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Contact Us

The Americas
+1 877 863 1306

Asia-Pacific
+852 2533 3565

Europe, Middle East or Africa
+44 207 176 7176

2019 US Digital Lending Market Report

Nimayi Dixit
Research Analyst
212-438-0834
nimayi.dixit@spglobal.com

Table of contents

I. Executive summary
II. Business overview
III. Loan originations
IV. Enabling technology
V. Regulation
VI. Relationship with incumbents

Executive summary

- Digital lenders grew originations at a compound annual growth rate of 72.4% in the five years ended Sept. 30, 2019. S&P Global Market Intelligence projects growth of 14.3% compounded annually between 2019 and 2023. We expect the most rapid growth to come from digital lenders focused on small and medium-sized enterprises.
- Hybridization of funding models continued to develop in the past year as more digital lenders accessed the securitization markets for the first time. LendingClub Corp. and On Deck Capital Inc. have signaled interest in pursuing bank charters, and Square has applied for an industrial loan company charter in Utah for its Square Capital business.
- Digital lenders have continued expanding product offerings, with Social Finance Inc. being particularly aggressive in its diversification strategy. As more digital lenders branch out into nonlending products, they will increasingly lean on bank partners.
- After several quarters of slow growth, the second and third quarters of 2019 saw new highs in origination volume. Credit remains tight in general, and some digital lenders are pursuing growth more aggressively than others.
- Progress on achieving clarity around regulatory jurisdiction remains slow, and tensions persist between state and federal regulators. Meanwhile, digital lenders continue to engage with regulatory bodies to help address concerns around new technologies.

Business overview

Focus lenders

Digital lenders are nonbank lenders that offer loans to consumers or businesses through digital channels. These lenders have unique funding models with capital provided by investors, credit facilities, securitizations or balance sheet cash.

The lenders on our focus list have exclusively or predominantly digital application processes. They cover the personal, SME and student-focused segments and have built brands that cater to the end borrower, rather than

exclusively providing technology to other lenders. While not an exhaustive list of industry players, these lenders have originated significant loan volumes over their lifetimes. They represent a meaningful proportion of total industry origination volume and reflect the underlying growth dynamics of the segments at large.

Platform	Parent company	Primary customer segment focus	Lender of record	Year founded
LendingClub	LendingClub Corp. (NYSE: LC)	Personal lending	WebBank	2007
Upstart	Upstart Network Inc.	Personal lending	Cross River Bank[1]	2012
Prosper	Prosper Marketplace Inc.	Personal lending	WebBank	2006
Best Egg	Marlette Funding LLC	Personal lending	Cross River Bank	2014
Avant	Avant LLC	Personal lending	WebBank	2012
LendingPoint	LendingPoint LLC	Personal lending	LendingPoint LLC[2]	2014
GreenSky	GreenSky Inc.	Personal lending	Various[3]	2006
OnDeck	On Deck Capital Inc. (NYSE: ONDK)	Small & medium enterprise lending	Celtic Bank	2007
Kabbage	Kabbage Inc.	Small & medium enterprise lending	Celtic Bank	2008
Credibly	Retail Capital LLC	Small & medium enterprise lending	Retail Capital LLC	2010
Square Capital	Square Inc. (NYSE: SQ)	Small & medium enterprise lending	Celtic Bank	2014[4]
PayPal Working Capital/PayPal Business Loan	PayPal Holdings Inc. (NASDAQGS:PYPL)	Small & medium enterprise lending	WebBank	2013[4]
SoFi	Social Finance Inc.	Student loan refinancing & lending	SoFi Lending Corp.	2011
CommonBond	CommonBond Inc.	Student loan refinancing & lending	CommonBond Lending LLC	2011
Earnest	Navient Corp. (NASDAQGS: NAVI)	Student loan refinancing & lending	Earnest Operations LLC	2013[5]
College Ave	College Avenue Student Loans LLC	Student loan refinancing & lending	Firstrust Savings Bank[6]	2014

Data compiled Nov. 18, 2019.
[1] Cross River Bank funds Upstart-originated loans in select states.
[2] FinWise Bank funds some LendingPoint loans. First Electronic Bank funds LendingPoint point-of-sale loans.
[3] BMO Harris Bank, Fifth Third Bank, Regions Bank, SunTrust Bank and Synovus Bank are GreenSky's main funding partners. GreenSky has announced that Regions is not expected to renew its commitment following its Nov. 25, 2019, expiration.
[4] Year digital lending segment was launched.
[5] Year Earnest Operations LLC was founded
[6] Some loans may be funded by M.Y. Safra Bank FSB.
Sources: S&P Global Market Intelligence; public filings; company websites
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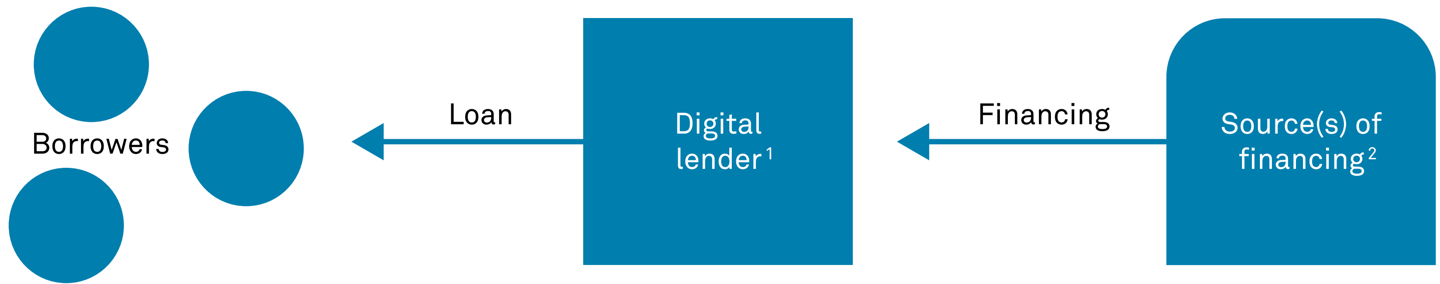
Digital lenders can earn revenue in various ways, most of which are related to their source of funding. Digital lending platforms that connect borrowers with lenders via an online platform usually earn revenue through a transaction fee on each issued loan. They may also earn additional revenue through servicing the loans generated on their platforms. Lenders can also retain loans on their books and collect related interest and fees. Digital lenders are also increasingly commercializing their software for banks and other lenders. They may enter into a revenue share agreement or charge a fixed fee for using these white-label lending engines.

Funding models

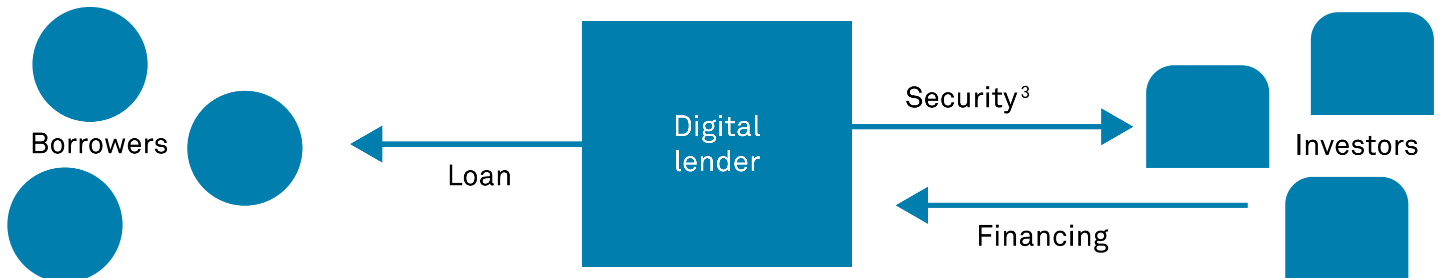
The trend of hybridization in funding models continues as lenders scale and seek to diversify funding sources. Moreover, in the past year, a few major digital lenders have indicated serious interest in pursuing bank charters, which would provide them access to insured deposits.

The mechanisms that the lenders on our focus list use to attract funding can be divided into two broad categories: balance sheet funding and third-party investor funding. The lenders that rely on outside investors to finance loans can be further subdivided into marketplace lenders and channel lenders.

Balance sheet funding



Marketplace funding



Channel funding

Graphic compiled Nov. 23, 2019.

[1] Balance sheet lenders hold loans on their own balance sheets and absorb the credit risk.

[2] Sources of financing could include banks, asset managers, insurance companies or others.

[3] Marketplace lenders move credit risk off their balance sheets by transferring some kind of security to investors that is linked to the loans originated through the platform. In exchange, investors transfer funds to the digital lender to finance the loans.

[4] Channel lenders handle the borrower application and underwriting processes. They generally make the ultimate loan approval decision but do not handle the actual loan, which is made directly between the financing party and the borrower.

Source: S&P Global Market Intelligence

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Marketplace lenders act as intermediaries between loan applicants and investors by selling securities to investors backed by loans held either on their own balance sheets or in special purpose vehicles. These assets could take the form of loan-backed securities or whole loans. Investors include banks and asset managers, as well as retail investors.

Channel lenders enter into up-front agreements to connect banks and other lending institutions to approved borrowers via their digital platforms. Loans originated via these platforms are made directly between the lending institution and the end borrower without requiring the digital lender to intermediate by taking ownership of the loan first.

Balance sheet lenders take the opposite approach and retain the credit risk on their own balance sheets. These lenders source financing from bank loans, warehouse lines of credit, cash flow from operations and even equity financing.

The third-party investor model and the balance sheet model fundamentally differ in how they incorporate credit and liquidity risk. Marketplace and channel lenders essentially act as middlemen between borrowers and investors. This funding model exports the credit risk to end investors. In exchange, such lenders' ability to provide loans to

borrowers depends entirely on liquidity those investors provide, which in turn is governed by investor sentiment and the liquidity characteristics of those investors' respective funding sources. For example, banks with significant retail deposit funding may be a more stable source of liquidity than multi-asset class hedge fund investors seeking to generate excess returns in broader securities markets.

Balance sheet lenders' funding is less tied to investor sentiment or liquidity characteristics because they can continue to use interest income to finance new loans even in the event of a liquidity shock. The balance sheet lending model is less transactional in nature and therefore less dependent on continuously generating new loans to finance operations.

Age and maturity are important in determining access to funding. Digital lenders may start off relying on more expensive sources like equity financing to fund loans in early years. As they grow and demonstrate their ability to properly assess and manage credit, they gain access to cheaper debt capital.

Regardless of the funding model, some credit and liquidity risk is unavoidable. Deterioration of credit quality in their own loan portfolios would likely cause digital lenders to lose funding over time. Not all funding models equally incentivize the credit discipline that is essential to a lender's survival.

Marketplace lenders came under scrutiny in 2016 for the moral hazard potential in their funding model. Since then, prominent marketplace lenders have increased the volume of loans held on balance sheet. Growth in securitization activity and associated risk retention practices have also increased loan balances at these companies.

Hybridization of funding models has been an ongoing trend in the digital lending space for the past few years. Digital lenders generally focus on one funding model in their early years, but branch out as they scale to gain the benefits of diversification.

Deposits are a valued source of funding due to their relative stability and low cost. Some larger digital lenders are interested in pursuing the advantages of depository institution status. In the past year, both OnDeck and LendingClub have announced serious interest in pursuing bank charters. Square has also filed for an industrial loan company charter, citing the opportunity to help small businesses better access capital.

Bank status would bring with it more regulatory burdens. But the advantages of the lower cost of funds, independence from third-party bank partners and potentially greater trust from customers may outweigh the costs for fintechs of a certain scale. The timeline to achieving bank status and the specific changes required to qualify remain unclear, however.

Maximum loan amount ($)

Platform	Personal loans	Student loan refinance	Business term loans and/or line of credit	Mortgage loans
LendingClub	40,000			
Upstart	50,000			
Prosper	40,000			
Best Egg	35,000			
Avant	35,000			
LendingPoint	25,000			
GreenSky	55,000			
OnDeck			500,000	
Kabbage			250,000	
Credibly			400,000[1]	
Square Capital			250,000	
PayPal			500,000[2]	
SoFi	100,000	Variable[3]		3,000,000
CommonBond		500,000		
Earnest	75,000	500,000		
College Ave		300,000[4]		

Data compiled Dec. 5, 2019.

[1] Reflects maximum limit on working capital loans. Business expansion loans have a $250,000 maximum.

[2] Reflects maximum limit on PayPal Business Loans. The $300,000 maximum amount for PayPal Working Capital products is reserved for qualified returning borrowers only.

[3] The maximum possible loan amount is the full balance of the borrower's qualified education loans.

[4] Reflects maximum amount for borrowers with medical, dental, pharmacy or veterinary degrees. For all other degree holders, the maximum amount is $150,000.

Sources: S&P Global Market Intelligence; company websites

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Product offerings

Companies continue to expand product offerings across lending and nonlending verticals. Some are seeking to become more bank-like or are more actively providing software services to banks, while others appear to be moving aggressively on both fronts.

Digital lenders are keen to innovate their product offerings to cater more specifically to different customer segments.

Term loans and lines of credit are the typical loan structures. However, several digital lenders are experimenting with alternative frameworks.

APR range by company (%)

	Personal loans		Student loan refinance				Undergraduate student loan				Business loans	
	Fixed		Fixed		Variable*		Fixed		Variable*		Term and/or line of credit	
Platform	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
LendingClub	6.95	35.89										
Upstart	6.14	35.99										
Prosper	6.95	35.99										
Best Egg	5.99	29.99										
Avant	9.95	35.99										
LendingPoint	15.49	35.99										
GreenSky	6.99	23.99										
OnDeck											9.00	98.30
Kabbage**											12.00	99.00
Credibly											9.99	36.00
Square Capital											Variable	Variable
PayPal Working Capital											Variable	Variable
SoFi	5.99	20.01	3.46	7.36	2.11	9.95	4.73	11.46	3.09	13.95		
CommonBond			3.21	6.45	1.85	9.99	5.45	9.74	3.31	9.29		
Earnest	5.99	17.24	3.45	6.99	1.99	6.49	4.49	12.78	2.79	11.44		
College Ave			3.54	6.24	2.37	5.87	4.54	11.98	2.84	10.97		

Data compiled Dec. 6, 2019.
* Reflects starting variable rates.
** Valid as of September 2018.
Sources: S&P Global Market Intelligence; company websites; Nav.com; The College Investor
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Merchant cash advance

PayPal Working Capital, Square Capital and Credibly offer products that deduct repayments directly from borrowers' card sales. These financing structures are akin to merchant cash advances, a niche specialty finance product that emerged in the early 2000s.

These products do not entail a predetermined annual percentage rate. Instead, the digital lender quotes a fixed repayment fee up front based on the percentage of sales the borrower pledges to remit to the lender. This effectively turns loan servicing into more of a variable cost for the small-business borrower, and the ultimate APR fluctuates based on sales.

Invoice financing

Digital lenders such as Bluevine and FundThrough use access to business accounting software and bank statements to automate invoice financing. Sellers can connect their business software to these digital lenders, which use the data for underwriting. Once approved, the seller can receive terms on individual invoices on an ongoing basis and finance those receivables through an online dashboard. The digital lender disburses funds to the borrower and collects on the invoice over time. The yield comes either as a discount to face value charged to the seller, a recurring fee charged to the seller, or interest charged to the buyer for the benefit of stretching net terms on the invoice.

Point-of-sale lending

Consumer point-of-sale lending is growing. The model came into the spotlight in 2018 when GreenSky launched its IPO. The company offers point-of-sale financing for large ticket purchases like home improvement and medical expenses. Companies such as Affirm and Bread have grown rapidly by offering financing for smaller ticket purchases. Affirm originated $2 billion of loans in 2018.

Point-of-sale loans are essentially term loans designed to compete with credit cards for consumer purchases. Point-of-sale lenders rely on modern underwriting and application software to deliver instant approvals, allowing them to compete at the site of the transaction. These digital lenders often attribute their growth to their ability to provide clearer financing terms to borrowers, their lack of dependence on late fees for revenue, and a perceived trend among younger demographics to favor closed, fixed-term loans over open, revolving credit products.

PayPal and Square have also developed significant consumer financing businesses.

Just as digital lenders are branching out into new funding sources, they also continue to expand into new product types. SoFi has been particularly aggressive on this front over the past 18 months, positioning itself as a much broader financial services provider. Aside from offering student loans, mortgages and personal loans, the company offers deposit, trading, asset management and insurance products. SoFi even redesigned its website in 2019 to shift the focus away from the lending business.

Kabbage recently announced an invoicing product as its first stand-alone nonlending offering. The invoicing product is part of its broader strategy of becoming a holistic cash-flow management service for small businesses.

Breadth of services offered by digital lenders

	Lending verticals					Payments			White label service for banks and credit unions
Company name	Personal/ consumer	Mortgage	Business	Student	Other	Card	Mobile	Invoicing/ processing	
Prosper	●	●*							●*
LendingClub	●		●**		●				
Avant	●					●			●
Upstart	●								●
GreenSky	●				●	●			
LendingPoint	●				●				
Best Egg	●								
OnDeck			●						●
Kabbage			●			●		●	●
Credibly			●						●
PayPal	●		●			●	●	●	
Square	●		●			●	●	●	
Earnest	●			●					
CommonBond				●					
SoFi	●	●		●		●	●		
College Ave				●					

Data compiled Dec. 6, 2019.
* HELOC product offered through partnership with BBVA USA. The product will be distributed directly through Prosper.com and through a BBVA USA-branded platform pursuant to a white-label service agreement.
** Borrowers who apply for a small-business loan through LendingClub's website are connected with Opportunity Fund or Funding Circle, which process and service the loans pursuant to a referral partnership.
Sources: Company websites; company-provided information; press releases
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This trend is not specific to digital lenders. Successfully branching out into multiple product areas provides fintech companies access to a larger addressable market, which is important for continued growth. It also creates more opportunities for cross-selling, which both lowers the average cost of customer acquisition and augments the lifetime value of each customer.

Having more customer touchpoints also increases the variety and quantity of data the fintech company can collect and use to improve its competitiveness. PayPal and Square both entered the lending business from the adjacent

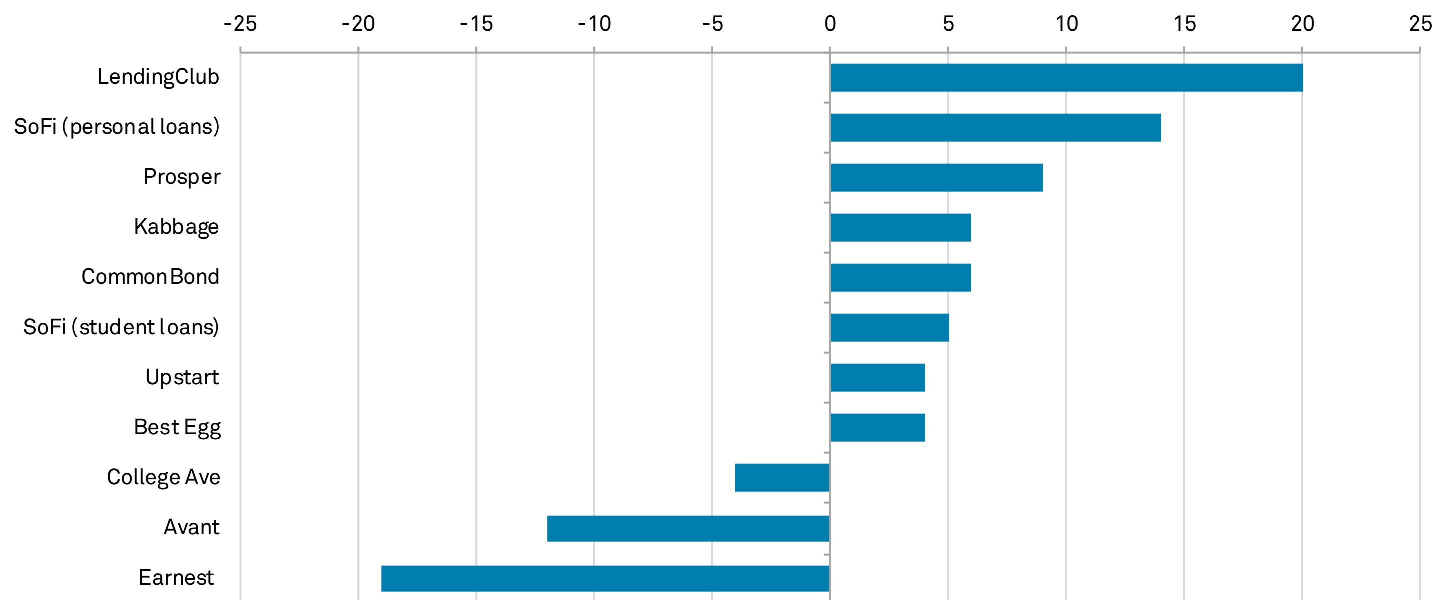
business of payment processing and can incorporate real-time payment data into their credit assessments. They can also collect repayments directly from the payments they process, which allows them to avoid third-party servicers. These inherent benefits have allowed both companies to grow significantly in the small business lending arena by catering to their existing customer bases. S&P Global Market Intelligence estimates that PayPal led the SME-focused lenders in originations in 2018, overtaking the previous leader, OnDeck, for the first time. Toast, a prominent restaurant point-of-sale startup, announced its own lending product earlier in 2019.

Credit

Several digital lenders have tightened their credit underwriting over the past two years as the industry adjusted to the volatility of 2016 and 2017. This tightening contributed to a deceleration in origination growth in 2018 and early 2019. However, that deceleration has reversed itself in the past two quarters.

Credit deteriorated unexpectedly in 2016 and 2017 at major digital lenders such as LendingClub and OnDeck, causing investor sentiment to sour on the industry in general. Since then, several digital lenders have adopted tighter credit. Loan grades on portfolios of various digital lenders have been trending upward since 2017, along with average FICO scores on more recent securitizations. Digital lenders have cited several reasons for the conservatism, including perceived deterioration in macroeconomic conditions and investor appetite for higher quality credits. Tighter credit appears to have shown up in origination volumes at several major lenders; companies such as Prosper and SoFi have seen volumes contract year over year in recent quarters. Avant has still not returned annual origination volumes to 2015 levels, and we do not expect it to do so by year-end 2019.

Difference in weighted average FICO scores of ABS issuances between 2017 and 2019



Data compiled Nov. 11, 2019.
Differences shown between weighted average FICO scores of borrowers whose loans are included in relevant securitizations, based on earliest available rating agency reports from 2017 and most recent reports from 2019.
Sources: KBRA; DBRS
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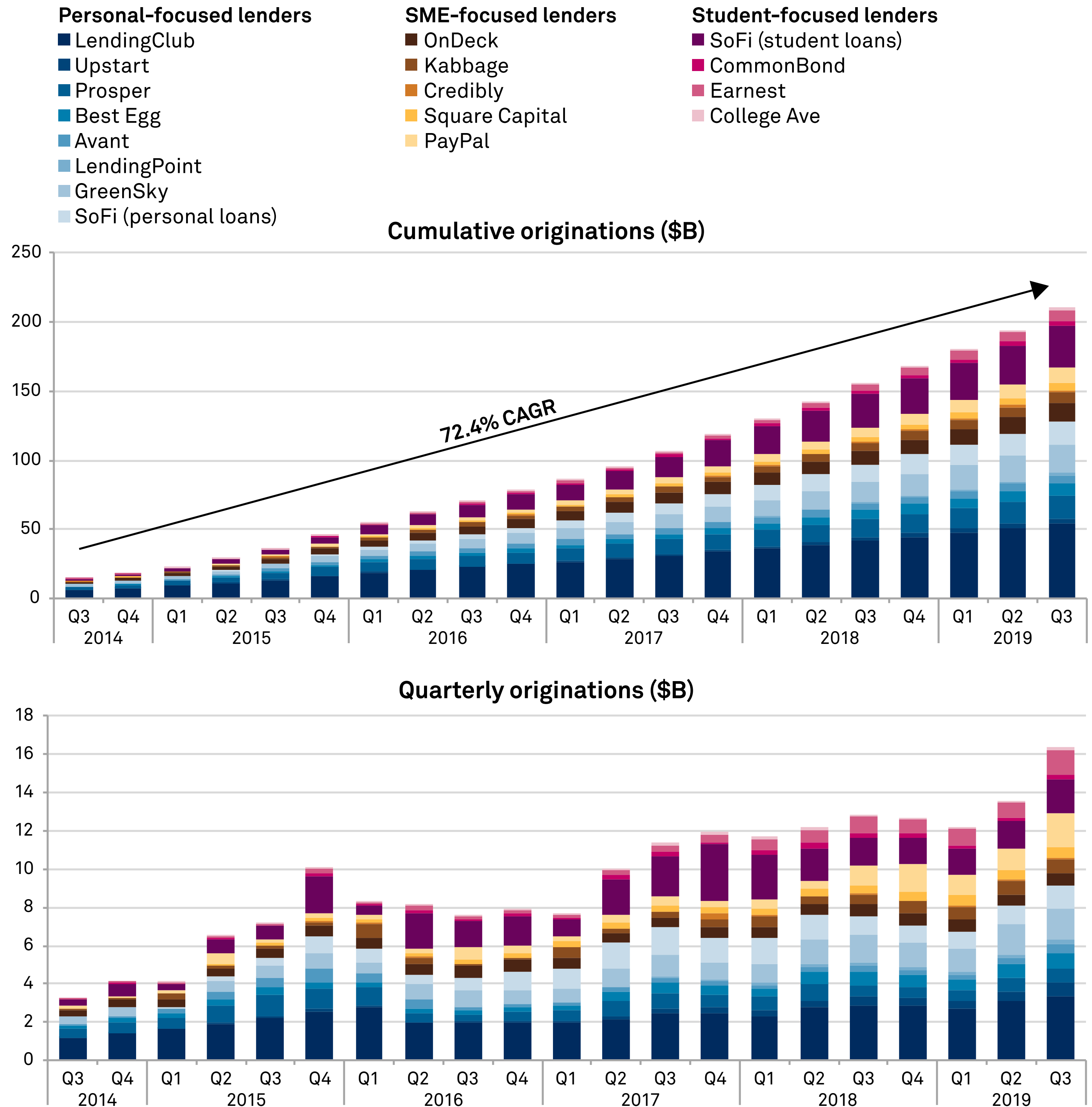
While some digital lenders have slowed their origination growth, most agree there is no shortage of borrower demand. LendingClub CEO Scott Sanborn described the current dynamic in the industry as “lots of people marketing, approving less people.” Not all lenders appear to be applying the brakes. Upstart saw origination volumes jump more than 50% sequentially in the third quarter of 2019. Others such as Square Capital, PayPal and Earnest have maintained robust origination growth in the past two years. The industry overall hit new highs in quarterly originations in the second and third quarters of 2019.

Loan originations

We estimate that digital lenders are poised for 14.3% compound annual growth between 2019 and 2023, with companies that serve SME borrowers growing fastest over that period.



Data compiled between Nov. 11 and Nov. 27, 2019.
Sources: S&P Global Market Intelligence; company-provided information and disclosures; rating agency reports; proprietary estimates
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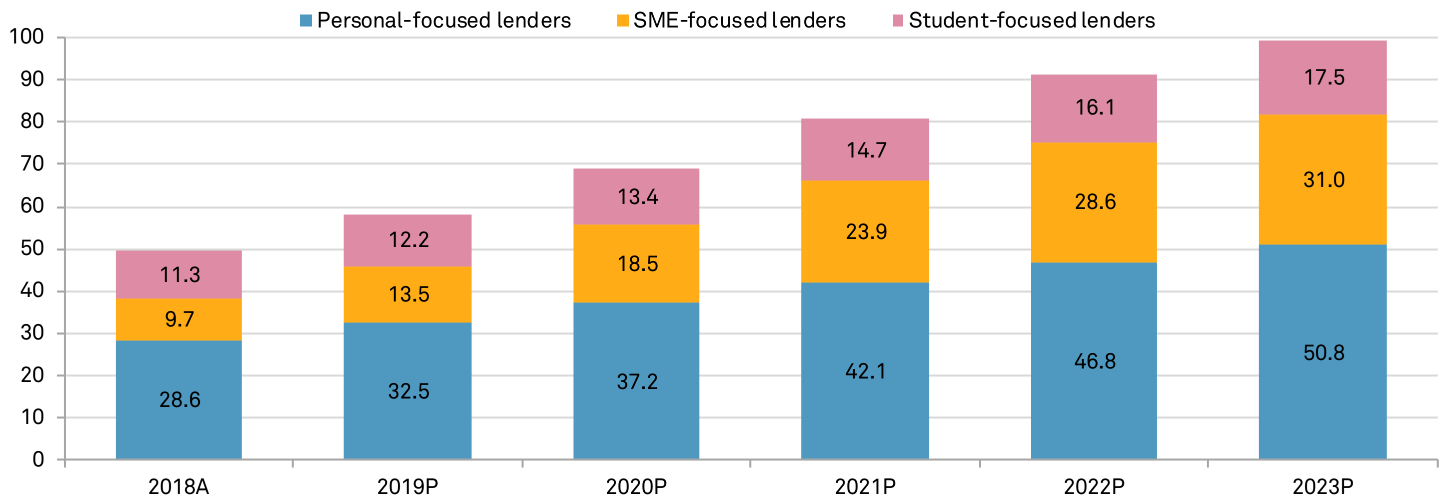
Projected annual originations by digital lending platform focus ($B)



Data compiled between Nov. 11 and Nov. 27, 2019. Projections current as of Nov. 27, 2019.
A = actual (includes estimates for certain companies); P = projected
Sources: S&P Global Market Intelligence; company-provided information and disclosures; rating agency reports; proprietary estimates
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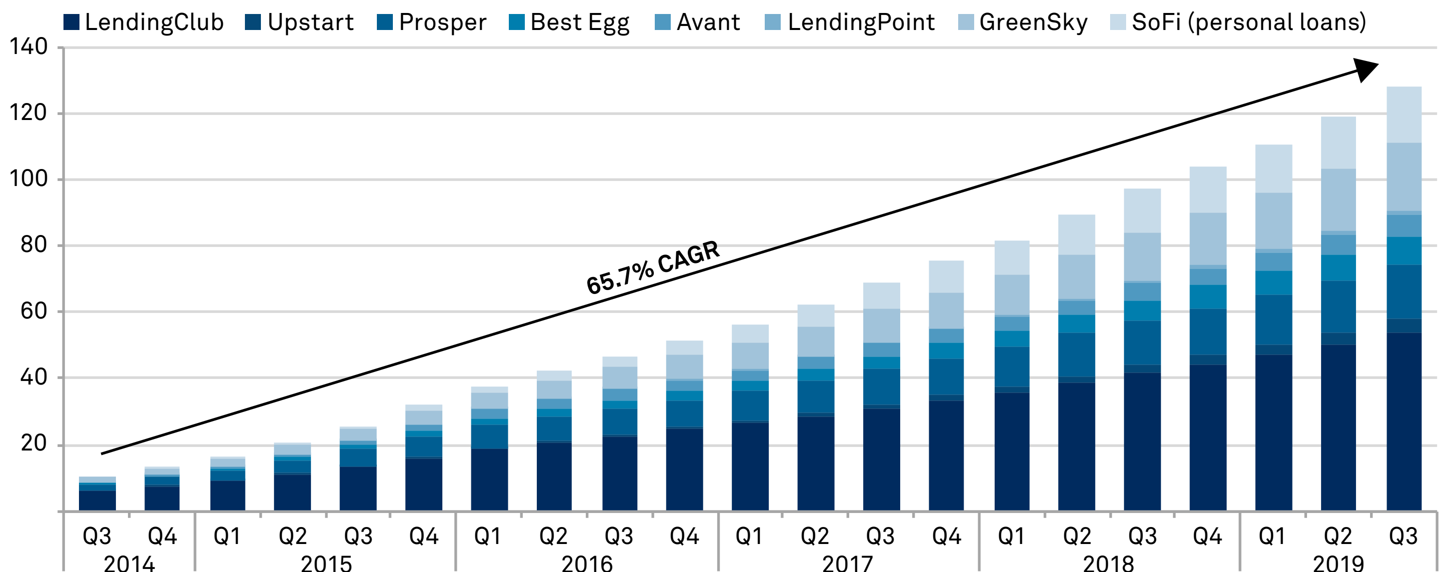
Personal-focused lenders

Borrowers turn to personal loans for a variety of reasons, including home improvement, wedding expenses and debt consolidation. Among the digital lenders on our focus list that specialize in personal loans, LendingPoint has grown the fastest at a compound annual growth rate of 250.5% since 2015, its first full year of operation. The company entered the point-of-sale lending business after acquiring LoanHero in early 2018. It also started to access the securitization markets in 2019 to fuel further growth. LendingClub remains the largest digital lender on our focus list, with $53.7 billion in aggregate originations as of the third quarter of 2019.

Cumulative originations by personal-focused lenders ($B)



Data compiled between Nov. 11 and Nov. 27, 2019.
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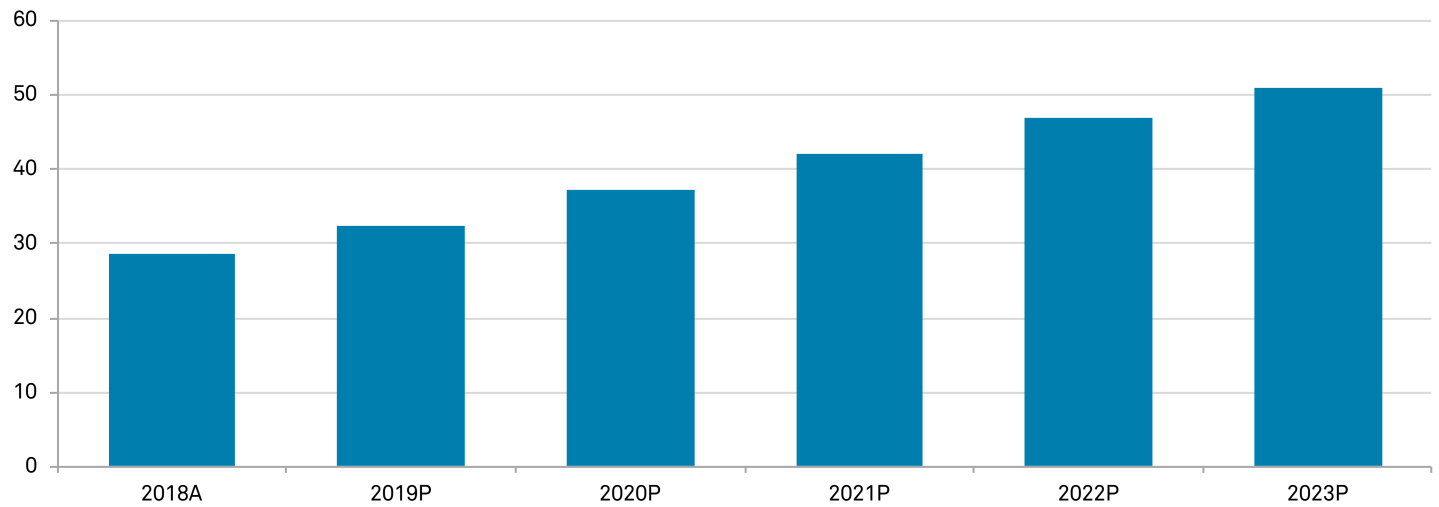
Projected annual originations by personal-focused digital lenders ($B)



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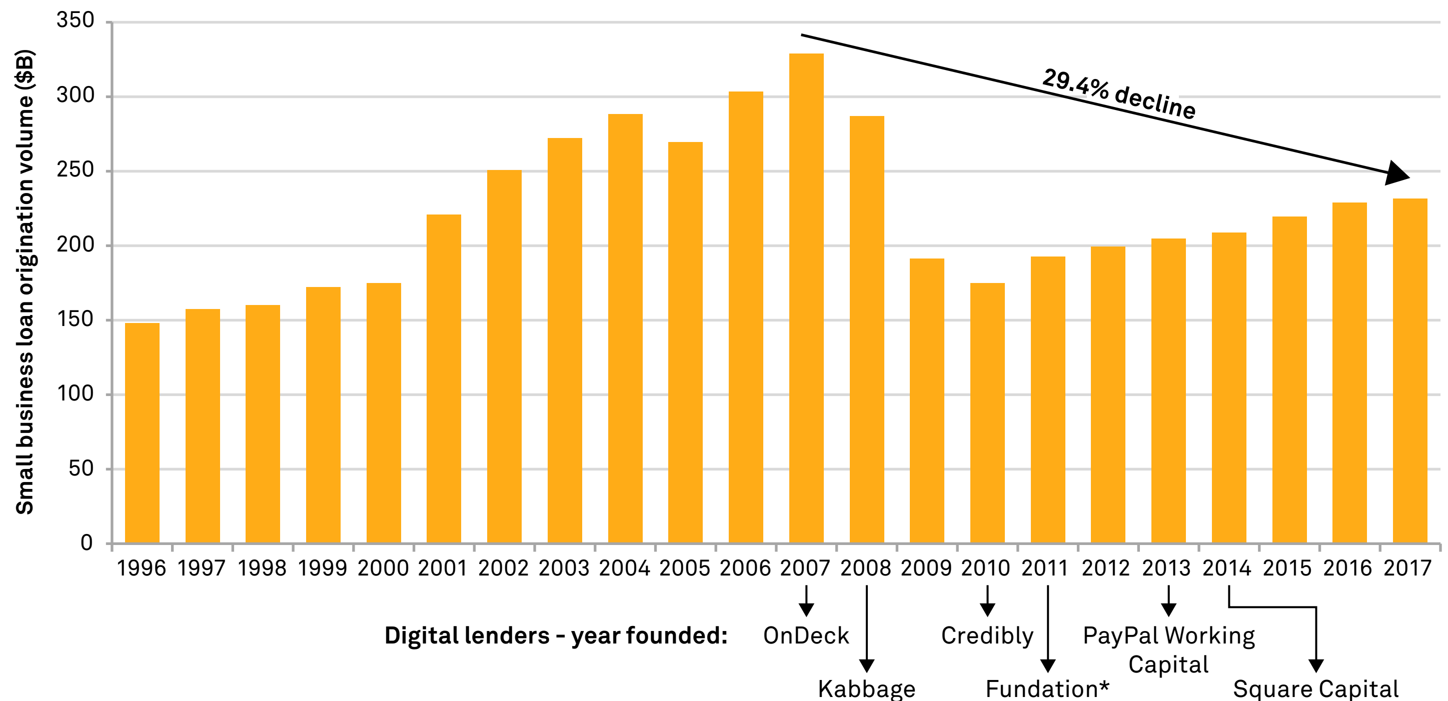
SME-focused lenders

SME-focused digital lenders emerged at a time when bank lending in that area had contracted. Bank lending to small businesses has not returned to pre-financial crisis levels, suggesting there is room for continued growth.

SME-focused digital lenders launched in an environment of bank lending retraction



Data compiled June 24, 2019.
* Primarily provides white-label loan software to banks and credit unions.
Sources: S&P Global Market Intelligence; Federal Financial Institutions Examination Council Community Reinvestment Act data
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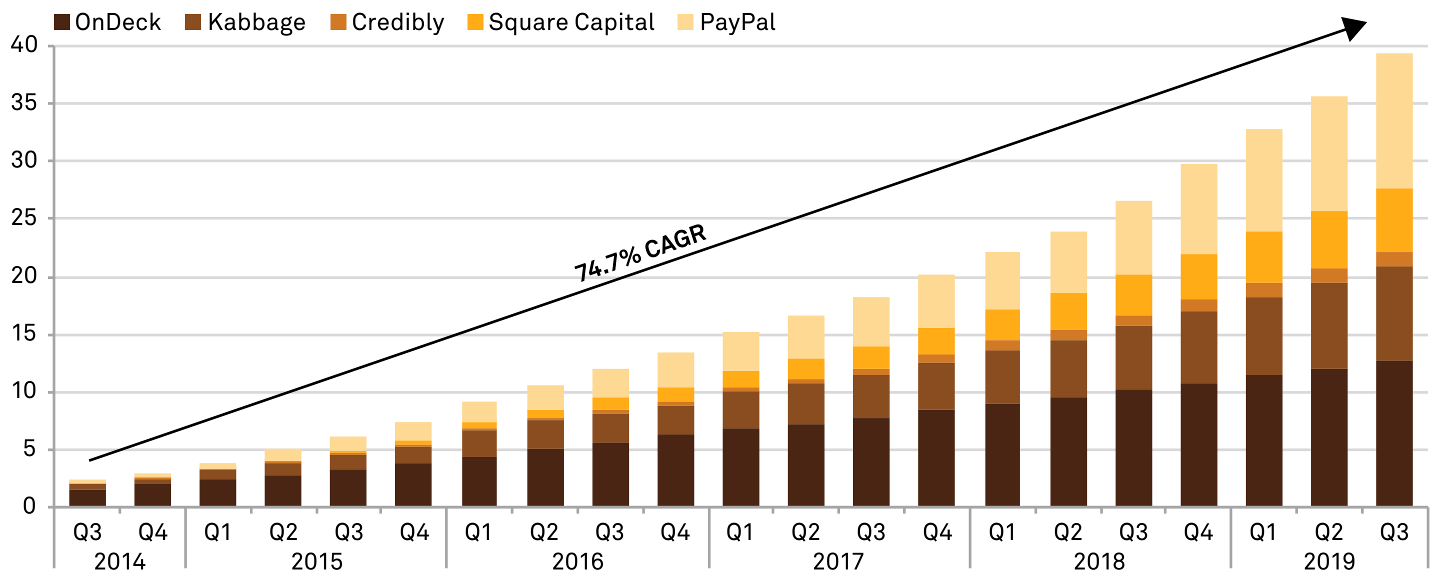
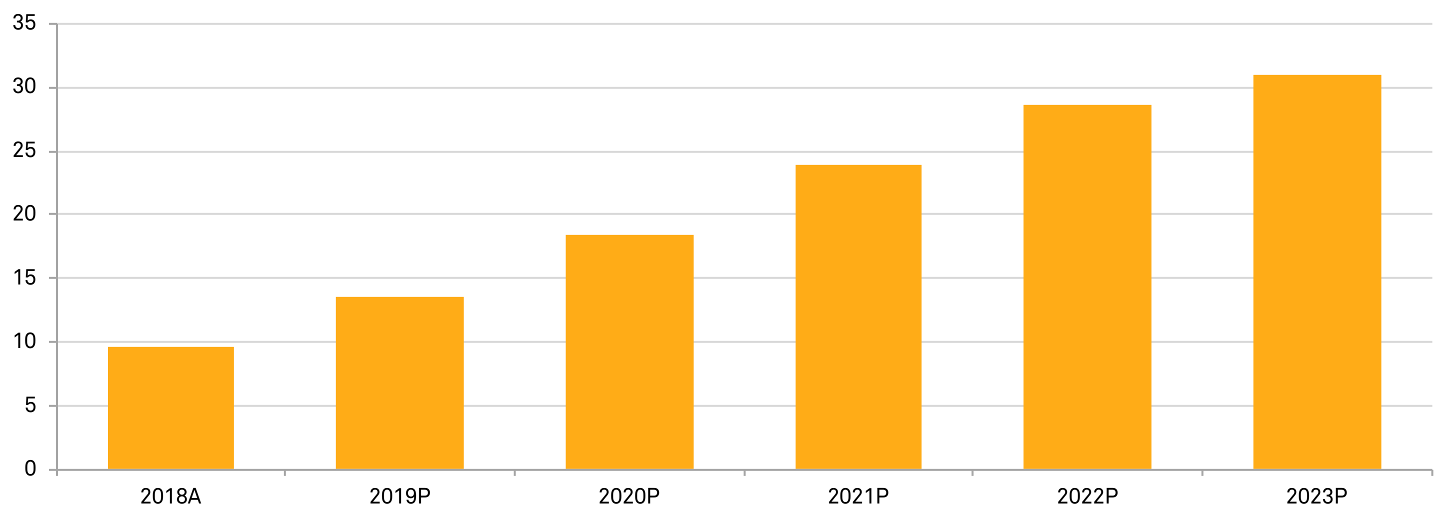
PayPal and Square Capital have shown the most rapid expansion in annual lending volumes, growing originations at compound rates of 45.1% and 64.9%, respectively, from 2015 to 2018, according to S&P Global Market Intelligence estimates. PayPal overtook OnDeck in terms of annual originations for the first time in 2018. We expect that gap to widen by year-end 2019, with PayPal roughly equaling OnDeck in terms of cumulative originations by that point.

While OnDeck has decelerated its origination growth over the past three years due to concerns about credit quality and the broader macro environment, PayPal and Square Capital have maintained high growth rates. One possible explanation is the payment processors' focus on lending to their existing clients, for whom they have proprietary cash flow data to inform underwriting.

Cumulative originations by SME-focused lenders ($B)



Projected annual originations by SME-focused lenders ($B)



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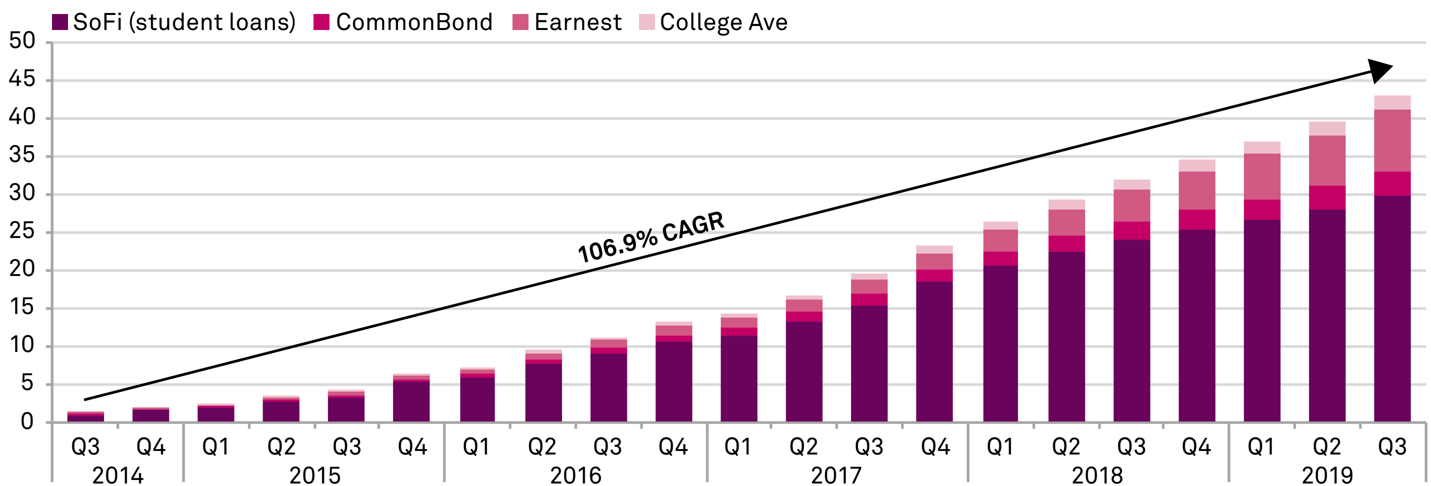
Student-focused lenders

The student-focused lending segment's origination growth rates have declined over the past two years, driven primarily by contractions in SoFi's annual lending volume. We estimate that originations in SoFi's student lending segment declined 12.1% to $6.9 billion in 2018, and project growth of less than 5% in 2019. Several factors are likely at play, including SoFi's efforts to diversify its business away from student lending and shift its focus from growth to profitability. The company recorded steep losses in multiple quarters in 2018 after writing down several underperforming loans, according to reports by *The Wall Street Journal* and Bloomberg. Lending volumes in the interest rate-sensitive student loan refinancing business were also impacted by the rate hikes of 2018 and 2019.

In contrast, we estimate that Earnest grew originations 171.5% in 2018, its first full year under the ownership of Navient, which appears to be pursuing a strategy of diversifying its business toward student-loan refinancing. The company, which split off from Sallie Mae in 2013, manages an $87.9 billion portfolio of student loans. Approximately three-quarters of that portfolio consists of federally guaranteed Federal Family Education Loan Program loans. This portion of the portfolio will be wound down over time as the program was ended in 2010. Navient entered the refinancing business to ensure its continued growth. Its Private Education Refinance Loan division has expanded rapidly in the past two years. Assuming a significant majority of loans made through this division are originated through Earnest, we estimate a compound annual growth rate of 80.5% for the platform from 2017 to 2019. Though SoFi is still the leader in terms of annual origination volumes, Earnest appears to be catching up quickly.

Cumulative originations by student-focused lenders ($B)



Annual originations by student-focused lenders ($B)

Data compiled between Nov. 11 and Nov. 27, 2019. Projections current as of Nov. 27, 2019.
A = actual (includes estimates for certain companies); P = projected
Sources: S&P Global Market Intelligence; company-provided information and disclosures; rating agency reports; proprietary estimates
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Enabling technology

Two key technologies have enabled digital lending growth — artificial intelligence and application programming interfaces.

Artificial intelligence is a broad term comprising many kinds of statistical methods that are used to analyze language (natural language processing) and process large datasets to make predictions (machine learning).

Application programming interfaces are pieces of pre-defined code that allow one codebase to interact with another codebase to retrieve certain kinds of data and functionality. APIs allow fintech applications to leverage code written by others to augment their own capabilities.

The use of natural language processing and APIs has allowed digital lenders to increasingly automate loan application processes and fraud checks. The use of machine learning, along with vast sets of alternative data — often fed to the digital lenders via third-party APIs — has purportedly facilitated the development of more accurate credit models, which digital lenders claim enables greater, more fairly priced access to credit. The resulting speed and accuracy of services have enhanced digital lenders' competitiveness.

Digital lenders have adopted these technologies to varying degrees. Increasing use of these methods will significantly change the financial industry. Regulators have identified several areas of concern and are working with the industry on a regulatory framework.

Speed

The digital lenders on our focus list offer fully digital application processes and decisions within a time frame ranging from a matter of minutes to a few days. While banks also have automated systems for prequalifying borrowers, many still use manual processes for delivering final approval.

Digital lenders may use natural language processing to parse information from uploaded documents to automate certain verification processes. Using APIs to connect to various third-party databases can also help automate identity and employment verification.

Accuracy

Alternative data and advanced data science techniques have the potential to significantly improve the accuracy of credit and fraud assessments. Digital lenders may work with hundreds or thousands of datapoints to make credit and fraud decisions. Machine learning tools enable lenders to manage the complexity of these large datasets and use them to make predictions. The net effect is that lenders can approve borrowers who may have been rejected by traditional credit underwriting methods. They can also lower the rates on loans because more accurate credit models should, theoretically, reduce the need for a protective cushion.

In 2015, a Consumer Financial Protection Bureau study revealed that 26 million American consumers as of 2010 were "credit invisible," i.e., had no credit record. Another 19 million had credit records that were un-scorable based on widely used credit scoring models at the time. In 2017, the CFPB issued a no-action letter to Upstart, a digital lender that relies heavily on machine learning-based underwriting, in order to better understand the possibilities of the technology. Upstart's experiments with alternative data and machine learning-based underwriting methods helped the CFPB measure the benefit of the technology in terms of its ability to widen access to credit and bring down borrowing costs. In 2019, the bureau released initial findings from the program, indicating that Upstart was able to improve acceptance rates by 27% while lowering average APRs by about 16%, compared to a traditional credit model. The test also demonstrated that Upstart could significantly increase approvals for segments of the population traditionally underserved by the credit system, including applicants with incomes under $50,000 and FICO scores in the 620 to 660 range.

Regulation

Regulators have identified potential risks in these new technologies and are working with the lending industry to better understand their implications. And the nationwide growth of digital lenders has raised questions about regulatory jurisdiction and led to tension between federal and state regulators.

Grappling with innovation

Regulators are aware of the potential benefits of tools such as machine learning. However, they have identified potential concerns related to the use of machine learning and alternative data to underwrite credit.

One concern is the possibility that using alternative data will introduce hidden biases into credit models in violation of fair lending laws. Along with testing for the effectiveness of alternative data and machine learning in improving credit scoring, Upstart's program with the CFPB tested for violations in fair lending requirements. The CFPB announced that Upstart's underwriting showed no disparities in its credit assessment of minority, female or elderly applicants.

In a recent blog post, Upstart Co-founder and Head of Product Paul Gu said the biases that fair lending laws seek to prevent are inherently the result of overgeneralizations caused by less accurate credit assessments. He said that, "on balance, accuracy tends to improve fairness," and that machine learning can dramatically enhance accuracy. Even so, we expect further deliberation by regulators on this subject.

Auditability is another issue related specifically to machine learning. The complexity of the underlying calculations makes it difficult to determine why a specific machine learning algorithm produced a particular decision. For this reason, these algorithms have often been referred to as "black boxes," presenting a problem for auditors who may be tasked with reviewing a particular company's lending activity.

There are many different kinds of machine learning algorithms, and there can be a trade-off between the predictive power of a specific algorithm and its explainability. This could present a regulatory bottleneck that hampers digital lenders and others from harnessing the full possibilities of machine learning. To try to counteract this bottleneck, several companies are offering explainable artificial intelligence, or XAI, solutions. ZestFinance, one of the most prominent providers of XAI software, recently partnered with mortgage giant Freddie Mac to test new mortgage underwriting software. While it is not clear whether Freddie Mac is testing a machine learning-based underwriting model specifically, any models it uses will likely need to pass strict standards for auditability. The results of this partnership may provide greater clarity on how regulators will handle the auditability problem.

Regulators are also concerned about the performance of alternative data-based models during the next economic downturn, since most of these newer approaches to credit underwriting emerged after the last financial crisis. Some of the newer datasets used for underwriting today may not have existed prior to the crisis, which makes back-testing impossible as well. All major digital lenders will be continuously stress-testing their portfolios to examine their resilience in case of a recession. It is unlikely that any digital lender with significant loan volume will remain unscathed during an economic downturn.

The jurisdiction problem

The emergence of true lender litigation presents arguably the most significant regulatory threat to the digital lending industry. This form of litigation strikes at the heart of the so-called "rent-a-charter" relationship between digital lenders and their funding bank partners. Chartered banks are legally protected from state-level usury caps, which allows them to export loan terms nationwide. Many digital lenders depend on funding bank partners to originate loans in states with less favorable usury laws.

Generally speaking, digital lenders will purchase their loans from the partner bank within a few days of the loan being generated. The true lender doctrine seeks to delegitimize this relationship by applying stricter scrutiny to loans in order to identify the "true" lender. The doctrine examines who benefits primarily from the economic substance of the loan rather than the chronology of ownership. Several cases invoking the true lender doctrine have emerged in the past few years.

Another area of contention is the valid-when-made doctrine. In 2017, the 2nd U.S. Circuit Court of Appeals ruled in favor of Saliha Madden, the plaintiff in the case of *Madden v. Midland.* Madden had defaulted on a credit card issued by Bank of America more than a decade earlier. Midland Funding LLC acquired the debt, and its affiliate attempted to collect the balance along with the stipulated 27% interest, higher than the limit set by New York usury law. The appeals court reversed a district court decision and ruled that Midland did not benefit from the National Bank Act's

preemption of state usury laws, even though the debt was originally issued by a nationally chartered bank. The ruling has brought into question the valid-when-made doctrine, which ensures that the terms of a loan are valid when made regardless of how the loan's ownership changes over its lifetime.

The *Madden v. Midland* ruling has elicited pushback from several members of industry and government. So-called Madden-fix legislation, which would encode valid-when-made at the federal level, stalled in the Senate.

Federal regulators appear to favor a simplified regulatory framework because of its potential to bolster innovation. In its analysis of the fintech space in 2018, the U.S Treasury Department recommended codifying valid-when-made and the legitimacy of the funding bank partner relationship at the federal level. The Office of the Comptroller of the Currency recently proposed a new rule that would codify the valid-when-made doctrine at the federal level, providing several reasons drawn from existing legislation and U.S. Supreme Court precedent. The FDIC has joined the OCC in recommending such a rule.

Other attempts have been made to create a simpler regulatory framework for fintechs at both the state and federal levels.

Introduced in Congress in March, the Fintech Act of 2019 aims to harmonize regulation at the federal level where fintech companies are potentially liable to report to several federal bodies. The bill also establishes an Office of Financial Innovation within each relevant federal regulatory agency to take ownership of that agency's interaction with the industry.

In 2018, the OCC began accepting applications for its special-purpose bank charter. The charter would subject fintechs to greater regulatory scrutiny while immunizing them from state consumer protection laws. However, the charter would not allow fintech companies to accept insured deposits. The New York Department of Financial Services is suing the regulator in response. So far, no major fintech companies have applied for this charter, likely due, in part, to the ongoing legal battle between state and federal regulators.

However, state regulators are not oblivious to the challenges that state-level regulation could pose for financial innovation. Internet businesses, by their nature, are designed for nationwide distribution. But having to abide by 50 state regulatory regimes would be onerous and could potentially stall productive investment.

In February, the Conference of State Bank Supervisors adopted several recommendations from its Fintech Advisory Panel to create a more streamlined framework for fintech companies to interact with state regulation. These recommendations were primarily concerned with standardizing various processes related to licensing, reporting and examination across state regulatory bodies.

Relationship with incumbents

The relationship between incumbent financial institutions and digital lenders is multifaceted. Several banks and credit unions act as funding partners for digital lenders. Banks offer credit facilities to well-established balance sheet lenders, purchase securities from marketplace lenders and sponsor securitizations of digital lender-originated loan portfolios. Digital lenders use these funds to compete with banks for borrowers. Conversely, digital lenders are increasingly providing their software to financial institutions as white-label products. Incumbent financial institutions and fintech companies are competing for market share, but they also are riding the same wave of technological innovation in finance.

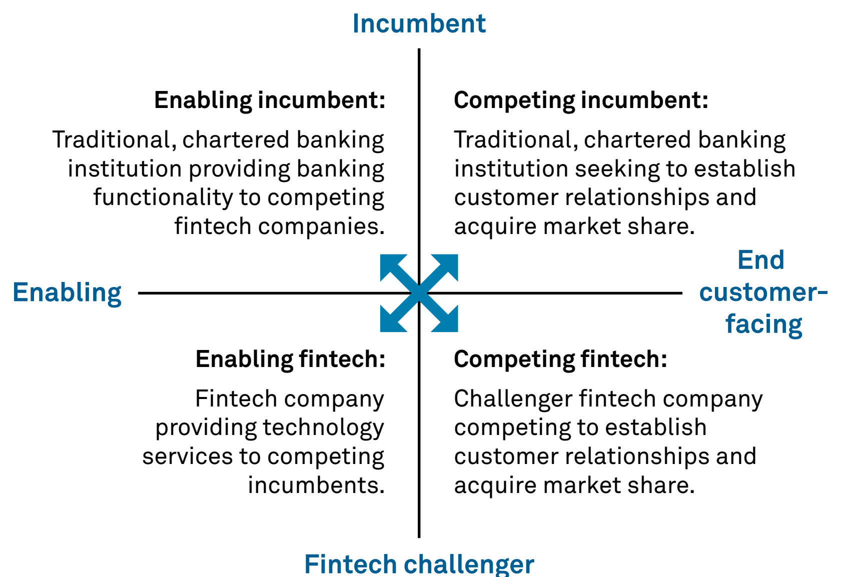
Navigating the build-buy-partner matrix

In the competition for borrowers, banks retain certain fundamental competitive advantages. Arguably the most important is their access to insured deposits, which decreases their cost of capital. Traditional banks also have greater experience with full credit cycles as well as higher customer familiarity and trust.

In a February survey, S&P Global Market Intelligence asked small businesses that had taken a loan in 2018 from another type of company why they had avoided digital lenders. About 35% of respondents cited an existing relationship with another lender and 38% cited security as inhibiting factors. 42% of respondents cited unfamiliarity with these types of lenders as a major inhibiting factor.

Bank advantages are balanced by a greater regulatory burden and legacy technology infrastructure that hampers new development. Traditional core systems in operation at many banks are unfit for quick adaptation to newer kinds of software-enabled services.

In navigating the build-buy-partner decision matrix with respect to fintech adoption, we expect most banks will partner with fintech firms to fill the holes in their technological capabilities. Through these partnerships, banks can use lending technology developed by fintech companies to offer their own branded solution to customers. Institutions such as Citizens Bank, Regions Bank, Fifth Third Bank and Bank of the West have partnered with Fundation to automate their small business loan origination process. First National Bank of Omaha recently launched its all-digital personal loan product powered by Upstart technology. OnDeck and Avant are also investing heavily in their own white-label businesses.



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Regulatory and design concerns could impede progress in implementing white-label services. Loan software developed by digital lenders for their own use may need to undergo significant adjustment before meeting the specifications of bank clients. Developing a standardized process for implementing these solutions will entail a learning curve for digital lenders. However, we expect various digital lenders to rise to the challenge.

Maturation

Digital lenders continue experimenting with new lending and nonlending products in an attempt to attract and retain customers. This can require turning to bank partners for support.

For example, SoFi relies on Wilmington Savings Fund Society to issue its SoFi Money debit card. Bluevine's upcoming small-business banking product relies on its partnership with The Bancorp Bank. And the Kabbage Card is issued by Republic Bank & Trust Co.

Certain banks have adopted a strategy of specializing in providing fintechs access to bank benefits in exchange for a share in the revenue and access to customer deposits. These banks provide access to payment systems, insured deposit accounts and other services that allow fintech firms to more quickly launch new products. This business model stands in stark contrast to the models of banks that actively seek to establish relationships with end customers. Abdicating the customer relationship enables banks to lower their cost of operations as they rely on their fintech partners to acquire customers and generate business.

Some bank partners are upgrading their technology to be more accessible to fintech partners. While open banking is not a legal requirement in the U.S., some banks are allowing third parties to connect with their core systems via APIs to enable them to access certain bank functionality. These "banking-as-a-service" platforms are offered either directly by the banks or by a technology firm that has partnered with a bank. The Bancorp Bank, Cross River Bank and BBVA have all developed banking-as-a-service platforms and established funding partner relationships with digital lenders.

Other banks may team up with technology firms that externalize their functionality via APIs. A host of such infrastructure fintechs have attracted material amounts of funding. Companies such as Marqeta, Galileo and Cambr have created infrastructure for card issuance, payment rails access and deposit account creation, among other applications. Independent fintechs can access these functions via API. Marqeta works with a network of banks, and Cambr is connected to deposit and cash management solutions provider StoneCastle's network of banks. Several digital lenders have already tapped into these services. Kabbage, for example, leveraged Marqeta's infrastructure to issue its Kabbage Card. And more digital lenders are likely to follow suit as they expand their product offerings.

In the “2018 US Digital Lending Market Report,” we wrote that digital lender business models could diverge as banks continue to push into the space. We expected to see some larger digital lenders continue expanding their services to woo customers away from traditional financial institutions, while others embraced the role of technology providers.

This trend has developed in the past year and will likely continue, as both fintechs and banks negotiate the strategic decision of whether to act as enablers or compete directly for customers. Some players are committing to one path while others are making significant moves along both avenues.

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