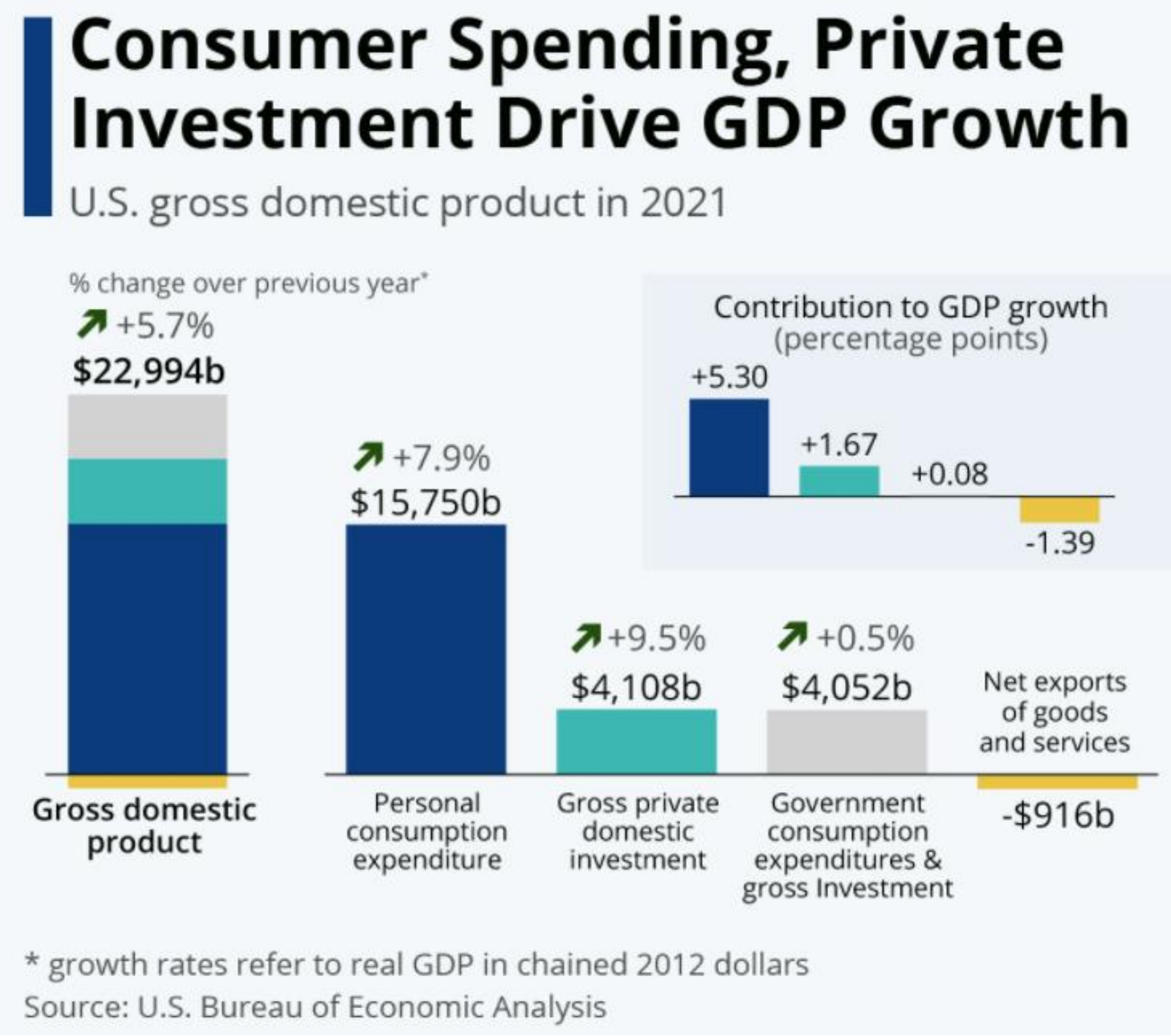
	Subprime	Prime
Avg. credit card debt	$4,592	$5,107
Avg. number of credit card accounts	2.6	4.2
Avg. auto debt	$19,106	$20,458
Avg. number of auto accounts	0.7	0.7
Avg. personal loan debt	$8,756	$21,359
Avg. number of personal loan accounts	1.4	0.7
Avg. student loan debt	$37,669	$40,558
Avg. number of student loan accounts	1.2	0.8
Avg. HELOC debt	$52,110	$39,718
Avg. number of HELOC accounts	0.4	0.5
Avg. mortgage debt	$162,385	$220,858
Avg. number of mortgage accounts	1.6	2.5

Source: Experian

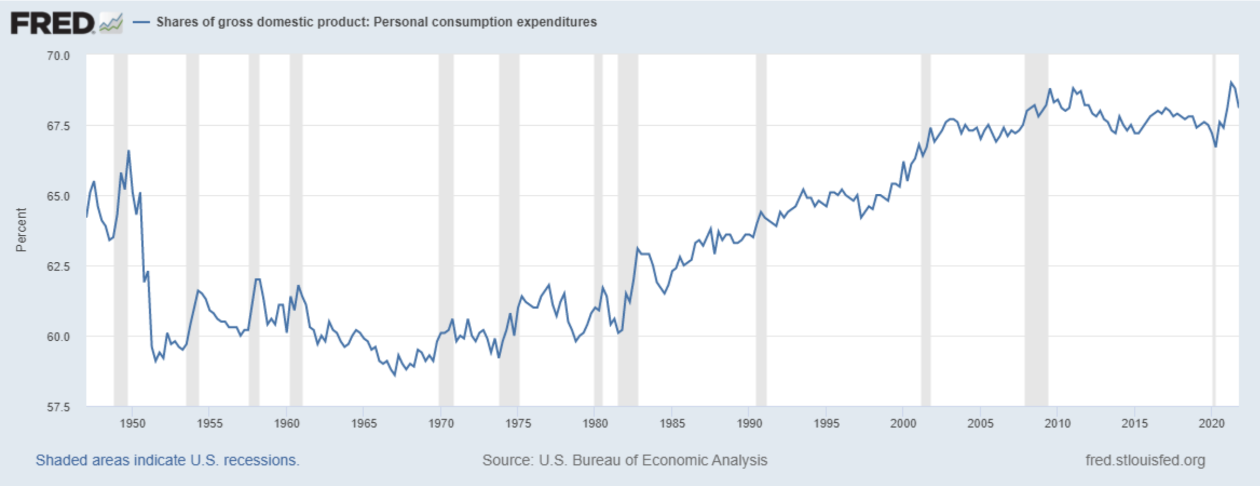
Source: https://www.experian.com/blogs/ask-experian/research/subprime-study/

Role of credit

- Why should people have access to credit? Or, how having access to credit will affect the economy?
  - Helps sustain/increase household consumption
  - Increasing household consumption boots economic growth
  - Boosts productivity



Source: https://www.statista.com/chart/18550/gdp-components/



Source: https://www.experian.com/blogs/ask-experian/research/subprime-study/

Role of credit

- What are the hurdles to access credit?
  - Credit history
  - Collateral
  - Guarantor

Snapshot: U.S. Consumers with Subprime vs. Prime Credit			
	2020	2021	Change
Subprime consumers	34%	30%	-12%
Prime consumers	66%	70%	+6%

Subprime and Prime Consumer Comparison 2021		
	Subprime	Prime
Avg. FICO® Score	586	767
Total avg. debt	$52,628	$107,956
Avg. credit card utilization ratio	55%	16%
Avg. credit card limit	$8,765	$35,667

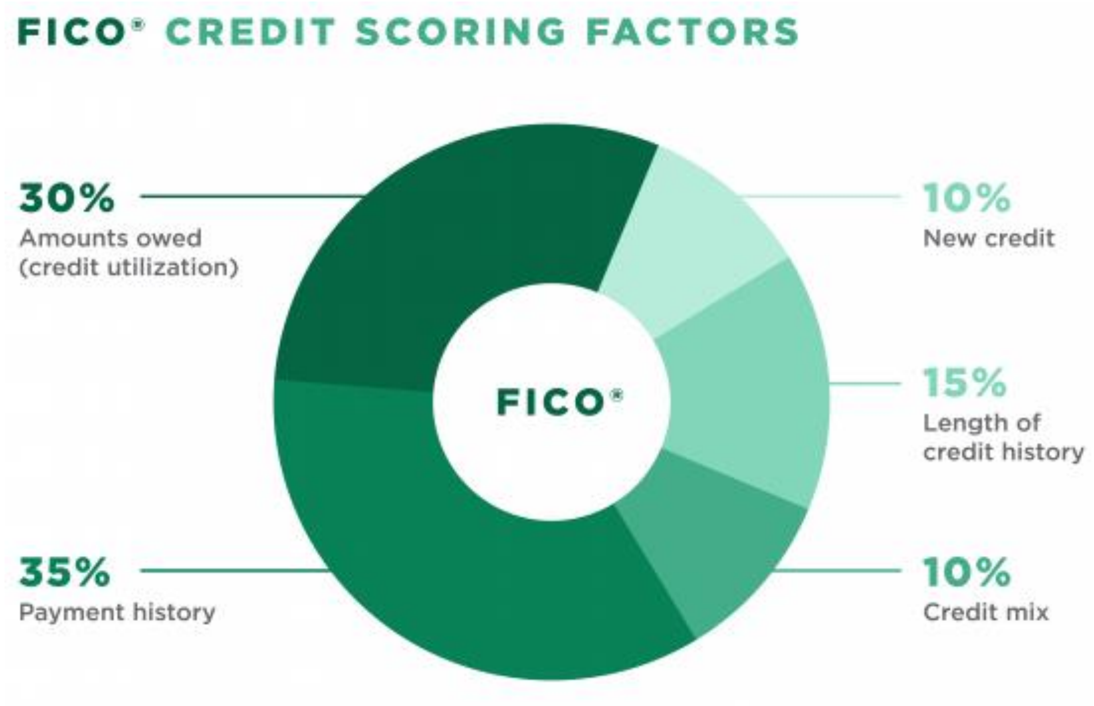
Subprime and Prime Delinquency Comparison		
	Subprime	Prime
% of accounts 30+ DPD	18%	0.2%
% of accounts 60+ DPD	1%	0.003%
% of accounts 90+ DPD	0.8%	0.001%
Avg. total balance in collections	$1,804	$30
Avg. number of bankruptcies	0.23	0.01

Ratio of Subprime Consumers by Generation			
	2020	2021	Change
Generation Z (18-23)	43%	39%	-9%
Millennials (24-39)	45%	40%	-11%
Generation X (40-55)	40%	35%	-13%
Baby boomers (56-74)	24%	22%	-8%
Silent generation (75+)	14%	13%	-7%

Source: https://www.experian.com/blogs/ask-experian/research/subprime-study/

FICO Score

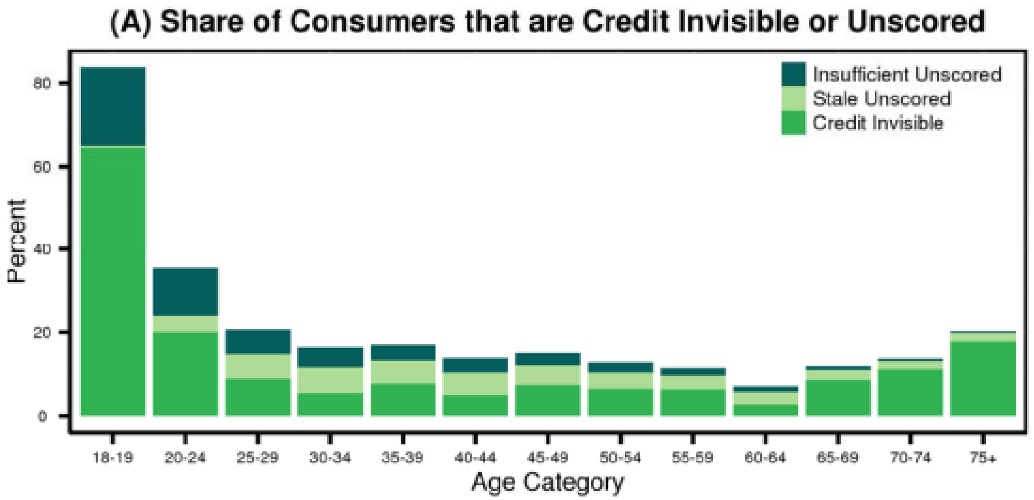
- Introduced by Fair Issac Corporation in 1989 (based scoring system developed by Bill Fair & Earl Issac)
- Used to access credit worthiness of an individual
- Widely used today for purposes beyond intended use (e.g., employment, immigration, etc.).

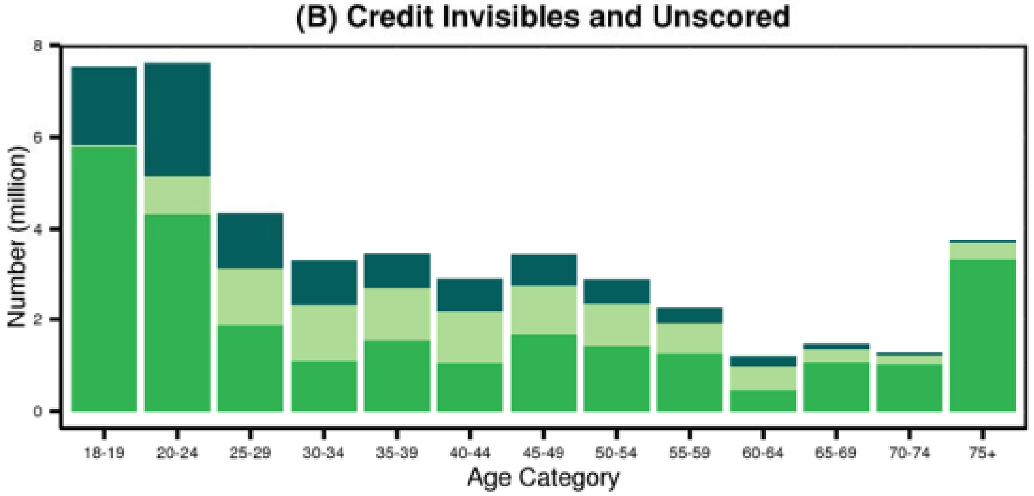


Source: https://www.nerdwallet.com/article/finance/fico-score

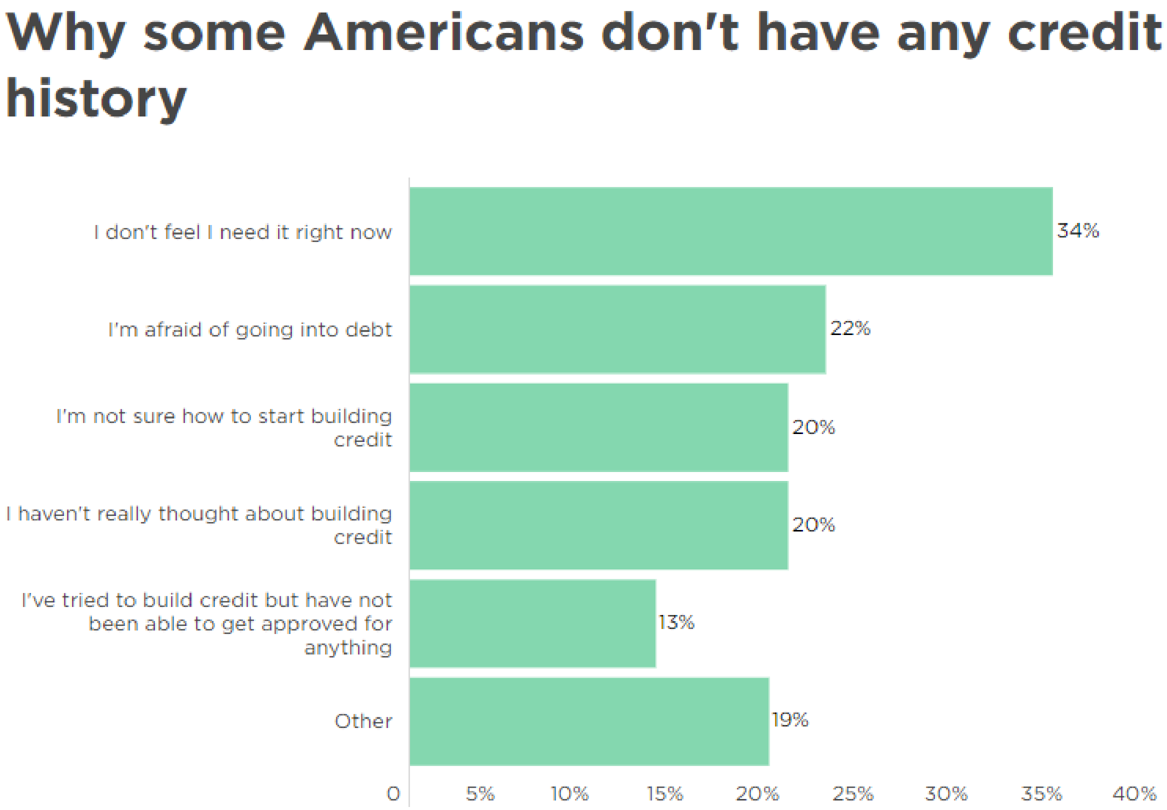
The Credit Invisible

- One in 10 Americans do not have any credit history!
  - Source: 2015 Consumer Financial Protection Bureau report (https://files.consumerfinance.gov/f/201505_cfpb_data-point-credit-invisibles.pdf)
  - 26 million individuals do not have any history
  - 19 million individuals do not enough information for a FICO score.
  - These individuals tend to be younger, low-income and minorities.





The Credit Invisible



Source: NerdWallet survey conducted online July 30-Aug. 3, 2020, by The Harris Poll. Respondents include 238 Americans who say they don't have any credit history. They were able to choose more than one response.

- These individuals get rationed (shut out) of credit markets or face very high interest rates.
- Banks focus on prime borrowers and would be reluctant to lend to credit invisibles.

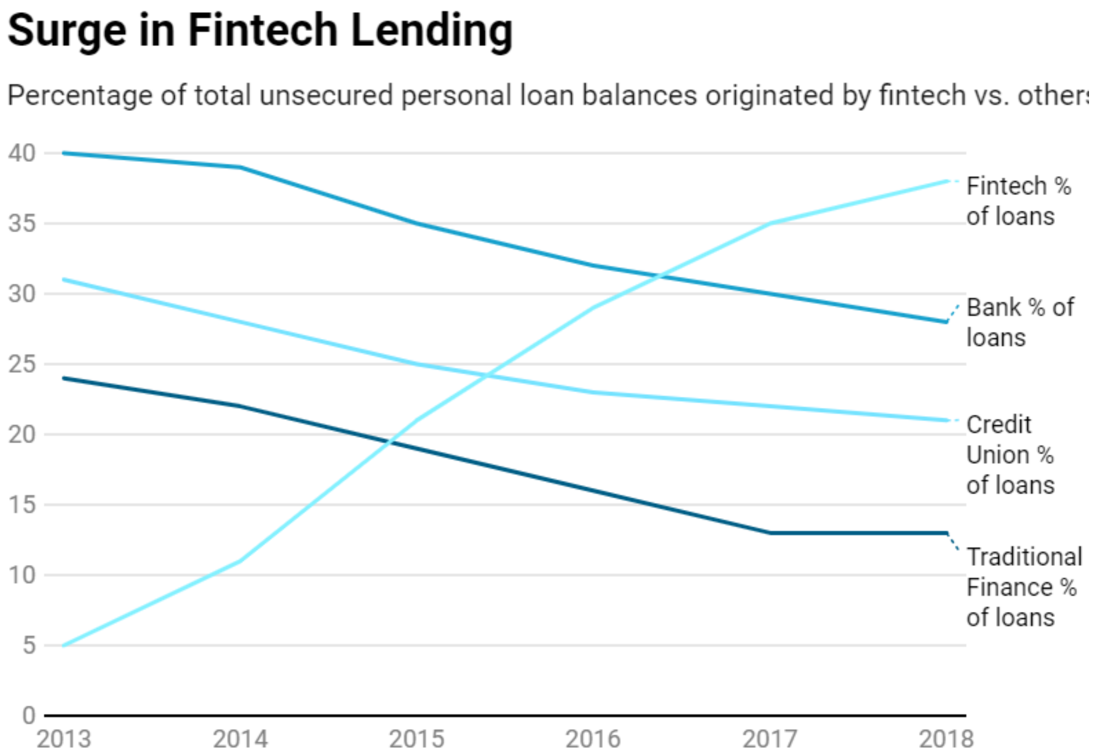
The Credit Invisible

- Banks and traditional financial institutions compete for prime borrowers
  - Borrowers with FICO scores above 680 can shop around for better rates.

- 79 million Americans have a credit score below 680
- 45 million Americans are credit invisibles
- These low and unscored borrowers represent a significant population that needs credit
  - Potentially risker borrowers (Note: some have not bothered to build a history)
  - But don't have any emergency savings
- Represent an opportunity to lenders who can score the unscored borrowers.

Personal Loan Sector as of 2018

- Fintechs helped boost US personal loan surge to a record $138 billion
- Total outstanding U.S. consumer loans hit a record last year, driven by digital-first lending options.
- Financial technology, or fintech, companies make up 38 percent of the personal loan market — up from just 5 percent five years ago.
- Banks' market share is going the other direction.
- "The rapid growth in consumer loans sits squarely on the shoulders of fintechs," says Jason Laky, senior vice president and leader of TransUnion's consumer lending line of business.



Source: CNBC, February 21, 2019

https://www.cnbc.com/2019/02/21/personal-loans-surge-to-a-record-138-billion-in-us-as-fintechs-lead-new-lending-charge.html

Peer-to-Peer/Marketplace Lending

Industry Overview

(True) Peer-to-Peer Lending

- Peer-to-peer lending is NOT a new business model.
  - Pre-industrial France had local non-notarized credit markets (Source: *Dermineur, (2019); Financial History Review 26.3*)
  - Before banks, peer-to-peer lending was driven by social/community networks.
  - Microfinance is considered as a modern precursor of the P2P industry.
  - Grameen Bank, a pioneer in microfinance, was founded by Muhammed Yunus (2006 Nobel Peace prize winner) to fund loans in Bangladesh's rural communities.

- Banks with a steady source of financing enabled risk-sharing, standardization, and enforcement of loans contracts.

- The new form of peer-to-peer lending that became popular in mid-2000s attempted to bring back the *pre-banking basic lender-borrower relationship* with the help of technology.

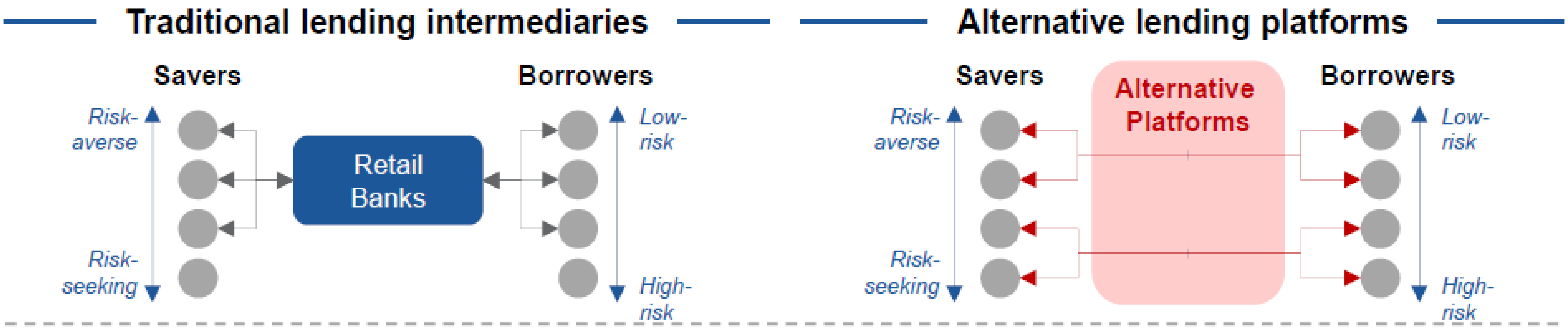
(True) Peer-to-Peer Lending

- First technology-enabled P2P lender is the U.K.'s Zopa (Feb 2005)
    - *"I sort of was building a deeper understanding of what's really going on here, and what's really going on in a bank and sort of reading a little bit about where banks came from and how banking has moved over the years and actually understanding that really, although a lot of stuff looks very complex, there's actually some pretty simple basic building blocks underneath. Then, if you go back and look at those building blocks, you understand why banks have been the institutions that have been capable of doing those because, you wind back 100 or 200 years, you didn't have any of the information, or the systems, or the technology, that would enable anybody else to do that intermediary function."* – David Nicholson, co-founder of Zopa, Peer-to-peer lending and financial innovation in the United Kingdom, Bank of England, 2016.

- Prosper and Lending Club were established in 2006 in San Francisco.

Traditional lending Vs (True) Peer-to-Peer Lending

- Traditional lending intermediaries (e.g., retail banks) take risks and leverage their scale to provide stability to lenders (depositors),
  - However, their focus is typically limited to low-risk borrowers and they charge high rates (in form of interest spread). Therefore, the needs of risk-seeking savers and high-risk borrowers are not fully served by traditional banks
- Alternative lending platforms (such as P2P) provide an online marketplace where lenders have the flexibility to pick and choose a desired risk portfolio.
  - They typically charge fees for loan originations and do not directly take risks



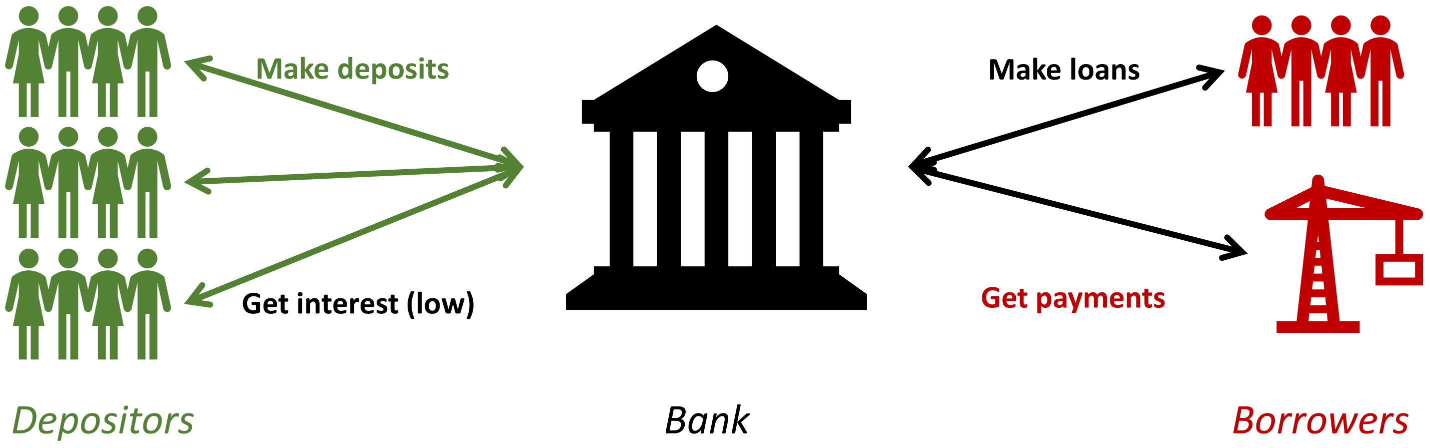
Source: *Source: The Future of Financial Services, pg. 88, World Economic Forum report*

Traditional lending Vs (True) Peer-to-Peer Lending

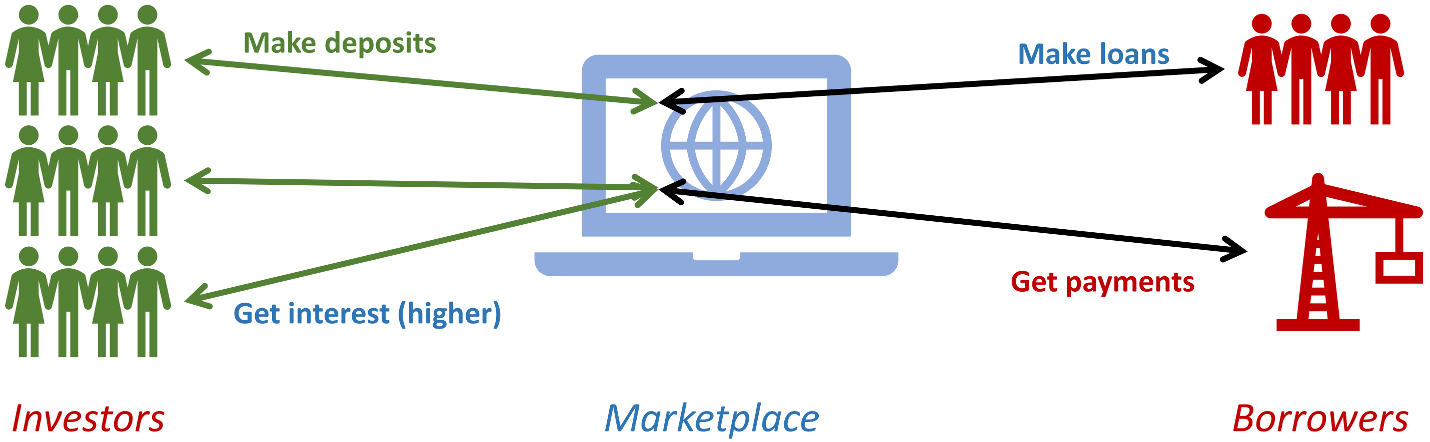
	Traditional Lending	Alternative Lending
Description	• Traditional intermediaries hold savings from retail, commercial and institutional clients and provide interest in return. • Using those funds, traditional intermediaries originate loans to borrowers based on their creditworthiness and *earn interest* (the differential between interest, or “spread” is the intermediary’s return)	• Alternative lending platforms directly match lending needs of borrowers with willing lenders (individuals or institutions) • Contractual obligations exist directly between borrowers and lenders and platforms provide mere intermediation and adjudication • Alternative platforms are *compensated through originations fees or a percentage of interest payments*
Advantages	• Lenders’ savings are protected by the intermediaries’ reserves and by deposit insurance schemes • The complete pooling of savings and loans most effectively mitigates individual default risks	• Lending processes and risk profiles are transparent to both borrowers and lenders • Traditionally underserved borrowers gain access to loans and diverse risk appetite of lenders is met • Reduction of transaction costs
Limitations	• Lenders do not have flexibility to determine the desired level of risk and return • Primary focus on low-risk loans exclude higher risk borrowers, depending on the market conditions	• Investments may be more susceptible to individual default risks even with portfolio approach, especially for smaller investments • Guarantees on the investments are limited

Traditional lending Vs (True) Peer-to-Peer Lending

Traditional Lending



Peer-to-Peer Lending



(True) Peer-to-Peer Lending (P2P)

- P2P lending enables people to directly fund loans requested by individuals/entities.
- In exchange for funding, investors (i.e., lenders) can earn monthly (interest) income in addition to capital repayments.
- Loans can be secured or unsecured depending on the platform

Early P2P Lending Models (2006 to 2010)

- P2P lenders in the U.S. *never* had a pure direct lending business model (i.e., there *was* some *intermediation*).
- Lending Club (LC) using an intermediated pricing but direct funding model
  - Based on hard and soft information on borrowers, LC algorithmically created credit grades and set interest rate on each loan.
  - Lenders (investors) funded loans (or fractions of loans) based on their thresholds for risk.
  - To avoid procuring individual state lending licenses, LC used WebBank in Utah to provide loans.
    - WebBank gave loans to borrowers in exchange for *promissory notes*
  - LC buys the assignment of *promissory notes* from WebBank using investor funds.
  - LC handled collected and distributed monthly payments
- Prosper used an auction-based loan pricing and direct funding model
  - Investors used to bid on loan portions and reveal interest rates at which they are willing to fund a loan over a 14-day period.
  - All other process was similar to LC.
  - Prosper adopted the LC pricing model in December 2010.

Evolution of P2P Lending Models in the U.S.

- Investors earned 4.8% at Prosper and 9.7% at LC during 2007 and 2010.
  - S&P lost nearly 28% during the same period.
- Pre-2010, more than 90% of the investors were retail investors.
- Investors often relied on soft information – description of loan purpose – in addition to hard information.
- Both Prosper and LC referred to their loans as ‘notes’ in the investor context.
  - Notes were payable to individual lenders who invested in the loan

- Investors got higher returns and borrowers got lower interest rates
- Platforms charged 0.5% to 5% origination fee and $15 late-payment fee from borrower, and 1% annual loan-servicing fee from investors.

Evolution of P2P Lending Models in the U.S.

- Adverse selection was rampant in these lending platforms.
  - Borrowers with questionable credit history got loans approved.
  - Prosper had nearly 20% default rates and LC's was around 10%.
- The SEC issued a cease-and-desist order to Prosper in 2008 (partly to protect investors).
  - Notes were classified as securities based on precedents set by SEC v. W.J. Howey Co. and Reves v. Ernst & Young.
  - P2P lenders have to shelf-register each loan before a lender can fund the loan.
  - P2P lenders selling loans to nonaccredited investors must file a supplemental prospectus with SEC every time it sells a package of notes.
- Both LC and Prosper stopped issuing loans for a few months.
  - Prosper fought the rule in courts but failed
  - LC and Prosper came into compliance in Oct 2008 and July 2009 by shelf-registering their securities
  - Smaller US P2P platforms and Zopa closed operations
  - Market shares of Prosper and LC increased dramatically

Evolution of P2P Lending Models in the U.S.

- SEC’s registration requirements have forced platforms to issue loans under their name making them act like a clearinghouse.
  - Investors no longer for security interest from loans
  - Borrowers were covered under consumer financial protection laws (Truth-in-Lending Act & Equal Credit Opportunity Act).
  - Entry barriers for new players were high: Startups were not able to raise VC funds without shelf-registration. Without VC fund they were not able to give loans with form the self-registration basis.

- 2012 JOBS Act relaxed some entry barriers through rule 506(c)
  - P2P lenders were allowed *solicit accredited investors* without securities registration.
  - Accredited investor: $1 million net worth excluding primary residence or earning $200K (for full definition see: https://www.sec.gov/education/capitalraising/building-blocks/accredited-investor)
  - Most new entrants (including Upstart) use 506(c) to get shelf-registration exemption

Evolution of P2P Lending Models in the U.S.

- As of 2014, more than 80% of investors on Prosper and LC are institutional investors (hedge funds, banks, etc.).
- P2P lending seized being person-to-person and became “marketplace lending”.
- Two new business models emerged:
  - Technology-enabled lending – a new distribution and underwriting model
  - Off-balance sheet financing through “marketplace” – a new funding model
- LC, Prosper, and CircleBack are marketplaces that use both above new models
- SoFi, Earnest and Avant use only the new distribution channel but finance loans through traditional channels: balance sheet and credit facilities.
- Point-of-sale financing via marketplaces has emerged (e.g., Affirm Climb, etc.)

- P2P lenders increasingly look like less regulated traditional lenders!

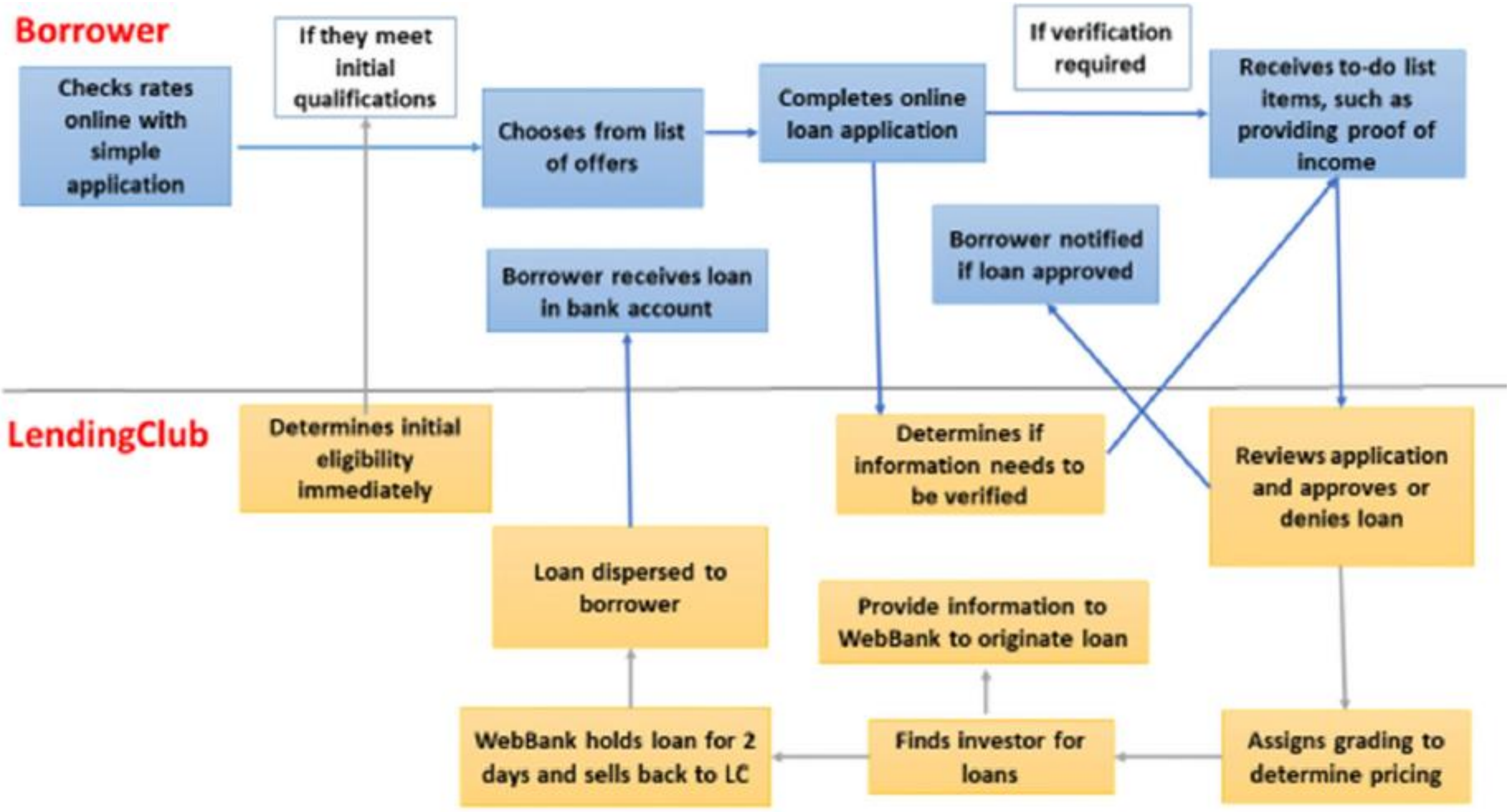
P2P regulators

- SEC is the only *direct* regulator for P2P lenders
- P2P lenders are third-parties to loan underwriting banks, such as WebBank.
  - Through Bank Service Company Act FDIC has indirect supervisory authority over P2P lender
  - FDIC has never exercised this authority!

- P2P lenders need to apply for licenses in each state they operate
  - Conference of State Bank Supervisors (CSBS) is expanding the Nationwide Multistate Licensing System (NMLS) to ease the state-wise regulatory filing burden for all FinTechs.
  - This is a voluntary system and not all states are keen on supervising FinTechs.
  - In 2018, Arizona legislature allowed financial companies to bypass state licensing requirements and offer products and services to up to 10,000 consumers for 2 years. This was part of a sandbox.

- OCC is pushing to bring P2P lenders under its special FinTech charter.
- LC has already acquired Radius, a digital bank, and gained a full bank charter.

Process @Lending Club

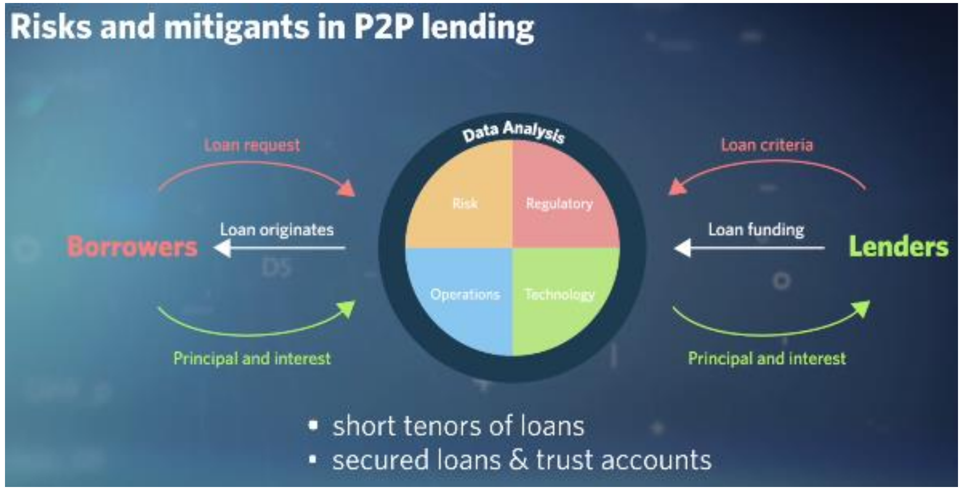


Source: Jagtiani & Lemieux (2019, FM)

P2P lending and data

Data analysis has always played a large part in loan approval process

- In addition to FICO scores, platforms collect a lot of information and use them in their credit scoring models.
- Platform APIs allow investors to build their own credit models that aid them in deciding which loans to fund.
- *Alternative data* is increasingly used by P2P lenders
  - E.g., Social media and mobile usage habits
  - Alternative data are likely to have more inaccuracies than FICO scores!
- ML models are used to unearth variables that can predict loan defaults – some of these variables are correlated with race, ethnicity, etc.
  - Transunion uses zip codes as a proxy for a consumer's ability to repay a loan.
- Algorithms are private and likely to be in violation of Fair Credit Reporting Act, Equal Credit Opportunity Act, etc.
- More on alternative data in a later week…



Source: U Hong Kong FinTech group

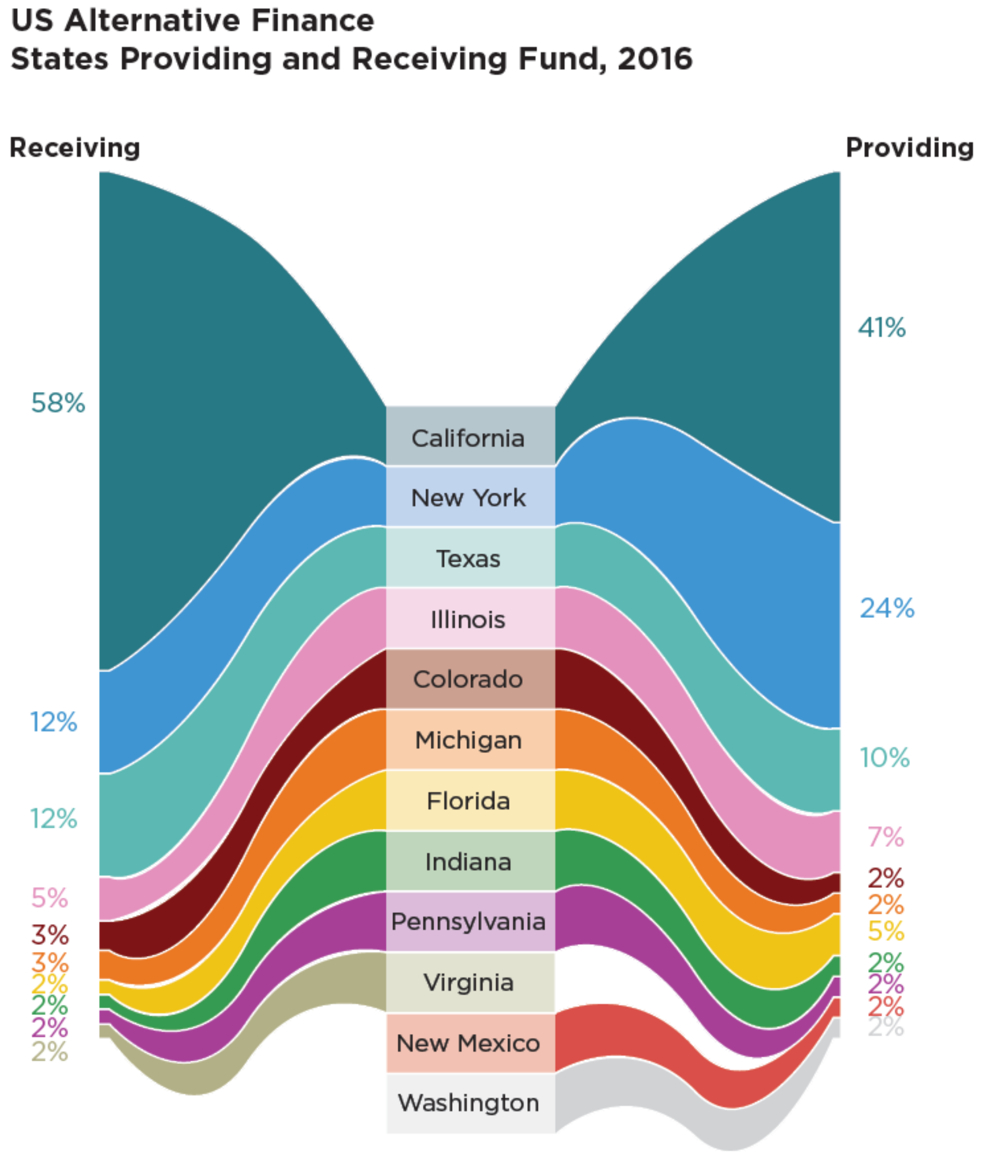
Sectors funded through P2P

Americas Alternative Finance
Top Funded Industry sectors in 2016

United States	Canada	Latin America & the Caribbean
Real Estate & Housing	Technology	Technology
Technology	Community & Special Enterprise	Business & Professional Services
Food & Drink	Food & Drink	Manufacturing & Engineering
Film & Entertainment	Internet & E-commerce	Construction
Retail & Wholesale	Retail Estate & Housing	Other

Source: 2017 Americas Alternative Finance Industry Report, Cambridge

Flow of P2P funds in the US



Source: 2017 Americas Alternative Finance Industry Report, Cambridge

Flavors of P2P

	Financing Model	Definition
Investment-based	Marketplace/P2P Consumer Lending	Individuals or institutional funders provide a loan to a consumer borrower.
	Balance Sheet Consumer Lending	The platform entity provides a loan directly to a consumer borrower.
	Marketplace/P2P Business Lending	Individuals or institutional funders provide a loan to a business borrower.
	Balance Sheet Business Lending	The platform entity provides a loan directly to a business borrower.
	Marketplace/P2P Property Lending	Individuals or institutional funders provide a loan secured against a property to a consumer or business borrower.
	Real Estate Crowdfunding	Individuals or institutional funders provide equity or subordinated-debt financing for real estate.
	Equity-based Crowdfunding	Individuals or institutional funders purchase equity issued by a company.
Non-Investment-based	Reward-based Crowdfunding	Backers provide funding to individuals, projects or companies in exchange for non-monetary rewards or products.
	Donation-based Crowdfunding	Donors provide funding to individuals, projects or companies based on philanthropic or civic motivation with no explanations of monetary or material return.

P2P: North America vs. China

Figure 5 below shows estimated market volume in North America by alternative finance model for the period 2013–2015 in USD:[16]

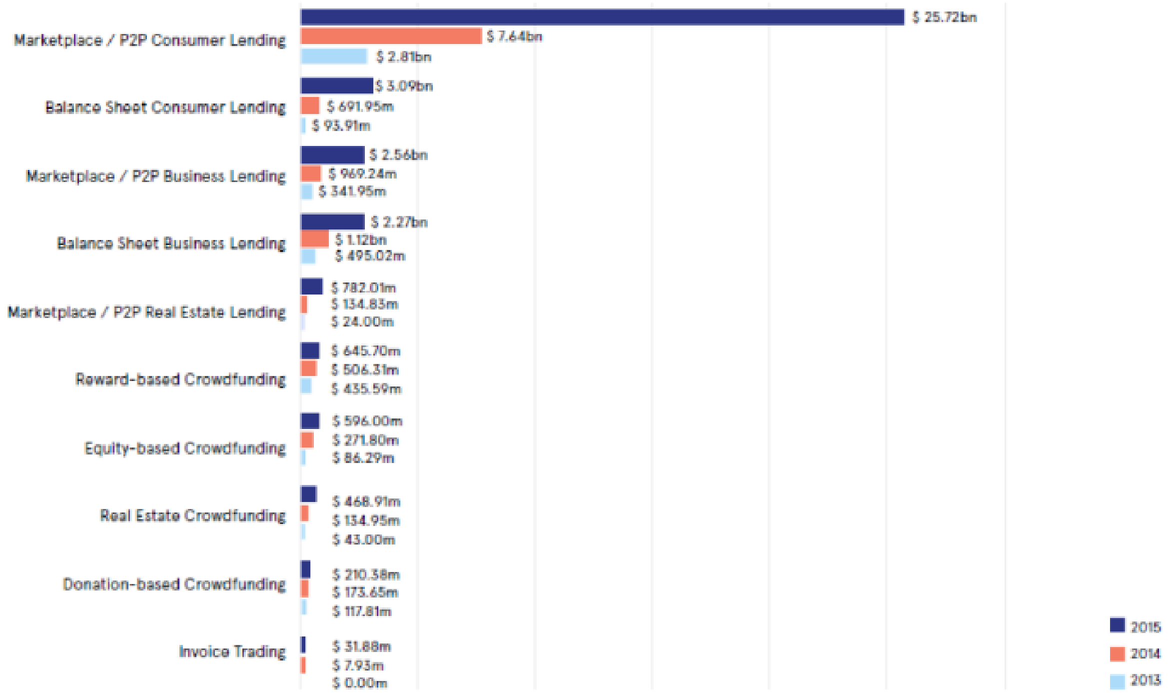
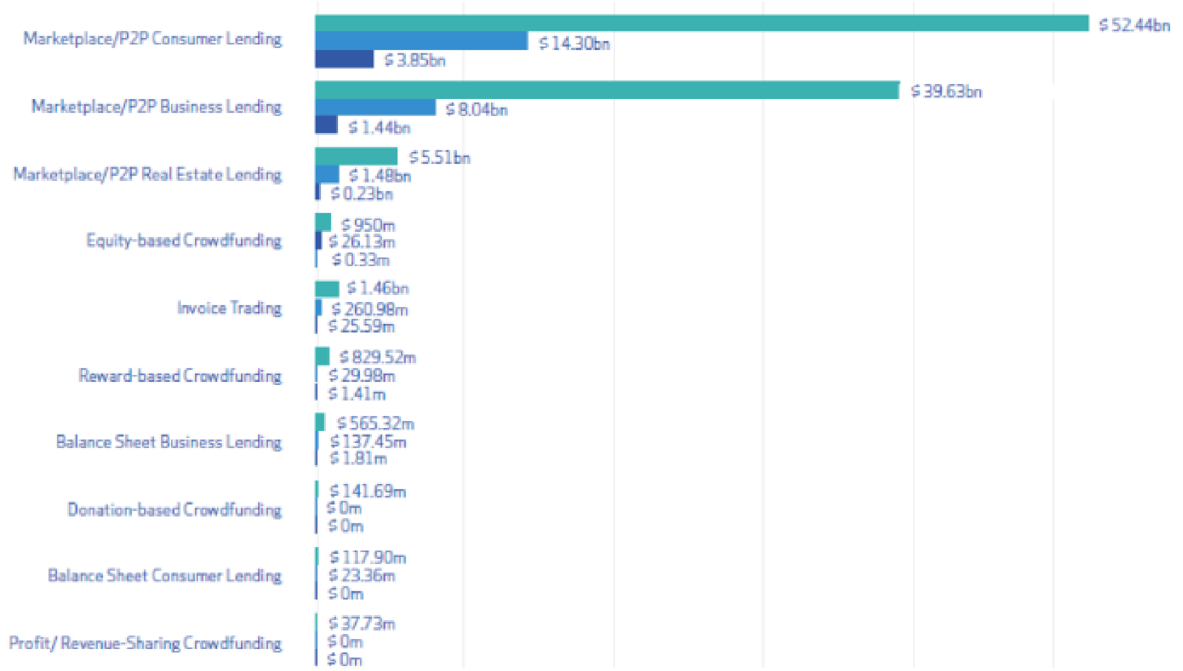


Figure 6 below similarly shows estimated market volume in China by alternative finance model for the period 2013–2015 in USD.[17]



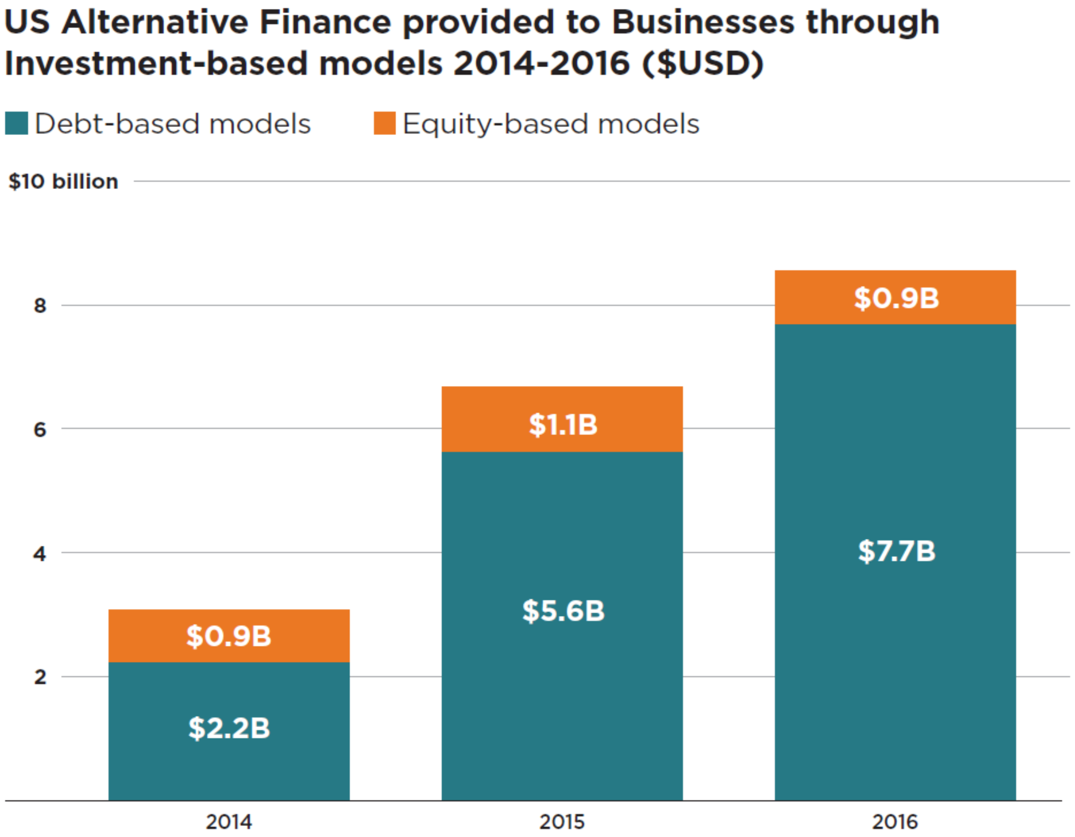
Source: IOSCO 2017 Research Report on Financial Technologies

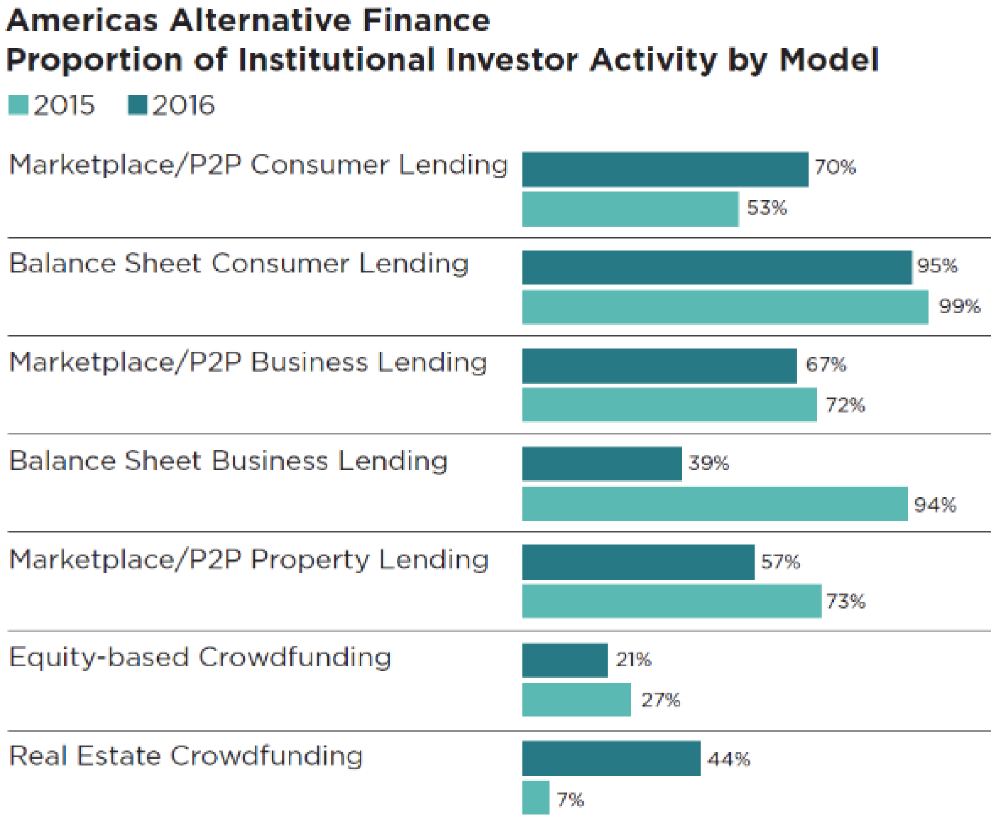
P2P lending in China

China is the biggest player in P2P lending. It had the support of the Chinese government, which in late 2018 reversed its position and many companies crashed overnight.

- 2016 Blue Book of Internet Finance found that 1,263 P2P companies (1/3 of total) in China has serious issues
- P2P lender Ezubo defrauded more than 900K investors of 50 billion yuan ($7.6B)
- Custodian banks became mandatory
- Imposed borrowing and interest rate caps
- Microfinance lending companies and Banks are banned from raising P2P loans

Which models attract investment in Americas?





Source: 2017 Americas Alternative Finance Industry Report, Cambridge

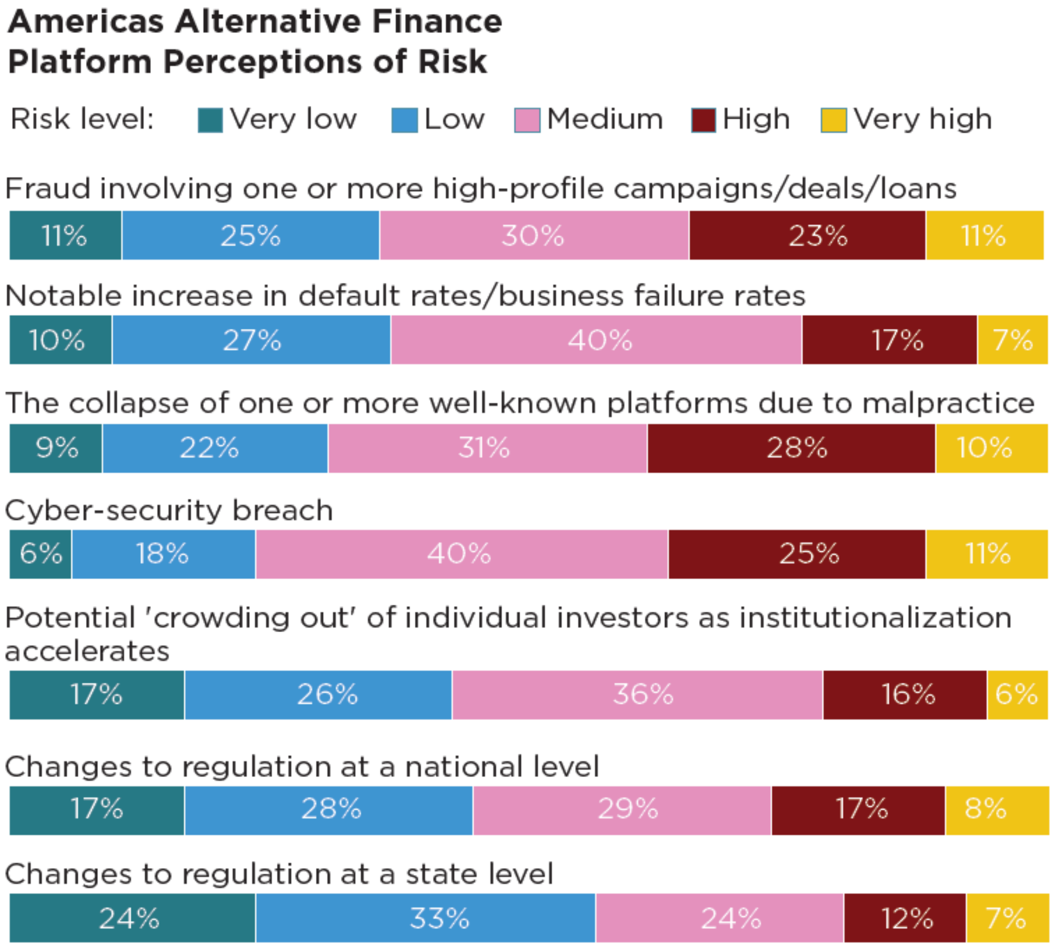
Propellers of P2P lending

- **Reduced technology costs:** P2P lending platforms use technology in a number of ways. For example, an internet interface could be used to onboard borrowers and lenders, algorithms could automate the assignment of credit scores, and algorithms could automate the selection and diversification of loan investments by the lenders.
- **Previously underserved market segments:** P2P lending platforms offer the possibility for SMEs and start-ups that are traditionally less served by banks, as well as consumers to attract capital more quickly.
- **Low interest rates**: The post-crisis environment of low interest rates and very low or even negative yields on sovereign bonds has led investors to look for alternative investments with potentially higher yields. Loans facilitated by P2P lending platforms typically offer those higher returns, though they may come with higher risk.
- **Risk diversification:** P2P lending allows individual investors to invest in or extend loans to many entities and break the investment into small sizes (as small as $25). This a segment previously limited to institutional investors, or to holders of lending licenses.

Commonly cited benefits

- **Greater access to capital:** P2P lending can provide credit to borrowers, especially SMEs, who do not have access to bank loans, thus increasing total loans provided to the small business sector
  - Recent research casts doubt on whether P2P indeed serves underserved segments or promotes financial inclusion. In the U.S., P2P platforms lend only if the borrowers FICO score is above 660 and they are concentrated in urban areas.
- **Cost advantages:** P2P lending platforms have cost advantages compared to banks. Their overhead costs are low since they leverage technology and data and have less "brick and mortar" related costs. As a result, they can work with low interest margins.23
- **Market-driven system**: P2P lending operates through an open, market-driven system, where large numbers of people choose whether or not a firm or an individual should receive funding. In this regard, P2P lending and ECF platforms can financially enable certain segments of the population, such as women and minorities, who traditionally have found it more difficult to obtain financing from the traditional financial channels.
- **Investor choice and diversification:** P2P lending platforms have provided individual investors with a new asset in the form of uncollateralized debt. Individual investors can spread small sums of money across many loans at a low cost.

Potential Risks



Source: 2017 Americas Alternative Finance Industry Report, Cambridge

- Which factor is your top pick?

Potential Risks

Default risk of the borrower:

- A loan through a P2P platform exposes the investor to the risk of borrowers failing to make timely interest and loan repayments.
- In certain cases, borrowers may fail to repay at all, thereby causing the loss of the entire investment.
- Some, not all platforms, have funds set aside to cover bad debts, but the amount varies among platforms.
- Data from Lending Club shows that more than 10% of the loans are charged-off (Venugopal (2018)).
  - The average default rate in U.S. around 4% (St. Louis Fed (2017)).

Potential Risks

Liquidity risk/ lack of secondary market liquidity for the loans:

- Some P2P platforms may allow investors to sell their loan investments before the loan is fully repaid, but the investor’s ability to sell their loan depends on another investor’s interest in that loan.
- Investors may find it difficult to sell their loans if the borrower is experiencing any kind of strain, for example negative news reports or a repeated late payment history.
- Some P2P lending platforms may also suspend loan sales to protect new investors from investing in a loan where there is a known issue.
- The liquidity in P2P secondary markets have improved considerably since 2008.

Potential Risks

Disclosure risks:

- Investment proposals on P2P lending platforms may lack standardization and provide less detail than securities in the public markets.
- Not all P2P lending platforms disclose clear and comparable default data on their loan portfolios.
- P2P lending platforms have not gone through a full economic cycle of expansion and contraction, and cyclically adjusted default percentages are therefore not available.
  - One of the implications is that average default rates could be higher than anticipated when interest rates rise or economic growth falters.
- Since 2008, the U.S. has mandated specific disclosure of loan data from all platforms.

Potential Risks

Risk of conducting general solicitation/unlicensed activities:

- Platforms may contend that they do not engage in regulated activities because they only offer execution-only services, information services, and matching services.
- However, the fact that the offerings on are widely accessible, they offer a tools to investors and receive compensation for these services, may lead the platforms into the realm of “regulated activities”, including general solicitation, advising on securities, broker-dealer activities, or offering of collective investment schemes.
- The definition and boundaries of these regulatory concepts, and, as a result, the protection of investors, varies considerably among jurisdictions.
- In the US, P2P loans are seen as securities and come under federal oversight.

Potential Risks

Risk of collapse, fraud or malpractice by the platform:

- Collapse of platforms due to malpractice ranks has the highest risk according to survey results from University of Cambridge and NESTA
- In China P2P expanded on a massive scale as firms piggy-backed on the government’s drive for financial innovation to serve credit-starved small and mid-sized private companies.
- Platforms lend to customers deemed too risky. That has in cases led to liquidity crises, when too many investors demand their funds at once if there is a high default rate.
- Regulators in China closed more than 300 P2P platforms in the second half of 2018.
  - (https://www.reuters.com/article/us-china-lenders-p2p-insight/beijing-struggles-to-defuse-anger-over-chinas-p2p-lending-crisis-idUSKBN1KX077)

Trends in P2P

- Specialty lending platforms have become more prominent: Student loan lending, real-estate lending, payday loans (Earnin app) …

- Businesses are becoming a larger segment of P2P borrowers.

- Small business loans (up to 150K) is also going digital! (https://www.wsj.com/articles/a-150-000-small-business-loanfrom-an-app-11546002022?mod=hp_lead_pos9)

Kabbage

Kabbage offers lines of credit of up to $150,000 and specializes in funding for Small- to Medium-size Enterprises (SME).

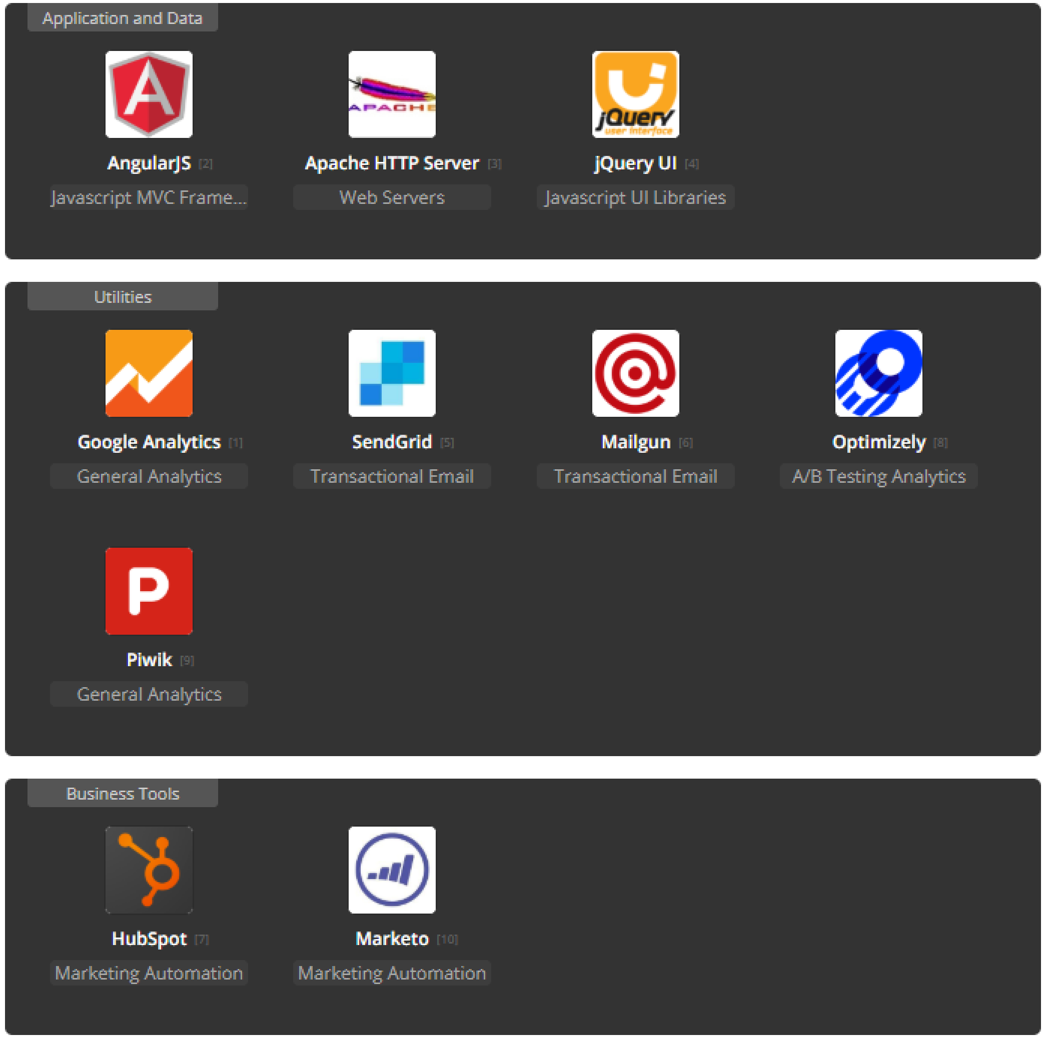
- It annually funds over $1 Billion to 100,000 SMEs and claims to be the largest such provider of online funding.
- It provides quick turnaround on loan applications and has a mobile app for transactions and account statements.
- It advertises that the online application can be approved in “minutes when we are able to automatically obtain your business data and instantly verify your bank account”.
- It may take up to several days if this information is not available electronically.

- Acquired by American Express in August 2020.

Kabbage

- Instead of using FICO scores, Kabbage bases credit decisions on factors such as: Cash flow, length of time in business, social media presences, checking account activity, and other factors.
- While nominal interest rates can be lower than bank loans, when all fees and interest are included APRs can be significantly higher.
- Partners include ING and Scotiabank, among others.

- https://www.youtube.com/watch?v=XCJ5_i11_Is



OnDeck

OnDeck was founded in 2007 and focuses exclusively on funding for SMEs.

- They offer term loans from $5000 to $500,000 and lines of credit up to $100,000.
- In December 2015, JPMorgan announces a partnership with OnDeck in which Chase Bank will be offering small loans via OnDeck's technology to the bank's four million SME customers.

OnDeck: Technology Stack

Application and Data

- **Python** — Languages
- **jQuery** — Javascript UI Libraries
- **Java** — Languages
- **AngularJS** — Javascript MVC Frame...
- **PostgreSQL** — Databases
- **MongoDB** — Databases
- **ES6** — Languages
- **Android SDK** — Frameworks (Full Stack)
- **Apache Tomcat** — Web Servers
- **Spring-Boot** — Frameworks (Full Stack)
- **Objective-C** — Languages
- **Scala** — Languages
- **Spring** — Frameworks (Full Stack)
- **Play** — Frameworks (Full Stack)
- **ActiveMQ** — Message Queue

Utilities

- **Google Analytics** [2] — General Analytics
- **Postman** — API Tools
- **Elasticsearch** — Search as a Service
- **Mixpanel** [31] — Funnel Analysis Analy...
- **Akamai** — Content Delivery Net...

DevOps

- **Git** — Version Control System
- **Docker** — Virtual Machine Platf...
- **npm** — Front End Package M...
- **Jenkins** — Continuous Integration
- **Sublime Text** — Text Editor
- **Webpack** — JS Build Tools / JS Tas...
- **New Relic** [19] — Performance Monitor...
- **Android Studio** — Integrated Developm...
- **Xcode** — Integrated Developm...
- **Vagrant** — Virtual Machine Mana...
- **Ansible** — Server Configuration ...
- **SourceTree** — Source Code Manage...
- **Kibana** — Monitoring Tools
- **Selenium** — Browser Testing
- **Apache Maven** — Java Build Tools

Business Tools

- **WordPress** [12] — Self-Hosted Blogging ...
- **JIRA** — Issue Tracking
- **HipChat** — Group Chat & Notific...

What are the issues with P2P lending?

- Deloitte
  - https://www2.deloitte.com/uk/en/blog/auditandassurance/2020/changes-and-concerns-in-the-peer-to-peer-p2p-lending-market.html
- RFS
  - https://academic.oup.com/rfs/article-abstract/32/5/1900/5427773?redirectedFrom=fulltext