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DeNovo Q1 FinTech ReCap and Funding ReView



*DeNovo: A platform to understand how disruption impacts
business strategy and what actions to take*

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About DeNovo

DeNovo is a platform to understand how disruption impacts business strategy and what actions to take. DeNovo cuts through the FinTech noise to deliver proprietary content, insights and research married with access to your dedicated team of subject matter experts to help you build better business strategies built on innovation.

Our real-time content and analysis is developed and maintained by more than 50 subject matter experts, a dedicated team of research analysts, and contributions from over 2,000 members of PwC's financial services practice around the globe.

The rapid emergence of disruptive technologies and new business models requires a modern way of delivering strategic advice, when and where you need it.

DeNovo offers five modules covering innovation across:

Banking services. *Asset-based lending, business banking and C&I lending, cash and treasury management, commercial leasing, real estate lending, auto finance, consumer lending, deposits and bill payment, mortgage banking, student lending/credit cards, SME banking, SME lending/credit cards*

Capital markets. *Advisory services, origination, sales and trading, alternative investment exchanges, securities and commodity exchange, settlement and clearing*

Insurance. *Life intermediary, P&C intermediary, employee benefits, individual life and A&H, retirement savings benefits, auto insurance, commercial insurance, personal coverage (non-auto), reinsurance*

Investment services. *Asset servicers, commodities trading, foreign exchange trading, inter-dealer brokers, trading and execution, trust and custody services, hedge funds, private equity, registered funds, venture capital, alternative investments, high net worth banking, retail wealth management*

Transaction and payment services. *Card issuing and processing, funds transfer, remittance and bill pay, merchant acquiring and processing, payment networks, point of sale and online checkout solutions*

Contacts

For additional information about PwC's FinTech practice or the DeNovo platform, please contact:

Haskell Garfinkel
US FinTech Co-Leader
+1-408-534-4727
haskell.garfinkel
@pwc.com

Aaron Schwartz, CFA
Head of Research,
PwC DeNovo
+1-646-647-4060
aaron.m.schwartz
@pwc.com

Menekse Gencer
Payments SME
+1-415-565-1796
menekse.gencer
@pwc.com

Jeremy Drane
Blockchain/Smart
Contract Practice Lead
+1-612-596-6377
jeremy.r.drane@pwc.com

Dean Nicolacakis
US FinTech Co-Leader
+1-330-283-4986
dean.nicolacakis
@pwc.com

Musarrat Qureshi
Banking SME
+1-917-674-1609
musarrat.qureshi
@pwc.com

Michael Raneri
Wealth Management and
Capital Markets SME
+1-415-519-4906
michael.raneri@pwc.com

Javier Baixas
Insurance SME
+1-312-206-9699
javier.baixas@pwc.com

<http://www.strategyand.pwc.com/denovo>

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Executive summary



The sharing economy is seeing substantial growth—an estimated 30% annual growth to \$335 billion by 2025. And the development of these new business models is not only redefining certain industries, but also changing and opening new opportunities within financial services. Leading with this topic, we are publishing our inaugural DeNovo quarterly research report.

In this research series, each quarter we:

- 1) explore a current thematic trend and its relevant impact on the financial services landscape;
- 2) take a “look ahead” at a potential emerging trend that may not be widely known or discussed within the FinTech community;
- 3) provide a recap of current regulatory matters;
- 4) examine a select “horizontal” technology; and
- 5) provide an update on the most recent investment activity in the FinTech industry.

Our key findings

Thematic trend: Areas such as insurance and payments will need to adapt to the sharing economy.

As sharing-economy models continue to grow, the use of assets and the role of trust — core tenets of the financial services industry — are changing. And financial functions including insurance, benefits, and payment models will need to evolve along with these shifting models.

***Our look ahead:* We observe the very recent trend in which pure FinTechs have started to diversify.**

We wonder if this means the end of the extreme optimism in FinTech as reality starts to set in, if it points to the implications of a crowded market, or if it is just a by-product of less favorable credit and economic conditions.

***Regulatory update:* Regulatory oversight appears to be tightening, and we are now seeing the U.S. arguably catch up with countries such as the United Kingdom.**

Upcoming activities include the release of specific policies by the Department of Treasury related to marketplace lenders (MPLs); and a forum on responsible innovation hosted by the Office of the Comptroller of the Currency (OCC) in June.

***Horizontal technology:* The future of fraud management in financial services is likely to heavily leverage biometrics.**

It is likely that biometrics and proximity-based authentication will be pivotal in countering the evolving fraud issues while meeting user expectations for speed, convenience, and security.

***Funding recap:* Funding takes a quick step back.**

Our initial look at 1Q16 investment funding of FinTech shows a 41% pullback relative to 1Q15. The pullback is not a complete surprise given the market volatility and series of “down rounds” in the private markets; however, the degree of pullback is more than we envisioned. In first-quarter activity, capital markets saw a significant increase in funding, driven by the continued increase in funding of blockchain-based companies.

The sharing economy: more than a room and a ride

A lot has been written about the sharing economy and its potential to upend virtually any type of business model. Transportation, accommodations, and staffing present clear examples — and the notion that these these business models can more efficiently utilize idle assets holds promise for both owner and consumer.

Investors and consumers have been highly interested in these new sharing-economy services. Investors arguably see the value created when unlocking underutilized assets, and the potential market share gains by new entrants — Uber, for example, completed its billionth ride five and a half years after its founding. And consumers see the efficiency and convenience of a new consumption model as sharing-economy services are known to adapt to evolving consumer habits.

The potential growth and changing consumer expectations also can't be ignored. PwC forecasts that the five primary sharing sectors — travel, car sharing, finance, staffing, and music/video streaming — will see revenue CAGR of 30% to \$335 billion by 2025.¹ This is driven partly by changing consumer preferences; a 2015 PwC survey on the sharing economy revealed that adults ages 18 to 24 are nearly twice as likely as those 25 and older to say that access is the new ownership, and 80% of the younger cohort agree that renting has real advantages over owning.

Less, however, has been written about the impact that these sharing economic models have on financial services. In the simplest definition, these business models utilize assets differently, and this changing use of assets will have reverberating effects within financial services. Sharing economic models redefine what has long been a clear distinction in rent vs. own and commercial vs. private assets — essentially creating portable assets. And products such as insurance and benefits must evolve to follow this trend. Further, at the root of the recent success of these models is connectivity, which involves multiple parties and creates new needs for the payment ecosystem.

Sharing models create portable assets. Products such as insurance and benefits must evolve to follow this trend.

Below, we look at the sharing economy from the perspective of financial services. As these new models continue to grow, the use of assets and the role of trust — core tenets of the financial services industry — are changing. And select financial functions will need to evolve along with these shifting models.

Connectivity and evolving trust underpin sharing economies

The desire to increase asset utilization is not new, and it is the core activity of sharing-economy models. What has changed, however, is the widespread connectivity of our society in an environment where consumer trust is shifting from institutions to peers. We see two primary methods to employ underutilized assets, both of which are predicated on connectivity and consumer trust. These are asset transfer for third-party use, as in Airbnb and Vrmi, and on-demand services produced from underutilized assets, as in ride-shared services. *(See sidebar.)*

Two primary methods of asset value transfer

1. Asset transfer for third-party use.

A clear example is Airbnb, which transfers short-term lodging accommodations to a third party. Other companies such as Vrmi have taken a similar approach, helping owners monetize idle space, such as office space, during the day by renting to remote workers. The sharing and monetization of previously dormant or unused assets is creating a compound value effect that has not been seen before with personal assets.

2. On-demand services produced from underutilized assets. Ridesharing is the poster child example of a shared economic model in which services are seamlessly delivered by the asset owner. Here, consumers are solely interested in the end result — getting to a location rather than buying a vehicle.

Both segments of the market have unique regulatory hurdles, along with consequences for related financial services. The renting out of a room or on-demand transportation is relatively simple from the execution standpoint, but factors such as regulation, multi-jurisdictional considerations, and the impact on financial services go well beyond the core function that the service is providing. For example, traditional insurance coverage often excludes property damages, and other liabilities, from third-party paying tenants. And the sheer fact that these models create independent contractors, or micro-entrepreneurs, places new demands on current banking, benefits, tax, and payment activities.

Companies such as Vrmi and Airbnb help owners monetize idle space, creating a compound value effect that has not been seen before with personal assets.

The mobile revolution has enabled massive connectivity

The common denominator for the latest breed of sharing-economy companies is connectivity. Connectivity is significantly enabled by the widespread use of mobile devices to reach a broad user base and deploy assets more efficiently. This global expansion of smartphone penetration is an underlying factor in the estimated growth of the sharing economy. Global smartphone penetration was 33% at the end of 2014, with 2019 estimates at 56%, based on PwC estimates, and as mobile Internet expands globally, aspects of the sharing economy are also likely to expand to developing markets.²

The second aspect of connectivity in the sharing economy is the value attributed to asset-light companies. In a 2014 Harvard Business Review article on organization culture, the shared-use business model was referred to as “a digital franchise” because the example companies did not own the underlying assets or employ the individuals who delivered the service.³ These companies are primarily asset coordinators enabled via connectivity. In this connected framework, developing acceptance and trust is required — as these companies are dependent on partially affiliated third parties to deliver a high-quality customer service or experience.

The shift in validation of trust from institutions to peers

The shifting of trust from institutions to peers is an important component of the sharing economy. Trust is intertwined through enablers such as mobile and industries such as payments. For example, validation through peer and third-party reviews is now commonly collected through mobile networks, and on a real-time basis. The success of newer lateral competition in the payments industry from companies such as Apple, Google, and social media sites may be predicated on the ability to gain consumer trust.

In a 2015 PwC Consumer Intelligence Series survey, “The Sharing Economy,” 64% of consumers suggested that peer regulation is more important than government regulation in a sharing economy. Users of Uber are a clear example in that they gladly enter a stranger’s car over the prospects of a taxi line, even when the taxi line is arranged by a licensing body — this trust is almost certainly tied to peer validation of the Uber app. Further survey results show that 69% of consumer respondents will not trust sharing-economy companies until those companies are recommended by someone they trust.⁴

Because of this evolving trust model, sharing-economy companies may look to exert their control over third-party functions such as payment, marketing, pricing, or financing in order to build trust to maintain a strong end customer experience, hence the “digital franchise” reference. And this “reach” is one component that may bring change to the related financial services functions.

In one consumer survey, 69% said they will not trust sharing-economy companies until those companies are recommended by someone they trust.

Ramifications for the incumbent financial services sectors

The compounding value creation from shared asset use will require the financial services industry to evolve with new products and services. The one-to-one ratio of owner to asset, or the premise that only two parties are involved in a financial transaction, is an assumption that is rooted in most traditional models and will arguably need to change. In addition, many financial markets are fully dependent on a trusted intermediary — this is counter to changing consumer trends in which trust is shifting away from the institution.

As the sharing economy continues to grow, we see blockchain as a more opportunistic area that will benefit, and we see the insurance and payments industries as the most likely sectors that will need to evolve.

Peer trust is an underlying blockchain concept

Blockchain is essentially a distributed messaging technology that enables a digital ledger. The blockchain is a decentralized ledger, or list, of all transactions across a peer-to-peer network. Its decentralized form allows users of the ledger that do not know each other to produce and verify trust — similar to the concept of a sharing economy model.

The distributed ledger's security and detailed list of all transactions across a peer-to-peer network create a potentially ideal transaction technology for the sharing economy. Smart contracts that enable third-party verification can also be powerfully disruptive to the incumbent transaction market. By removing the need for additional payment services, banks, and custodial services to exchange assets, blockchain technology will both enhance the consumer experience and decrease the costs and fees associated with the transfer of money. Maintaining profitability for sellers (those making their assets available) while decreasing the cost of usage for consumers will be a driving force in the expansion of the sharing economy.

Portable assets redefine certain givens in the insurance space

Personal insurance policies do not typically provide coverage for assets used in a commercial manner, creating a mismatch in coverage applied to sharing-economy models. This will create a need for new insurance products and is a new revenue opportunity for incumbents in a market that has seen growth only at GDP levels (in developed markets). If we assume the property insurance penetration rate of 0.76% of GDP (for developed markets) as a proxy,⁵ this would translate into \$2.5 billion in new premiums solely for property protection, based on our estimated

As the sharing economy continues to grow, blockchain will benefit; the insurance and payments industries will need to evolve.

\$335 billion market for the sharing economy. The traditional insurance industry can address this gap through the extension of commercial products to cover commercial activities that are utilizing personal assets.

We are seeing an emergence of InsurTechs that are looking to bridge this coverage gap and provide the necessary insurance for the sharing economy. Companies including Belong Safe, SafeShare Global, and Slice Labs are emerging InsurTechs that provide new types of coverage for this evolving market. In many instances, InsurTech startups conduct the underwriting, sales and marketing, and distribution, but incumbents still take the risk. The insurance industry has high barriers for entry, and we anticipate the participation of incumbents to handle risk until the newer companies generate balance sheet scale large enough to take on thousands of policies and create the required trust from consumers that the company is a going concern.

SafeShare Global, in particular, has a unique model through its partnership with Vrumi as the first blockchain-based insurance solution for the sharing economy. Using a blockchain infrastructure, SafeShare is able to manage the delivery of a flexible insurance product between multiple parties in near real-time fashion, overcoming the limitations of a traditional insurance approach. The sharing economy has so far been largely insured through umbrella offerings at the service company level, such as Airbnb's Host Protection Insurance product. However, the instantaneous speed of verification for coverage via a distributed ledger will allow insurance to be obtained on an ad hoc basis by the user, rather than having the liability solely with the service provider. Removing the need for funds to be transferred through a network of payments will likely decrease frictional costs and ultimately reduce the price of coverage. In the Vrumi/SafeShare partnership, policies will be underwritten by Lloyd's of London, which adds validity from an incumbent in properly insuring sharing economy models at cost-effective prices.

In commercial risk coverage, risk pooling is also a growing trend. Small and medium-sized enterprises have started to pool risks with other owners in order to reduce costs and leverage their purchasing power. InsurTech companies that enable this pooling of risk are effectively pulling premiums out of the traditional market by enhancing the customer experience through better guidance and more efficient coverage. Larger and international insureds are not yet pooling risks in this manner — however, it should be noted that disruption often happens at the small business level first, and eventually impacts those that initially thought themselves impervious to a shift in how smaller business is transacted.

The regulatory complexities and expense for the insurance industry are two reasons change has been slower, and regulation around certain components of sharing economy business models could influence the

SafeShare Global is the first blockchain-based insurance solution for the sharing economy.

type of competition in the market. For example, Uber recently settled its case with 385,000 drivers in the states of California and Massachusetts, but this does not set a legal precedent on the classification of the employment status of workers in the sharing economy.⁶ If “sharing economy workers” are classified as “on-demand services,” they would be treated under the law as employees rather than contractors, resulting in opportunities for not simply commercial insurance through mandatory workers’ comp or any excess coverage, but also group benefits and retirement services that traditional employers offer to employees. Based on how ride-sharing and other on-demand services currently “employ” workers on a temporary and varying basis, new umbrella or “portable” solutions may need to be created to meet local and state mandates for insurance.

Multiparty transactions could stimulate new payment services

Widespread connectivity intertwined with sharing economy models results in two immediate needs, or adaptations, from the payment industry: (1) native in-app payment capabilities, and (2) multiparty payment transactions. Other macro demands, such as faster payments and P2P capabilities, also exist, but these functions apply well beyond the effects of these new business models.

- 1. In-app payment capabilities.** Users now expect in-app payments, as the payment should not be a separate function from the economic activity. The disintermediation of incumbent financial players is not really a factor with the adoption of in-app capabilities — many transactions will still start with a card on file and be routed through the traditional payment networks.

The greater evolution will be in the point of sale (POS) moving from terminal to software application program interface (API). This admittedly will be a more protracted transition, considering that only about 8% of total U.S. retail sales today occur online.⁷ However, as commerce and payment continue to shift from physical to online, payment services will need to evolve beyond what is currently a fairly rudimentary state; the “shopping cart” and the multipage collection of payment details have not changed much since the advent of e-commerce.

Payment and POS functionality will evolve to be less terminal-centric and will likely condense into a set of APIs that are native to the e-commerce or mobile site. This will have the effect of embedding seamless payment capabilities into the transaction, providing greater and more customized user functionalities.

If sharing economy workers are treated as employees, there are opportunities for group benefits and retirement services.

2. Multiparty payment transactions. Connectivity, shared portable asset use, and changing consumer expectations create a need for new payment experiences. In addition to the “payment rails,” many sharing economy models involve a minimum of three counterparties in any given payment transaction, a departure from the traditional two-sided transaction. The individual who has the asset or performs the service, the consumer, and the facilitator of connectivity are all involved in a sharing economy transaction.

For example, a ride-sharing service will see the rider, driver, and platform all participate in the payment transaction — and the software to facilitate this is far different from the traditional payment process of either a card swipe or the consumer entering payment details. We note that the affiliated banks and payment processing may not actually change; the differences will lie more in the streamlined payment process and multiparty connectivity.

Immediate gratification is routinely associated with the changing expectations for online services, and with this comes a demand for faster financial transactions; consumers who rent available office space by the hour will not settle for net 30, or even net three, payment terms. And the broader faster payment initiatives are likely to help alleviate these issues.

A ride-sharing service payment transaction — where the rider, driver, and platform all participate — is far different from a card swipe.

A look ahead:

Fintech is growing reliant on traditional models

The FinTech industry is starting to move through a different phase of the market cycle, and select startups — some with untested revenue models — are adopting tools that make them seem more like the financial institutions they sought to disintermediate. In a complete reversal from only a year ago, there now appears to be a degree of convergence between tech and finance, as opposed to Silicon Valley disrupting traditional financial services. Traditional banks are beginning to adopt or initiate their own FinTech strategies, such as implementing robo-advising through organic development, strategic partnerships, and/or acquisitions, while recent signs point to more FinTech firms starting to supplement their revenue stream through more traditional financial products.

Many areas of the FinTech landscape have recently witnessed a sharp market pullback in terms of investors utilizing their products as well as the capital raised by these firms. This is a primary reason that these disrupters have begun to adopt and/or revert to more traditional, or accepted, financial services to generate revenue. Many companies may contend that these newer services are complementary offerings, which in fact they may be, but it seems likely that slowing demand and uncertain headwinds are motivating these moves.^{8,9}

This has become apparent in the public markets with OnDeck's and Lending Club's stock declines (down 63% and 58%, respectively, on a trailing 52-week basis through March 31, 2016, relative to a 0% change for the S&P 500), as well as delayed IPOs from leading marketplace lending platforms such as Social Finance (SoFi) and Prosper Marketplace (Prosper). Notable venture capitalist Jim Breyer has claimed that "90% of the startups will be repriced or die and 10% will make it." The dismal view of current valuations has been echoing throughout Silicon Valley since at least the latter half of 2015.¹⁰

Below we look at select examples where companies, or entire segments, are pivoting or reverting toward more traditional financial services. The marketplace lending sector has arguably seen the most press due to material business model changes and the uptick in regulatory

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conversations. But companies across areas including payments and crowdfunding are also adapting, with many introducing complementary new products.

Marketplace lending leans on products to self-fund loans

Marketplace lenders have experienced a difficult start to 2016 due to market volatility, a global economic slowdown, a junk market downturn, a massive case of fraud in China, and an interest rate hike in the United States. The exuberance of the industry for these hybrid models may have begun to fade, as we've seen (1) slowing investor demand for loan assets; (2) concerns about regulatory change; and (3) uncertainty related to the pending *Madden v. Midland Funding* lawsuit.

- 1. Slowing investor demand for loan assets.** On March 24, 2016, Prosper held an offering on a bundle of loans valued at \$278 million, but market reception was far less enthusiastic than it had been for a similar offering in 2015, which yielded 5% more.¹¹ There are many reasons that can account for this, including less cooperative credit markets and less institutional investment in loans — in 2015, 45% of Lending Club's funding was derived from institutional assets.¹² When fewer potential buyers of loans exist in a marketplace, other sources of long-term capital are needed.

This slowing demand for marketplace loans is shifting the supply/demand balance, resulting in lenders looking for alternative methods to address funding or balance sheet concerns. For example, SoFi recently announced the launch of a hedge fund that will invest in its own assets and those of its competitors. This is positioned as a new method to give the current investor base a tool to invest in SoFi's prime loans, and it also appears to be a tool to ensure fresh infusions of capital in a market with a softened demand. Mike Cagney, co-founder and chief executive of SoFi, told the *Wall Street Journal*, "In normal environments, we wouldn't have brought a deal into the market. But we have to lend. This is the problem with our space."¹³ Other MPLs such as Avant, Prosper, and Patch of Land have similar approaches: Avant has an in-house fund to invest in its own loans, Prosper has a managed fund for a basket of its loans,¹⁴ and Patch of Land received a \$250 million institutional commitment from East Coast Credit Fund to buy its loans, allowing it to sustain its rapid online origination growth.¹⁵

"In normal environments, we wouldn't have brought a deal into the market. But we have to lend."

— Mike Cagney, SoFi

2. Concerns about the (potentially) changing regulatory landscape.

The SEC is taking notice of an industry in which the top two platforms in the U.S. — Prosper and Lending Club — issued \$10 billion in new loans. SEC Chair Mary Jo White explained in a March 31, 2016 speech that an “area we are closely monitoring is the continued growth of investments made via online marketplace lending platforms.”

She continued, “Marketplace lending has impacts beyond investors and the securities industry—there are also many consumer and banking considerations. That is why we are engaged with our fellow financial and consumer protection regulators, including the Department of Treasury, the Federal Reserve, the CFPB, OCC, FTC, and FDIC, to develop a broader understanding of the online marketplace lending industry, and regulatory initiatives that would enhance investor, consumer and borrower protections.”¹⁶ These comments bring another level of risk to lenders, as they will be investing in an uncertain and likely altering regulatory landscape. This has curtailed investor interest in these loans, which means that some firms may have to buy the loans themselves or find other means of funding, as Prosper did.

3. A case heading toward the Supreme Court. On March 21, 2016, the U.S. Supreme Court requested input on whether to proceed with the *Madden v. Midland Funding* case. The Supreme Court’s interest in the case will undoubtedly extend the time frame for resolution — and may force other MPLs to restate their agreements with bank partners, as Lending Club did — and it further fuels the regulatory discussion within FinTech. This has left much uncertainty about the future of marketplace lending, as the usury laws surrounding the case may affect the returns that investors have grown to expect for taking extra risk.

The *Madden* case does not directly involve MPLs and is binding in only three states (if upheld, it would apply in all 50). The ramifications, however, are large because the court’s decision could force MPLs to comply with individual state usury caps and could apply to much larger markets, such as traditional asset securitization. (In December several groups, including the American Bankers Association, argued that the ruling should be overturned.)¹⁷ If the ruling is upheld, it would arguably contradict a well-established practice in which interest rates legally in excess of state caps can transfer to a loan/debt buyer, as well as the eligibility for preemption of state laws.

The SEC is taking notice of an industry in which the top two platforms in the U.S. — Prosper and Lending Club — issued \$10 billion in new loans.

Complementary products to boost unprofitable services

Further evidence of startups moving toward traditional financial services — a trend toward hybrid models — is seen in new services introduced by Square and SyndicateRoom. Square recently announced that it will offer loans through a partnering bank, Utah's Celtic Bank, in addition to its payment and merchant cash advance services. These loans will be repaid by future transactions from which Square is expected to retain 10%, and although the loans must be repaid within 18 months, data from its cash advance services suggests that most credit offered to businesses utilizing Square will have a life span of nine months.¹⁸ Square will maintain a small portion of the loans and will bundle and sell the remainder to hedge funds and other asset managers — mimicking what PayPal initiated in 2015 and a strategy that American Express is also currently pursuing. Square's strategy is arguably an extension of its business — payments and lending. However, if other publicly traded tech lenders are any indication, this move could have adverse effects on Square's profitability and valuation. The market reaction to firms such as Lending Club and OnDeck has been difficult due to this kind of uncertainty about them, which could be a result of their no longer being perceived as FinTech companies but rather as traditional financial services companies.

Crowdfunding has arguably yet to garner the interest that was initially expected, and in some cases it has required creative, alternative models. An example is SyndicateRoom, a U.K. crowdfunding platform that recently added traditional stockbroker services. The company achieved intermediary status with the London Stock Exchange, which gives its investors access to both private and public markets. Some may see this diversification as advantageous, but given the slower than expected traction for the crowdfunding market as a whole, the recent actions by SyndicateRoom may introduce questions about the immediate growth and scale of the subsector.¹⁹

An early conclusion from these activities is that startups that rushed to be part of a rising movement have found sustainable revenue growth to be more challenging than expected. And with no FinTech or technology IPOs in the first quarter of 2016 and various postponements pending, the market appears to have retreated from its exuberant support of the industry. Although the FinTech landscape is poised for further growth, the current environment has arguably softened, leading these companies to consider creative models that utilize traditional financial structures to supplement the primary revenue stream. (See "How to Rescue Marketplace Lending," next page.)

The softening demand for these loans may be part of a larger market cycle downturn and may be due in part to hedge funds seeing their first net capital outflow in four years last year, which continued into the first

The market reaction to firms such as Lending Club and OnDeck has been difficult. They are no longer perceived as FinTech companies, but as transitional FS companies.

How to rescue marketplace lending

Additional transparency and an improved process and/or economics on loan collection would likely provide some stability and reinvigorate investor confidence in the marketplace lending space. There are many methods these platforms could employ, such as increasing rates, which may conversely attract lower-quality buyers, industry standardization, and lack of reliance on hedge funds by diversifying their funding sources. However, if platforms could initiate the process with 1) a full, transparent due-diligence process on every loan, which will indicate the ability to pay, and 2) have an enhanced process for loan collection, which is a response to the willingness to pay, they may be better able to retain and attract a larger investor base.

1. More thorough due diligence on borrowers. Not all information collected from borrowers is verified by the platform, suggesting some misalignment of interest. Marketplace-lending platforms derive income from origination—and do not usually have balance sheet liabilities as non-bank lenders—and as such, there can be a disincentive to overly scrutinize potential loans. In Prosper’s S-1 filing, the company reveals that from July 13, 2009 through March 31, 2015, the company “verified employment and/or income on approximately 59% of the Borrower Loans originated through our marketplace on a unit basis (141,649 out of 241,483).”²⁰ Of these loans, the company reported that it cancelled 29,065 (15%) due to

inaccurate or insufficient information. Even though the resources may not have been available to conduct full due diligence on every loan, indicating that one out of approximately 6.5 loans is not fully verified would seem statistically significant enough that the quality of information was insufficient for investors to make fully-informed decisions. If marketplace lenders can improve their data collection to ensure the validity of the underwriting information, it would be a big step to augment investor trust.

2. Collection efforts should be ramped up. The rate of charge-offs continues to increase, which prompted Moody’s to revise its forecast. With many of these loans having no collateral or other guarantees to support them, it is assumed that this will be among the last debts paid by borrowers with cash flow issues.²¹ An improved infrastructure and enhanced techniques must likely be implemented to further assure investors. However, there has been some improvement in delinquent loans: Prosper and Lending Club previously sold charge offs for 0 to 1 cent on the dollar, and despite the increase in charge offs, are selling now them for 10 to 14 cents on the dollar.²² This is a positive sign that these servicers are maturing and better meeting market concerns. If MPLs can continue to recover a larger portion of loan losses, it may provide investors with further assurances that the priced-in risk is appropriate and they have better chances to recapture losses.

Marketplace lending platforms derive income from origination, and there can be a disincentive to overly scrutinize potential loans.

quarter of 2016.²³ As previously mentioned, marketplace lenders have become dependent on institutional money to fund their loans, which is now an unreliable source. There are also some flaws in the methodology that marketplace lenders employ that could be improved upon by implementing the aforementioned solutions in order to assuage investor concerns and bring their capital back to the asset class.

RegTech update:

The U.S. is starting to play catch-up

Recent events signal the beginning of global regulatory change in an effort to restrain the evolving demands of the FinTech space.

Unsurprisingly, regulators are reacting to the new business models with an effort to encourage innovation while minimizing potential threats to consumers. Incumbent financial-services firms often struggle with how to interact with startups, but both parties are wrestling with the evolving aspects of the regulatory front. According to PwC's most recent Annual Global CEO Survey, 86% of financial services CEOs are concerned about the impact of overregulation on their growth prospects, making this the single biggest threat they face. However, most of their concerns are related not to specific regulations but rather to ambiguity and confusion, which is arguably the state of FinTech regulation.

FinTech brings together polar opposites — rapid innovation and a highly regulated industry. Regulatory regimes are reactive in nature, so agencies are still early in the process of understanding the varying business models of startups, how they interact with consumers, and the applicability of current laws. It is clear that the global regulatory environment has recognized the need for clarity to ensure a functional financial services ecosystem with respect to regulation, corporate governance, and risk management. However, different countries define this differently, which may be counter to the notion that many technology startups are global in nature. In addition, specific issues vary according to the particular market and regulatory structure.

The U.K. government has been a leader in fostering growth in its FinTech industry. The U.K. has differentiated itself from its peers by building a financial ecosystem with deliberate actions to balance innovation, competition, and regulation in the banking industry. Whereas some countries have been purely reactive in observing the growth in the FinTech space, recent actions by the U.K. demonstrate a measured approach that the public sector is taking to advance innovation and disruption in financial services.

The U.K. has differentiated itself by building a financial ecosystem with deliberate actions to balance innovation, competition, and regulation in the banking industry.

Select relevant activities in the United Kingdom:

- In 2015, the Financial Conduct Authority (FCA) issued banking licenses to mobile-only banks Atom and Tandem, which are offering traditional banking services through their mobile apps instead of a physical branch. With Mondo and others looking to receive licenses in 2016, their success will be an important barometer as the industry determines whether mobile-only banks, which compete on experience rather than rate, can win over enough digitally savvy consumers to erode incumbents' market share.
- In January 2016, the FCA and Prudential Regulation Authority established the New Bank Start-up Unit to help newly authorized banks and new bank applicants navigate the regulatory process. This reduces the barrier to entry for many startups that lack the regulatory know-how of a traditional bank and/or cannot afford the high cost of corporate legal services. Further, the unit allows the FCA to monitor startups in the pipeline without interfering in their daily operations, helping to provide an accurate forecast for the growth of the neobank market in the United Kingdom.
- Most recently, on April 6, 2016, the much awaited Innovative Finance Individual Savings Account was enacted, allowing U.K. consumers to add peer-to-peer and marketplace lending assets to their retirement portfolios. For consumers who already invest in FinTech, this is a welcome move by the FCA as it officially backs a program that will allow consumers to reap tax benefits on their investment. And although many MPLs are still awaiting FCA authorizations before they can formally participate, this launch represents U.K. regulators' latest endeavor in driving consumer awareness, understanding, and trust of the growing FinTech sector.

With its robust funding environment and historically active startup breeding grounds in Silicon Valley and New York City, the U.S. has also witnessed rapid growth in FinTech. In the U.S., startups have been able to operate quietly under the radar of regulators, in part due to their reliance on banks for much of the regulated process.

Nevertheless, as these startups continue to grow in assets, regulators and incumbents alike are starting to notice. Today, U.S. agencies are taking a renewed look at FinTech to determine how best to evaluate and regulate tech startups, traditional banks, and specifically the supervision of FinTech through banks, in the case of partnerships.

U.S. agencies are taking a renewed look at FinTech to determine how best to evaluate and regulate tech startups, traditional banks, and bank-FinTech partnerships.

Select relevant activities in the United States:

- In February 2016, the Consumer Financial Protection Bureau (CFPB) finalized its No-Action Letters policy, which aims to alleviate the regulatory burden for consumer-facing financial products that leverage new technology and innovation. Together with other policies from the CFPB's Project Catalyst, the new policy looks to introduce a collaborative regulatory involvement earlier in the innovation cycle. Although the level of disclosure required to receive a letter may likely be at odds with the guarded nature of innovation, the aim of the policy is not to interject at extremely early stages but rather to help FinTechs introduce innovative products that may otherwise fall outside conventional regulatory enforcement. And though the true test will come with submissions, we believe the CFPB's policy can improve transparency and assist consumers in determining which startups are truly delivering value and which may warrant a second review.
- As mentioned, in March 2016, the U.S. Supreme Court requested input on whether to proceed with the *Madden v. Midland Funding* case. This is the latest development in several related events including Lending Club's amended agreement with WebBank, discussions of national bank charters, and general concern about the application of state usury laws. The Supreme Court's interest in the case will undoubtedly extend the time frame for resolution and may force other MPLs to restate their agreements with bank partners, as well as increase the regulatory discussion within FinTech.
- And on March 31, 2016, the OCC released a white paper on FinTech innovation that was in line with expectations in terms of providing a channel for community feedback. Relative to other U.S. agencies, the OCC has historically been a promoter of innovation and expansion in the banking industry, and it is now looking to encourage other regulators to adapt to industry change. The OCC's acknowledgment of industry change suggests that it sees a clear need to adjust — via policy change or internal procedures — to accommodate banks and non-bank startups and ensure the competitiveness of the federal banking system. Moreover, the white paper suggests ideas ranging from building an innovation office to streamlining licensing procedures, from hosting innovator fairs to fostering a culture receptive to new ideas — all in an effort to prove that regulation is not the only option in its tool kit.

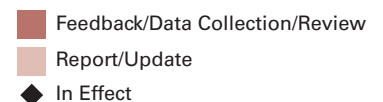
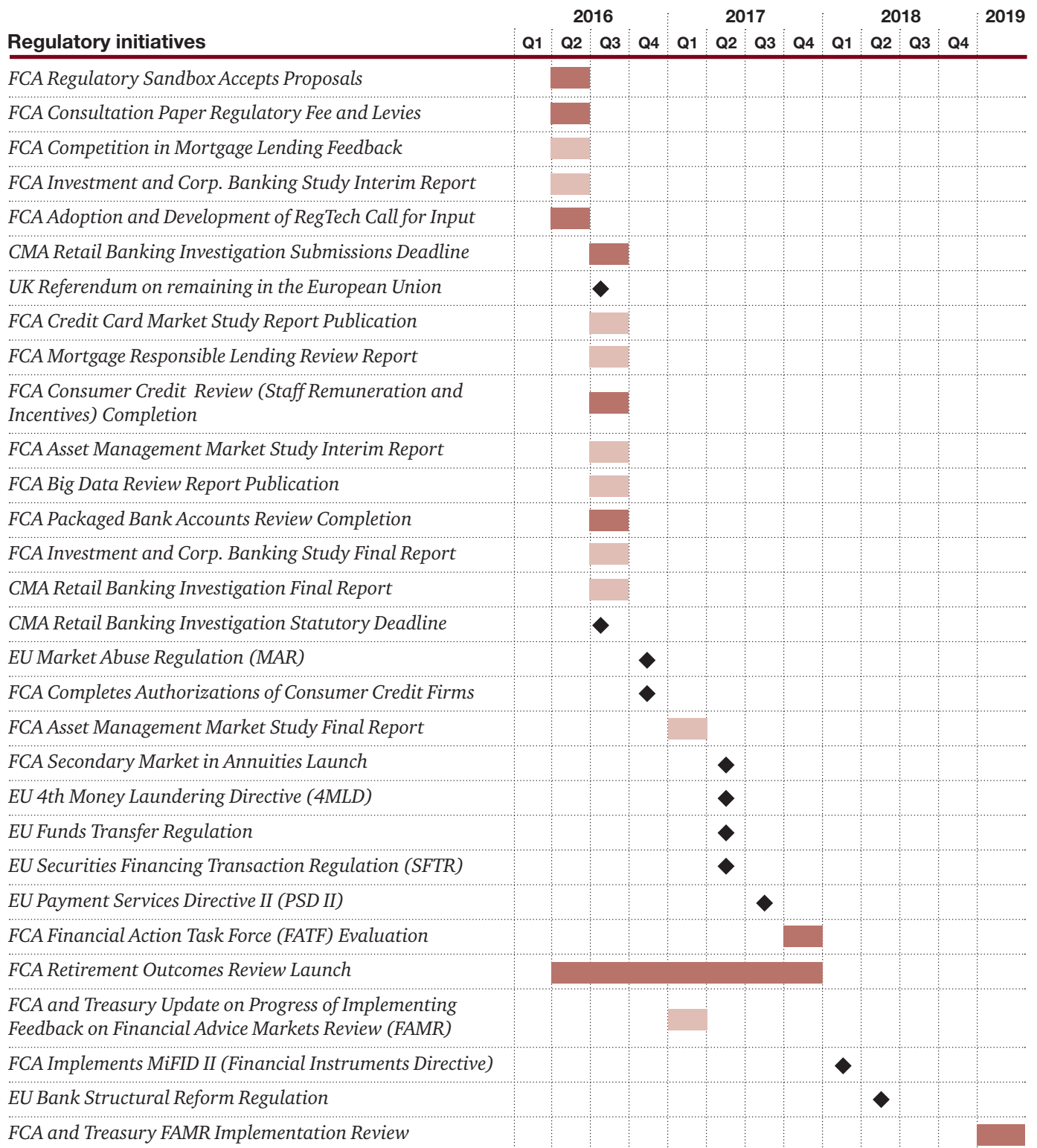
OCC ideas range from building an innovation office to streamlining licensing procedures — all to prove that regulation is not the only option in its tool kit.

Upcoming regulatory initiatives: United States

Regulatory initiatives	2016				2017				2018				2019
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
<i>CFBP Proposal Payday Loans</i>		■											
<i>CFBP Interim Rule for Operations in Rural Area</i>		■											
<i>CFBP Prepaid Accounts (consumer protection)</i>		✓											
<i>FDIC and SEC Orderly Broker-Dealer Provisions</i>		■											
<i>CFBP Credit Card Issuer Submissions</i>		◆											
<i>OCC and DOT Amendments to Economic Growth and Regulatory Paperwork Reduction Act of 1996</i>		■											
<i>SEC Regulation Crowdfunding</i>		◆											
<i>FED Single-Counterparty Credit Limits for Large Banking Organizations</i>		■											
<i>NCUA Amendment to Member Business Loans</i>					◆								
<i>Dept. of Labor Retirement Protection Fiduciary Rule</i>						◆							
<i>CFBP Home Mortgage Disclosure Act (HMDA) Exclude Low Volume Depository Institutions from Coverage</i>	■	■	■	■	◆								
<i>CFBP HMDA Provisions for Institutional Coverage, Data Collection, Recording, Reporting, Disclosure</i>					■	■	■	■	◆				
<i>CFBP HMDA Data Collection under 2018 Rule</i>									■	■	■	■	
<i>NCUA Amendment Prompt Correction Action (PCA)</i>													◆

- Proposal
- Feedback/Data Collection/Review
- ✓ Final
- ◆ In Effect

Upcoming regulatory initiatives: Europe



Horizontal look:

Authentication in an evolving fraud market

A certainty in banking and payments is that wherever there is money, there will be attempts to access it illegally. Last year was no exception. According to PwC's Global State of Information Security Survey, there was a 38% annual increase in detected security incidents in 2015. The survey, which brought together insights from more than 10,000 CEOs, chief information security officers, and security practitioners, provided a significant takeaway on the evolution of fraud management — 91% of survey respondents said they were turning to more advanced authentication technologies to improve access management, protect data, and build trust.

Some organizations are even thinking about a broader approach involving federated digital identities. In the U.K., several banks are interested in the Verify system, a federated identity model (provided through gov.uk) that offers a stringent authentication based on cross-referenced verified information. Similarly, Canada has promoted its Federated Authentication and Brokered Authorization Model for digital identity. However, the complex and global nature of the financial services/payments industry will likely limit the success of a universal identity or authentication solution, and the industry is likely to remain highly fragmented. (See “Four Categories of Authentication,” next page.)

Within payments, greater adoption of biometric authentication through mobile devices drives demand for tokenization. This has the potential to redefine revenue distribution and profit pools across the payments value chain in three primary ways.

1. Token services could lower fraud rates for card-not-present transactions, putting pressure on related interchange fees collected by card-issuing banks. This follows a continuous string of regulatory actions to reduce these fees in many regions around the world, most recently in Europe.
2. The combined use of biometric authentication and tokenization could reduce the need for traditional fraud management services provided

2015 saw a 38% annual increase in detected cybersecurity incidents.

by issuer processors to identify fraud, thereby reducing value creation in this segment.

3. Token service providers (TSPs), such as Visa and MasterCard, could decide to levy per-transaction fees on both merchant acquirers and issuers for the use of their token vault.

Assuming full penetration of tokenization within e-commerce volume and MasterCard's previously released token service fee structure, this would translate into \$4.4 billion in annual revenue for Visa and MasterCard, or 17% of the networks' combined 2015 revenue, according to PwC analysis. Should banks and other third parties fail to scale alternative TSPs, such networks will have the leverage to create a long-tail revenue stream adjacent to their existing service fees.

As considerable changes to card-based transactions loom, a handful of FinTech companies have identified opportunities to help card-issuing banks define their strategy around tokenization. For example, Bell ID, recently acquired by Rambus, offers a solution for card issuers and networks to establish a competing token vault. Most recently, Canadian card network Interac partnered with Bell ID to launch a token service. Similarly, Germany's Giesecke & Devrient, a provider of mobile wallets for financial institutions, partnered with MasterCard to offer the MasterCard Digital Enablement Service token platform to financial institutions as part of its white-label wallet solution.

Full penetration of tokenization within e-commerce volume would translate into \$4.4 billion in annual revenue for Visa and MasterCard.

Four categories of authentication

PwC is tracking more than 240 startups in the omni-factor authentication market. These players can be broadly classified into four categories of authentication involving something you (1) know, (2) have, (3) are, or (4) do.

1. Something you know: Knowledge-based authentication (KBA) is the most common form of authentication, with the use of passwords, PINs, and security questions as a means to authenticate the legitimacy of the end-user. KBA is extremely commonplace, but the ease of use can breed laziness — consumers

frequently use the same password across multiple domains, rarely change the password, and tend to use personally memorable information that can be deduced through social engineering attacks. For this reason, KBA should be considered a minimal form of authentication and used only in lower-risk scenarios.

2. Something you have: Hardware tokens (key fobs, USB tokens) and software tokens (one-time passcodes, QR codes) have proven valuable by ensuring a more dynamic

(Continued)

form of credential to validate authentication. There is obviously a cost in providing hardware for users, so restricting its use to more affluent or higher-risk individuals is sensible. Software tokens mitigate the cost issue, but software is still susceptible to interception and misuse via malware and other forms of attacks. Many Australian banks, for example, were recently victim to this type of attack. The prevalence of mobile devices has shifted the cost of the hardware to the consumer, while adding in further means of authentication such as the geographic location of the user by leveraging technologies such as NFC, BLE, and cellphone triangulation, which can passively authenticate the consumer as present.

3. Something you are: Biometrics are coming of age as a mainstream form of authentication, as fingerprint and facial biometric capabilities are native with most current-generation smartphones and recent estimates suggest that more than 2 billion smartphones will come equipped with the technology by 2021.²⁴ This primary form of biometric authentication is increasingly commonplace to secure the device, and apps are leveraging this technology to enable access to sensitive data (mobile banking, trading, and payments apps). Public familiarity with biometrics as a

minimally intrusive and efficient form of secure authentication is starting to materialize. And bellwethers including JPMorgan Chase, Bank of America, Wells Fargo, and USAA that have enabled fingerprint biometric access to mobile banking services, along with the two major proximity-based mobile payment services — Apple Pay and Android Pay — have helped normalize the acceptance of biometrics.

Other forms of physical biometric recognition such as voice, face, and iris scanning are just starting to emerge in financial services — notably, MasterCard will deploy “Selfie Pay” in several countries following a successful pilot in the Netherlands. As features such as front-facing cameras continue to proliferate across all forms of mobile devices, financial-services players will integrate more advanced biometric authentication (i.e., beyond fingerprint) across additional applications.

4. Something you do: A nascent but quickly expanding field of authentication includes gestural or behavioral biometrics that monitor activities such as keystrokes, vocal/language patterns, mouse dynamics, and walking gait. The value of behavioral biometrics is that it monitors normal activities, such as typing or speaking, and it is noninvasive with minimal end-user effort.

Biometrics are coming of age. More than 2 billion smartphones will come equipped with the technology by 2021.

Form follows function: matching authentication to security requirements

When determining the most appropriate form of authentication, it is important to consider user friction, technology cost, and security requirements. Authentication is no different from any other form of digital security where there is balance between security strength and user restriction.

- **User friction.** Human nature prefers the path of least resistance, which is why the same password or PIN is frequently used across multiple accounts and often for many years. Only when users are forced to change the password on a regular basis, or are required to include less guessable details (a digit, a capital letter), does behavior change. Those developing fraud solutions should consider the intrinsic human behavioral tendencies toward laziness and repetition.
- **Technology cost.** Fraud management is analogous to an arms race — your technology needs to be a step ahead of your adversaries' at any given time. The challenge is that the adversaries are often better funded via organized crime or nation-states, have a first-mover advantage as they initiate the method of attack, and only need to be successful once, whereas an organization's security method needs to be successful 100% of the time. A further challenge is that the cost of preventing the fraud needs to be less than the cost of the fraud losses themselves. This trade-off explains the persistence of KBA as a means of authentication — it has well-known vulnerabilities but is extremely inexpensive to implement.
- **Appropriate security.** The level of authentication should also match the value of the action. For example, the level of authentication to view a bank balance arguably should be vastly different from that required to send a high-value wire transfer. Beyond the aspect of cost as a gating factor, in many instances it is not necessary to provide the most robust form of authentication. Authentication decisions are more involved than finding the most secure technology; economic considerations are also involved.

Financial institutions are likely to leverage biometrics heavily in the future. It is a technology that is easy to use, provides a robust means of authentication, is relatively cost-efficient when leveraging user-owned smartphones, and is growing in availability and acceptance. The widespread use of physical biometrics is paving the way for even more advanced forms of authentication that passively authenticate the end-user, either by indexing physical location data to the location of a transaction or by monitoring behavioral biometrics.

Biometric solutions can also meet growing customer experience requirements. In our recent Global FinTech Survey, 75% of respondents see an increased focus on the customer as the most important area of impact.²⁵ Biometrics benefit from extremely low levels of friction (potentially zero) for the end-user, as they are native functions that are often already performed or can be inferred, such as determining the probability that an individual is at the same location as his or her payment card when a mobile transaction is being performed. This has proven beneficial in curbing card fraud, as well as in improving customer experiences for cardholders by whitelisting transactions that may previously have been erroneously categorized as fraudulent, such as a card payment by someone traveling outside the country.

With the U.S. transitioning the card payments landscape from magnetic stripe cards to EMV chip cards, the opportunity for performing counterfeit card fraud at the POS is slowly closing. For this and other reasons, card-not-present (CNP) fraud will be at the forefront of incoming payment fraud attacks. It is likely that biometrics and proximity-based authentication will be pivotal in countering the rising CNP fraud problem while meeting user expectations for speed, convenience, and security.

Biometrics can determine the probability that an individual is at the same location as his or her payment card when a transaction is performed.

DeNovo FinTech funding recap

Funding of DeNovo FinTech companies was lower on both an annual and a sequential basis by 41% and 23%, respectively.

2015 was a particularly strong year for FinTech funding, driven by both volume and large deal flow, which will make year-over-year comparisons difficult for the remainder of 2016. In looking at 2015 funding data, large deals (defined at \$100 million-plus) represented 4% of the number of transactions count but 45% of total dollar funding.

Clearly, market volatility had an impact on venture activity in the seasonally slower first quarter. Arguably, the regulatory outlook and changing credit environment also had an impact on funding activity.

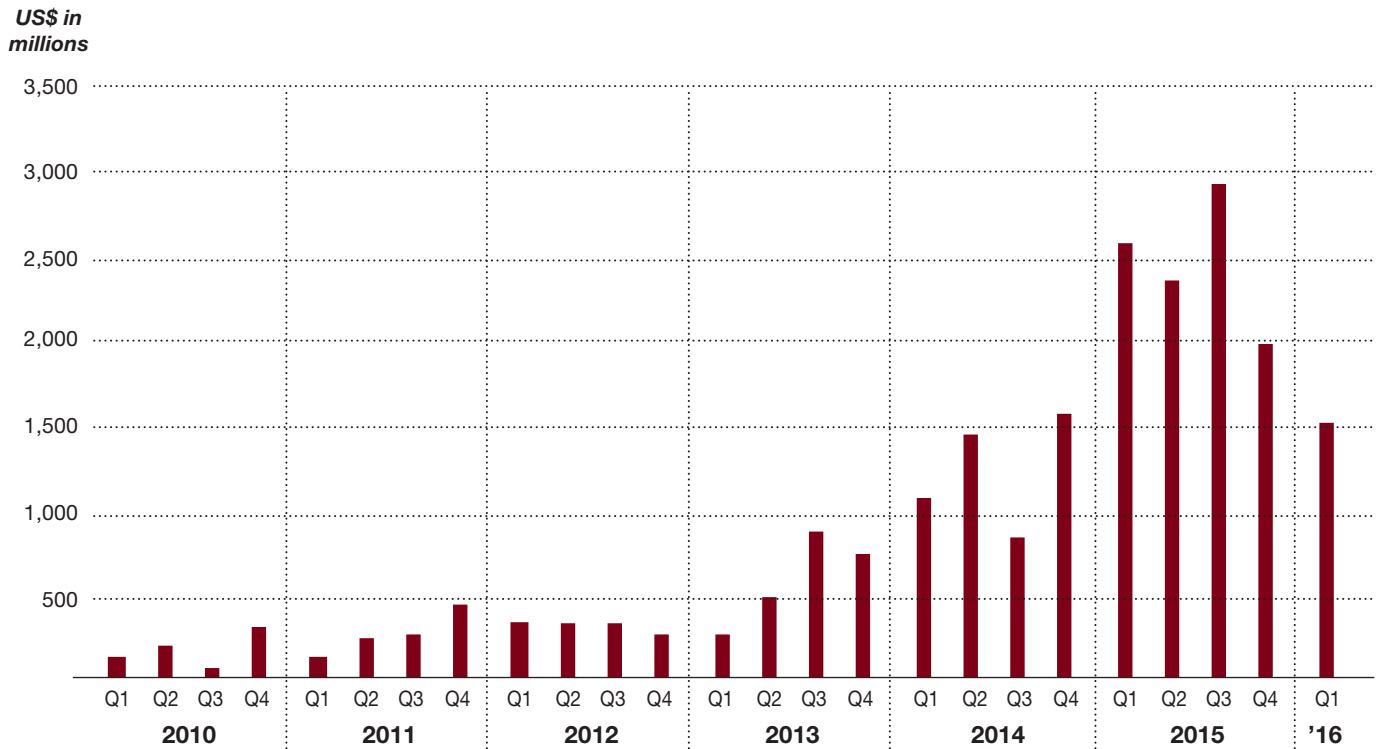
Other key points from first-quarter activity:

- 1Q16 had \$1.49 billion in total funding, a decline from the quarter average funding of \$2.41 billion in 2015.
- The average funding amount in 1Q16 was \$16.0 million. This compares with a historic average transaction size of \$12.8 million (since 2010) and an average transaction size of \$9.0 million prior to 2015; 2015 saw a material uptick in average transaction size.
- The largest 1Q16 transaction was \$150 million for LendUp.
- Marketplace lending companies, historically a top category of funding, did not qualify within the top 10 areas of funding in 1Q16.

Notes: We include only non-publicly traded, pure play FinTech and technology companies focused on the financial services industry. We believe this definition of FinTech investment is the most accurate depiction of the industry. We exclude industry agnostic horizontal technology companies that would incorrectly influence our analysis. As such, the data below are calculated using only companies included in the DeNovo platform.

We have excluded China-based transactions from our data due to a concentration of large funding in select transactions. Our data set provides a more informative global view of FinTech funding activity.

Exhibit 1
Quarterly FinTech funding



Source: Strategy& analysis

Quarterly funding by subsector²⁶

The banking services sector has seen a preponderance of total funding, averaging 62% of total FinTech funding over the trailing four quarters. In 1Q16, banking services still received the largest amount of funding at \$678 million (46% of the total), but the share relative to other sectors narrowed, with capital markets and insurance representing 12% and 18%, respectively, of the total — the largest quarterly share for each sector in our data set.

Capital markets represented 12% of the total due largely to the inclusion of associated blockchain companies; Blockstream and Digital Asset Holdings both closed large rounds at \$55 million and \$60 million,

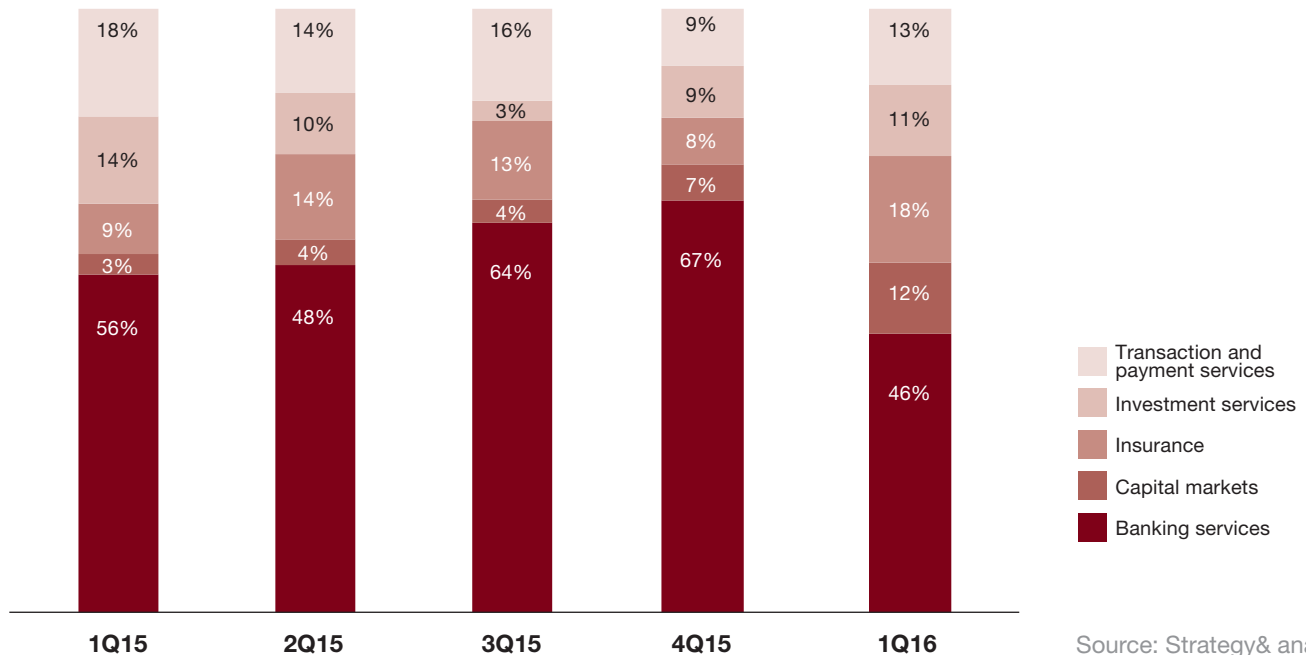
respectively. Insurance²⁷ also saw a healthy uptick with the benefit of Betterment’s \$100 million funding. (Betterment is associated with the retirement savings benefits in insurance in addition to retail wealth management.) And the payments sector saw a modest uptick from 4Q15 activity in absolute dollar terms, but lower than the trailing quarterly average in funding.

Funding by DeNovo trend²⁸

The emergence of services and solutions for un(der)served customers was the most funded trend in 1Q16. This trend has been consistently high in funding — it was the second- or third-largest funded trend throughout 2015 — and 1Q16 is the first quarter in which it emerged at the top. Within this trend, LendUp was the largest transaction at \$150 million. The top three trends cumulatively represented 29% of 1Q16 total funding.

Exhibit 2
FinTech funding by industry subsector

Percent of total funding



Source: Strategy& analysis

Marketplace lending was the top trend for the first three quarters in 2015, dropping to the second-largest trend in 4Q15, and in 1Q16 it did not make the top 10. This is arguably due to the legal/regulatory concern associated with the Madden v. Midland Funding case, related changes that Lending Club has to make to its business model, and a rising interest rate environment. And many marketplace lenders are experiencing a less than favorable credit cycle for the first time.

Enhanced credit underwriting/decisioning was a pertinent top-funded trend throughout 2015 and showed continued presence in 1Q16.

There was more diversity in 1Q16, with the top 10 trends accounting for 56% of total funding, compared with 75% for the trailing four quarters average.

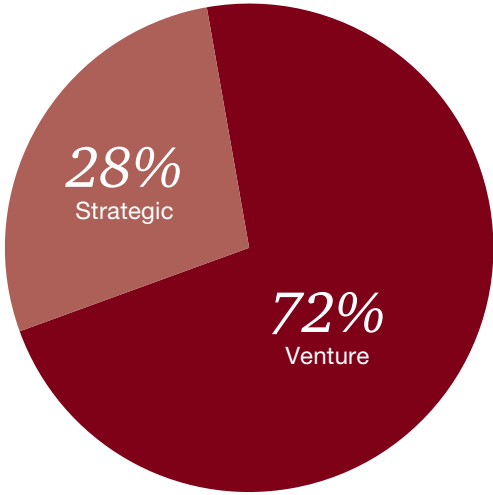
Marketplace lending was the top trend for the first three quarters in 2015, dropping to the second-largest trend in 4Q15, and in 1Q16 it did not make the top 10.

Table 1
FinTech funding by DeNovo trend

Rank	Trend	% of total
1	Emergence of services and solutions for un(der)served customers	13%
2	Enhanced credit underwriting/decisioning	8%
3	Emergence of platforms to develop decentralized applications using cryptotechnology	8%
4	The move toward virtual channels	7%
5	Digitization of cash, treasury management functions and other commercial payments	5%
6	Increased digital solutions that firms can integrate to improve operations	4%
7	Increased customer empowerment/control of financial matters	3%
8	Rise of aggregators to compare products and services from different providers	3%
9	Increase in bundling value-added services around consumer insights	3%
10	Rise of alternative distribution and marketing channels for awareness and lead generation	3%

Source: Strategy& analysis

Exhibit 3
Investor type, 1Q16



Source: Strategy& analysis

Investor breakdown: venture vs. strategic

In 1Q16, strategic investors participated in 26% of total transactions by count. The most active investors participated in four deals, and beyond the top 11 investors, activity during this quarter was broad-based.

Table 2
Most active investors

Transactions	Investor	
4	AXA Strategic Ventures	
4	Digital Currency Group	
3	FinTech Innovation Lab (London)	
3	HV Holtzbrinck Ventures Adviser GmbH	
3	Index Ventures	
3	Menlo Ventures	
3	New Enterprise Associates	
3	Octopus Investments Limited	
3	Point Nine Capital	
3	Susa Ventures	
3	Union Square Ventures	Source: Strategy& analysis

Table 3
Top deals by size

Biggest deals of Q1 2016	Amount	
LendUp	\$150,000,000	
Kreditech	\$103,334,637	
Betterment	\$100,000,000	
Starling	\$70,000,000	
Digital Asset Holdings	\$60,000,000	Source: Strategy& analysis

Notes

- 1 <https://www.pwc.com/us/en/industry/entertainment-media/publications/consumer-intelligence-series/assets/pwc-cis-sharing-economy.pdf>
- 2 <http://www.pwcmediaoutlook.com/dataexplorer9>
- 3 <https://hbr.org/2014/11/what-airbnb-gets-about-culture-that-uber-doesnt>
- 4 <https://www.pwc.com/us/en/industry/entertainment-media/publications/consumer-intelligence-series/assets/pwc-cis-sharing-economy.pdf>
- 5 http://media.swissre.com/documents/sigma5_2015_en.pdf
- 6 <http://www.wsj.com/articles/uber-drivers-settle-with-ride-hailing-company-in-labor-dispute-1461292153>
- 7 https://www.census.gov/retail/mrts/www/data/pdf/ec_current.pdf
- 8 <https://www.syndicatoroom.com/press/syndicatoroom-brings-crowdfunders-to-ipo-market.aspx>
- 9 <http://www.wsj.com/articles/online-lender-sofi-launches-hedge-fund-1457480960>
- 10 <http://www.businessinsider.com/blood-in-the-water-90-of-the-billion-dollar-unicorn-startups-are-in-trouble-2016-1>
- 11 <http://www.wsj.com/articles/bond-offering-tied-to-prosper-marketplace-loans-gets-chilly-reception-1458934559#:Q6R44PqQRsmfxA>
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- 13 <http://www.wsj.com/articles/online-lender-sofi-launches-hedge-fund-1457480960>
- 14 <http://www.crowdsourcing.org/editorial/patch-of-land-launches-a-seed-round-equity-crowdfunding-campaign/34625>
- 15 <http://www.pymnts.com/news/alternative-financial-services/2016/fintech-lenders-are-putting-the-brakes-on-customer-acquisitions/>
- 16 <https://www.sec.gov/news/speech/chair-white-silicon-valley-initiative-3-31-16.html>
- 17 <http://www.scotusblog.com/wp-content/uploads/2016/03/Madden-ABA-Amicus.pdf>
- 18 <http://www.wsj.com/articles/squares-newest-offering-bank-loans-1458864003>
- 19 <https://www.syndicatoroom.com/press/syndicatoroom-brings-crowdfunders-to-ipo-market.aspx>
- 20 https://www.sec.gov/Archives/edgar/data/1416265/000155278115000638/e00255_prosper-s1.htm
- 21 <http://www.bloomberg.com/news/articles/2016-02-12/prosper-linked-bonds-face-moody-s-rate-cut-within-year-of-sale>
- 22 <http://www.institutionalinvestor.com/blogarticle/35444456/peer-pressure-p2p-lending-poised-to-shake-up-credit/banking-and-capital-markets-banking.html#.Vw5CY08rJD8>
- 23 <http://www.bloomberg.com/news/articles/2016-01-20/hedge-funds-suffer-their-first-quarterly-net-outflows-in-4-years>
- 24 <http://www.nfcworld.com/2016/03/23/343550/two-billion-smartphones-come-fingerprint-sensors-2021/>
- 25 <https://www.pwc.com/gx/en/advisory-services/FinTech/PwC%20FinTech%20Global%20Report.pdf>
- 26 We cover five subsectors in DeNovo: banking services, insurance, capital markets, asset management and payments
- 27 Insurance includes Life and Property and Casualty related companies and does not include health insurance or related investments.
- 28 Within DeNovo, we identify, update and maintain the most relevant industry trends across all financial services subsectors

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