March 13, 2015

EQUITY RESEARCH

Heath P. Terry, CFA
212.357.1849
heath.terry@gs.com
Goldman, Sachs & Co.

Debra Schwartz
212.902.1879
debra.schwartz@gs.com
Goldman, Sachs & Co.

Tina Sun
212.357.4810
tina.sun@gs.com
Goldman, Sachs & Co.

The Future of Finance PART 3

The Socialization of Finance

Finance, meet the network effect. Technology and an increasingly social consumer are democratizing access to funds and services beyond the walls of financial institutions. With millennials as important agents of change, new business models for crowdfunding, peer-to-peer lending, socialized payments, and automated investing are rising to take market share from existing banking channels. In the latest in our series on the Future of Finance, we examine how social finance will change the world of borrowing, lending, paying and investing.

Contents

Internet	Financials	Payments	Capital Markets & Exchanges	Management
Heath Terry, CFA heath.terry@gs.com **Debra Schwartz** debra.schwartz@gs.com **Tina Sun** tina.sun@gs.com **Daniel Powell** daniel.powell@gs.com	**Ryan M. Nash, CFA** ryan.nash@gs.com **Eric Beardsley, CFA** eric.beardsley@gs.com **Jeff Lengler, CFA** jeffrey.lengler@gs.com **Joon Lee** joon.lee@gs.com **Kevin Senet** kevin.senet@gs.com **Joe Delia** joe.delia@gs.com	**James Schneider, Ph.D.** james.schneider@gs.com **S.K. Prasad Borra** skprasad.borra@gs.com **Jeffrey Chen** jeffrey.j.chen@gs.com **Jordan Fox** jordan.fox@gs.com **Margarite Halaris** margarite.halaris@gs.com	**Alexander Blostein, CFA** alexander.blostein@gs.com **Jonathan Dane** jonathan.dane@gs.com **HoLum Kwok** holum.kwok@gs.com **Sheriq Sumar, CFA** sheriq.sumar@gs.com	**Robert Boroujerdi** robert.boroujerdi@gs.com

PM Summary: The Socialization of Finance

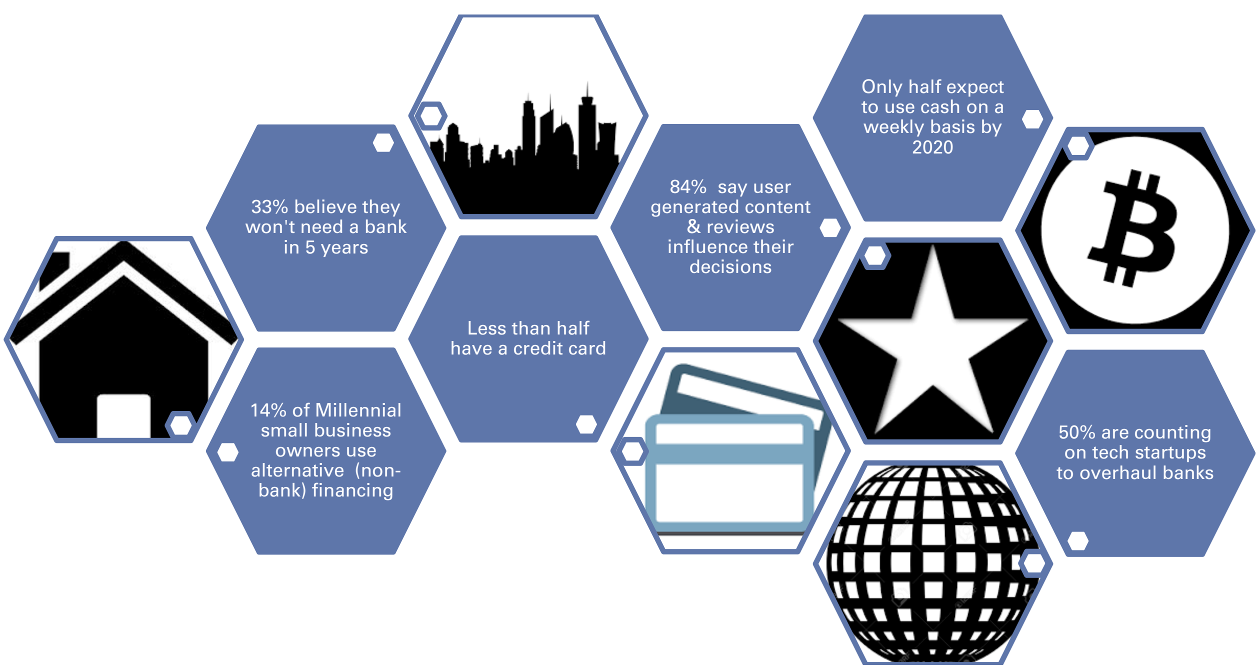
Changing consumer behavior is being joined by new technologies to drive a new era of innovation in financial services. The resulting new platforms allow greater transparency and ease of use and are being further enabled by the vacuum left for certain products by the financial crisis and heightened regulation. Crowdfunding, peer-to-peer lending, socialized payments, and automated investing are all a result of this innovation. These new technologies and business models are causing a redistribution of revenues and profits among existing companies and new entrants. For consumers, technology is democratizing finance by giving them broader access to more products and services at a lower cost. For companies, networks effects and technology are changing the way risk is priced, lowering the cost of customer acquisition, and altering the competitive landscape.

In this report we look at the impact on financial services of an increasingly social consumer base and the emerging companies, services, and technologies designed to cater to it. We believe the companies driving this change will extract considerable market share gains, grow the category, and fundamentally change the way borrowing, lending, paying, and investing are done.

We revisit themes from our first two reports on Shadow Banking and Payments and advance the discussion with a focus on:

Millennials are the agent of change in shifting behaviors. Much of the growth in emerging financial services companies is being driven by demands from consumers for greater transparency, ease of use, always-on access, and automation. Millennials are the agents of this change, but every demographic is incrementally demanding transparency, convenience, and lower costs/higher returns in ways that are creating new companies and forcing traditional financial services companies to adapt. We are still in the early stages of this shift in behavior, as today's cutting edge features and services become part of the basic minimum that consumers will insist upon a year from now.

Exhibit 1: Millennials as the agent of change



Source: Bank of America, Viacom, Accenture, Goldman Sachs Global Investment Research

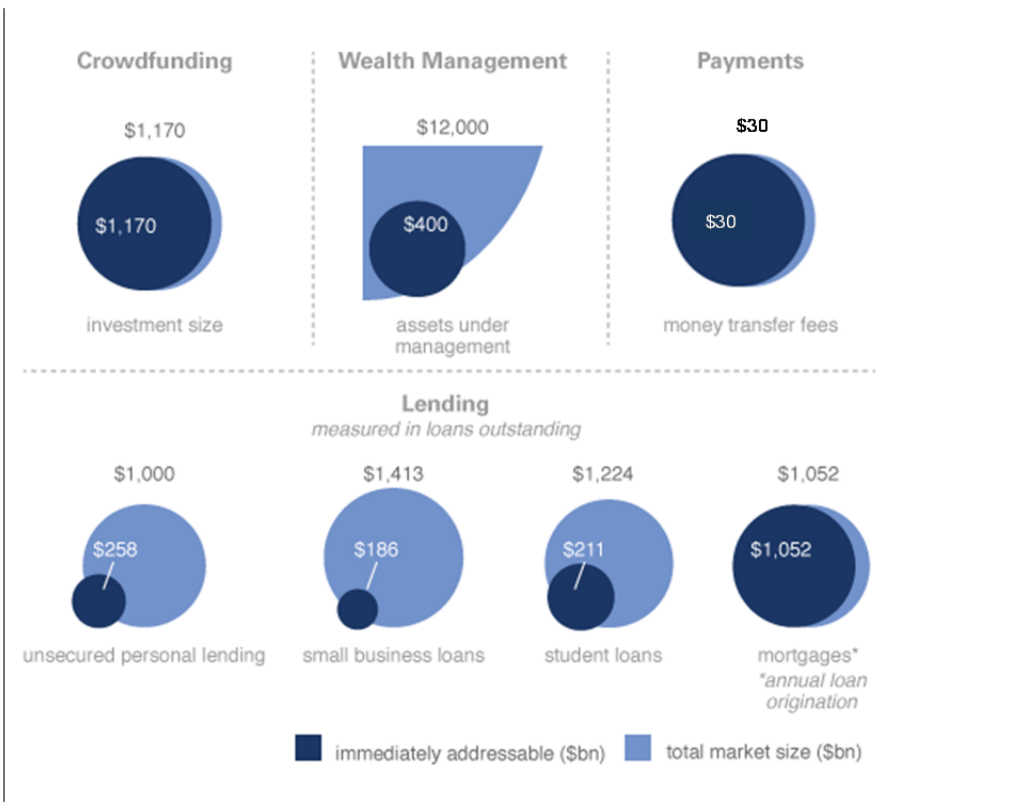
The socialization of finance is attacking over $4 trillion in addressable revenue and $470 billion in profit.

We see over $4 trillion in addressable markets. We define the financial services markets that these companies are attempting to address very broadly because many of the emerging models don't fit traditional market sizing definitions. Much of the investor debate about public companies in the online finance space, such as PayPal and LendingClub, focuses on the size of the total addressable market (TAM). At this point, whether a company is at 0.5% or 5% penetration is less relevant, in our opinion, given the early stage nature of these businesses, the rapid pace of growth, and the potential for these new models to create new categories – as, for example, Kickstarter has.

We see over $4.7 trillion of revenue at the traditional financial services companies at risk for disruption by the new, technology-enabled, entrants. Assuming a 10% profit margin implies a $470bn total profit pool at risk. In other major internet verticals such as ecommerce and travel, online innovators have captured 10-30% share of the existing market. Assuming the online innovators reach the midpoint of 20% share of the financial services TAM implies $660bn revenue share that could migrate online in time, spread across four disruptive sectors benefitting from the socialization of finance: crowdfunding, wealth management, lending, and payments (Exhibit 2).

- Crowdfunding as another channel for small business or product financing.
- Wealth management becoming more automated and technology-enabled to appeal to the next generation of personal investors.
- Payments fundamentally changing as 63% of Millennials don't have a credit card.
- Lending marketplaces improving on the frictions of the existing process and operating at a lower cost structure.

Exhibit 2: Sizing the $4 trillion addressable opportunity
$ in billions



Source: Goldman Sachs Global Investment Research

Technology is enabling change. Social networks, Big Data analytics, mobile accessibility, electronic applications, marketplace funding models, and people-based marketing are combining. This is creating a wave of startup financial services companies that can offer compelling new services, at lower costs, with higher returns, and through more-efficient customer acquisition channels. Many of these technologies are still in the early stages of evolution, as access to data grows, compute power compounds, and access speeds, particularly in mobile, accelerate.

Financial crisis and regulatory response created opportunity. The emerging online financial services companies are benefitting from a change in the competitive landscape that took place after the 2008 financial crisis, which wiped out multiple consumer lending companies, and the regulatory response to it. The regulatory requirements that followed forced many of the more innovative consumer-facing companies to become bank holding companies, which are more strictly regulated, and significantly increased the cost of competing in certain markets. This, in turn, created the opportunities that startup financial services companies are now taking advantage of. If regulations ease for traditional financial services companies or tighten for emerging ones, the balance of growth could change dramatically.

More than just a "blessing of unicorns." Change is being brought about by a combination of start-ups, existing online innovators, and legacy financial services firms. While the current class of venture-backed companies has been the focal point of this innovation, particularly the "unicorns" which are valued at over $1bn, first generation online financial services companies like PayPal, Yodlee, and Financial Engines, as well as traditional banks, asset managers, and payments companies are all working to adapt to these behavioral, demographic, and technologic realities. We expect partnerships, acquisitions, and coopetition will be key to the way the vertical develops – more so than for any other online category we have seen thus far.

Did you know...?

CROWD-FUNDING

$1.6bn

$1.6bn has been pledged on **Kickstarter** to date, with the single largest campaign, Pebble Time, raising nearly $17mn and counting. (Page 10)

VIRAL GROWTH

9 mths

Wealthfront reached its **first billion** in AUM in 2.5 years and its second billion in AUM in 9 months. (Page 20)

MEETING HENRY

My name is:

HENRY

Automated wealth advisers target the underserved HENRY market segment, who are **High Earning, Not Rich Yet**. (Page 27)

HENRYS ARE UNDERSERVED

33%

65% of Millennials with $500k+ of investable assets work with a **wealth adviser,** while only 33% of Millennials with less than $500k of investable assets but $150k+ annual income do. (Page 27)

ACCOUNT SIZES

30x

Schwab's **average account size** of $262k is 30x larger than Wealthfront's average account size of $9k. (Page 29)

LENDING MARKETPLACES

$10bn

LendingClub & Prosper combined have originated nearly $10bn in loans to date, primarily in **personal loans**. (Page 32)

SMALL BUSINESS LOANS

5x

Millennial **small business owners** are 5x more likely than Boomer owners to consider **peer-to-peer lending**. (Page 43)

MORTGAGES

36%

The rate of **homeownership** among those under the age of 35 has **declined** from 43% in 2005 to 36% in 2014, partially driven by the lack of functional mortgages extended to this age group. (Page 39)

EASE OF USE

5

It takes 5 taps to **send money** through Venmo and at least 15 to send money through Bank of America. (Page 50)

CHANGING PAYMENTS

63%

of Millennials **don't have a credit card**. (Page 50)

What is the Socialization of Finance?

We define the socialization of finance as the impact of technology and changing behavior on the financial services markets.

The financial services industry is becoming increasingly social and democratic as it continues to move online and becomes more automated, at once empowering consumers, disrupting existing banking and credit systems, and creating new markets. This is happening across crowdfunding, wealth management, lending, and payments, among other categories, and fundamentally changing the way these markets operate.

Enablers of the socialization of finance

In this report, the notion of "socialization" goes beyond the influence of social networks on consumer financial behavior to more broadly reflect the impact that technology, demographics, and data have in terms of expanding and driving efficiencies within existing financials services markets. Narrowly defined, the existing social infrastructure (Facebook, Twitter), as well as similar networks that are developing specifically around finance, reduces friction in customer acquisition and adoption, and enables sharing, transparency, and communication. More broadly, technology is giving more people access to financial services, creating value for consumers in the form of lower prices or better and more transparent services, and leveraging Big Data in real time to enhance speed and efficiency.

Enablers of the socialization of finance:

#1 Social networks

#2 Millennials' changing consumer behaviors

#3 Technology & data

#4 Sharing economics

#5 Regulatory advantage

We view the following as key enablers:

- **Social networks**. Existing social platforms have enabled fast and cost efficient growth for the emerging class of finance companies. They facilitate word of mouth referrals at scale and create communities that lower customer acquisition costs and often improve unit economics for sub-scale or lower account value marketplaces (e.g., the average account is $9k at Wealthfront vs. over $260k at Schwab). Social payments platforms such as Venmo and social investing communities such as OpenFolio initially built upon existing social networks through strategies such as linked login processes, referrals, and syncing contacts, to drive scale.

  Emerging companies are also leveraging the construct of the social network to develop a community overlay specific to their platform. SoFi, a technology enabled lender, has created a community of alumni lenders as a tool to better measure and manage default risk.

- **Millennials are the agent of change in shifting behaviors**. The combination of increasing mobile-first habits, willingness to share experiences, the desire for perfect information, and the improving unit economics of servicing smaller account sizes is driving changing consumer behavior and the continued adoption of marketplace financial services. The improved, largely instantaneous, and online or mobile-first user experience that companies like Venmo, Wealthfront, and SoFi provide is reducing frictions in the payments, investing, and lending processes. For example, refinancing existing student loans through SoFi takes as little as 15 minutes from application to setting up repayment. We believe this could have significant implications for the existing lending process.

- **Technology and data**. Technology and data are the foundation underlying the value that emerging financial service companies provide. Technology is increasing the pace of new product innovation, improving service offerings for consumers while making traditional processes, like obtaining a loan, more seamless, faster, more transparent, and often more affordable. It also drives a meaningful cost advantage compared to traditional banking systems with their costly physical branch networks.

- **The emergence of marketplaces and the sharing economy**. Social finance platforms have benefitted from the growing proliferation of collaborative consumption economies by harnessing underutilized resources or excess capacity and increasing accessibility. They leverage Big Data or marketplace models to reduce friction so that a broader population than the one served by traditional players can participate. The lending marketplaces, for example, expand the market by connecting a new class of investors (individuals in addition to institutions) to a multitude of anonymous borrowers based on credit information and statistics while TransferWise matches two parties exchanging currencies to take advantage of group resources to transact efficiently and at a much lower cost.
- **Regulatory advantage**. From a changing regulatory environment post the financial crisis to the JOBS Act in 2012, the shifting landscape of regulation and the unmet consumer demand from the existing banking system have created significant opportunity for the social finance platforms to emerge and gain traction. This regulatory advantage comes from the reaction to the financial crisis as companies that existed to do these things in 2008 either failed or were forced into much more restrictive and expensive banking holding company regulatory frameworks. This is allowing new companies to take advantage of a greenfield opportunity to serve those markets while remaining outside the more restrictive legacy regulatory frameworks.

Disruptive sectors benefitting from the socialization of finance

As a result of the increasing socialization and democratization of financial services, consumer financial services are improving in terms of transaction speeds, ease of use, affordability, and availability. In particular, we highlight sub-sectors such as crowdfunding, wealth management, lending, and payments – where the socialization of finance is at various stages of developing new models and finding advantages over traditional systems.

Sectors benefitting from the socialization of finance:

#1 Crowdfunding

#2 Wealth management

#3 Lending

#4 Payments

- **Crowdfunding**. Crowdfunding, sourcing funding across a network of supporters, is potentially the most disruptive of all of the new models in finance. Broadly, it is empowering networks of people to control the creation of new products, media, and ideas. Crowdfunding is disrupting the way films are funded, new products are developed, charitable decisions are made, and venture capital is raised. Crowdfunding reached roughly $10bn in 2014 from $1.5bn in 2011 (Exhibit 7).

  Rewards-based platforms like Kickstarter and Indiegogo are reaching large audiences and are enabling creators and their products or art. Investment platforms like AngelList are creating new ways for accredited angel or venture investors to source and fund startups, while true equity crowdfunding is waiting for a regulatory framework. We see these models capturing significant dollar share from traditional venture capital, production lending, and media finance channels.
- **Wealth management**. Wealth management companies have always struggled to reach the "next generation" of investors, as the cost of reaching and servicing these customers outweighed the assets they brought with them. New entrants are using automated advising strategies, technology, and viral customer acquisition strategies, to efficiently scale asset gathering efforts. These platforms benefit from changing demographics and consumer behavior to favor automated and passive investment strategies, a simple and transparent fee structure, and attractive unit economics that allow low or no investment minimums. They are targeting an emerging but increasingly important segment of the market, the HENRYs – high

earning, not rich yet. Wealthfront and Betterment, two of the largest automated advisers, have reached $2bn and $1.4bn in assets under management, respectively, likely driving a continued competitive response from traditional wealth managers.

- **Peer-to-peer lending**. Peer-to-peer marketplaces have gained traction since the financial crisis owing to a favorable environment for lending. These marketplaces have benefitted from low interest rates and low default rates during the economic recovery along with the relatively less availability of consumer credit. Their efficient cost structure and regulatory advantage allow for interest rate arbitrage while they have also improved on the frictions in the existing lending processes. LendingClub, the largest of the marketplace lenders, reached over $4bn in loan originations in 2014, compared to our estimate of roughly $240bn in addressable revolving consumer credit outstanding, implying a less than 2% market share.
- **Socialized Payments**. Payments is the area of financial services where technology has had the least impact, as it has served largely as a facilitation layer for traditional credit and money transfer services. However, consumer behavior is changing and we believe companies are going to be forced to adapt. Credit card usage is declining among Millennials, with 63% of them without a credit card at all. Payment platforms like PayPal, and its more social subsidiary Venmo, are leveraging social and commercial networks to lower the cost of payment through stored balances, debit cards, and ACH networks. TransferWise is using networks of ex-pats to facilitate foreign exchange at significantly lower costs to the consumer. Affirm is giving those Millennials without credit cards the ability to use credit when buying online to pay over time. We see the rate of change in payments accelerating as consumers demand it and companies become less reliant on the traditional networks.

Crowdfunding: New ways to donate, create, and invest

$1.6bn has been pledged on Kickstarter to date, with the largest single campaign (Pebble Time) raising over $18mn.

Crowdfunding, sourcing funding across a network of supporters, is potentially the most disruptive of all of the new models in finance. Broadly, it is empowering networks of people to control the creation of new products, media, and ideas. Crowdfunding is disrupting the way films get funded, new products are developed, charitable decisions are made, and venture capital is raised. Crowdfunding rose to roughly $10bn in 2014 from $1.5bn in 2011.

Rewards-based platforms like Kickstarter and Indiegogo are reaching large audiences and are enabling creators and their products or art. Investment platforms like AngelList are creating new ways for accredited angel or venture investors to source and fund startups, while true equity crowdfunding is waiting for a regulatory framework. We see these models capturing significant dollar share from traditional venture capital, production lending, and media finance channels.

Enablers of growth:

#1 Expanding use case of crowdfunding

#2 Changing demographics and consumer behavior

#3 Viral growth

#4 Strong network effects

#5 Regulatory changes

The following trends have enabled the rise of alternative funding:

- **Innovation in crowdfunding**. In a very short time, crowdfunding has evolved from being a primarily donation and charity fundraising platform (GoFundMe) to a rewards platform (Kickstarter) and with an increasingly favorable regulatory environment, to equity investment platforms (AngelList). Further, categories of crowdfunded campaigns have continued to expand while successful campaigns have reached $15mn+ of funding on Kickstarter, allowing hardware companies like Oculus and Pebble to develop new products without other types of institutional funding or creators to fund the development of films, games, and music without traditional studio and label structures.
- **Changing demographics and consumer behavior**. Millennials are disproportionately attracted to both donations/rewards and equity-based crowdfunding platforms, primarily driven by the ability to be involved in the creative process, feel connected to the effort, and see a transparent way to donate or invest based on their specific values. Interestingly, Millennials are relatively less invested in stocks, though they are comparatively more interested in alternative funding and investing platforms.
- **Potential for viral growth**. Crowdfunding is inherently one of the most social categories of alternative financing, with the benefit of viral growth for specific campaigns. Groups of fans, such as those that funded the Veronica Mars movie on Kickstarter with $5.7mn, or early adopters, such as those that funded Oculus Rift's first virtual reality headset with $2.4mn, are incentivized to share the campaign across their social networks and encourage their friends to join the campaign.
- **Strong network effects**. Crowdfunding platforms benefit from strong network effects whereby the value of the platform is enhanced as both campaigns and funders grow. The availability of campaigns drives potential funders to the platform seeking projects to back. Funding a campaign in turn incentivizes backers to leverage their social networks to help projects meet their goal, improving campaign success rate. The more projects funded draw more entrepreneurs and other creators to start campaigns on the platform, creating a virtuous cycle of growth on both sides of the marketplace.
- **Regulatory changes**. The original rules as part of Regulation D do not allow general solicitation for transactions by an issuer not involved in a public offering and exempt from registration. In other words, a startup was prohibited from

publicly campaigning for funds. In September 2013, a series of amendments were adopted to permit general solicitation in these cases if (1) all purchasers in the offering are accredited investors and (2) the issuer takes reasonable steps to verify the accredited investor status. Accordingly, in September 2013, AngelList, among others, was able to feature on its website 1,000+ startups that were raising money publicly. Additional regulations are expected this year that could further open the equity crowdfunding market.

Understanding the competitive landscape and key players

Crowdfunding platforms are centered on two types of business models:

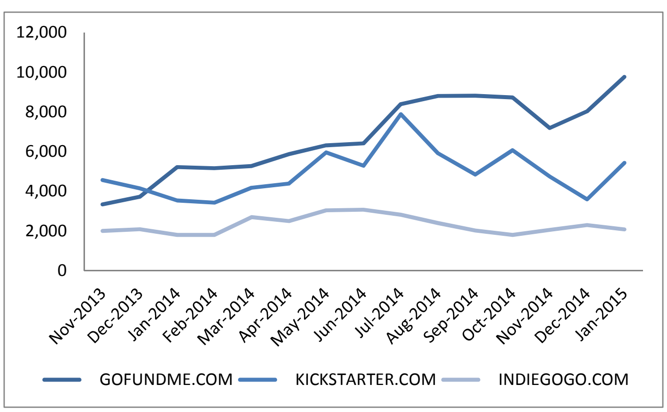
- **Donation or reward based model**. GoFundMe supports personal fundraising and charity campaigns while Kickstarter and Indiegogo support "makers" on primarily a reward based model. GoFundMe reached nearly 10mn unique visitors in January, according to comScore, primarily driven by the charity and social nature of the platform's campaigns.
- **Equity investing model.** AngelList, Crowdfunder, Fundable, and CircleUp are examples of the more popular equity investing crowdfunding models.

Exhibit 3: Summary of key crowdfunding platforms

	Founded	Participants (000)	Amount pledged to date ($mn)	Projects funded	Campaign fee	Processing fee
Crowdfunding: Donation or reward based model						
Kickstarter	2009	8,092	1,573	79,571	5%	3-5%
Indiegogo	2008		170	142,301	4%	3-5% + $25 wire
Gofundme	2010	8,000	780		5%	2.9% + $0.30
Equity crowdfunding: Investing model						
AngelList	2010	21	200		10% carry	
Crowdfunder	2011	92	183	21,671		
Fundable	2012		154		$179/month	3.5% + $0.30
CircleUp	2011		50			

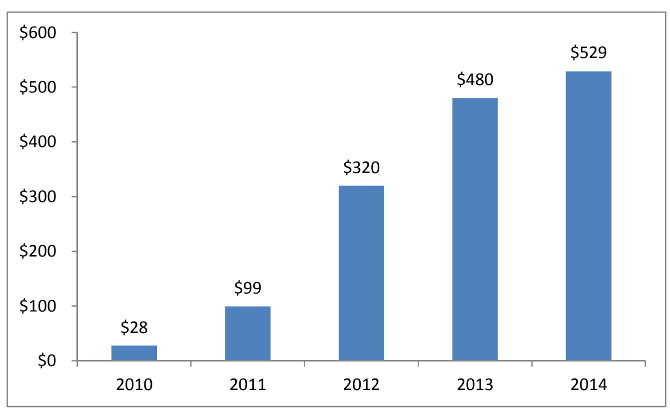
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 4: GoFundMe leads in unique visitors, reaching nearly 10mn in January 2015
Desktop & mobile unique visitors in thousands



Source: comScore

Exhibit 5: Amount funded on Kickstarter each year
$ in millions

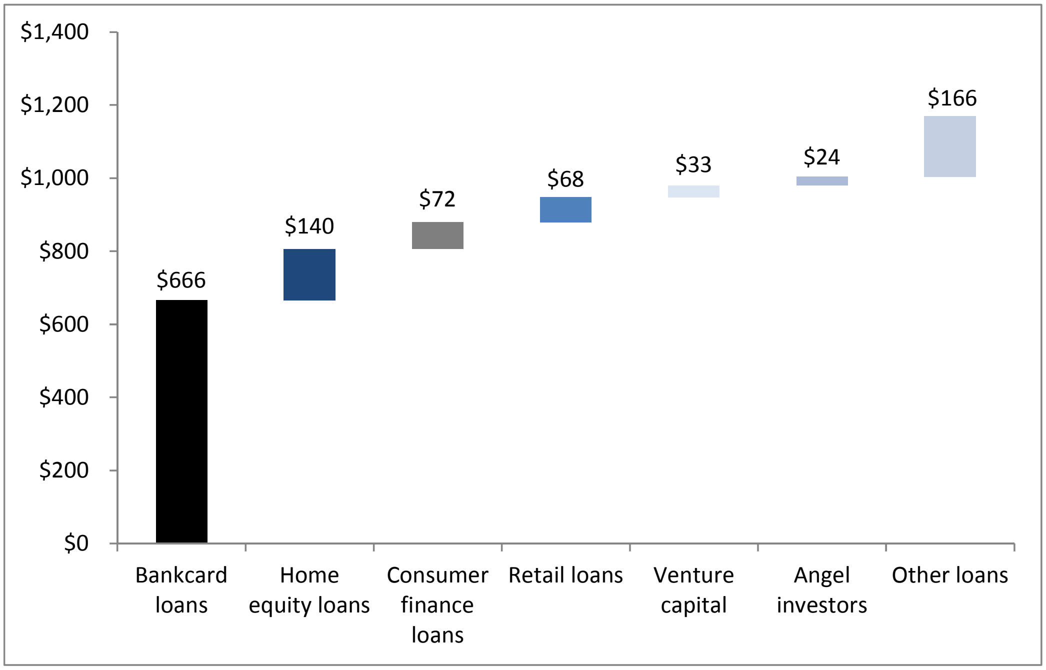


Source: Company data

Sizing the addressable market

While it's difficult to size the addressable market, crowdfunding could be a meaningful financing alternative for artists, filmmakers, designers, other product creators, small businesses, and start-ups, with many use cases likely to emerge over time. We estimate crowdfunding could address a $1.2 trillion opportunity over time, calculated from the combination of the most popular sources of funding for small business owners, including bankcard loans, home equity loans, consumer financing loans, and VC and angel investors.

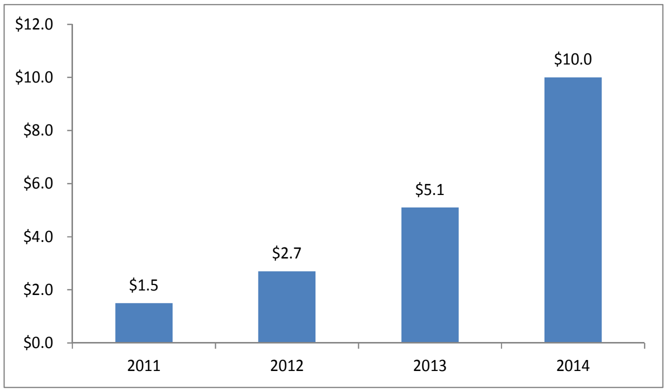
Exhibit 6: Addressable opportunity for crowdfunding: $1.2 trillion
$ in billions



Source: Federal Reserve, UNH, Goldman Sachs Global Investment Research

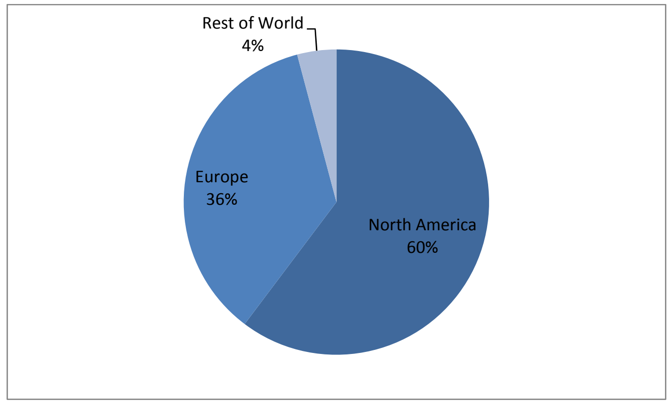
According to Crowdfunder Insider estimates, crowdfunding reached $10bn in aggregate in 2014, up from just $1.5bn in 2011 (Exhibit 7). On 2012 estimates, the World Bank estimates roughly 60% of crowdfunding occurred in North America, 36% in Europe, and 4% in the rest of the world (Exhibit 8).

Exhibit 7: Aggregate amount of funding through crowdfunding
$ in billions



Source: Crowdfund Insider

Exhibit 8: Geographic breakout of crowdfunding in 2012
$ in billions



Source: World Bank

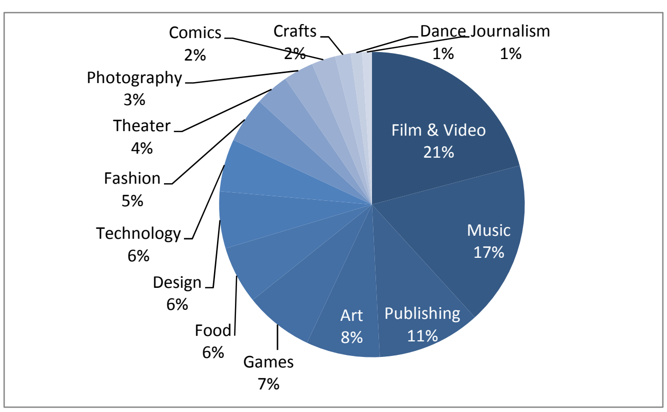
Innovation in crowdfunding

Growth enabler #1: Innovation in crowdfunding

In a very short time, crowdfunding has evolved from being a primarily donation and charity fundraising platform (GoFundMe) to a rewards platform (Kickstarter) and with an increasingly favorable regulatory environment, to equity investment platforms (AngelList). Further, categories of crowdfunded campaigns have continued to expand while successful campaigns have reached $15mn+ of funding on Kickstarter, allowing hardware companies like Oculus and Pebble to develop new products without other types of institutional funding or creators to fund the development of films, games, and music without traditional studio and label structures.

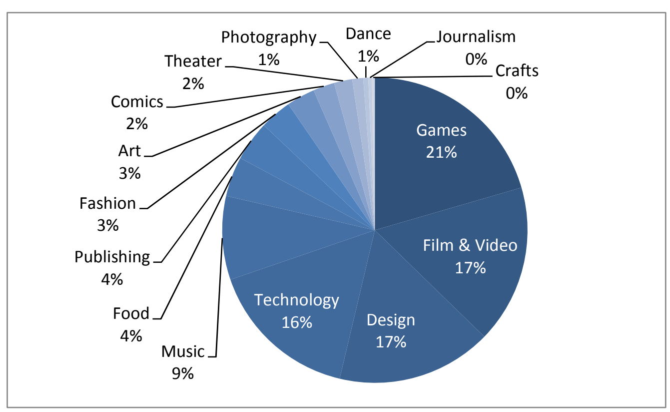
We analyze the top categories on Kickstarter by number of projects and amount of funding. By number of projects, the top categories are film & video (21%), music (17%), and publishing (11%). By amount of funding, the top categories are games (21%), film & video (17%), and design (17%). Kickstarter has specific rules about which categories of projects can participate on the platform, generally only allowing categories in arts and technology.

Exhibit 9: Kickstarter # of projects by category
# of projects by category



Source: Company data

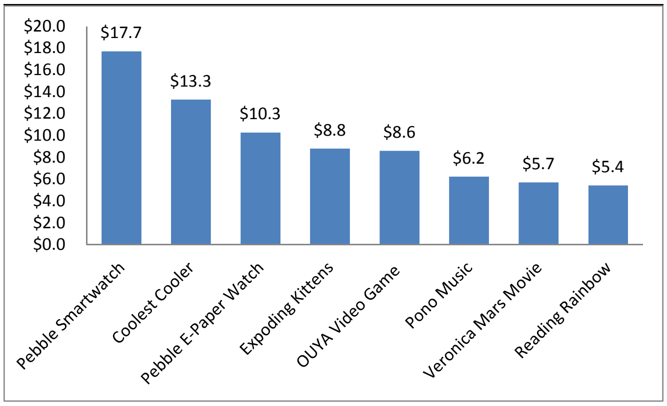
Exhibit 10: Kickstarter funding $ by project category
Total funding $ by project category



Source: Company data

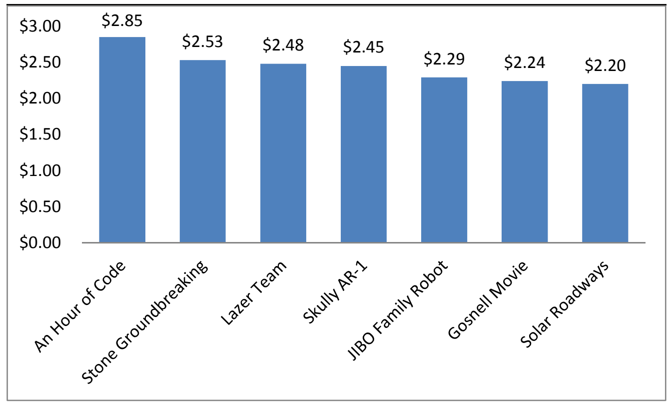
Projects on these platforms also have the capacity to become extremely well-funded, with projects on Kickstarter reaching over $10mn at the high end, creating an opportunity for certain companies to be able to bypass institutional venture capital funding with a successful crowdfunding campaign. On Kickstarter, we highlight certain hardware campaigns that have reached multi-million dollars of pledged funding, such as Pebble Smartwatch, Coolest Cooler, and the OUYA video game console. On Indiegogo, the largest projects have reached $2-3mn in funding.

Exhibit 11: Largest Kickstarter projects
$ in millions, Pebble Smartwatch campaign live and as of 3/11/15



Source: Kickstarter

Exhibit 12: Largest Indiegogo projects
$ in millions



Source: Indiegogo

Changing demographics and consumer behavior

Growth enabler #2: Changing demographics and consumer behavior

Crowdfunding as both a donations and investment platform is giving Millennials more control and direction over how their money is being used or where it is being invested.

Millennials are more likely than any other generation to donate to organizations online and via mobile; further, campaigns on donations platform such as GoFundMe could be more specific and provide more transparency in how the money is being used vs. donating to large, established organizations where there could be trust issues. Additionally, rewards based platforms like Kickstarter appeal to Millennials by allowing backers to fund films, music, and games and connect with the creator in an authentic or artisanal way. The implied level of ownership or patronage implied is also appealing to Millennial funders.

Studies show that Millennials are less invested in equities compared to prior generations, though are relatively more interested in crowdfunding. Crowdfunding as an investment platform allows investors to invest in specific projects that could have a positive social or environmental impact, another aspect that appeals to younger investors who could accelerate the growth in the crowdfunding industry.

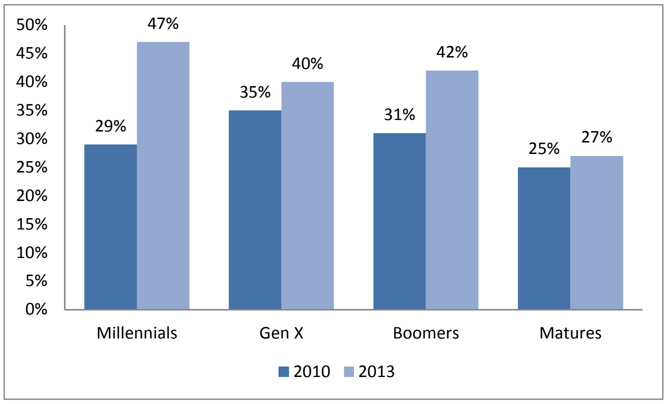
Demographics impact on donations or rewards based crowdfunding

Millennials' propensity to make charitable donations online or via mobile could fundamentally change the way charitable donations are solicited and marketed. According to Blackbaud's charitable donations survey, 47% of Millennials have either donated or plan to donate via online, compared to 40% of Gen-Xers, 42% of Boomers, and 27% of Matures

(Exhibit 13). Millennials are also similarly much more likely to donate money via mobile (Exhibit 14). As a result, donation solicitations with online and mobile access could be more appealing to Millennials.

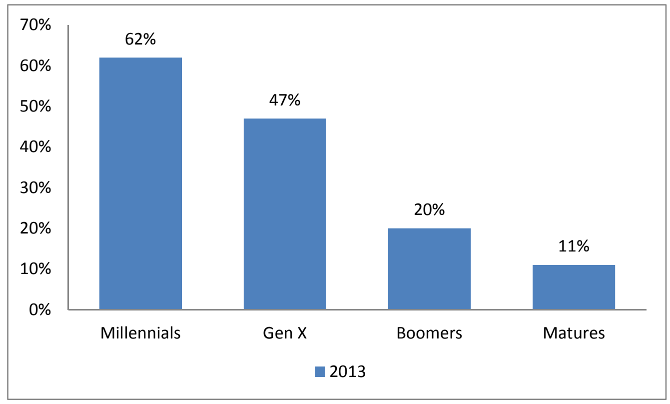
Further, rewards based platforms like Kickstarter and Indiegogo appeal to Millennials by allowing them to be a part of the creative process as a patron or part owner. The experience is described as "authentic" or "artisanal" with a focus on the creative process.

Exhibit 13: Online giving
% of respondents who have made a donation online in the last 2 years



Source: Blackbaud

Exhibit 14: Mobile giving
% of respondents who would give money via mobile device

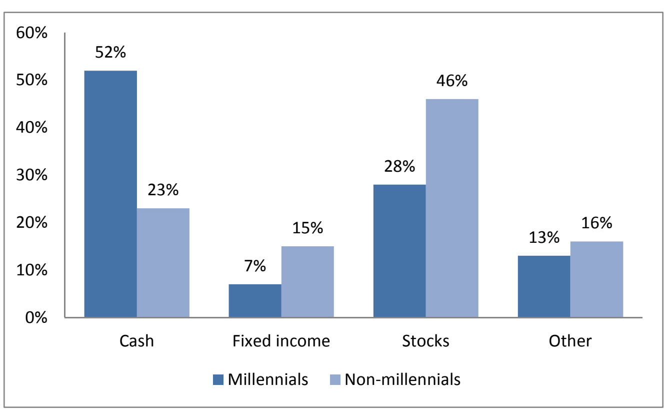


Source: Blackbaud

Demographics impact on equity crowdfunding

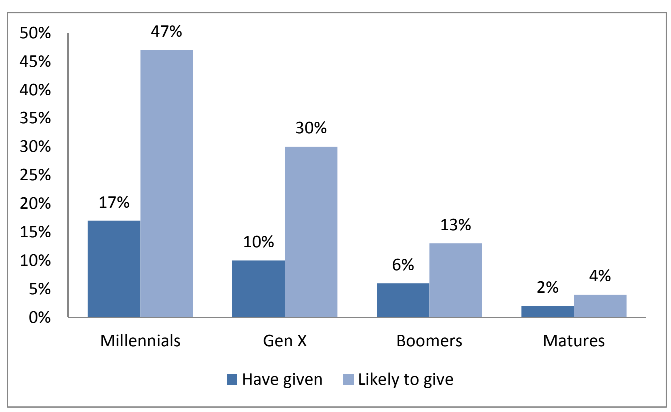
Studies show that Millennials are less invested in stocks compared to prior generations. Millennials hold approximately 52% of their assets in cash and only 28% in stocks, compared to non-Millennials who hold approximately 23% of their assets in cash and 46% in stocks. However, Millennials are more likely to participate in crowdfunding; 47% of Millennial respondents have backed or are likely to back a crowdfunding campaign, compared to 30% of Gen-Xers, 13% of Boomers, and 4% of Matures.

Exhibit 15: Millennials are less invested in stocks…
Approximate overall asset allocation; other includes alternative investments, real estate, commodities, etc.



Source: Gallup

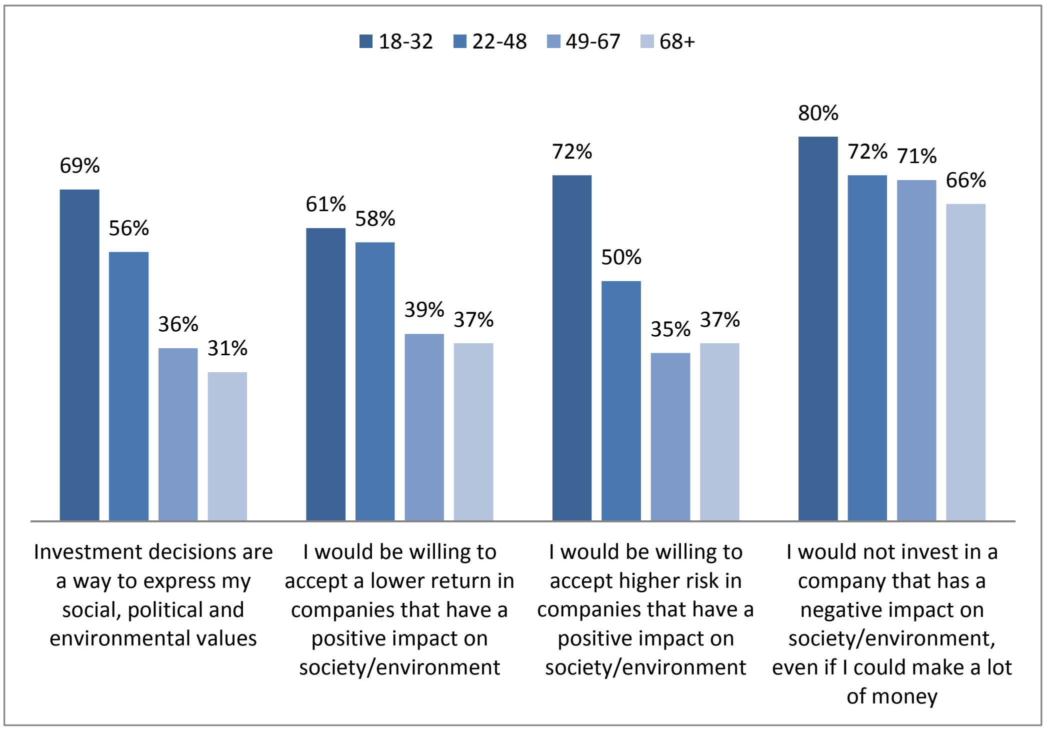
Exhibit 16: …And more likely to participate in crowdfunding
% of respondents who have given or are likely to give via crowdfunding in the next 12 months



Source: Blackbaud

The nature of equity crowdfunding platforms could also appeal to Millennials who have a disproportionate desire for their investment decisions to reflect their social, political, and environment values. According to a survey by US Trust, Millennials are more likely to accept a lower return or a higher risk related to an investment if it's in a company that has a positive impact on society and the environment, while less likely to invest in a company that has a negative impact on society and the environment despite potentially large monetary returns. Many crowdfunding platforms reflect various values; for example, the largest funded campaign on Indiegogo, An Hour of Code, funds an introductory hour of coding to students worldwide.

Exhibit 17: Millennials & values-based investing
% of respondents who agree with the following statements



Source: US Trust

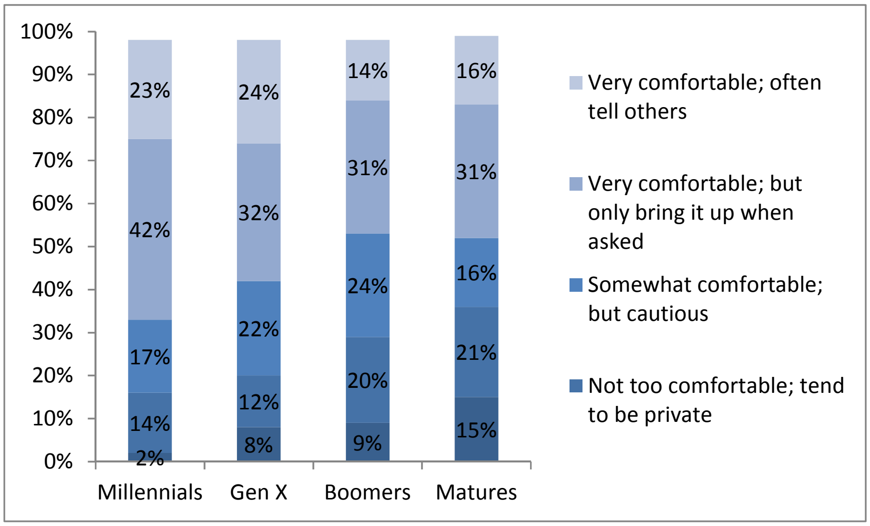
Potential for viral growth

Growth enabler #3: Viral growth

Crowdfunding is inherently one of the most social categories of alternative financing, with the benefit of viral growth for specific campaigns. Groups of fans, such as those that funded the Veronica Mars movie on Kickstarter with $5.7mn, or early adopters, such as those that funded Oculus Rift's first virtual reality headset with $2.4mn, have an incentive to share the campaign across their social networks and encourage their friends to join the campaign.

Many campaigns can be easily shared owing to the nature of the campaign's story and to show the altruism of existing supporters. Word of mouth serves as a particularly important driver of growth, especially among the Millennials generation. According to a Blackbaud survey, 65% of Millennials are "very comfortable" sharing the charities they have donated to, compared to 56% of Gen-Xers, 45% of Boomers, and 47% of Matures.

Exhibit 18: Word of mouth
% of respondents with various levels of comfort with word of mouth



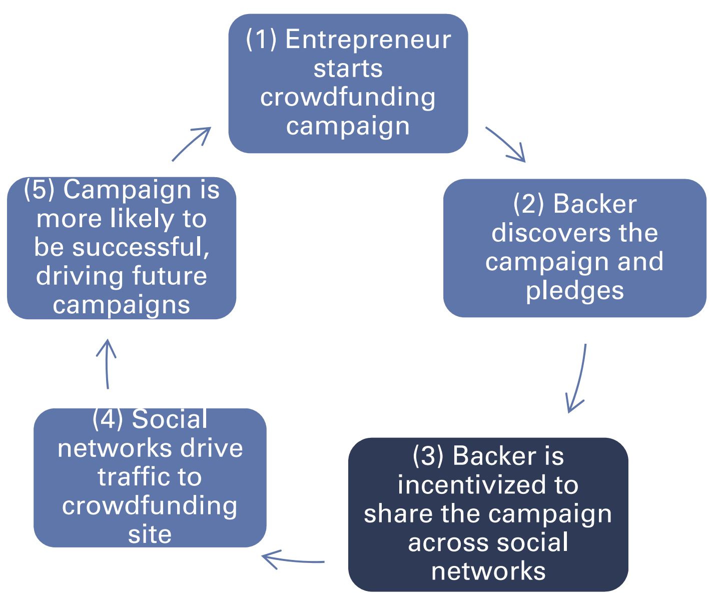
Source: Blackbaud

Strong network effects

Growth enabler #4: Strong network effects

Crowdfunding platforms benefit from strong network effects whereby the value of the platform is enhanced as both campaigns and funders grow. The availability of campaigns drives potential funders to the platform seeking projects to back. Funding a campaign in turn incentivizes backers to leverage their social networks to help projects meet their goal, improving campaign success rate. The more projects funded draw more entrepreneurs and other creators to start campaigns on the platform, creating a virtuous cycle of growth on both sides of the marketplace.

Exhibit 19: Crowdfunding benefits from strong network effects



Source: Goldman Sachs Global Investment Research

Regulatory changes

Growth enabler #5: Regulatory changes

The original rules as part of Regulation D do not allow general solicitation for transactions by an issuer not involved in a public offering and exempt from registration. General solicitation includes, "advertisements published in newspapers and magazines, public websites, communications broadcasted over television and radio, and seminars where attendees have been invited by general solicitation or general advertising." In other words, a startup was prohibited from publicly campaigning for funds.

The JOBS Act was enacted in 2012 with the intention to reduce barriers for smaller companies to obtain capital, among other things. In September 2013, a series of amendments to the JOBS Act were adopted to allow the SEC to permit general solicitation in these cases if (1) all purchasers in the offering are accredited investors and (2) the issuer takes reasonable steps to verify the accredited investor status.

Accordingly, on September 23, 2013, AngelList, among others, featured on its website 1,000+ startups that were raising money publicly. AngelList also offers an accreditation verification to reduce frictions for both accredited investors to invest in startups and for founders to accept these investments in a compliant way.

Wealth management: Investing for the next generation

Wealthfront and Betterment, two leading automated advisers, each reached $1bn in AUM in 3 years.

Wealth management companies have always struggled to reach the "next generation" of investors as the cost of reaching and servicing these customers outweighed the assets they brought with them. New entrants are using automated advising strategies, technology, and viral customer acquisition strategies to efficiently scale asset gathering efforts. These platforms benefit from changing demographics and consumer behavior to favor automated and passive investment strategies, a simple and transparent fee structure, and attractive unit economics that allow low or no investment minimums. They are targeting an emerging but increasingly important subset of Millennials, the HENRYs – high earning, not rich yet. Wealthfront and Betterment, two of the largest automated advisers, have reached $2bn and $1.4bn in assets under management, respectively, likely driving continued competitive response from traditional wealth managers.

The automated advisers have benefitted from the following key trends:

Enablers of growth:

#1 Changing demographics & consumer behavior

#2 Targeting an underserved market

#3 Efficient customer acquisition

#4 Improving ease of use: technology, transparency, and fees

#5 Empowering investors

- **Changing demographics and consumer behavior**. Millennials, who experienced two significant recessions during their formative years, have less trust in wealth advisors and the philosophy of active investments compared to prior generations. Millennials also trust their social network for personal investing advice with 84% of Millennials saying their purchase decisions are influenced by user generated content, creating an opportunity for platforms to move personal investing from a purely individual activity today to a more open and engaging social activity.
- **Targeting an underserved market**. These platforms are targeting largely Millennial customers who are entering the personal investing landscape and currently have a small though growing amount of investable assets. In other words, they are focused on the Millennial HENRY's – high earning, not rich yet. HENRY's are underserved; according to a TD Ameritrade study, 65% of Millennials with over $500k of investable assets work with a wealth adviser while only 33% of Millennials who have investable assets less than $500k but household income of more than $150k do.
- **Efficient customer acquisition.** The cost structure of traditional wealth advisers – which includes office space, in person meetings, a costly staff of advising professionals and client service specialists – is supported by the relatively larger size of customer accounts. Automated advisers are able to leverage a lower cost structure, the benefits of viral customer acquisition, and automated investment strategies to compete despite much smaller account sizes.
- **Improving ease of use: Technology, transparency, and fees.** The fully online environment combined with the single product offering that automated advisers tend to offer creates a simple fee structure and transparency throughout the process. This improves ease of use and reduces frictions for customers who are signing up for what is often their first managed account. In addition, the fee structures at the automated advisers are below industry average in terms of advisory fees.
- **Empowering investors**. Platforms such as Openfolio, Estimize and Mint are creating transparency and making publicly available data that is empowering consumers to make their own investment decisions. As financial market participants take to social networks to gather information and share ideas, much in the same way neighborhood investing clubs used to, they are benefitting from scale advantages those clubs never could.

Understanding the key players and the competitive landscape

Wealth management and advisory services have evolved over the last few decades, from the traditional physical locations and emphasis on personal relationships with wealth managers, to Schwab pioneering the discount brokerage and telephone orders in the 1970s, to the automated advisers today. Over the same period, technology has played a key role in evolving the landscape, as the wealth management industry has evolved from one purely based on judgment and human decisions to becoming tech-assisted through the use of ETFs and other passive investment strategies to, most recently, Wealthfront and others becoming automated with a very small team overseeing the investments.

Key companies in the emerging wealth management space (Exhibit 20):

- **Wealthfront**. Founded in 2007, Wealthfront was one of the earliest automated advisers and the first to reach $1bn in AUM.
- **Betterment**. Betterment was founded in 2008 and boasts no investment minimum and a low advisory fee of 0.15%-0.35% of AUM.
- **Personal Capital**. Personal Capital requires the highest investment minimum for its managed portfolio product, but also cites over 700k registered users who use its free personal finance management tools.
- **FutureAdvisor**. FutureAdvisor offers free personal finance software that serves over 200k households and tracks $26bn in assets through linking to all your accounts, though its own Premium managed portfolio product has reached roughly $240mn in AUM.

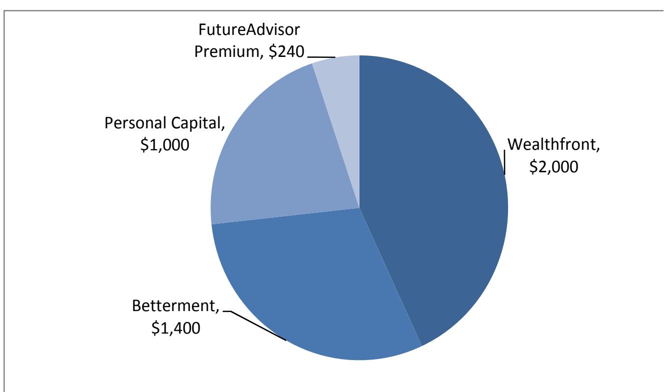
While the 4 largest automated advisers total roughly $5bn in AUM, they are still dwarfed by the largest traditional wealth managers (Exhibit 22).

Exhibit 20: Competitive landscape of automated advisers
Assets under management in $ millions

	Year founded	Investment Min	Advisory fee ($100k)	AUM ($mn)	Investors served
Wealthfront	2007	$5,000	0.25%	$2,000	17,400
Betterment	2008	$0	0.15%	$1,400	65,000
Personal Capital	2009	$100,000	0.89%	$1,000	2,500
FutureAdvisor Premium	2010	$10,000	0.50%	$240	1,700

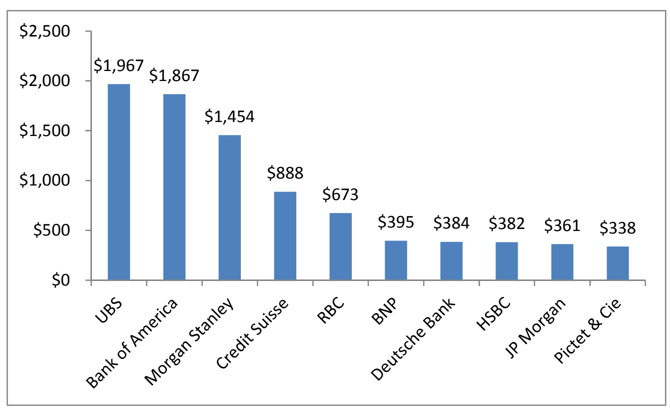
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 21: Market share among the 4 largest automated advisers
$ in millions, last reported AUM



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 22: Comparison of larges wealth managers by AUM
$ in billions



Source: Company data, Goldman Sachs Global Investment Research

Incumbents' response

Schwab is the most aggressive of the incumbents in developing competing automated products. The company launched Schwab Intelligent Portfolios in March 2015, an automated investment advisory service with 0% advisory fees. This product offers similar benefits to Wealthfront and Betterment, including automatic rebalancing, tax loss harvesting, and a fully online and automated environment. We believe this will test the competitive advantage of Wealthfront and Betterment, though all of these companies could be beneficiaries as consumers adopt this type of wealth manager.

Schwab's product is expected to offer the following features not available on Wealthfront or Betterment:

- FDIC insured cash allocation
- Live phone and chat support 24/7; also available at Betterment for accounts with over $500k
- 0% advisory fee

Schwab benefits from the following advantages, which existing wealth managers would also be able to benefit from should they launch similar products. This highlights the low barriers to entry in the automated investment industry, creating the opportunity for increasing competition.

- **Existing network of customers**. Schwab cites 20k people have expressed an interest in the new product through their customized website, of which 46% are new to the firm while the majority are existing customers looking to start or continue advisory relationships.
- **Potential to upsell**. While customers of this product may start off with relatively lower account amounts, as they build their wealth there is opportunity for the company to seamlessly bring them to higher level services.
- **Longer track record**. Schwab's wealth management business has experienced multiple full economic cycles and has proved it can maintain returns during a market downturn. However, the Intelligent Portfolios product is new and doesn't benefit from the company's overall longer track record.

Sizing the immediately addressable market

We estimate that Millennial households (i.e., households where the head of household is under the age of 35) controlled approximately $1 trillion of financial assets in 2014, including transaction accounts (checking, saving, money market), CDs, saving bonds, stocks, bonds, retirement funds, and other managed accounts (Exhibit 23). Only a portion of this $1 trillion in financial assets is currently invested and by our estimate roughly one-quarter is held in transaction accounts such as checking and savings accounts.

For comparison, Schwab sizes the automated advisory opportunity as $400bn, which in our opinion is a relatively conservative view of the immediately addressable market for its Schwab Intelligent Portfolios product (Exhibit 24). This includes people between the ages of 25 and 55, with income of at least $100k/year and less than $500k in investable assets. This compares to the $12 trillion of retail AUM in the US currently.

More broadly, PwC estimates that there was $33 trillion in total assets under management in North America in 2012, which it forecasts should increase to roughly $49 trillion by 2020. The growth in the overall industry should create a tailwind for automated advisors, as should the growth of passive AUM within total AUM.

Exhibit 23: $1 trillion in financial assets held by households where head of household is < 35 years old
Units as labeled, as of 2014

Mean financial asset ($000)	**$38**
Per household, where the head of household is < 35 years old	
Number of households in the US (000)	**26,331**
Where head of household is < 35 years old	
Total financial assets ($bn)	**$1,008**

Source: Federal Reserve, Census Bureau, Goldman Sachs Global Investment Research

Exhibit 24: Schwab's calculation of the immediately addressable opportunity of $400bn
Units as labeled

People between ages 25 and 55 (000)	125,101
Of that, making at least $100k income and about $500k in investable assets (000)	800
Average investable assets ($000)	$500
Total opportunity ($bn)	**$400**

Source: Census Bureau, Company data, Goldman Sachs Global Investment Research

Changing demographics and consumer behavior

Growth enabler #1: Changing demographics & consumer behavior

This generation has a very different set of expectations about what they want from an investment service – Adam Nash, CEO Wealthfront

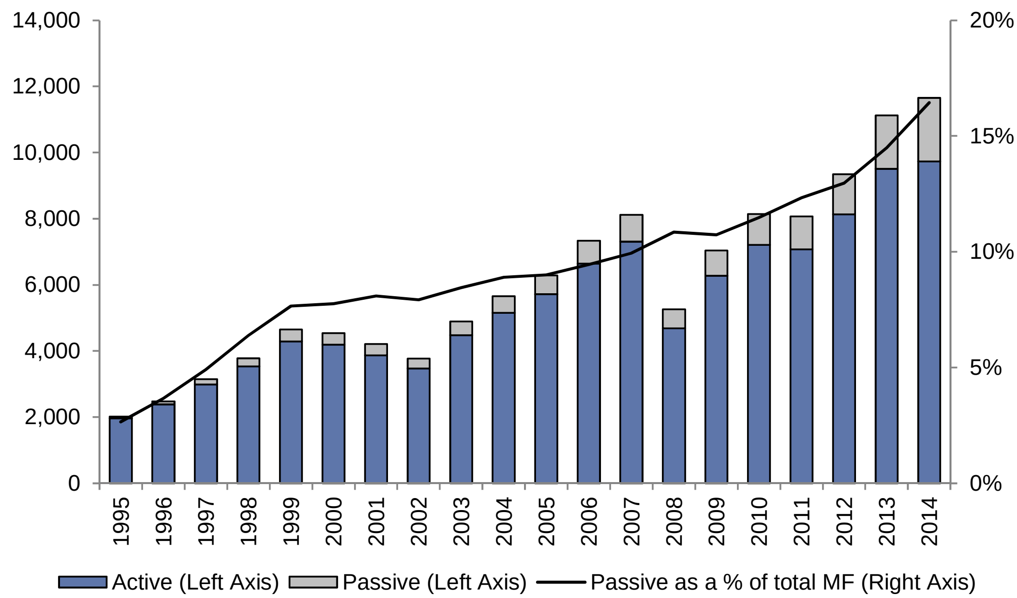
Millennials, who experienced two significant recessions during their formative years, have less trust in wealth advisors and the philosophy of active investments compared to prior generations. Additionally, Millennials trust their social network for personal investing advice, creating an opportunity for platforms to move personal investing from a purely individual activity today to a more open and engaging social activity. Specifically, when it comes to personal investing, Millennials' values are driving the following trends in personal investing behavior:

- **Passive investing**. Millennials have witnessed two recessions during the 2000s, potentially along with the loss of their parents' savings or other unfortunate outcomes of the financial crises. As a result, they are understandably hesitant to invest in the same way their parents did, choosing instead a more passive investment strategy that doesn't necessarily promise to beat the market but does advertise features such as rebalancing and making smart tax decisions.
- **Automation**. Along the lines of preferring the lower cost and more diversified passive investment strategy, Millennials who are investing for the long term look for the reliability, rationality, and consistency driven by automated investing platforms, as opposed to personal advisers and the potential for human error and misjudgment.
- **Online and mobile-first platforms**. Per an AlixPartners survey, Millennials overwhelmingly prefer online and mobile-first platforms in general, which translates into financial services as well. Wealthfront and Betterment, for example, both rank in the top 10 in the iOS app store "investment" category.
- **Transparent fees.** Millennials have become fatigued with complex pricing and hidden fees. Rather, they increasingly prefer simple, transparent pricing.

Growth in passive investing

Over the last 2 decades, AUM in passive mutual funds grew from 3% of total MF AUM in 1995 to 9% in 2005 to 16% last year. While this trend is driven by multiple factors such as lower fees and total performance, the increasing participation from Millennials should also drive a continuation of this trend over time.

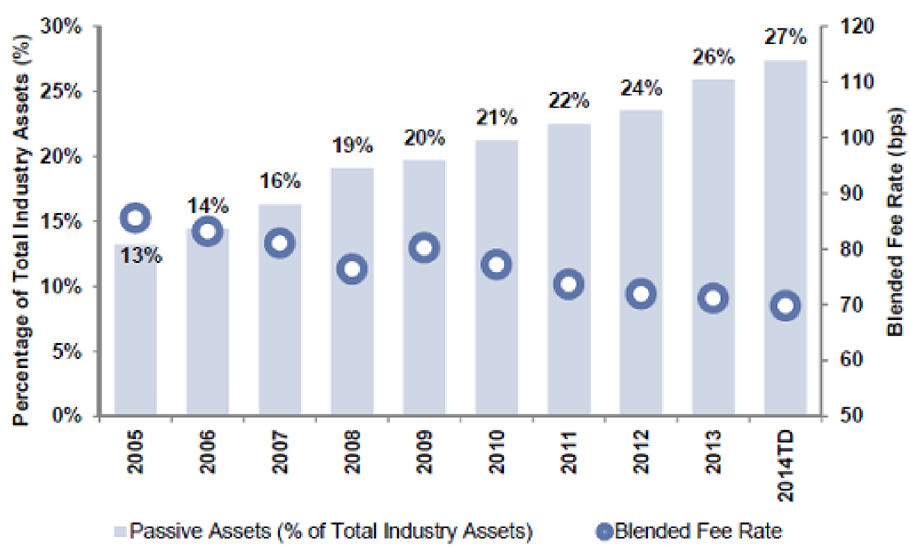
Exhibit 25: Passive increasing as a % of MF AUM
Mutual fund AUM, in $ billions



Source: Simfund, Goldman Sachs Global Investment Research

Along with the growth in passive investing AUM, the blended average fee rate has declined over the same period: In 2005, passive assets were closer to 13% of total industry assets (MF and ETF) while the blended average fee rate was close to 90 bps. In 2014, passive assets were 27% of total industry assets while the blended average fee rate was close to 70 bps.

Exhibit 26: Rise of passive AUM (as % of MF and ETF) vs. decline of blended fee rate
Passive AUM as % of mutual fund and ETFs; blended fee rate in bps



Source: Simfund, ICI, Goldman Sachs Global Investment Research

Preference for automation vs. wealth adviser, at least in the early stages

The value proposition for customers is an automated platform that isn't advertised to aggressively beat the market, but is advertised to be reliable, consistent, rational, and not prone to human error or misjudgment. We summarize the benefits that Wealthfront and Betterment advertise on the front page of their websites, benefits which highlight the advantages of the automated platform, such as optimized asset allocation, diversification, and smart tax strategies.

With the average account size at Wealthfront roughly $9k, these platforms are targeting relatively early stage personal investors, who may have a preference for automation at the expense of a human wealth adviser and relationship. While there could be more demand for a personal wealth adviser as wealth, and subsequently, account sizes grow given the need for increased flexibility and personalization, there is also opportunity for the automated adviser platforms to develop additional functionality over time to meet these growing needs.

Exhibit 27: Primary benefits as advertised by Wealthfront and Betterment

Wealthfront	Betterment
• Maximize gains with passive investing • Tax aware asset allocation • No commisson fees • Diversified portfolio • Lower taxes with tax loss harvesting • Hassle free investing	• Build wealth: Invest in a diversified portfolio of stock and bond ETFs designed for optimal expected returns • Save time: Everything is automated - from rebalancing to dividend reinvestment, even deposits • Save money: Our customers pay one simple all-inclusive management fee as low as 0.15% • Lower taxes: We optimize investment returns tax-efficiently, with Tax Loss Harvesting+ and other tools

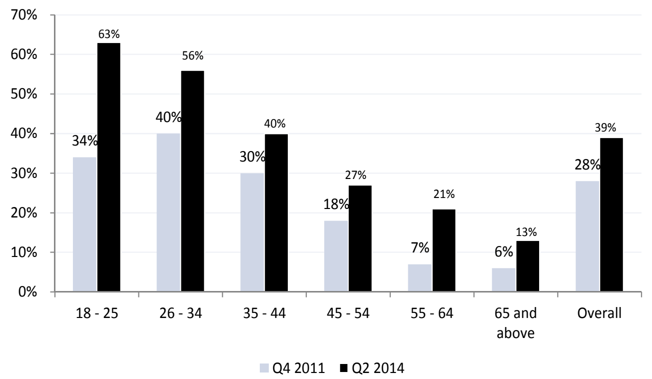
Source: Wealthfront, Betterment

Online and mobile-first platforms

According to a survey by AlixPartners, the percentage of respondents who used a mobile device in the last month for a money-related transaction increased from 28% in 4Q2011 to 39% in 2Q2014. While the percentage of respondents increased over that time period for each age group, the most significant increases occurred in the 18-25 age cohort, where the percentage of respondents increased from 34% to 63%.

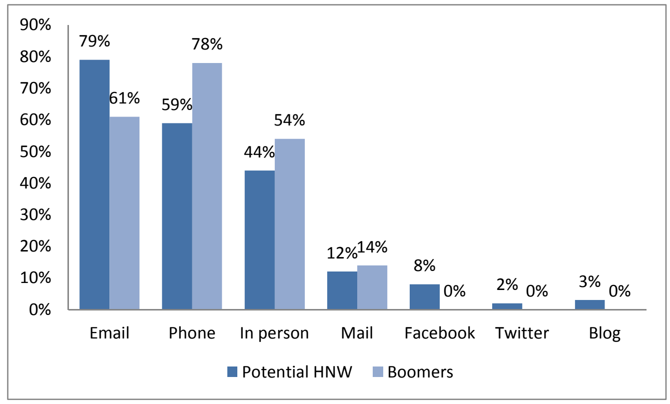
According to a study by TD Ameritrade, potential high-net-worth Millennials (investable assets under $500k, household income over $150k) prefer communication via email, Facebook, Twitter, and blogs while Boomers prefer communication via phone and in-person meetings.

Exhibit 28: Mobile money-related transactions activities
% of respondents who used mobile in the last month for money-related transaction



Source: AlixPartners

Exhibit 29: Differences in communication preferences between potential HNW Millennials and Boomers
Potential HNW defined as those aged 18-39, investable assets <$500k, household income $150k+



Source: TD Ameritrade

Targeting an underserved market

Growth enabler #2: Targeting an underserved market

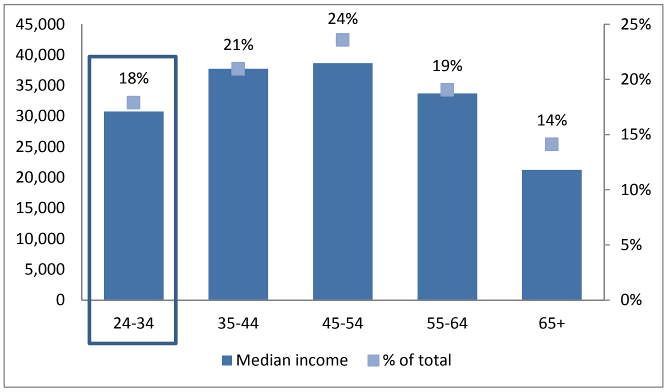
These platforms are targeting largely Millennial customers who are entering the personal investing landscape and currently have a small though growing amount of investable assets. In other words, they are focused on a subset of the Millennial generation called HENRY's – high earning, not rich yet. HENRY's are underserved; according to a TD Ameritrade study, 65% of Millennials with over $500k of investable assets work with a wealth adviser while only 33% of Millennials who have investable assets less than $500k but household income of more than $150k do.

While HENRYs may not be economical for the traditional wealth advisers to target given their smaller amounts of investable assets, they are attractive for the automated advisers given differences in cost structure and the HENRY's relative acceptance of online-only and fully automated platforms. Further, as HENRY's continue to build their wealth, their account sizes can increase over time.

According to the US Census Bureau, 24-34 year olds have a median individual income of $30k, or 18% of the total median income across all age segments. The age 45-54 cohort, on the other hand, has nearly $40k in median individual income, or 24% of the total median income across all age segments. With this measurement, there is minimal difference between the median incomes across all age segments.

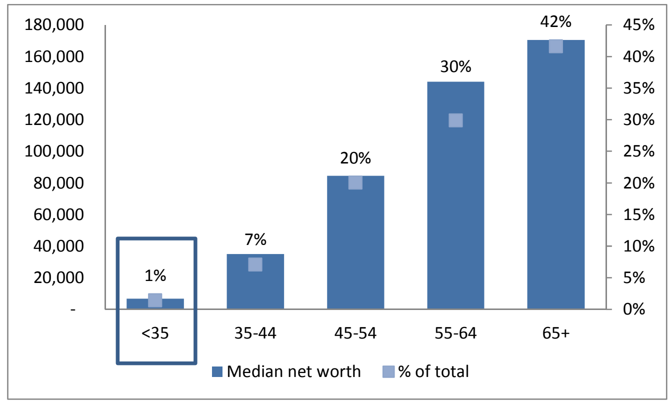
However, when analyzing the net worth by age segment, those under the age of 35 hold approximately 1% of the total net worth in the US, compared to the roughly 42% held by those aged 65 or more. With this measurement, there is a vast difference between the investable assets of Millennials vs. Baby Boomers, creating two very different demographics to target.

Exhibit 30: High earning…
Median individual income and % of total



Source: US Census Bureau, Goldman Sachs Global Investment Research

Exhibit 31: …Not rich yet
Median net worth and % of total



Source: US Census Bureau, Goldman Sachs Global Investment Research

Efficient customer acquisition

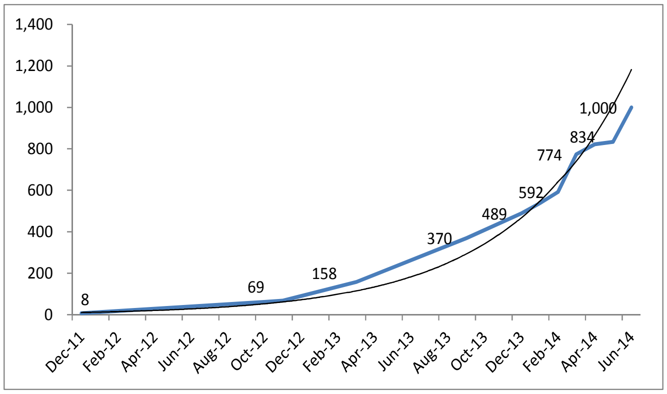
Growth enabler #3: Efficient customer acquisition

The cost structure of traditional wealth advisors – which includes office space, in person meetings, a costly staff of advising professionals and client service specialists – is supported by the relatively larger size of customer accounts. Automated advisers are able to leverage a lower cost structure, the benefits of viral customer acquisition, and automated investment strategies to compete despite much smaller account sizes.

It took Wealthfront approximately 2.5 years to reach $1bn in AUM and roughly 9 months to reach its second billion in AUM. This growth was partially driven by taking advantage of existing social networks and personal finance becoming inherently more social, thereby enabling largely viral and organic growth in the early years. For example, the early adopters in each social network likely shared the use of Wealthfront or other automated adviser platforms to their social networks, potentially reaching hundreds of people with each share. Similarly, Personal Capital reached $1bn in less than 3 years, also exhibiting exponential growth.

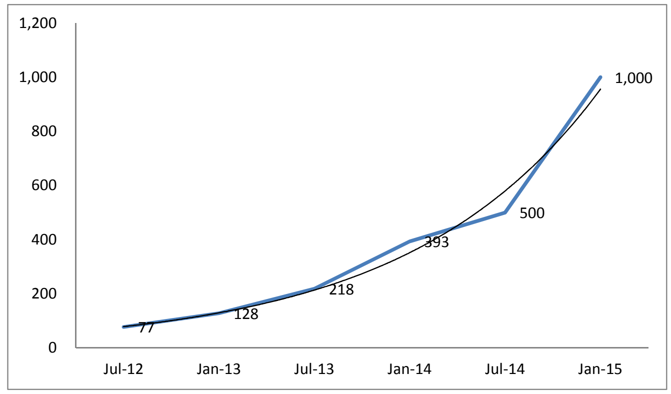
This largely organic growth significantly lowers the total cost of customer acquisition, a major component of expenses for traditional wealth advisers. For example, Schwab spent roughly 4% of net revenue or $245mn on advertising & market development in 2014, which translates to approximately $252/gross new account. This excludes costs to open new branches, which tends to be a significant driver of new account growth.

Exhibit 32: Wealthfront AUM growth to $1bn
$ in millions



Source: Company data

Exhibit 33: Personal Capital AUM growth to $1bn
$ in millions



Source: Company data

Lower cost structure

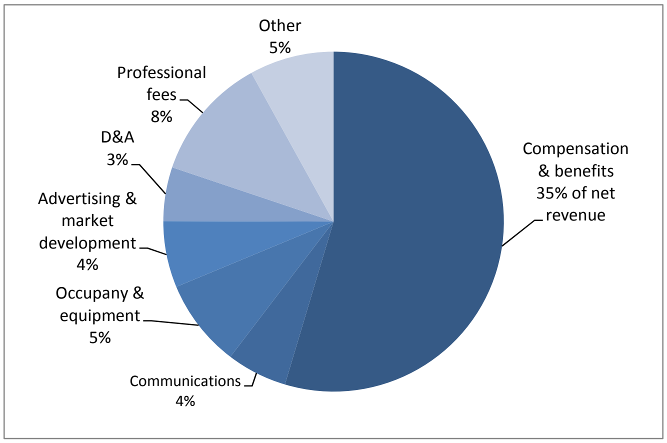
Wealthfront and the other automated advisers should have a structurally lower cost structure, driven by:

- **Lack of costly physical infrastructure**. Schwab operates over 300 wealth adviser offices in the US while Wealthfront operates none.
- **Lack of costly staff of wealth adviser professionals**. Schwab employs roughly 14.6k people across the entire company while Wealthfront employees 62. In 2014, compensation & benefits expenses reached 35% of net revenue at Schwab.
- **More attractive customer acquisition costs**. Based on the company's reported 2014 advertising & market development spend, we estimate each gross new account at Schwab is correlated with roughly $252 in advertising expenses. Approximately 1/3 of Schwab's new accounts come through referrals while the majority of Wealthfront's growth to date has been driven by referrals.

A simple analysis comparing Schwab's and Wealthfront's current cost structure with Wealthfront's $2bn AUM vs. Schwab's $2.5tn AUM, indicates that Wealthfront is clearly still subscale. However, Schwab has an active trader and brokerage business in addition to a wealth management business, both of which are included in this analysis.

- Schwab's AUM/employee and AUM/office metrics are 5X and 4X higher than the same metrics at Wealthfront.
- However, Schwab's AUM/account is nearly 30X higher than the $9k average account size at Wealthfront. As Wealthfront's relatively young customer base continues to accumulate wealth and growth their accounts, the company should be able to scale the rest of its cost base, though it is clearly in early stages.

Exhibit 34: Schwab 2014 operating expenses
Operating expenses as % of net revenue



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 35: Comparison of economics at Schwab vs. Wealthfront
Units as indicated, as of end of 2014 or most recently public information

	Schwab	Wealthfront
AUM ($mn)	2,463,600	2,000
Employees	14,600	62
AUM/employee ($)	**168,740**	**32,258**
Offices	300	1
AUM/office ($mn)	**8,212**	**2,000**
Accounts (000)	9,386	222
AUM/account ($)	**262,476**	**9,000**

Source: Company data, Goldman Sachs Global Investment Research

Improving ease of use: Technology, transparency, and fees

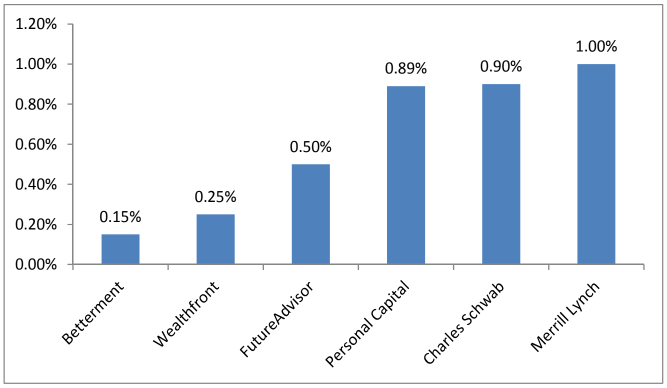
Growth enabler #4: Improving ease of use: technology, transparency, and fees

The fully online environment and the provision of 1 product allow for a simple fee structure and transparency throughout the process, thereby improving ease of use and reducing frictions for customers who are signing up for what may be their first managed account. In addition, the fee structures at the automated advisers are below industry average in terms of advisory fees.

Across the landscape of automated investment platforms, Betterment is the market leader in terms of lowest investment minimum ($0) and advisory fee as a percentage of $100k managed (0.15%). Wealthfront also offers a below-industry average $5,000 investment minimum and 0.25% advisory fee on the first $100k managed. We provide examples of traditional entry-level wealth management solutions at Schwab and Merrill Lynch, which both have investment minimums and advisory fees above the automated adviser average.

In addition to offering relatively lower advisory fees, the automated advisers generally also offer just one product given the early-stage nature of these platforms. While they may lack diversity across multiple products now, the trade-off is a simple and transparent fee structure that is easy for the customer to understand and use.

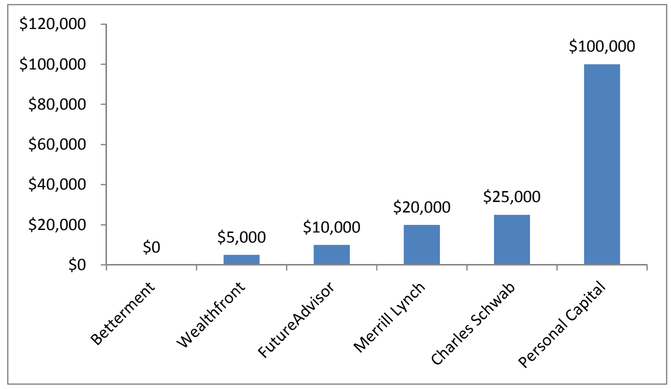
Exhibit 36: Comparison of advisory fees across managed ETF portfolios
Advisory fee as % of first $100k managed



Source: Company data, Goldman Sachs Global Investment Research

Note: Fees represent first $100k invested, Charles Schwab Managed ETF Portfolio and Merrill Edge Solutions

Exhibit 37: Comparison of investment minimum across managed ETF portfolios
Investment minimum



Source: Company data, Goldman Sachs Global Investment Research

Increasing social nature of personal investing driving consumer empowerment

Growth enabler #5: Empowering consumers

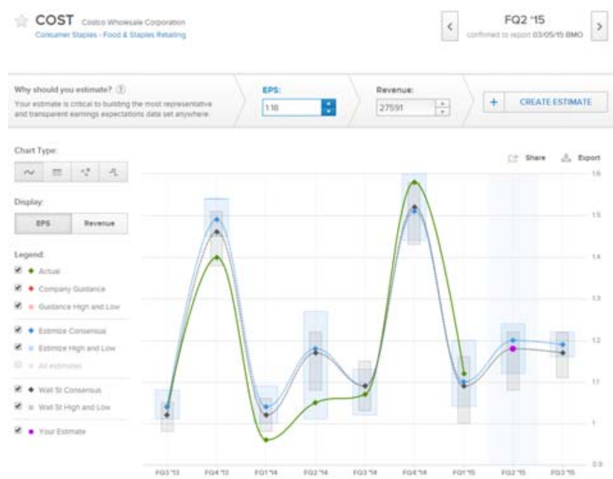
Platforms such as Openfolio, Estimize and Mint are creating transparency and making data publicly available that is empowering consumers to make their own investment decisions. As financial market participants take to social networks to gather information and share ideas, much in the same way neighborhood investing clubs used to, they are benefitting from scale advantages those clubs never could.

- **Openfolio**. Openfolio allows users to link their brokerage accounts to better analyze their performance across various metrics, such as returns and sector allocations, as well as benchmark their performance to peers, other successful investors, and other unique benchmarks. This creates an increasingly social way for personal investors to share ideas and benchmark their performance, thereby empowering consumers to invest. Over time the company could build features to help investors understand why they are underperforming vs. benchmarks.
- **Estimize**. With over 5k analysts and 30k registered users contributing estimates, Estimize seeks to build a comprehensive platform of investor expectations for equities and other economic indicators. By creating a public platform of data that historically has only been available to those with market data subscriptions, this could serve as another enabler to empower consumers to make their own investment decisions.
- **Mint**. Mint is a personal finance management tool that provides a single platform aggregating a consumer's balances and transactions. Features include real-time financials monitoring, budgeting tools, and custom financial planning tips.

Exhibit 38: Example relevant benchmark group
Openfolio

Source: Company website

Exhibit 39: Example equity with next quarter EPS and revenue estimates
Estimize



Source: Company website

Lending: Data, technology, and regulation driving meaningful competitive advantages

Related research: Future of Finance Vol. 1: The rise of the new Shadow Bank

LendingClub and OnDeck each IPO'd in 2014, aggregate market capitalization of $9bn.

Peer-to-peer marketplaces have gained traction since the financial crisis owing to a favorable environment for lending. These marketplaces have benefitted from low interest rates and low default rates during the economic recovery along with the relatively less availability of consumer credit. Their efficient cost structure and regulatory advantage allow for interest rate arbitrage while they have also improved on the frictions in the existing lending processes. LendingClub, the largest of the marketplace lenders, reached over $4bn in loan originations in 2014, compared to our estimate of roughly $240bn in addressable revolving consumer credit outstanding, implying a less than 2% market share.

Enablers of growth:

#1 Favorable macro environment

#2 Changing demographics and consumer behavior

#3 Data, technology, and automation driving cost advantage and ease of use

#4 Attractive unit economics

#5 Regulatory advantage

#6 Growth of merchant financing

The following trends have enabled the rise of peer-to-peer lending:

- **Favorable macro environment**. The marketplace lending model began in earnest in the mid-2000's with the launch of Prosper in 2006 and LendingClub in 2007, among others, emerging as a direct result of tightened regulation stemming from the financial crisis. Since then, a low interest rate environment and historically low delinquencies for consumer loans have attracted inventors searching for yield, therefore amassing years of data supporting credit models. However, this environment has also avoided any real stress testing of the model.
- **Changing demographics and consumer behavior**. Millennials are reaching the age of financial independence and are increasingly in need of financial services such as lending. Millennials are digital natives and have an affinity for online or mobile user interfaces, automated and frictionless processes, and transparency of data and information, thereby gravitating toward platforms that bypass the traditional lending processes, which are generally in-person, involve a lot of paperwork, and can be opaque. 14% of Millennial small business owners are already using alternative, non-bank financing, according to a Bank of America survey. In addition to their propensity to consume online, Millennials are often underserved by traditional banking systems. We classify this segment of the market as HENRY – high earning, not rich yet. This segment might not be economical for traditional lenders, but could be an attractive target for other lower-cost technology-enabled lenders.
- **Data, technology, and automation driving cost advantage and ease of use**. The availability of data on an individual loan basis and the technology platform of many of these lenders give them the ability to create a robust credit model, offer a quick loan application, and, relative to traditional lending, approve or reject applications nearly instantaneously. We believe the data advantage of the marketplace lenders stems from three sources: (1) the online-only data such as IP address and current and historical browsing patterns on the website, (2) real time credit monitoring through the use of social platforms, and (3) tens of thousands of loan performance data at the individual loans level, instead of by tranche. Individual loan-level performance data allows the marketplace lenders to build credit models across a much greater variety of factors that cannot be done with tranche-level performance data alone.
- **Strong network effects and cost advantage drive attractive unit economics**. Technology-driven marketplace lenders benefit from strong network effects as growth in borrowers should improve the robustness of the credit models and improve the performance of the platform, thereby reducing the required risk

premium for investors and interest rates for borrowers. As a result of the strong network effects and technology-enabled cost advantage, these online lenders can target smaller loans in an economically favorable way, enabling them to serve a generally under-banked segment of the market.

- **Regulatory advantage**. Because the majority of these lenders operate on a marketplace model and do not take traditional credit risk, they can operate with capital efficiency with no capital requirements, automatically matched assets and liabilities, and lower regulatory overhead costs. Further, they are not currently directly regulated by the FDIC or the CFPB, allowing greater flexibility in offering different rates to different types of borrowers, thereby creating additional efficiencies in the marketplace.
- **The growth of merchant financing**. The growth and adoption of merchant financing – through services such as Square Capital and PayPal Working Capital – could serve as a channel for small businesses to obtain loans outside of traditional banking systems. These platforms benefit from inherent data, customer acquisition, and repayment advantages given their installed base of existing merchant customers.

Understanding the key players and the competitive landscape

Based on company data on loans originated and borrowers served, we estimate that the 8 largest technology-enabled lenders – LendingClub, Prosper, OnDeck, SoFi, Zopa, Funding Circle, Ratesetter, and Kabbage – have originated more than $16bn of loans to date and served more than 1 million borrowers, primarily in the US and UK and mainly across the consumer revolving credit and small business loans verticals.

The key verticals of focus include:

- **Personal loans**: LendingClub, Prosper, Zopa, Ratesetter.
- **Small business loans**: OnDeck, Funding Circle, Kabbage.
- **Student loans**: Earnest and SoFi, which is also in the early stages of entering the mortgage vertical.

Exhibit 40: Competitive landscape of marketplace lenders
Loans originated in $ millions

	Year founded	Primary market	Primary vertical	Loans originated ($mn)	Borrowers served
LendingClub	2007	US	Personal, small business	7,596	440,000
Prosper	2006	US	Personal	2,000	250,000
OnDeck	2006	US	Small business	2,000	25,000
SoFi	2011	US	Student	1,750	15,500
Zopa	2005	UK	Personal	1,154	80,000
Funding Circle	2010	UK, US	Small business	826	7,100
Ratesetter	2010	UK, Australia	Personal	709	83,942
Kabbage	2009	US	Small business	500	100,000

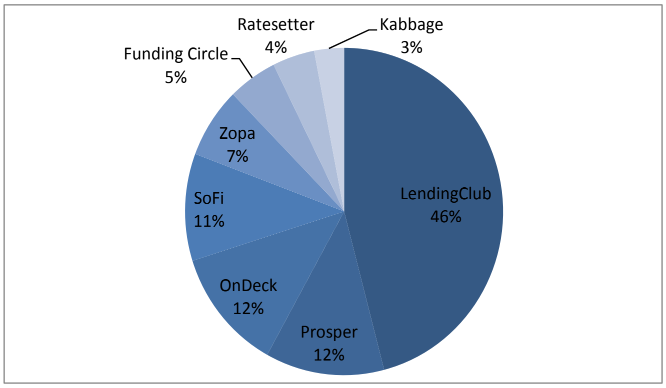
Source: Company data, Goldman Sachs Global Investment Research

Among the more prevalent online lenders, we estimate LendingClub is at least 2X larger vs. the next-largest platform, with over 40% of the market share of the top online lenders (Exhibit 41). However, these lenders focus on different verticals and the small business loans platforms generally have higher average loan sizes.

Among the big banks, Wells Fargo's personal lending portfolio has reached $17.3bn, Citi $13.4bn, and Bank of America at $5.8bn, for context.

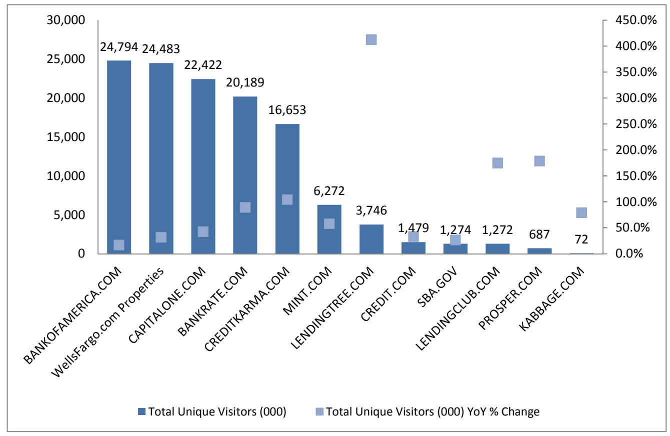
In terms of scale as measured by the amount of web traffic coming across the various financial services websites, the traditional banks and card issuers clearly lead in scale, with Bank of America, Wells Fargo, and Capital One each reaching over 20mn unique visitors across desktop and mobile in the US (Exhibit 42). Credit and personal finance portals such as Bankrate, Credit Karma, and Mint reached anywhere from 6mn to 20mn unique visitors in January. LendingClub reached 1.3mn unique visitors, Prosper 700k visitors, and Kabbage 72k visitors, while the other platforms did not meet the minimum traffic threshold to be reported by comScore.

Exhibit 41: Market share
% of total P2P loans originated to date



Source: Company data

Exhibit 42: Mobile & desktop traffic
January 2015 US mobile & desktop unique visitors, in thousands

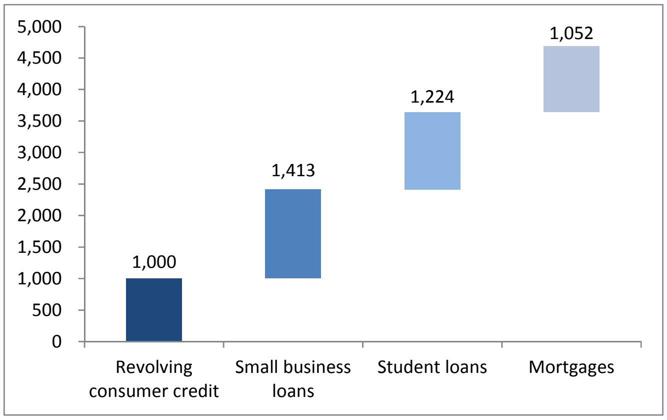


Source: comScore

Sizing the immediately addressable market

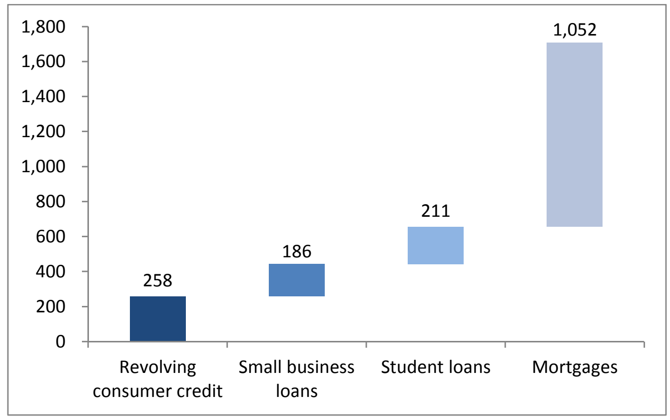
We estimate the aggregate size of the immediately addressable opportunity as a more than $1.7tn opportunity, out of the over $4tn in loans outstanding in the relevant verticals of revolving consumer credit, small business loans, student loans, and mortgages. This approximately $1.7tn opportunity represents the portion of the existing debt outstanding in the traditional lending system that could be served more efficiently through the online lenders, with the opportunity for this addressable market to expand over time as they serve currently unmet demand.

Exhibit 43: Total loans outstanding
$ in billions; mortgages measured as annual originations



Source: Goldman Sachs Global Investment Research

Exhibit 44: Immediately addressable opportunity
$ in billions; mortgages measured as annual originations



Source: Goldman Sachs Global Investment Research

Revolving consumer credit

We estimate that out of the roughly $1tn revolving consumer debt outstanding, from the combination of personal credit card and other consumer debt that can be refinanced, $258bn is immediately addressable by the marketplace lenders, after adjusting for the addressable FICO score segment and promotional balances. We note that while our estimated TAM reflects the current product offerings across the marketplace lenders, it could increase over time as (1) a wider spectrum of borrowers could be served over time and (2) the portfolio of products expands to other verticals.

We detail our estimate of the addressable revolving consumer loan market, separated into three segments: general purpose card debt, store card debt, and other consumer debt, including consumer finance and retail loans, bringing our estimate of the addressable market to $258bn.

Our analysis is based on the following key assumptions:

- 43% of card balances are held by “normal” payers, i.e., excluding transactors and minimum payers. Specifically, we assume 10% of balances are held by transactors, 15% by minimum payers, and 31% to minimum payers who pay only slightly (i.e., $50) above the minimum balance each month – thus leaving 43% of balances held by “normal” payers.
- Of the card balances to normal payers, 50% are Prime borrowers, i.e., FICO score above 660.
- 16-25% of balances are promotional balances and are unlikely to be refinanced, i.e., 0% APR for the first 18 months.
- In the other consumer debt category, we include personal loans and debt consolidation products originated by banks and non-banks, from New York Federal Reserve data. Of the total non-card debt of $318bn, we exclude roughly half to account for private label cards and revolving overdraft lines, and another third to account for sub-prime borrowers.

Exhibit 45: Addressable revolving consumer loan market estimate: $258bn
$ in billions

General purpose card debt that could be refinanced		Legend
General purpose credit card market size	697	A
% of industry card balances to normal payers	*43%*	B
General purpose card balances of normal payers	301	C=A*B
% of card balances of normal payers that are Prime	*50%*	D
Card balances of Prime normal payers	151	E=C*D
% of balances to prime normal payers that are promo ra	*16%*	F
Less: balances to prime normal payers that are promo ra	-24	G=E*F
Addressable card market for prime credit card debt refinanc	127	H=E+G

Store card debt that could be refinanced		Legend
Private label (store card) credit card market size	100	I
% of industry card balances to normal payers	*43%*	J
Private label card balances of normal payers	43	K=I*J
% of card balances of normal payers that are Prime	*40%*	L
Card balances of Prime normal payers	17	M=K*L
% of balances to prime normal payers that are promo ra	*25%*	N
Less: balances to prime normal payers that are promo ra	-4	O=M*N
Addressable card market for prime store card debt refinanc	13	P=M+O

Other consumer debt that could be refinanced		Legend
Consumer finance loans	75	Q
Retail loans	71	R
Other loans	172	S
Total non bankcard debt from NY Fed data	318	T=Q+R+S
Less: private label card included in above 3 categories	-100	U=-I
Less: revolving overdraft lines of credit (OD LOC)	-42	V
Sub-total of other consumer debt	176	W=T+U+V
Proportion of US population with Prime FICO score	67%	X
Addressable market for prime other consumer debt	118	Y=W*X

Addressable market total for debt refinance/consolidation		Legend
Credit card debt	127	H
Store card debt	13	P
Other consumer debt	118	Y
Total addressable market for debt refi/consolidation	**258**	**Z=H+P+Y**
Unsecured, non-student consumer credit market	1000	AA
Addressable market as a % consumer credit market	*26%*	BB=Z/AA

Source: FRBNY, CFPB, SNL Financial, Company data, Goldman Sachs Global Investment Research

Small business loans

Compared to the over $1tn commercial and industrial (C&I) loans outstanding on bank balance sheets, we estimate the addressable small business loans market to be $186bn, which includes the $177bn micro (<$250k) loans on bank balance sheets and an incremental $9bn of small business loans not on bank balance sheets. While most of the lenders such as LendingClub and OnDeck currently offer term loans up to $250k, over time our estimated TAM could grow as the lenders expand loan sizes.

We detail our estimate of the addressable small business loan market, which includes both bank debt and non-bank debt outstanding, bringing our estimate to $186bn immediately addressable by the online lenders. However, we believe the small business loans category is currently underestimated, given un-met demand from the existing lending structure and the current lack of transparency and accessibility which may create frictions in obtaining small business loans. As a result, the additional demand, particularly on the micro loans scale, that the marketplace lenders could serve as well as the improving ease of use and easing frictions in the loans application and servicing processes could serve to expand the addressable opportunity over time.

Our analysis is based on the following key assumptions:

- Of the commercial & industrial loans currently outstanding, we estimate the loans less than $250k is immediately addressable, or $177bn.
- Further, we assume an additional $18bn industry C&I loans not on bank balance sheets, of which roughly $9bn was both originated by banks and not sold into the secondary markets.

Exhibit 46: Addressable small business loan market estimate: $186mn
$ in billions

Industry C&I loans on bank balance sheets:	
C&I loans < $100k original amt ($bn)	130
C&I loans $100k-$250k original amt ($bn)	48
C&I loans $250k-$1mn original amt ($bn)	121
C&I loans >$1mn original amt ($bn)	1,115
Domestic C&I Loans on bank balance sheets ($bn)	1,413
(1) Micro small business loans on bank B/S (<$250k)	**177**
Small business loans as a % of C&I	*13%*

Industry C&I loans not on bank balance sheets:	
SBA 7(a) regular loans O/S up to $5mn size ($bns)	70
% of SBA 7(a) regular loans O/S (<$150k size)	10%
Assumed % of SBA 7(a) O/S ($150k-$250k)	5%
% of SBA 7(a) O/S (<$250k size)	15%
SBA 7(a) regular loans O/S (<$250K size)	**10**
Assumed % originated by banks	80%
SBA 7(a) (<$25k) loans O/S originated by banks	8
Assumed portion sold into secondary mrkt	82%
SBA 7(a) loans by banks but not on bank B/S	7
SBA 7(a) loans O/S not originated by banks	2
(2) SBA 7(a) loans not on bank B/S	**9**
Total micro small business loan market size	**186**

Source: FDIC, Goldman Sachs Global Investment Research

Student loans

Out of the $1,224bn student loans outstanding in both the public and private loan markets, we estimate roughly $211bn is addressable by the marketplace lenders, determined by amount of loans in repayment and credit-worthiness of the borrowers.

Our analysis is based on the following key assumptions:

- $586bn of the total $1.1tn total direct federal student loans outstanding is currently in repayment.
- Of the Federal Family Education Loans in repayment, roughly 25% are from credit-worthy borrowers that can be refinanced through marketplace lenders.
- Of the incremental $92bn of private student loans outstanding, roughly 70% are structurally sound quality loans eligible for refinancing.

Exhibit 47: Addressable student loans market estimate: $211bn
$ in billions

Addressable federal loan market ($bn)		Legend
In-school	145.3	
Grace	28.7	
Repayment	350.0	A
Deferment	86.5	
Forbearance	86.7	
Default	42.5	
Other	4.7	
Total direct loans o/s	744.4	
Total FFEL loans in repayment	236.2	B
Total FFEL loans	387.6	
Total Federal loans in repayment	586.2	C = A + B
Proportion of credit-worthy borrowers eligible for refi*	25%	D
Total addressable federal market	**147**	**E = C*D**
Total private loans outstanding	92	F
Lower quality (incl. credi-impaired) loans	30%	G
Total addressable private market	**64**	**H = F*(1-G)**
Total addressable student market	**211**	**I = E + H**

Source: Department of Education, Company data, Goldman Sachs Global Investment Research

Mortgages

Beyond personal, small business, and student loans, we believe there is opportunity for the marketplace lenders to enter other consumer credit verticals, including the largest segment of consumer debt outstanding, mortgages. SoFi is an example of an early entrant into the mortgages vertical in 2014 with a focus on easing frictions and reducing transaction times during the mortgage application and approval process. The largest channel of customer acquisition is referrals, while the second-largest channel is real estate agents looking for a shorter closing time on the mortgage for their clients.

We estimate the size of the mortgage opportunity as the $1.1tn worth of mortgages originated each year. The addressable revenue opportunity for existing banks and agencies is the $21bn of servicing revenue and $18bn of origination revenue, though the addressable revenue opportunity may change with the marketplace lenders.

Exhibit 48: Addressable mortgage market estimate: $1.1tn
$ in billions

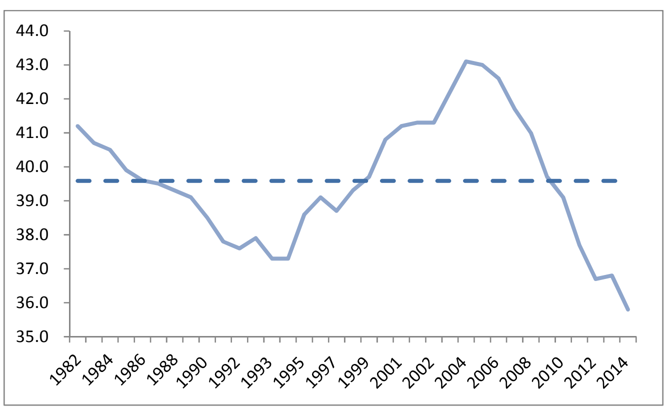
Mortgage servicing ($bn)		Legend
Agency MBS outstanding	5,632	A
Non-agency MBS outstanding	957	B
Total MBS outstanding	**6,589**	**C = A+B**
Agency servicing fee	0.30%	D
Non-agency servicing fee	0.44%	E
Total average servicing fee	**0.32%**	
Agency servicing revenue	16.9	F = A*D
Non-agency servicing revenue	4.2	G = B*E
Total servicing revenue	**21.1**	**H = F+G**

Mortgage origination ($bn)		Legend
Mortgage originations	1,169	R
% of originations securitized	90%	S
Mortgage originations sold	**1,052**	**T = R*S**
Wtd avg gain-on-sale margin	1.47%	U
Revenue from loan sales	15.4	V = T*U
Avg loans held for sale	97.4	W = R/12
Net interest margin	3.00%	X
Net interest income	2.9	Y = W*X
Total production revenue	**18.4**	Z = V + Y

Source: Company data, IMF, Goldman Sachs Global Investment Research

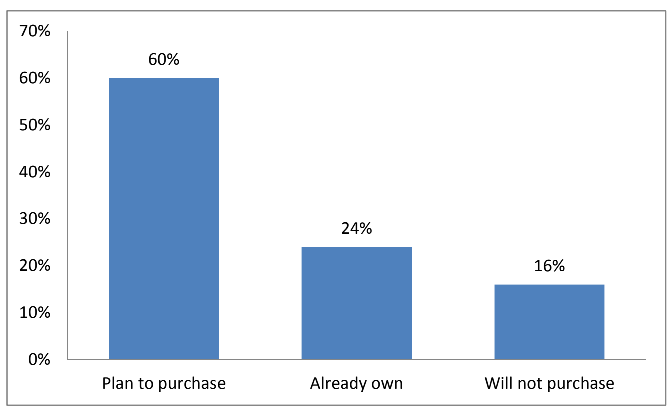
Mortgages can be a particularly attractive category for technology-enabled lenders given the lack of functional mortgages currently availability to many would-be homeowners. According to the US Census Bureau, there has been a declining rate of home ownership among those younger than the age of 35. The rate of homeownership among this age group has declined to roughly 36% over the last few years, from highs of 43% in the mid-2000s and closer to 41% in the early 1980s. However, the intent to purchase homes among this age group still exists. 84% of Millennials responded they either already own or plan to purchase a home, according to a survey by the Demand Institute.

Exhibit 49: While there is a declining rate of homeownership among younger people…
% of home ownership, under age 35



Source: US Census Bureau

Exhibit 50: …the intent to purchase homes is still strong
% of respondents with intent to purchase



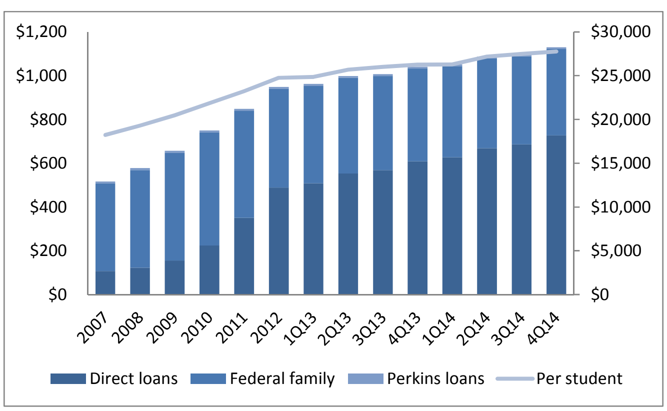
Source: Demand Institute

Declining home ownership rates among young people is attributed to various reasons, including lower headship rates (rates of forming households) and challenges in the labor market post-recession. We highlight that declining home ownership rates could be partially driven by the lack of functional credit available to this demographic for the following reasons:

- **There is an increasing amount of student loans outstanding**. According to data from the National Student Loan Data System, student loans outstanding have increased from roughly $700bn in 2007 to over $1.2tn as of the end of 2014. Further, the amount of debt outstanding per student over the same time period has increased from $18k to nearly $28k. Surveys show that the existence of student debt has a longstanding impact on homeownership rates.
- **Millennials may be more involved with freelance income**. According to a 2014 study by the Freelancers Union, 53mn people in the US are freelancers out of a labor force of 156mn, as measured by the Bureau of Labor Statistics. Among the freelancers, Millennials freelance more than any other age group, making it harder for banks to measure them in terms of stability of income and credit profile.
- **Requirements for mortgages have become more stringent**. Given the tightening of available credit post financial crisis, there are increasing requirements for a mortgage approval, for example a higher down payment requirement or a longer employment history. Both of these factors would put younger potential home buyers at a disadvantage given less accumulated wealth and shorter employment history. SoFi advertises a 10% down payment on its mortgages compared to the generally accepted national average of 20%.

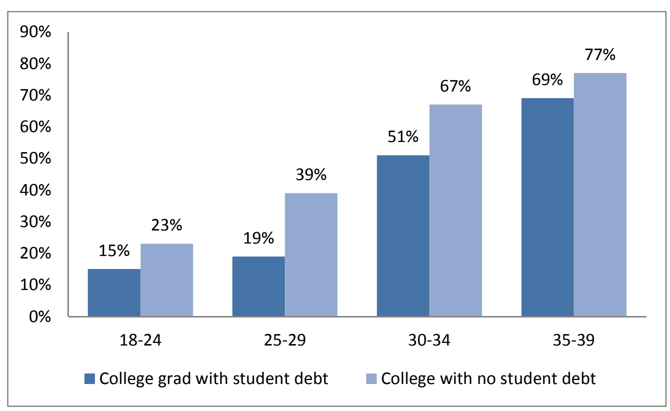
The creation of these markets is therefore beginning with the underserved Millennial population where traditional banking structures face challenges in appropriately measuring credit risk. Companies are building a loyal consumer base in what is now a less attractive part of the market, though they are also evolving their product suite to grow with consumers. If successful, technology-driven models could be significantly more disruptive when this demographic ages into the core customer base of traditional financial institutions.

Exhibit 51: There is an increasing amount of student loans outstanding, in total and per student
Left axis in $ billions, right axis in $



Source: National Student Loan Data System, Goldman Sachs Global Investment Research

Exhibit 52: Surveys show home ownership rates are higher among college grads with no student debt
% home ownership rate



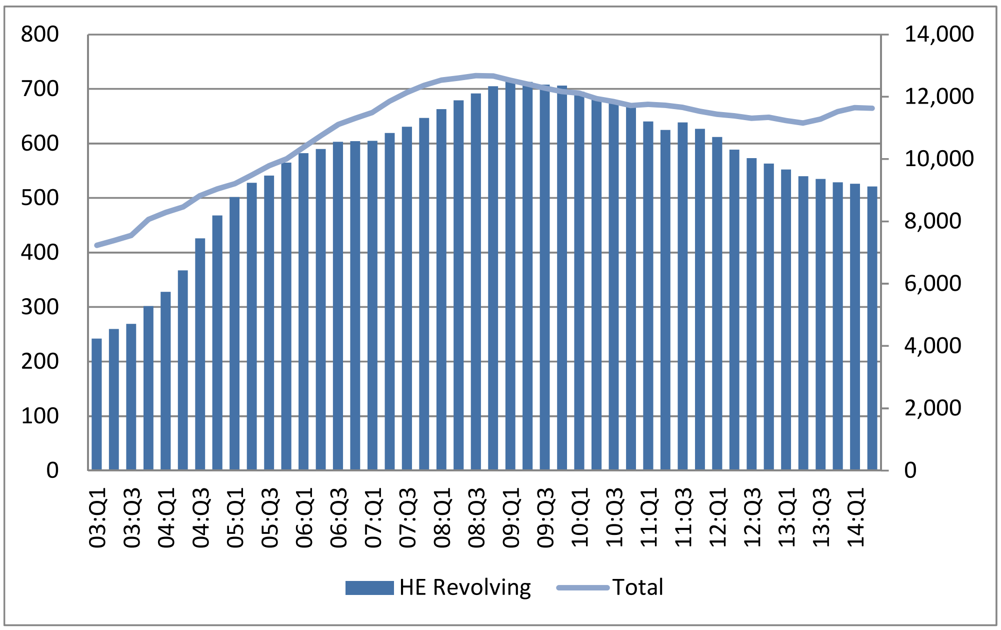
Source: Demand Institute

Favorable credit environment enabling growth of marketplace lenders

Growth enabler #1: Ideal credit environment

Many of these marketplace lenders were founded in the mid-2000's; for example, Prosper was founded in 2006 and LendingClub in 2007. When Prosper was originally founded, the idea was to provide a more attractive alternative to payday lenders charging much higher interest rates. However, these marketplaces only started to scale after the financial crisis, driven by the reduction in available credit from banks as they became reluctant to offer attractively priced home equity loans and other consumer financing. This allowed the marketplace lenders to take advantage of the greenfield opportunity left by the bankruptcy of many consumer credit companies during the financial crisis. And since then, the US economy has been in recovery with a favorable environment of low interest rates, also benefitting the growth of the marketplace lenders.

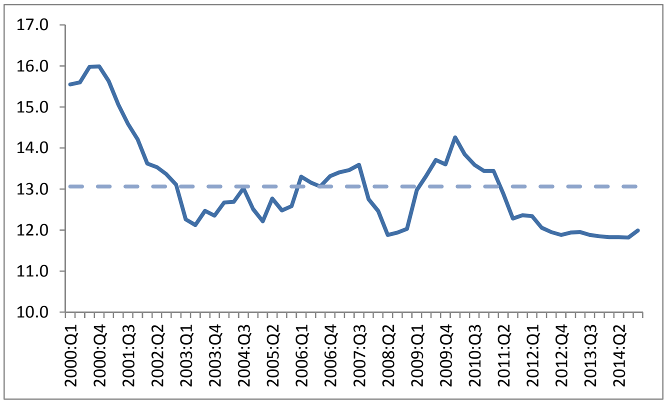
Exhibit 53: Home equity loans outstanding vs. total consumer debt outstanding
$ in billions



Source: FRBNY, Goldman Sachs Global Investment Research

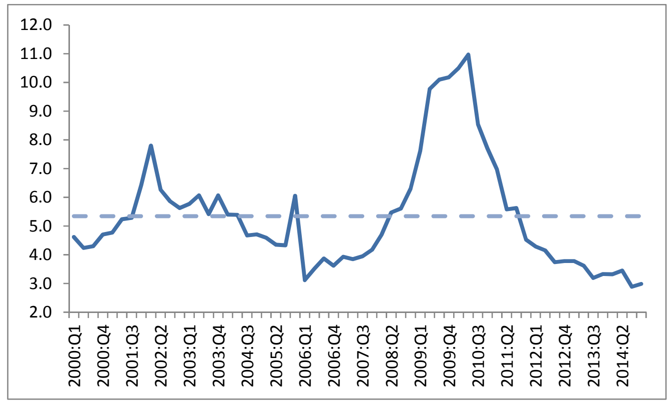
Credit card interest rates remain below the 15-year average of 13%, reaching levels below 12% in the last 3 years. Meanwhile, consumer debt charge-off rates remain below the 15-year average of 5%, reaching levels closer to 3% in the last 3 years. The marketplace lenders believe they are resilient in terms of changes in interest rates and charge-off rates as they could still be able to offer attractive rates for borrowers and returns for investors relative to other asset classes. We believe in a rising interest rate or charge-off rate environment, demand from the lender side could decline, thereby limiting growth of the platforms.

Exhibit 54: Credit card interest rates
%



Source: Federal Reserve

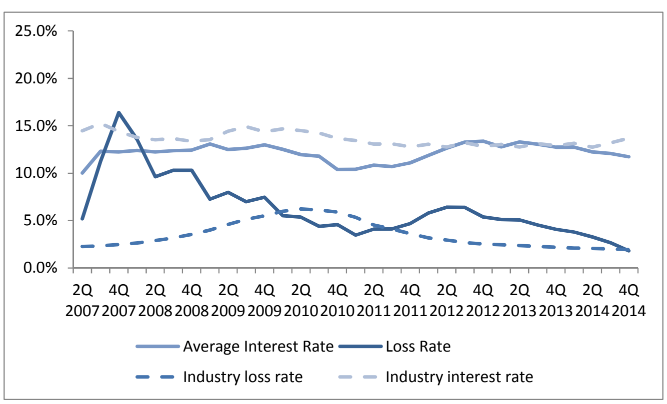
Exhibit 55: Consumer debt charge-off rates
%



Source: Federal Reserve

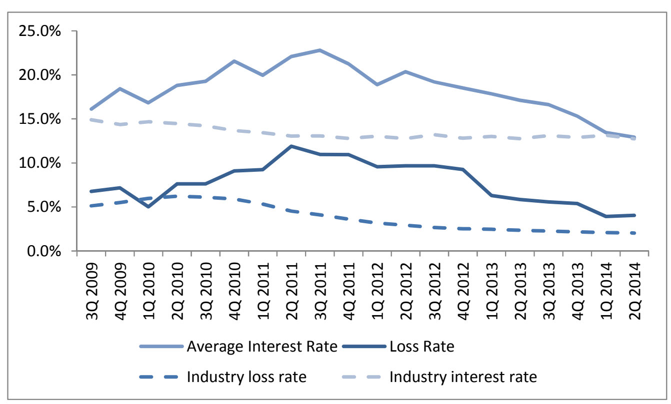
Because the marketplace lenders were generally not yet at scale during the last recession, these credit models have not yet been tested during periods where there are much higher charge-off rates. LendingClub's 4Q07 vintage loans reached a default rate of over 16%, compared to default rates more recently of below 4%. Though there is limited availability of data of Prosper's loans prior to 2009 given changes in the type of borrower served, Prosper's 2008 vintage loans eventually reached a default rate of over 30%, with the improved performance in the more recently issued loans stemming in part from changing the segment of borrowers served. The differences in default rates between LendingClub and Prosper result from the differences in the segment of borrowers each platform served.

Exhibit 56: LendingClub historical loan performance
Average interest rate and loss rate vs. credit card interest rate and loss rate



Source: Company data

Exhibit 57: Prosper historical loan performance
Average interest rate and loss rate vs. credit card industry rate and loss rate



Source: Company data

Changing demographics and consumer behavior

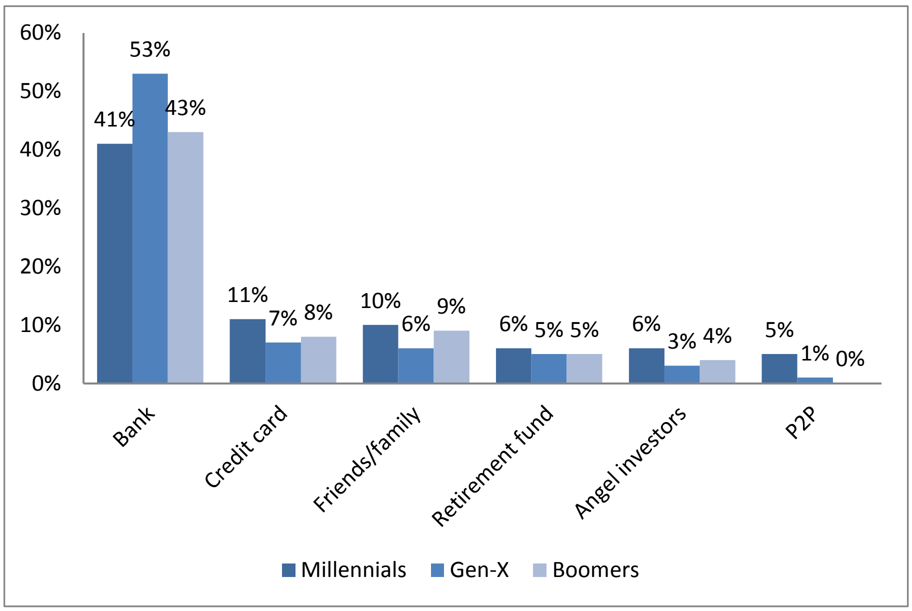
Growth enabler #2: Changing demographics and consumer behavior

According to the Census Bureau, there are roughly 80mn Millennials in the US, i.e., those between the ages of 18 and 34 and now in or reaching stages of financial independence and interested in engaging more with financial services. We believe the adoption to date of online lenders by the older segment of Millennials indicates a trend towards the easier to use, more transparent, data-driven, and automated processes of online lending when compared to traditional banks. When we consider Millennials who are entering the financing market, where they go for first-time financing transactions is an extremely important indicator of their lifelong habits.

According to a survey administered by FICO, Millennials are 10X more likely to use peer-to-peer lending compared to the Boomers generation. Further, according to a survey administered by Bank of America, while the bank is still the primary source of SMB loans, 5% of Millennial small business owner respondents indicated they would consider a peer-to-peer lender, compared to 1% of Gen-Xer small business owners.

Exhibit 58: Millennial small business owners are 5X more likely vs. Boomers to use P2P lending

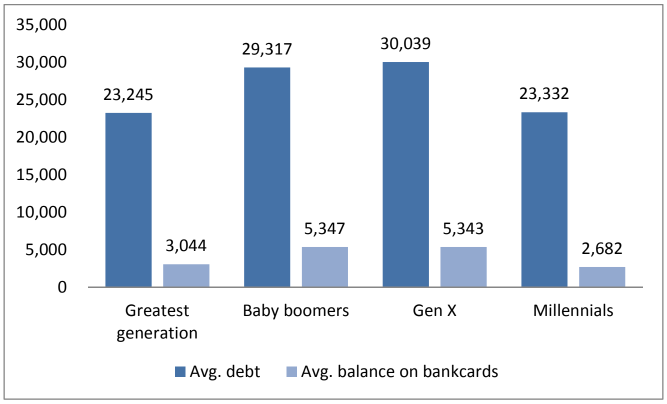
% of respondents who would consider each source for SMB loans



Source: Bank of America

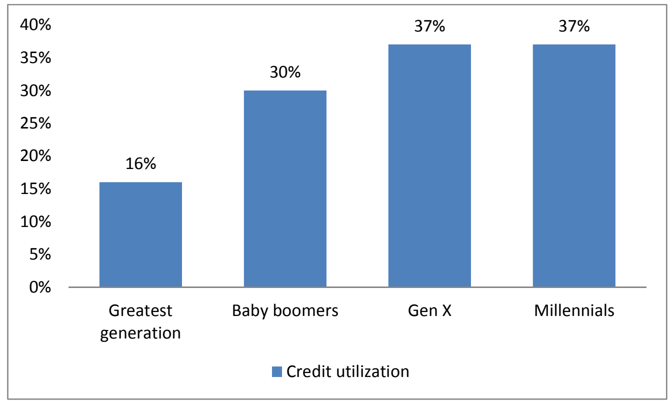
We believe these differences in preferences and consumer behavior can only compound over time as Millennials contribute an increasing portion of consumer debt in the US. In 2014, according to Experian, Millennials held the lowest amount of overall debt and bankcard debt on average, compared to the other generations. Millennials had average debt of 23k compared to Gen Xers with average debt of 30k. However, among those with credit cards, Millennials also had the highest credit utilization rates driven by low credit limits, suggesting that as credit limits increase, they could contribute a larger portion of the overall consumer debt in the US, another tailwind to growth of the marketplace lenders.

Exhibit 59: While Millennials have the lowest overall debt and bankcard debt…
$



Source: Experian

Exhibit 60: Millennials have the highest credit utilization rates, though credit limits should increase
Credit card utilization



Source: Experian

Data, technology, and automation driving ease of use and significant cost advantage

Growth enabler #3: Data, technology, and automation driving significant cost advantage and ease of use

We believe the availability of data, increasing automation of processes, and easy to use technology platform is reducing frictions in the loans process for borrowers and investing process for lenders. We highlight major improvements in ease of use in Exhibit 61 below.

- For borrowers, the benefits lie primarily in the transparency during the loan application process and the improved transaction speed. While the products vary somewhat across the marketplace lenders, in general each marketplace lender has just one product (vs. multiple products with different use cases, rates, and payment schedules at banks) with clear rates and payment terms. Further, the entire process from application to receiving funds takes only 10-13 days.

- For lenders, marketplace lending platforms offer retail investors access to an asset class traditional unavailable outside of institutional or accredited investors. Further, investors generally have the option to choose manual or automated investing. Manual investing allows lenders to individually select funding current loans listed on the platform. Automated investing provides more sophisticated and easy to use tools to specify investment criteria, with the flexibility to change criteria or stop automated investing. Investors receive a monthly cash flow, which they can choose to reinvest or deposit into a linked bank account.

We believe the data advantage of the marketplace lenders stems from three sources: (1) the online-only data such as IP address and current and historical browsing patterns on the website, (2) real time credit monitoring through the use of social platforms, and (3) tens of thousands of loan performance data at the individual loans level, instead of by tranche. Individual loan-level performance data allows the marketplace lenders to build credit models across a much greater variety of factors that cannot be done with just tranche-level performance data.

Exhibit 61: Improving ease of use for lenders and borrowers

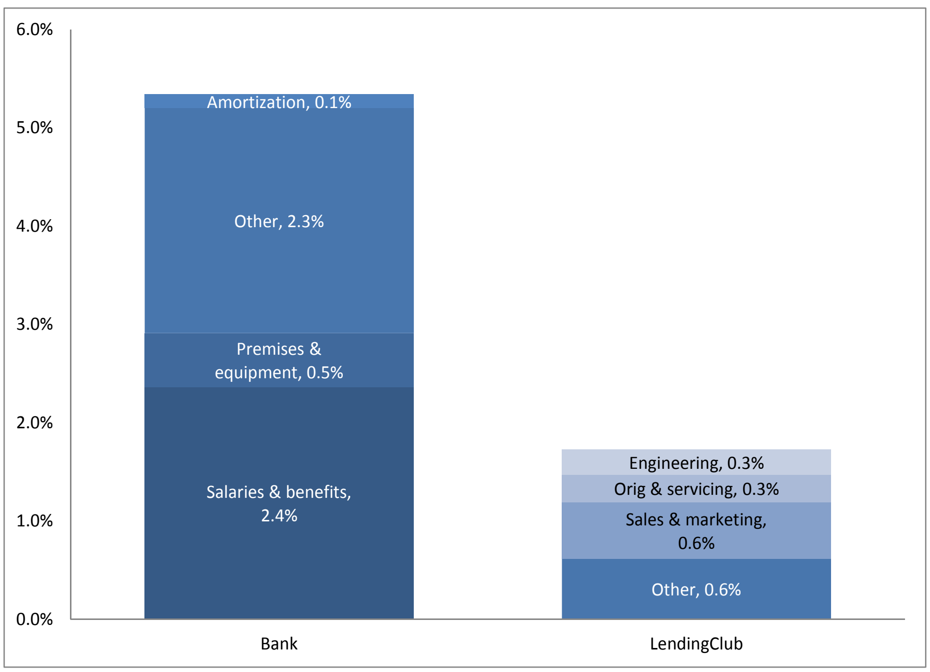
Ease of use for borrowers	
Product	1 product, clear rate and payment terms
Application	10 minutes, online
Approval	1-2 days
Funding	up to 1 week
Payment	2-3 days

Ease of use for lenders	
Asset class	Access to debt asset class as retail investor
Returns	Varies, LC and Prosper advertise 8-9% returns
Tools	Portfolio management tools
Withdrawl	Choose to withdraw monthly payment or reinvest
Payment	Monthly cash flow

Source: Company data, Goldman Sachs Global Investment Research

In addition to driving ease of use and reducing frictions in both the borrowing and investing process, we believe technology & data is also driving a significant cost advantage, which translates into higher returns for investors and lower interest rates for borrowers. Compared to banks, LendingClub's cost advantage stems from its lack of costly physical branch network. From our estimates, the average FDIC-insured bank in the US had operating expenses 5.3% of average loans outstanding in 3Q14, compared to LendingClub at 1.7%.

Exhibit 62: Banks vs. LendingClub operating costs
Expenses as % of average loans outstanding



Source: Company data, FDIC, Goldman Sachs Global Investment Research

Strong network effects and cost advantage driving attractive unit economics

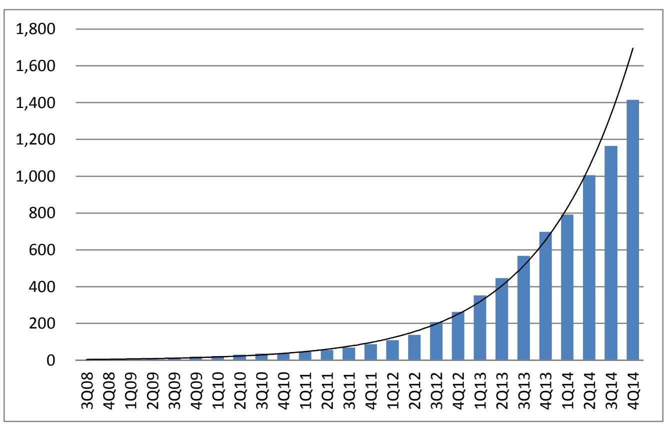
Growth enabler #4: Strong network effects & cost advantage driving attractive unit economics

By their nature, these marketplace lenders benefit from strong network effects; as more borrowers come to the platform, there is a more robust and marketable track record and improvements in the credit model, allowing more accurate assessment of credit risk and potentially improving returns for investors; which in turn leads to more investors coming to the platform, funding the growth of the platform. In addition to these traditional network effects, the marketplace lenders have also benefitted, to date, from largely organic and viral growth on the borrower side of the platform.

For example, even though LendingClub was founded in 2007 and Prosper in 2006, the vast majority of their loans originated has occurred in the last 12 months. The marketplace lenders have in general commented on their largely organic and viral growth in recent years, which we believe to be driven by the increasing propensity to share through existing social networks and the development of unique communities.

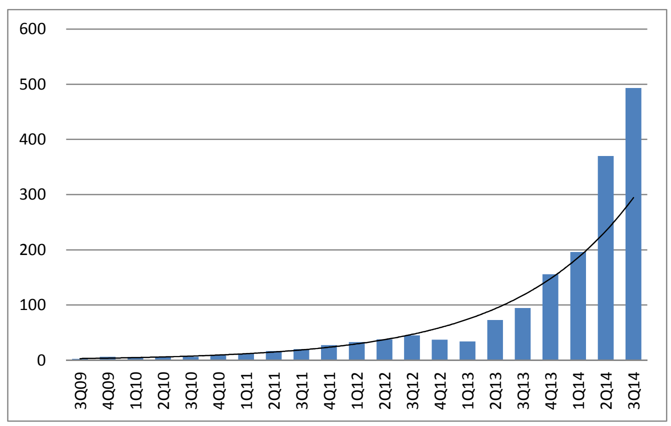
- **Referrals and the propensity to share**. The combination of changing consumer behavior as well as the proliferation of existing social networks has increased the importance of referrals to the growth of these platforms. For example, the fully online environment of the loans applications and funding process is conducive to a borrower sharing the process on social media. Further, the ease of use and significant reduction in frictions in this process could encourage early adopters in any social network to share the relatively new platform with their networks.
- **Creation of a community**. SoFi is an example of an online lender that has effectively created a community for both borrowers and lenders. SoFi has created a community where lenders could serve as a professional network if borrowers become unemployed and an environment where lenders have accepted they may get called on by the community at least once a year to strengthen the borrower profiles. This dynamic has created strong incentives for new borrowers and lenders to join the platform.

Exhibit 63: LendingClub originations
$ in millions



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 64: Prosper originations
$ in millions

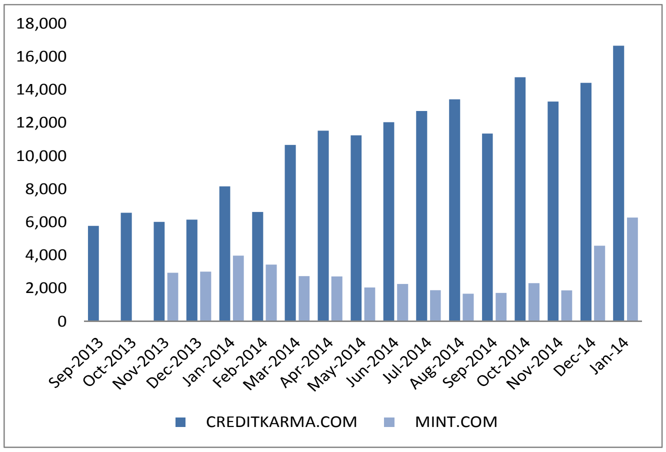


Source: Company data, Goldman Sachs Global Investment Research

In addition to organic search and direct traffic, marketplace lenders acquire borrowers through direct mail and partner websites, including credit information portals such as CreditKarma.

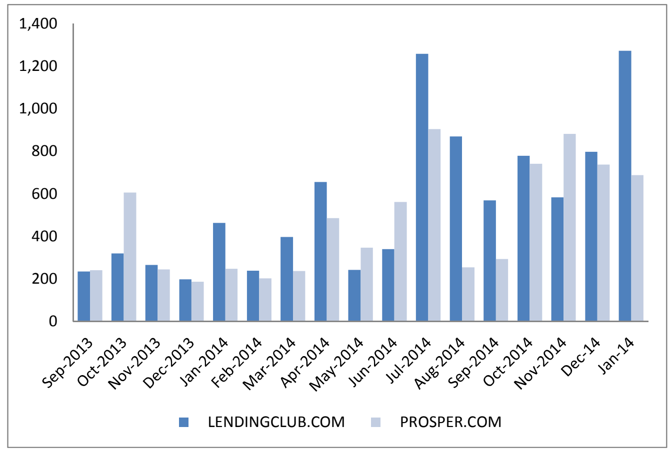
According to comScore, CreditKarma reached 16mn unique visitors in January, while Mint.com reached 6mn unique visitors across desktop & mobile in the US. In January, according to comScore, LendingClub reached 1mn unique visitors, Prosper 700k unique visitors, and Kabbage 72k unique visitors.

Exhibit 65: Partner unique visitors
US desktop & mobile unique visitors, in thousands



Source: comScore

Exhibit 66: LendingClub and Prosper unique visitors
US desktop & mobile unique visitors, in thousands



Source: comScore

Regulatory advantage

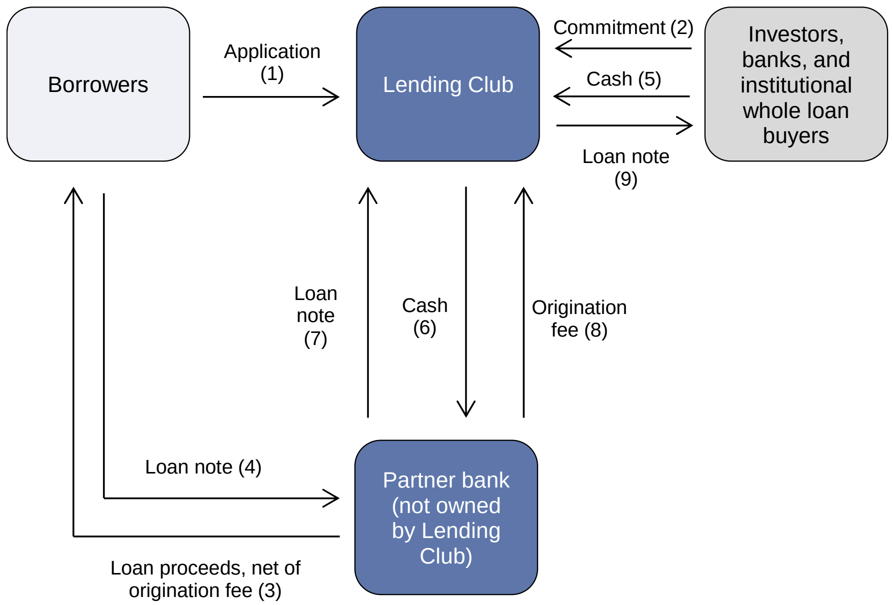
Growth enabler #5: Regulatory advantage

Marketplace lenders in the US are currently not explicitly regulated by the CFPB or by the FDIC, though they have been subject to regulatory reviews by the CFPB and various state bodies and work through other banks that are regulated in order to issue loans.

While there are differences across the various marketplace lenders, we show where LendingClub's regulatory advantage comes from. Essentially, it works with an issuing bank, in this case WebBank, that is state-regulated and issues the loans; LendingClub then buys the loan from WebBank and lenders fund the loan. In this scenario, LendingClub is effectively outsourcing the regulatory compliance to WebBank. Prosper maintains a similar relationship with WebBank as its primary issuing bank.

Through its data and empirical evidence, SoFi is able to build its credit models where the rate varies based on many different factors – such as school, type of degree, etc. Similarly, SoFi has also chosen a different regulatory framework by, for example, outsourcing the compliance function and using private insurance on its customers' deposits instead of FDIC insurance.

Exhibit 67: Illustrative example of a marketplace lender's regulatory advantage



Source: Company data, Goldman Sachs Global Investment Research

The growth of merchant financing

Growth enabler #6: Growth of merchant financing

The growth and adoption of merchant financing – through services such as Square Capital and PayPal Working Capital – could serve as a channel for small businesses to obtain loans outside of traditional banking systems.

The growth of merchant financing stems from the following advantages:

- Low to no customer acquisition costs driven by the installed base of small businesses on the platform.
- Data advantage of the small businesses driven by the transaction and business data on the platform.
- Controlled environment of repayments, generally as % of the merchant's sales.

Exhibit 68: Comparison of various channels for SMB loans

Traditional banking system	Structure	Max loan amount
C&I line of credit	Standard line of credit	Varies
Commercial card	Revolving line of credit	Varies
SBA 7(a) loans	Standard term loan	$5,000,000
New entrants: marketplace lenders		
OnDeck	Standard term loan	$250,000
Kabbage	1/6 of balance repaid per month	$100,000
New entrants: merchant financing		
Amex 1 to 2 year financing	Repayment as % of receivables	$2,000,000
Alibaba e-Credit line	Line for purchase with Alibaba supplier	$300,000
PayPal Working Capital	Repayment as % of daily sales	8% of LTM PayPal sales
Square Capital	Repayment as % of credit card sales	--

Source: Company data, Goldman Sachs Global Investment Research

Payments: Growth of cash and credit card alternatives

Related research: Future of Finance Vol. 2: Redefining "The Way We Pay" in the Next Decade

Venmo, PayPal-owned, facilitated nearly $2.4bn of payment volume in 2014.

Payments is the area of financial services where we believe technology has had the least impact, as it has served largely as a layer to facilitate traditional credit and money transfer services. However, consumer behavior is changing and we believe companies are going to be forced to adapt. Credit card usage is declining among Millennials, with 63% of them without a credit card at all. Payment platforms like PayPal, and its more social subsidiary Venmo, are leveraging social and commercial networks to lower the cost of payment through stored balances, debit cards, and ACH networks. TransferWise is using networks of ex-pats to facilitate foreign exchange at significantly lower costs to consumers. Affirm is giving those Millennials without credit cards the ability to use credit when buying online to pay over time. We see the rate of change in payments accelerating as consumers demand it and companies become less reliant on the traditional networks.

Enablers of growth:

#1 Digitization of money

#2 Proliferation of social platforms enables viral growth

#3 Improving ease of use

#4 International money transfers an underserved opportunity

#5 Payments functionality increasingly present across consumer apps

The following trends have enabled the rise of peer-to-peer payments:

- **Digitization of money**. While peer-to-peer payments are currently dominated by cash-to-cash and equivalent transactions today, growth of online peer-to-peer payments platforms benefits from the overall digitization of money, as transactions have shifted and continue to shift from being predominantly cash to credit & debit, and more recently, to fully electronic platforms. Surveys show that younger consumers are (1) using less credit compared to older generations, creating an opportunity for emerging alternative financing options such as Affirm; and (2) using more cash, creating an opportunity to bring those transactions online, in part to peer-to-peer platforms. In fact, only half of Millennials expect to use cash on a weekly basis by 2020.
- **Proliferation of social platforms enables viral growth**. We view the primary difference between Venmo, a growth leader within pure-play peer-to-peer payments, and others to stem from Venmo's inherently social nature. Specifically, we believe Venmo's viral growth to date comes from its push notifications, social newsfeed of payments, and referral bonus. Similarly, social networks such as Facebook, Snapchat, and Twitter are all increasingly developing payments and commerce functionality to take advantage of existing installed bases, which should enable viral growth and user adoption.
- **Improving ease of use**. It takes 5 taps to send money through Venmo and at least 15 through Bank of America. As a result, though the ability to send money via online or mobile channels is not new, only recently, driven by technology and existing social networks already connected to the platforms, have these platforms seen accelerated levels of consumer adoption.
- **International money transfers an underserved opportunity**. While the landscape in US domestic peer-to-peer payments is clearly crowded with little differentiation (Exhibit 69), we view the international money transfers opportunity as underserved. According to the World Bank, there is an estimated roughly $550bn sent internationally in 2014 (Exhibit 80). We estimate the fees generated by banks and other money transfer platforms to be roughly $30bn, or roughly 6% of the total principal amount. We believe this $30bn of revenue, while currently at the banks, is at the risk of disruption given emerging platforms like TransferWise that are able to offer lower fees and more efficient exchanges.

- **Payments functionality increasingly present across multiple consumer apps**. There is a trend of generally increasing payments functionality across multiple consumer apps, such as Uber and OpenTable. These initiatives should continue to reduce frictions in the transaction process, improve ease of use, and ultimately increase frequency of use.

Understanding the key players & competitive landscape in the US

The competitive landscape of US domestic peer-to-peer payment platforms is crowded, between pure-play payments networks and traditional banks, as well as the increasing payments functionality in messaging apps (i.e., Snapchat, Facebook) and consumer apps broadly (Uber, OpenTable).

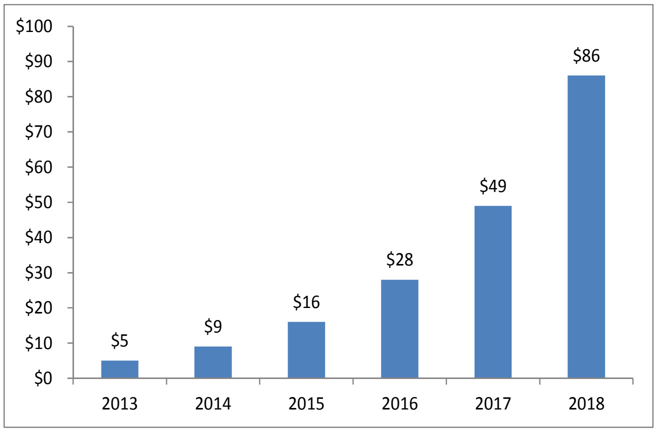
- Pure payments networks – Venmo, Google Wallet, PayPal, Square cash, Popmoney, Dwolla, and ClearXchange. While Venmo has benefitted from viral growth over the last few years, PayPal has been offering peer-to-peer payment functionality since 1998 and has grown to roughly 162mn active registered accounts as of the end of 2014 and facilitated nearly 4bn payment transactions in 2014.
- Traditional banks – Chase QuickPay, Bank of America
- Increasing commerce and payments functionality on the messaging apps – Facebook, Snapchat
- Increasing payments functionality across consumer apps broadly – Uber, OpenTable

Exhibit 69: Comparison of P2P payment companies

	Google Wallet	PayPal	Square Cash	Venmo	Popmoney	Dwolla	ClearXchange	Chase QuickPay	BofA
Platforms	iOS, Android	iOS, Android, Windows Phone	iOS, Android	iOS, Android	iOS, Android, Windows Phone	iOS, Android, Windows Phone	iOS, Android	iOS, Android	iOS, Android
Credit Card Payments	2.9% fee	2.9% fee+$0.30	N/A	2.9% fee	$0.95	N/A	N/A	N/A	N/A
Debit Card Payments	2.9% fee	2.9% fee+$0.30	Free	Free	$0.95	N/A	N/A	N/A	N/A
Bank Account Transfers	Free	Free	N/A	Free	$0.95	$0.25 for transactions over $10	Free	Free	Free
Cash out (in business days)	3-10	3-4	1-2	1	1-3	2-3	3	0-5	1-2
Transfer amount limit	$10,000 per transaction $50,000 per 5 days	$10,000 per transaction	$2,500 per week	$2,999 per transaction	$2,000 from bank account per day $500 from debit card per day	$5,000 per day	$1,000 per day $2,500 per week $10,000 per month	$2,000 per transaction; $8,000 per 7 days; $16,000 per 30 days	$1,000 per day or $10,000 per month using email address/phone number

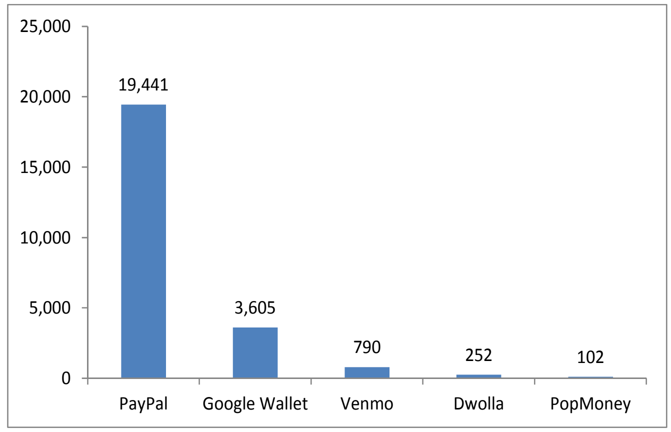
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 70: Mobile peer-to-peer payments in the US
$ in billions



Source: Business Insider Intelligence

Exhibit 71: Mobile unique visitors
US mobile unique visitors in thousands, January 2015



Source: comScore

Sizing the immediately addressable market

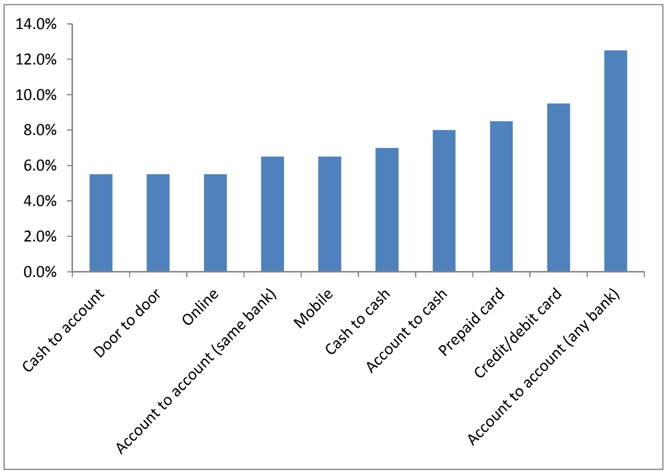
We size the global international money transfer opportunity as a roughly $30bn opportunity in 2014, driven by $554bn in international money transfers and a 6% weighted average fee. Driven by the increasing socialization and democratization of finance, we believe international money transferring could become more efficient with a lower cost to the consumer. As a result, the fees, most of which benefit existing banks, could be addressed over time by emerging peer to peer payment platforms that can create marketplaces to bypass the bank middleman.

We derive our key assumption as follows:

- According to the World Bank, there is an estimated $554bn in international money transfers in 2014 (Exhibit 80). This is estimated to grow mid-single digits each year.
- According to the World Bank, the weighted average fee is roughly 6% across various channels, including cash to account, account to account, etc. (Exhibit 72). This average compares to 8% a few years ago, and is projected to continue to decline over time.

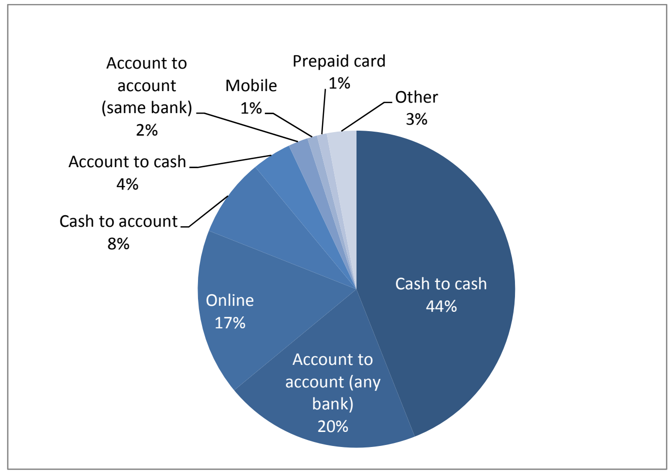
According to the World Bank, roughly 44% of current transactions are currently cash to cash, suggesting new entrants to facilitate international peer-to-peer payments could improve the process and cost to an extent that the bulk of cash to cash transfers could be served via these new platforms over time.

Exhibit 72: Average cost of international money transfer by channel
% of principal transferred, globally



Source: World Bank

Exhibit 73: Proportion of international money transfer by channel
% of transactions, globally



Source: World Bank

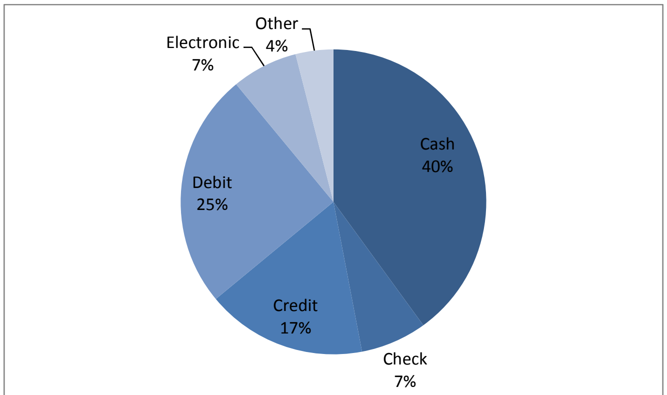
Digitization of money

Growth enabler #1: Digitization of money

While peer to peer payments is currently dominated by cash-to-cash transactions today, growth of online peer to peer payments platforms benefits from the overall digitization of money, as transactions have shifted and continue to shift from being predominantly cash to credit & debit, and more recently, to fully electronic platforms. Surveys show that younger consumers are (1) using less credit compared to old generations, creating an opportunity for emerging alternative financing options such as Affirm and (2) using more cash, creating an opportunity to bring those transactions online, in part to peer to peer platforms.

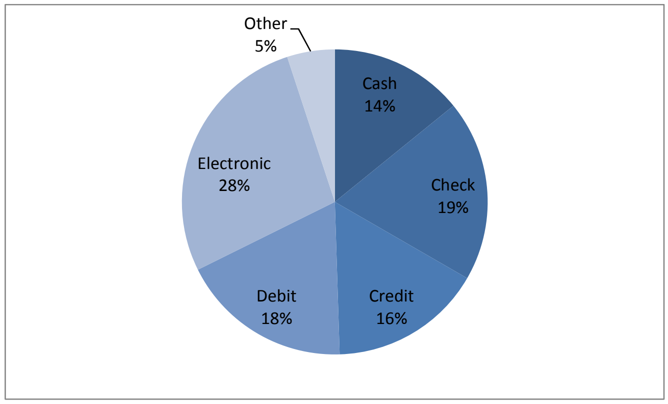
According to the Federal Reserve, cash made up 40% of total transactions while electronic made up 7% of total transactions in 2013. However, in terms of transaction value, cash only made up 14% while electronic made up 28%, suggesting larger value transactions warrant non-cash transfer methods. Given the other enablers of growth of the digitization of money, such as reducing transactional frictions and fees and improving ease of use, electronic payments could become more widely adopted over time, even for smaller transaction sizes, while the proportion of cash use continues to decrease.

Exhibit 74: Cash makes up 40% of transactions
% of transactions by method, 2013



Source: Federal Reserve

Exhibit 75: Electronic makes up 28% of transaction value
% of transaction value by method, 2013



Source: Federal Reserve

Younger consumers are using less credit, creating an opportunity for credit card alternatives

Beyond the growth of peer to peer payments platforms, other companies are also taking advantage of younger consumers' decreasing usage of credit cards by providing alternative payments methods. According to a survey conducted by Bankrate, 63% of Millennials don't have a credit card.

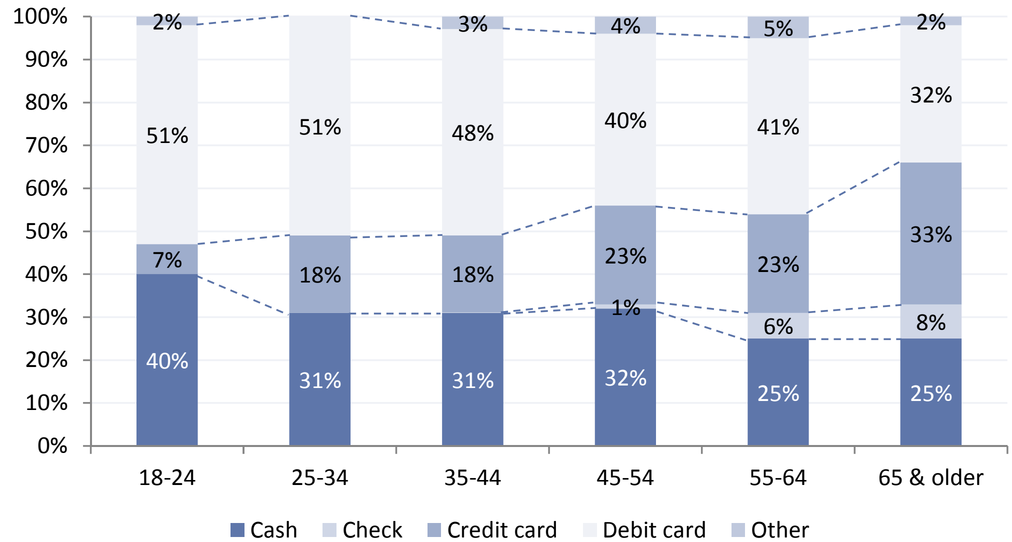
For example, Affirm, launched in 2013 by PayPal founder Max Levchin, aims to extend credit to consumers that may not be interested in using a traditional credit card. In addition to using traditional credit history data, Affirm has built a credit system with more than 70,000 personal quality factors using data across social media and proprietary marketing databases.

Younger consumers are using more cash: Cash usage can be more easily brought to online platforms

When breaking down transactions by method by age group, younger consumers use proportionally more cash and debit while older consumers use more credit and checks. There could be a variety of reasons why young consumers tend to use less credit, such as an aversion to accumulating credit card debt and the relative convenience of debit cards.

What's more interesting is the potential to convert younger consumers' use of cash into electronic payments platforms such as Venmo, particularly for the currently cash-dominated peer to peer transactions. Cash does not hold the same benefits of convenience and security that debit cards have, thereby creating an opportunity and meaningful value proposition to digitize these types of transactions.

Exhibit 76: Younger consumers use more cash & debit vs. older consumers
% of transactions by method



Source: Federal Reserve

Growth enabler #2: Proliferation of social platforms enables viral growth

Proliferation of social platforms enables viral growth

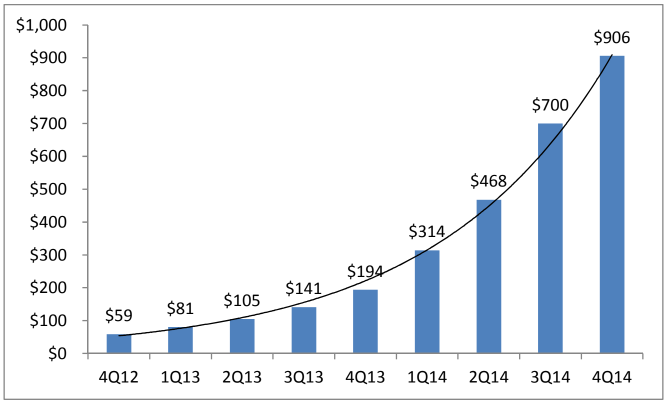
Since inception, Venmo, one of the leading peer-to-peer payment platforms, has demonstrated viral growth in both payment volume and daily app download ranks. In terms of payment volume, Venmo has grown roughly 4-5X year on year, reaching $906mn in 4Q14 alone. In terms of app download rankings, Venmo has grown from being the #1,500 most downloaded app each day in April 2013 to #250 over the course of 1 year, according to AppAnnie.

We believe Venmo's viral growth to date stems from the use of existing social networks:

- **Facebook**. Users have the option to connect Venmo to their Facebook networks to immediate connect with existing Facebook friends. This reduces the friction in using the platform, as recipients are already connected and the payment process becomes incredibly ease to use.
- **User referrals**. During the first few years of Venmo's existence, the platform offered a $5 referral bonus to both the referrer and the referred to promote word of mouth and continued adoption of the platform. Interestingly, Venmo stopped offering the referral bonus in February 2014, likely because it has reached critical mass in terms of user adoption, such that strong network effects should be able to drive continued growth in users.

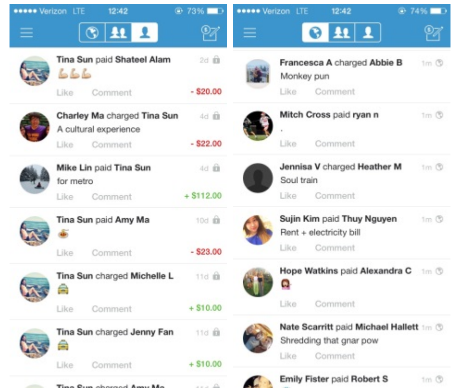
With the combination of using Facebook's existing social networks and user referrals, Venmo was able to exhibit viral growth in its early years. Further, we note that certain financial services could be inherently more social than others. Venmo serves as an example of an inherently social financial services platform, as each peer-to-peer payment provides an opportunity for an existing user to share the platform with a new user and after reaching a critical mass within a social network (e.g., a college campus), continued growth is likely. Venmo also offers a social feed with friends and others' payment transactions, where people can “like” or comment on transactions, and Venmo sends push notifications.

Exhibit 77: Venmo mobile payment volume
$ in millions



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 78: Venmo social feed



Source: Venmo App

We believe messaging platforms such as Facebook, Snapchat, and Twitter, among others, are increasingly developing peer-to-peer payment and other commerce functionality, again taking advantage of existing social networks to enable viral growth and user adoption.

- **Snapchat**. In late 2014, Snapchat partnered with Square to allow Snapchat users to exchange money within the app’s chat functionality. Users can link their debit cards and send money to anyone in their Snapchat contacts list. Functionality is currently limited to the US.
- **Facebook**. Facebook is widely reported to be developing a peer-to-peer payment product within Facebook Messenger. Not coincidentally, the company has hired David Marcus, the former President of Paypal, to lead Facebook Messenger.
- **Twitter**. Various forms of commerce functionality have existed on Twitter over time, including coupon ads, partnerships with brands for on-platform purchases (e.g., Nike), and a partnership with American Express to offer unique offers to AmEx/Twitter users. The company has hired Nathan Hubbard, the former CEO of Ticketmaster, to develop interesting real-time commerce features on the platform.

Improving ease of use

Growth enabler #3: Improving ease of use

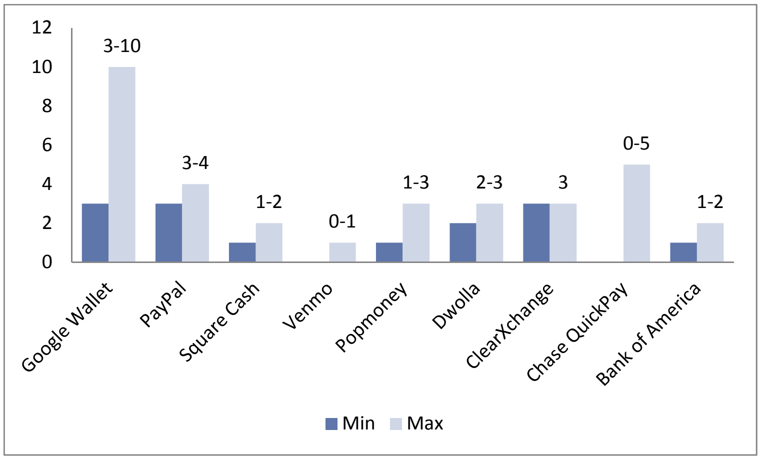
The ability to send money to people online or via mobile is not new and is not only offered by emerging social payments platforms like Venmo. Consumer banks such as Bank of America and Chase also allow transfers. However, the difference in consumer adoption stems from differences in ease of use and the amount of frictions involved in the process of transferring money.

Transaction fees and times not necessarily much lower at P2P platforms

Bank account transfers are generally free – across Google Wallet, PayPal, Square Cash, Venmo, ClearXchange, Chase QuickPay, and Bank of America. There is a nominal fee of $0.95/transaction on Popmoney and $0.25/transaction over $10 at Dwolla.

Transaction times at the traditional banks we analyzed, Chase and Bank of America, are also in line with the P2P platforms. This leads us to believe the difference in customer and usage growth at Venmo vs. the traditional platforms stems from something other than differences in transaction fees and times.

Exhibit 79: Comparison of transaction times
Business days for cash to deposit



Source: Company data, Goldman Sachs Global Investment Research

Improving ease of use and reducing process frictions are key enablers of P2P payments growth

We view the improvement in ease of use stemming from two factors:

- **Fewer steps in the process to transfer money**. The Venmo process takes 5 taps. The Bank of America process takes anywhere from 15 assuming the contact is already set up to more than 25 if the contact is not yet set up.
- **Existing social network on the P2P platform significantly reduces frictions**. The step that involves the most friction when transferring money through BofA is the process of manually adding each recipient's name, phone number and email address, and then verifying the change with a limited-time SafePass code sent to your phone. By connecting Venmo with Facebook, a user's entire social network is immediately set up on the platform, significantly reducing transaction frictions.

International money transfers an underserved opportunity

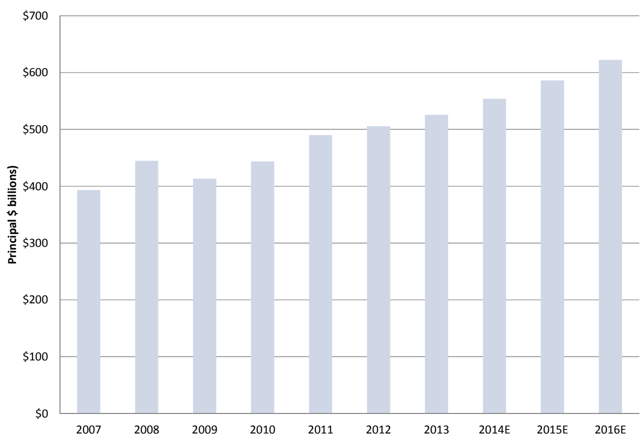
Growth enabler #4: International money transfers an underserved opportunity

While we view the landscape in US domestic peer-to-peer payments as crowded with little differentiation, the international money transfers opportunity appears to be underserved. According to the World Bank, there is an estimated roughly $550bn sent internationally in 2014 (Exhibit 80). We estimate the fees generated by banks and other money transfer platforms to be roughly $30bn, or roughly 6% of the total principal amount. This $30bn of revenue, while currently at the banks, is at the risk of disruption given emerging platform that are able to offer lower fees.

According to industry estimates, incoming foreign wire transfers at the 10 largest US banks cost $18 on average, while outgoing foreign wire transfers cost $48 on average. Assuming an average transfer amount of $1000, an outgoing foreign transfer translates into an average fee of 5%. This compares to a roughly 1% fee for a similar transaction through TransferWise.

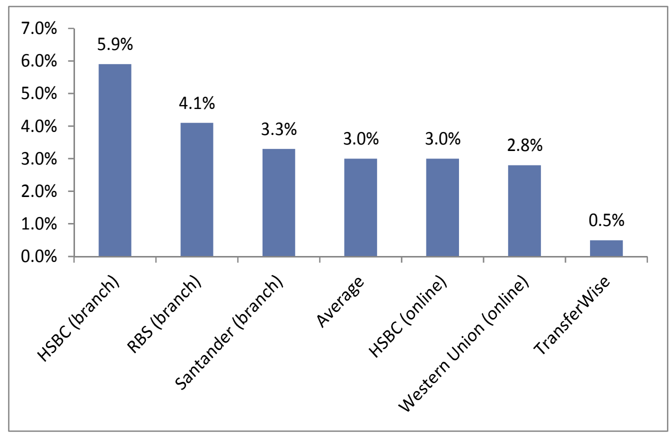
TransferWise is an example of an international money transfer platform that connects a customer looking to exchange currencies with another who is looking for the opposite exchange. The marketplace nature of this platform allows fees to be extremely low and transaction times to be relatively fast. While the rate structure depends on a variety of factors, an illustrative example of exchanging USD involves the following rate structure: For smaller amounts (i.e., less than $300), there is a nominal fee (i.e., $3) and for amounts above that threshold, there is instead a 1% fee. Rates in Europe can be even lower. For the example of sending £1000 from UK to Germany, the 0.5% fee through TransferWise compares to an HSBC branch at the high end at 5.9% and an average fee of 3.0%.

Exhibit 80: International money transfers is an approximately $550bn industry
$ in billions



Source: World Bank, Goldman Sachs Global Investment Research

Exhibit 81: Cost of sending £1000 from UK to Germany
Cost as % of principal



Source: Charterhouse Research

Payments functionality increasingly present across multiple consumer apps

Growth enabler #5: Payments functionality increasingly present across multiple consumer apps

Beyond the growth of pure-play peer-to-peer payments platforms, there is also a trend of generally increasing payments functionality across multiple consumer apps. These initiatives should continue to reduce frictions in the transaction process, improve ease of use, and ultimately increase frequency of use.

- **Uber.** Uber allows users to send fare splits with friends through the app, which will easily allow multiple people to evenly split an Uber ride. This functionality at once reduces frictions for the user and serves as a way to grow the platform through social interactions, i.e., prompting a friend to download the Uber app to accept the fare split.
- **OpenTable**. The OpenTable app also offers users the ability to view the restaurant bill in real time and pay whenever ready, thereby reducing the back and forth process of paying the bill manually at a restaurant. The company has commented that over time it will improve the service with features such as splitting the check, again in part serving as a customer acquisition tool.

Appendix

Exhibit 82: Summary of private companies referenced throughout the report

Company name	Headquarters	Year founded	Segment	Business model	Latest financing	Series round	Capital raised ($mns)	Total capital raised ($mn)
Lending								
CreditKarma	San Francisco, CA	2007	Personal finance	CreditKarma develops personal finance tools to help consumers understand ana manage their credit profiles. The company generates leads for lenders.	29-Sep-14	Series C	75.0	193.0
Earnest	San Francisco, CA	2013	Student loan refinancing	Earnest is a merit-based lender with a unique approach to personal lending and credit.	27-Jan-15	Series A	17.0	32.0
Funding Circle	London, UK	2009	Small business financing	Funding Circle is a peer-to-peer lending marketplace, focused on lending to small and medium sized businesses.	17-Jul-14	Series D	65.0	123.2
Kabbage	Atlanta, GA	2009	Small business financing	Kabbage, Inc. is a technology and data company that has pioneered a new automated way to lend money to small businesses and consumers.	5-May-14	Series D	50.0	465.4
Prosper	San Francisco, CA	2006	Personal financing	Prosper is a peer-to-peer lending marketplace, allowing people to invest in each other in a financially and socially beneficial way.	4-May-14	PE	70.0	189.9
Ratesetter	London, UK	2010	Personal financing	Ratesetter is a peer-to-peer lending marketplace, allowing people to lend and borrow money directly with each other.	14-Jul-14	Venture	17.1	17.1
SoFi	San Francisco, CA	2011	Student loan refinancing	SoFi is a leading marketplace lender and the #1 provider of student loan refinancing, with over $1.75 Billion lent to date.	30-Jan-15	Series D	200.0	766.2
Square	San Francisco, CA	2009	Merchant services	Square provides merchant services such as credit card payments, working capital financing, and peer to peer payments.	5-Oct-14	Series E	150.0	590.5
Upstart	Palo Alto, CA	2012	Personal financing	Upstart is an online lending platform that uses data to bring together high potential borrowers and investors	22-Apr-13	Series A	5.9	7.7
Zopa	London, UK	2005	Personal financing	Zopa is a peer-to-peer lending marketplace, allowing people to lend and borrow money directly with each other.	29-Jan-14	Undisclosed	22.5	56.6
Wealth management								
Betterment	New York, NY	2008	Wealth management	Betterment is an automated wealth adviser offering a fully online environment and low fees.	17-Feb-15	Series D	60.0	105.0
Estimize	New York, NY	2011	Financial portal	Estimize is an open financial estimates platform to aggregate estimates from analysts and contributors.	26-Mar-14	Series A	1.2	2.6
FutureAdvisor	San Francisco, CA	2010	Wealth management	FutureAdvisor is an automated wealth adviser offering a fully online environment.	21-May-14	Series B	15.5	21.5
OpenFolio	New York, NY	2013	Personal Finance	OpenFolio brings the power of networks - openness, connectivity, collective intelligence - to the world of personal investing.	1-Sep-14	Seed	1.8	1.8
Personal Capital	Redwood City, CA	2009	Wealth management	Personal Capital is a leading digital wealth management firm.	29-Oct-14	Series D	50.0	104.3
Wealthfront	Palo Alto, CA	2007	Wealth management	Wealthfront is an automated wealth advisor with over $2bn in assets under management.	27-Oct-14	Series D	64.0	129.5
Payments								
Dwolla	Des Moines, IA	2008	Payments	Dwolla is a free web-based software platform allowing users to send, receive, and request funds from another user.	30-Sep-14	Series D	9.7	32.5
Snapchat	Pacific Palisades, CA	2011	Social Media	Snapchat is a photo messaging app that allows users to take photos, record videos, and add text and drawings, and send them to recipients.	31-Dec-14	Series D	485.0	648.0
TransferWise	London, UK	2010	Payments	TransferWise is a peer-to-peer money transfer service allowing foreign students and businesses to transact money globally.	25-Jan-15	Series C	58.0	90.4
Crowdfunding								
AngelList	San Francisco, CA	2010	Funding	AngelList is a community of start-ups and investors who make fundraising efficient.	22-Sep-13	Series B	24.0	24.1
CircleUp	San Francisco, CA	2011	Funding	CircleUp is an online marketplace that links accredited investors with consumer product and retail companies.	26-Mar-14	Series B	14.0	23.0
CrowdFunder	Los Angeles, CA	2011	Funding	CrowdFunder is a business crowdfunding platform to democratize access to capital.	7-Oct-14	Series A	3.5	4.9
Fundable	Powell, OH	2012	Funding	Fundable is a crowdfunding site for startups.	-	-	-	-
Gofundme	San Diego, CA	2008	Funding	GoFundMe is a crowdfunding platform enabling people to raise money for different life events.	-	-	-	-
Indiegogo	San Francisco, CA	2008	Funding	Indiegogo is a global crowdfunding platform empowering people around the world to fund projects that matter to them.	20-May-14	-	-	56.5
Kickstarter	Brooklyn, NY	2009	Funding	Kickstarter is a crowdfunding platform for creative projects such as movies, music, art, theater, games, comic, design, and photography.	18-Mar-11	Venture	10.0	10.0

Source: Company data, Crunchbase, Goldman Sachs Global Investment Research

Disclosure Appendix

Reg AC

I, Heath P. Terry, CFA, hereby certify that all of the views expressed in this report accurately reflect my personal views about the subject company or companies and its or their securities. I also certify that no part of my compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

Unless otherwise stated, the individuals listed on the cover page of this report are analysts in Goldman Sachs' Global Investment Research division.

Investment Profile

The Goldman Sachs Investment Profile provides investment context for a security by comparing key attributes of that security to its peer group and market. The four key attributes depicted are: growth, returns, multiple and volatility. Growth, returns and multiple are indexed based on composites of several methodologies to determine the stocks percentile ranking within the region's coverage universe.

The precise calculation of each metric may vary depending on the fiscal year, industry and region but the standard approach is as follows:

Growth is a composite of next year's estimate over current year's estimate, e.g. EPS, EBITDA, Revenue. **Return** is a year one prospective aggregate of various return on capital measures, e.g. CROCI, ROACE, and ROE. **Multiple** is a composite of one-year forward valuation ratios, e.g. P/E, dividend yield, EV/FCF, EV/EBITDA, EV/DACF, Price/Book. **Volatility** is measured as trailing twelve-month volatility adjusted for dividends.

Quantum

Quantum is Goldman Sachs' proprietary database providing access to detailed financial statement histories, forecasts and ratios. It can be used for in-depth analysis of a single company, or to make comparisons between companies in different sectors and markets.

GS SUSTAIN

GS SUSTAIN is a global investment strategy aimed at long-term, long-only performance with a low turnover of ideas. The GS SUSTAIN focus list includes leaders our analysis shows to be well positioned to deliver long term outperformance through sustained competitive advantage and superior returns on capital relative to their global industry peers. Leaders are identified based on quantifiable analysis of three aspects of corporate performance: cash return on cash invested, industry positioning and management quality (the effectiveness of companies' management of the environmental, social and governance issues facing their industry).

Disclosures

Coverage group(s) of stocks by primary analyst(s)

Heath P. Terry, CFA: America-Internet. Debra Schwartz: America-Internet. Ryan M. Nash, CFA: America-Credit Cards, America-Regional Banks. Eric Beardsley, CFA: America-Specialty Finance. James Schneider, Ph.D.: America-IT Consulting and Outsourcing, America-Transaction Processors. Alexander Blostein, CFA: America-Brokers, America-Discount Brokers, America-M&A Advisors, America-Market Structure, America-Trust Banks.

America-Brokers: Ameriprise Financial Inc., LPL Financial Holdings Inc., Raymond James Financial, Inc., Stifel Financial Corp..

America-Credit Cards: Alliance Data Systems Corp., American Express Co., Capital One Financial Corp., Discover Financial Services, Synchrony Financial.

America-Discount Brokers: E*TRADE Financial Corp., TD Ameritrade Holding Corp., The Charles Schwab Corp..

America-IT Consulting and Outsourcing: Accenture Plc, Amdocs Limited, CGI Group Inc., CGI Group Inc. (US), Cognizant Technology Solutions Corporation, Computer Sciences Corp., ExlService Holdings, Inc., Fidelity National Information Services, Inc, Fiserv Inc., Genpact Limited, Performant Financial Corporation, Sabre Corporation, West Corporation, WNS (Holdings) Ltd..

America-Internet: Amazon.com Inc., AOL Inc., Bankrate Inc., Coupons Inc., Criteo SA, eBay Inc., Endurance International Group Inc, Expedia Inc., Groupon Inc., GrubHub Inc., HomeAway, Inc., IAC/InterActiveCorp, LendingClub Corp., LinkedIn Corporation, Netflix Inc., Orbitz Worldwide, Inc., Pandora Media, Inc., Priceline.com Inc., RetailMeNot Inc., Rocket Fuel Inc., Shutterfly, Inc., The Rubicon Project Inc, TripAdvisor Inc., TrueCar, Twitter Inc., Wayfair Inc., WebMD Health Corp., Yahoo! Inc., Yelp Inc., Zillow Group, Zulily Inc, Zynga Inc..

America-M&A Advisors: Evercore Partners Inc., Greenhill & Co., Inc., Lazard Ltd., Moelis & Co..

America-Market Structure: CBOE Holdings, Inc., CME Group Inc., IntercontinentalExchange, Inc., The Nasdaq Stock Market, Inc..

America-Regional Banks: BB&T Corp., Citizens Financial Group, City National Corp., Comerica Inc., EverBank Financial Corp., Fifth Third Bancorp, First Horizon National Corp., First Niagara Financial Group, Inc., First Republic Bank, Huntington Bancshares Inc., KeyCorp, M&T Bank Corp., Regions Financial Corp., Signature Bank, SunTrust Banks Inc., Synovus Financial Corp., Zions Bancorporation.

America-Specialty Finance: Ally Financial Inc, American Capital Agency Corp., Annaly Capital Management, Inc., CIT Group Inc., Colony Financial Inc., Essent Group Ltd, Fidelity National Financial Inc., First American Financial Corp., MGIC Investment Corporation, Navient Corp., PennyMac Financial Services Inc., Radian Group Inc., Santander Consumer USA Holdings, Inc., SLM Corporation, Starwood Property Trust, Inc., Two Harbors Investment Corp..

America-Transaction Processors: Automatic Data Processing Inc., Blackhawk Network Holdings. Inc., Evertec Inc., FleetCor Technologies, Inc., Global Payments Inc., Heartland Payment Systems Inc., Mastercard Inc., Paychex Inc., Total System Services, Inc., Vantiv, Inc., Visa Inc., Western Union Co., WEX Inc..

America-Trust Banks: Bank of New York Mellon Corp., Northern Trust Corp., State Street Corp..

Distribution of ratings/investment banking relationships

Goldman Sachs Investment Research global coverage universe

Rating Distribution	Investment Banking Relationships

	Buy	Hold	Sell	Buy	Hold	Sell
Global	33%	54%	13%	44%	38%	32%

As of January 1, 2015, Goldman Sachs Global Investment Research had investment ratings on 3,483 equity securities. Goldman Sachs assigns stocks as Buys and Sells on various regional Investment Lists; stocks not so assigned are deemed Neutral. Such assignments equate to Buy, Hold and Sell for the purposes of the above disclosure required by NASD/NYSE rules. See 'Ratings, Coverage groups and views and related definitions' below.

Regulatory disclosures

Disclosures required by United States laws and regulations

See company-specific regulatory disclosures above for any of the following disclosures required as to companies referred to in this report: manager or co-manager in a pending transaction; 1% or other ownership; compensation for certain services; types of client relationships; managed/co-managed public offerings in prior periods; directorships; for equity securities, market making and/or specialist role. Goldman Sachs usually makes a market in fixed income securities of issuers discussed in this report and usually deals as a principal in these securities.

The following are additional required disclosures: **Ownership and material conflicts of interest:** Goldman Sachs policy prohibits its analysts, professionals reporting to analysts and members of their households from owning securities of any company in the analyst's area of coverage. **Analyst compensation:** Analysts are paid in part based on the profitability of Goldman Sachs, which includes investment banking revenues. **Analyst as officer or director:** Goldman Sachs policy prohibits its analysts, persons reporting to analysts or members of their households from serving as an officer, director, advisory board member or employee of any company in the analyst's area of coverage. **Non-U.S. Analysts:** Non-U.S. analysts may not be associated persons of Goldman, Sachs & Co. and therefore may not be subject to NASD Rule 2711/NYSE Rules 472 restrictions on communications with subject company, public appearances and trading securities held by the analysts.

Distribution of ratings: See the distribution of ratings disclosure above. **Price chart:** See the price chart, with changes of ratings and price targets in prior periods, above, or, if electronic format or if with respect to multiple companies which are the subject of this report, on the Goldman Sachs website at http://www.gs.com/research/hedge.html.

Additional disclosures required under the laws and regulations of jurisdictions other than the United States

The following disclosures are those required by the jurisdiction indicated, except to the extent already made above pursuant to United States laws and regulations. **Australia:** Goldman Sachs Australia Pty Ltd and its affiliates are not authorised deposit-taking institutions (as that term is defined in the Banking Act 1959 (Cth)) in Australia and do not provide banking services, nor carry on a banking business, in Australia. This research, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act, unless otherwise agreed by Goldman Sachs. In producing research reports, members of the Global Investment Research Division of Goldman Sachs Australia may attend site visits and other meetings hosted by the issuers the subject of its research reports. In some instances the costs of such site visits or meetings may be met in part or in whole by the issuers concerned if Goldman Sachs Australia considers it is appropriate and reasonable in the specific circumstances relating to the site visit or meeting. **Brazil:** Disclosure information in relation to CVM Instruction 483 is available at http://www.gs.com/worldwide/brazil/area/gir/index.html. Where applicable, the Brazil-registered analyst primarily responsible for the content of this research report, as defined in Article 16 of CVM Instruction 483, is the first author named at the beginning of this report, unless indicated otherwise at the end of the text. **Canada:** Goldman Sachs Canada Inc. is an affiliate of The Goldman Sachs Group Inc. and therefore is included in the company specific disclosures relating to Goldman Sachs (as defined above). Goldman Sachs Canada Inc. has approved of, and agreed to take responsibility for, this research report in Canada if and to the extent that Goldman Sachs Canada Inc. disseminates this research report to its clients. **Hong Kong:** Further information on the securities of covered companies referred to in this research may be obtained on request from Goldman Sachs (Asia) L.L.C. **India:** Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (India) Securities Private Limited. **Japan:** See below. **Korea:** Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (Asia) L.L.C., Seoul Branch. **New Zealand:** Goldman Sachs New Zealand Limited and its affiliates are neither "registered banks" nor "deposit takers" (as defined in the Reserve Bank of New Zealand Act 1989) in New Zealand. This research, and any access to it, is intended for "wholesale clients" (as defined in the Financial Advisers Act 2008) unless otherwise agreed by Goldman Sachs. **Russia:** Research reports distributed in the Russian Federation are not advertising as defined in the Russian legislation, but are information and analysis not having product promotion as their main purpose and do not provide appraisal within the meaning of the Russian legislation on appraisal activity. **Singapore:** Further information on the covered companies referred to in this research may be obtained from Goldman Sachs (Singapore) Pte. (Company Number: 198602165W). **Taiwan:** This material is for reference only and must not be reprinted without permission. Investors should carefully consider their own investment risk. Investment results are the responsibility of the individual investor. **United Kingdom:** Persons who would be categorized as retail clients in the United Kingdom, as such term is defined in the rules of the Financial Conduct Authority, should read this research in conjunction with prior Goldman Sachs research on the covered companies referred to herein and should refer to the risk warnings that have been sent to them by Goldman Sachs International. A copy of these risks warnings, and a glossary of certain financial terms used in this report, are available from Goldman Sachs International on request.

European Union: Disclosure information in relation to Article 4 (1) (d) and Article 6 (2) of the European Commission Directive 2003/126/EC is available at http://www.gs.com/disclosures/europeanpolicy.html which states the European Policy for Managing Conflicts of Interest in Connection with Investment Research.

Japan: Goldman Sachs Japan Co., Ltd. is a Financial Instrument Dealer registered with the Kanto Financial Bureau under registration number Kinsho 69, and a member of Japan Securities Dealers Association, Financial Futures Association of Japan and Type II Financial Instruments Firms Association. Sales and purchase of equities are subject to commission pre-determined with clients plus consumption tax. See company-specific disclosures as to any applicable disclosures required by Japanese stock exchanges, the Japanese Securities Dealers Association or the Japanese Securities Finance Company.

Ratings, coverage groups and views and related definitions

Buy (B), Neutral (N), Sell (S) -Analysts recommend stocks as Buys or Sells for inclusion on various regional Investment Lists. Being assigned a Buy or Sell on an Investment List is determined by a stock's return potential relative to its coverage group as described below. Any stock not assigned as a Buy or a Sell on an Investment List is deemed Neutral. Each regional Investment Review Committee manages various regional Investment Lists to a global guideline of 25%-35% of stocks as Buy and 10%-15% of stocks as Sell; however, the distribution of Buys and Sells in any particular coverage group may vary as determined by the regional Investment Review Committee. Regional Conviction Buy and Sell lists represent investment recommendations focused on either the size of the potential return or the likelihood of the realization of the return.

Return potential represents the price differential between the current share price and the price target expected during the time horizon associated with the price target. Price targets are required for all covered stocks. The return potential, price target and associated time horizon are stated in each report adding or reiterating an Investment List membership.

Coverage groups and views: A list of all stocks in each coverage group is available by primary analyst, stock and coverage group at http://www.gs.com/research/hedge.html. The analyst assigns one of the following coverage views which represents the analyst's investment outlook on the coverage group relative to the group's historical fundamentals and/or valuation. **Attractive (A).** The investment outlook over the following 12 months is favorable relative to the coverage group's historical fundamentals and/or valuation. **Neutral (N).** The investment outlook over the following 12 months is neutral relative to the coverage group's historical fundamentals and/or valuation. **Cautious (C).** The investment outlook over the following 12 months is unfavorable relative to the coverage group's historical fundamentals and/or valuation.

Not Rated (NR). The investment rating and target price have been removed pursuant to Goldman Sachs policy when Goldman Sachs is acting in an advisory capacity in a merger or strategic transaction involving this company and in certain other circumstances. **Rating Suspended (RS).** Goldman Sachs Research has suspended the investment rating and price target for this stock, because there is not a sufficient fundamental basis for determining, or there are legal, regulatory or policy constraints around publishing, an investment rating or target. The previous investment rating and price target, if any, are no longer in effect for this stock and should not be relied upon. **Coverage Suspended (CS).** Goldman Sachs has suspended coverage of this company. **Not Covered (NC).** Goldman Sachs does not cover this company. **Not Available or Not Applicable (NA).** The information is not available for display or is not applicable. **Not Meaningful (NM).** The information is not meaningful and is therefore excluded.

Global product; distributing entities

The Global Investment Research Division of Goldman Sachs produces and distributes research products for clients of Goldman Sachs on a global basis. Analysts based in Goldman Sachs offices around the world produce equity research on industries and companies, and research on macroeconomics, currencies, commodities and portfolio strategy. This research is disseminated in Australia by Goldman Sachs Australia Pty Ltd (ABN 21 006 797 897); in Brazil by Goldman Sachs do Brasil Corretora de Títulos e Valores Mobiliários S.A.; in Canada by either Goldman Sachs Canada Inc. or Goldman, Sachs & Co.; in Hong Kong by Goldman Sachs (Asia) L.L.C.; in India by Goldman Sachs (India) Securities Private Ltd.; in Japan by Goldman Sachs Japan Co., Ltd.; in the Republic of Korea by Goldman Sachs (Asia) L.L.C., Seoul Branch; in New Zealand by Goldman Sachs New Zealand Limited; in Russia by OOO Goldman Sachs; in Singapore by Goldman Sachs (Singapore) Pte. (Company Number: 198602165W); and in the United States of America by Goldman, Sachs & Co. Goldman Sachs International has approved this research in connection with its distribution in the United Kingdom and European Union.

European Union: Goldman Sachs International authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority, has approved this research in connection with its distribution in the European Union and United Kingdom; Goldman Sachs AG and Goldman Sachs International Zweigniederlassung Frankfurt, regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht, may also distribute research in Germany.

General disclosures

This research is for our clients only. Other than disclosures relating to Goldman Sachs, this research is based on current public information that we consider reliable, but we do not represent it is accurate or complete, and it should not be relied on as such. We seek to update our research as appropriate, but various regulations may prevent us from doing so. Other than certain industry reports published on a periodic basis, the large majority of reports are published at irregular intervals as appropriate in the analyst's judgment.

Goldman Sachs conducts a global full-service, integrated investment banking, investment management, and brokerage business. We have investment banking and other business relationships with a substantial percentage of the companies covered by our Global Investment Research Division. Goldman, Sachs & Co., the United States broker dealer, is a member of SIPC (http://www.sipc.org).

Our salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to our clients and our proprietary trading desks that reflect opinions that are contrary to the opinions expressed in this research. Our asset management area, our proprietary trading desks and investing businesses may make investment decisions that are inconsistent with the recommendations or views expressed in this research.

The analysts named in this report may have from time to time discussed with our clients, including Goldman Sachs salespersons and traders, or may discuss in this report, trading strategies that reference catalysts or events that may have a near-term impact on the market price of the equity securities discussed in this report, which impact may be directionally counter to the analyst's published price target expectations for such stocks. Any such trading strategies are distinct from and do not affect the analyst's fundamental equity rating for such stocks, which rating reflects a stock's return potential relative to its coverage group as described herein.

We and our affiliates, officers, directors, and employees, excluding equity and credit analysts, will from time to time have long or short positions in, act as principal in, and buy or sell, the securities or derivatives, if any, referred to in this research.

The views attributed to third party presenters at Goldman Sachs arranged conferences, including individuals from other parts of Goldman Sachs, do not necessarily reflect those of Global Investment Research and are not an official view of Goldman Sachs.

Any third party referenced herein, including any salespeople, traders and other professionals or members of their household, may have positions in the products mentioned that are inconsistent with the views expressed by analysts named in this report.

This research is not an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Clients should consider whether any advice or recommendation in this research is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. The price and value of investments referred to in this research and the income from them may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Fluctuations in exchange rates could have adverse effects on the value or price of, or income derived from, certain investments.

Certain transactions, including those involving futures, options, and other derivatives, give rise to substantial risk and are not suitable for all investors. Investors should review current options disclosure documents which are available from Goldman Sachs sales representatives or at http://www.theocc.com/about/publications/character-risks.jsp. Transaction costs may be significant in option strategies calling for multiple purchase and sales of options such as spreads. Supporting documentation will be supplied upon request.

All research reports are disseminated and available to all clients simultaneously through electronic publication to our internal client websites. Not all research content is redistributed to our clients or available to third-party aggregators, nor is Goldman Sachs responsible for the redistribution of our research by third party aggregators. For research, models or other data available on a particular security, please contact your sales representative or go to http://360.gs.com.

Disclosure information is also available at http://www.gs.com/research/hedge.html or from Research Compliance, 200 West Street, New York, NY 10282.