



# FinTech Innovation in the Home Purchase and Financing Market

## Impact and Gaps

*Jung Choi, Karan Kaul, and Laurie Goodman*

*July 2019*

Technology is making inroads into many aspects of real estate, including new construction, financing, renovation, and the buying and selling process. Venture capital investment in real estate has skyrocketed from \$20 million in 2008 to \$3.4 billion in 2017 (CB Insights 2018).

In the owner-occupied housing market, financial technology (fintech) innovation is changing the way households buy and sell homes, obtain and manage mortgage debt, and monetize housing wealth. But most of this market remains unpenetrated. Compared with other goods, the online share of all home sales (to owner occupants, investors, fix-and-flippers, and others) is less than 15 percent, significantly lower than the online share for book sales (55 percent), music (80 percent), or electronics (35 percent) (CB Insights 2018).

Buying a home is complex and time-consuming, involves multiple stakeholders, and is highly consequential to households' overall and financial well-being. Every step of the homebuying process is heavily regulated at the federal, state, and local level. Despite these barriers, technology has made inroads within specific pockets of the housing market: helping consumers build credit and save for a down payment, search for and purchase a home, shop for and obtain mortgage financing, navigate mortgage servicing, and extract home equity to eventually sell the home. We classify these activities into five phases: prebuying, buying and selling, mortgage searching, mortgage lending, and postpurchase.

FIGURE 1

### Home Purchase and Ownership Phases



URBAN INSTITUTE

Broadly speaking, industry transformations caused by fintech firms can be classified into two categories:

- **Improved efficiency.** Transformations that automate manual business functions to improve accuracy and speed, reduce costs, and expand consumer access to information
- **Reduced structural barriers.** Transformations driven by new products that tackle structural problems, such as a lack of housing affordability, inadequate access to credit, and a lack of efficient mechanisms to monetize home equity

This brief provides a landscape analysis of fintech activity across each of the five phases. We explore fintech’s impact in each phase, describe who the key players are and the roles they play, and identify gaps where fintech investments are lagging. We also explore why certain segments of the market might be less conducive to technology innovation and identify potential barriers (e.g., market, legal, or regulatory) that might be discouraging innovation.

Our analysis reveals several important takeaways. The transformations caused by fintech span all five phases above, but their impact varies from one phase to another. We find that certain phases have seen more fintech activity than others. Among the two types of transformation, fintech has made visible contributions in improving efficiency through process simplification and automation. But fintech has made little progress toward easing structural barriers in the housing market, such as expanding housing affordability and improving access to credit. The fintech firms mentioned in this brief are illustrative, and their mention does not imply endorsement or verification of their business activity. Our assessment of each firm’s role is based on publicly available information.

## The Prebuying Phase

Before buying a home, households need to be financially prepared to attain and sustain homeownership. Many fintech companies aim to help households build credit and save for a down payment. Others attempt to put households that want to become homeowners, but lack financial resources, on a responsible path to homeownership. Table 1 shows select companies operating in this space and their core contributions.

TABLE 1

**FinTech in the Prebuying Phase**

<b>Focus areas</b>	<b>Core contribution</b>	<b>Select companies</b>
Building credit and saving for a down payment	Reduce barriers (expand credit availability)	Affirm, EarnUp, Loftium, Petal
Lease purchase agreements	Reduce barriers (improve affordability)	Divvy, Home Partners of America, OWN Home Finance
Credit scoring using data and modeling innovation	Reduce barriers (expand credit availability)	FICO, VantageScore

**Building Credit and Saving for a Down Payment**

Building credit and saving for a down payment increases the likelihood of getting approved for a mortgage. The fintech firm EarnUp consolidates a consumer's loans, helps the consumer save regularly, and makes on-time loan payments on the consumer's behalf, reducing the likelihood of missing a payment. The technology also advises customers about which debts to pay off first and when, to reduce debt load faster. Petal allows consumers to build credit by providing a no-fee credit card and online tools to manage payments. Underwriting is done using bank statement transaction data as opposed to traditional credit scores.

Following the housing market crisis, rents increased substantially as demand exceeded supply. Data from the American Community Survey show that between 2007 and 2013, median rent increased 14.7 percent while the median income of renter households increased 6.2 percent. This increase in rent means households have less leftover income to save for a down payment. A 1 percent increase in a young adult's rent-to-income ratio decreases her likelihood of owning a home 0.07 percentage points after controlling for demographic and socioeconomic characteristics.<sup>1</sup> Loftium, a fintech firm in this space, helps renters lower their rent by paying them for managing a second on-site Airbnb rental. A portion of the Airbnb rental income is paid to the primary renter to help offset rental costs or save for a down payment, facilitating a faster transition to homeownership.

**Lease Purchase Agreements**

Lease purchase agreements, also known as rent-to-own, offer a homeownership opportunity to households who do not qualify for a mortgage or do not have enough financial resources for a down payment. Families choose a home they want to live in and sign an agreement under which fintech firms such as Home Partners of America or Divvy buy the home, which is then leased to the family. At the end of the lease, the family has the right to buy the home at a predetermined price. Divvy sets aside about 25 percent of rental payments to be counted as credit toward building equity, allowing households to build equity even while renting. This money can be converted to a down payment if households decide to buy or can be cashed out if they decide not to.

## Credit Scoring Using Data and Modeling Innovation

In recent years, credit scoring firms have enhanced their technology and modeling techniques and incorporated some additional data into the credit scoring process. FICO and VantageScore are experimenting with their credit scoring models to incorporate more recent data and to score consumers with limited credit histories. They draw their information from the three credit bureaus: Equifax, Experian, and TransUnion. These entities usually do not have information on rent, utility, or telecommunications payments. FICO is rolling out new programs where borrowers can allow the use of their bank statements, and has arranged for limited use of telecom data for consumers with limited credit histories. Mortgage lenders currently do not leverage bank statement cash flow data to derive rental pay history or cell phone payment history. In particular, paying rent is similar to paying a mortgage in terms of its usage, amount, and payment frequency and could help predict default with greater accuracy.<sup>2</sup> The government-sponsored enterprises are investigating the use of these “alternative data” and, in limited circumstances, will extend mortgages to consumers without credit scores. Although these innovations can help the marginal borrower get approved for a mortgage, federal mortgage market regulators only allow a version of FICO that was developed in the 1990s to be used in mortgage underwriting, and VantageScore is not permitted for mortgages.

## The Buying and Selling Phase

TABLE 2

FinTech in the Home Buying and Selling Phase

Focus areas	Core contribution	Select companies
Homebuying	Enhance efficiency	Bungalo, Felix Homes, Flyhomes, Knock, Offerpad, Opendoor, Perch, Reali, RedfinNow, REX, Ribbon, Zillow Offers

### Homebuying

Once households are ready to buy or sell a home, the process often starts online. Less than two decades ago, most families looking to buy (or sell) hired a real estate agent to facilitate the process. The process was slow, as it took time to find and match sellers and buyers. Today, with just a few clicks, buyers can easily research neighborhoods and schools and explore what properties are on the market and at what price. Similarly, sellers can list a home online, reach many potential buyers, and entertain offers using technology. Real estate agents still show homes to consumers and provide advice, but the initial search occurs online for the most part.

Fintech companies are also streamlining and speeding up the sale process for homeowners looking to sell quickly. “iBuyer” firms such as Bungalo, Knock, Offerpad, Opendoor, RedfinNow, REX, and Zillow Offers reduce time, costs, and uncertainty. These companies buy homes on the market for cash, make necessary repairs, and sell the property through various channels, allowing sellers to receive proceeds

quickly and move out sooner. According to a recent report from Citi GPS (2018), switching to an iBuyer could decrease a seller’s all-in transaction costs from 8 percent to 6.5 percent. But other reporting suggests that homeowners who sell to iBuyers often receive less in sales proceeds than owners who sell in the open market.<sup>3</sup>

Other fintech firms enable households to buy a new home without selling the existing one. Knock allows trade-up buyers to buy a new home before listing their old home. Knock provides the cash to purchase the new home, manages the sale of the old home, and settles the transaction at closing, which is when it gets paid back. The cash offer increases homebuyers’ likelihood of obtaining their desired home and eliminates the need to sell their old home before buying a new one. Another company, Ribbon, uses a similar model to help households move into their desired house before mortgage closing by providing bridge financing. Ribbon purchases the home on behalf of the buyer, allowing the buyer to stay as a renter until she can secure a mortgage, at which point Ribbon gets paid back. These innovations can reduce time and uncertainty and make the transaction more efficient.

## The Mortgage Search Phase

Advancements in technology have paved the way for online counseling and education platforms that prepare potential homebuyers for homebuying, financing, and sustained homeownership. Others facilitate mortgage shopping to help consumers choose better loan types and terms and to understand various risks. Research shows that rate shopping can save households thousands of dollars over the life of the loan.<sup>4</sup> Some fintech start-ups also provide new financing options for households to finance their mortgage and down payment.

TABLE 3

### FinTech in the Mortgage Searching Phase

Focus areas	Core contribution	Select companies
Online mortgage counseling	Enhance efficiency	Fannie Mae (HomeReady Framework), Freddie Mac (CreditSmart)
Mortgage research and shopping	Enhance efficiency	Credible Online Mortgage, Eave, LendingTree, Morty, NerdWallet, New American, Rate Rabbit
Home purchase financial assistance	Reduce barriers (improve affordability)	Landed, OWN Home Finance, Point, Unison

### Online Mortgage Counseling

Homebuyers are often unaware of options that can lower the cost of buying. Although the median down payment is 5 to 7 percent, only 19 percent of consumers believe lenders will make loans with a down payment of 5 percent or less, and almost 40 percent do not know the how much lenders require (Goodman et al. 2018). To reduce the information gap, Fannie Mae and Freddie Mac created user-friendly and interactive online education platforms to educate homebuyers.

Fannie Mae has partnered with Framework, a homeownership education provider, and launched an online education platform. The framework offers an interactive online training course to help homebuyers better understand the buying process and be ready for homeownership. The courses are available in both English and Spanish. Acknowledging that language can be a major barrier to accessing homeownership (Golding, Goodman, and Stochak 2018), Freddie Mac provides its CreditSmart education program in English, Spanish, Chinese, Korean, and Vietnamese. CreditSmart provides 12 online curricula to enhance homebuyers' financial literacy to achieve and sustain homeownership.

Online homebuyer education platforms can help potential homebuyers gain the knowledge they need to buy homes at better terms and sustain long-term homeownership. It also reduces the information asymmetry between lenders and borrowers.

### **Mortgage Research and Shopping**

Homebuyers can also compare mortgage rates and products online and start the application process. Such platforms allow borrowers to connect with a wide network of lenders across the nation by submitting a single online loan application. This is different from the traditional time-consuming process where buyers call brokers for loan options and submit separate applications, often relying on paper, phone, email, and fax. Key companies operating in this space include Eave, Morty, and Rate Rabbit.

### **Home Purchase Financial Assistance**

Companies such as Landed, OWN Home Finance, Point, and Unison have experimented with shared appreciation products to reduce the up-front costs of buying a home. These products allow buyers to reduce their mortgage or increase their down payment in exchange for sharing a portion of future home price appreciation. These products have the biggest appeal in areas with high house prices and severe affordability challenges. In many of these areas, even modest homes are above the Federal Housing Administration and government-sponsored enterprise limits.

## **The Mortgage Lending Phase**

Fintech companies have the biggest presence in the mortgage lending phase, as indicated by the number of new entrants (table 4). These firms have reformed the mortgage lending process from application to underwriting, documentation, appraisal, and closing by automating data collection and verification, streamlining documentation, and facilitating online disclosures and electronic signatures.

TABLE 4

**FinTech in the Mortgage Lending Phase**

<b>Focus areas</b>	<b>Core contribution</b>	<b>Select companies</b>
Origination and underwriting (online lender)	Enhance efficiency	AmeriSave, Better Mortgage, CashCall, Clara, Consumer Direct Lending, Guaranteed Rate, Homeward, LendingHome (for investors), loanDepot, Lenda, LendingTree, LendInvest, Quicken Loans (Rocket Mortgage), SoFi, Summit Mortgage
Loan processing (data and document collection and verification)	Enhance efficiency	Advanced Funding, Avantus, BankVOD, DataVerify, Finicity, FinLocker, FormFree, IncomeVerify, Informative Research, LoanBeam, MeridianLink, NCS, PointServ, QuestSoft, SharperLending, Taxdoor, Universal Credit Service, Veri-Tax
Appraisal	Enhance efficiency	ACI, Class Valuation, InHouseUSA, The Appraisal Zone
Title and closing	Enhance efficiency	ClosingCorp, DocMagic, Docu Prep, International Document Services, Pavaso, PPDocs, Qualia, Spruce, States Title, Xome
Developing integrated platforms (software companies)	Enhance efficiency	Black Knight LoanSphere, Blend, Blue Sage, Bradford Technologies, Byte Software, Calyx Software, Clear Capital, Cloudvirga, Ellie Mae, FICS (Financial Industry Computer Systems), FIPCO (Financial Institutions Products Corporation), Finastra, Fiserv Lending Solutions, FNC, FPS GOLD, Global DMS, IBM, Integra Software System, ISGN, Jack Henry & Associates, LenderLive, LendingQB, Lendsnap, Maxwell, Mortgage Cadence, MortgageFlex Systems, MortgageHippo, OpenClose, Paradatac, Path Software, PCLender, Plaid, PowerLender, Rosterfy, Savana, Tavant Technologies, VerTech Solutions Group, Veros Real Estate Solutions, Visionet Systems, WEI Technology, Wipro Gallagher Solutions, Wolters Kluwer Financial Services

**Loan Processing, Underwriting, Appraisal, and Closing**

Several online technology-focused lenders have entered the market in recent years. Quicken Loans is the largest digital mortgage lender. New players, including Better Mortgage, SoFi, and LendingTree, are also expanding their presence. These companies accelerate the mortgage lending process using technology from loan application to approval and closing.

Technology has also enhanced efficiency by making data verification easier and faster through automation. Companies such as Finicity, FinLocker, and FormFree have digitized the forms needed for asset verification, thus streamlining the lending process. Other companies, such as LoanBeam, have built expertise in deciphering the tax returns of self-employed borrowers to search for and retrieve data points most relevant to mortgage underwriting. This technology also performs analytics to create

metrics based on borrower income, debt, and other financial information that loan officers can readily consume.

Some fintech companies have taken a different approach. Blend and MortgageHippo have created platforms to integrate the mortgage lending process. Blend allows lenders to directly retrieve borrower information (e.g., bank statements, pay stubs, and tax forms) via its platform, subject to borrower permission. This reduces the time and costs associated with seeking the same information from borrowers via phone, email, or fax, and it improves the accuracy of underwriting. MortgageHippo collaborates with lenders to create and execute mortgage services on its digital mortgage platform. The platform guides borrowers through the mortgage process (similar to how tax return software works) and asks a series of questions to generate a loan file with minimal human interaction.

Competition from new fintech firms has also led traditional banks and mortgage lenders to go online, often striking partnerships. Bartlett and coauthors (2019) showed that 45 percent of more than 2,000 large mortgage lenders (including banks) rely on online or app-based interfaces to originate mortgages. Two other traditional market players, Fannie Mae and Freddie Mac, use sophisticated automated valuation models to generate home price estimates as part of their underwriting and risk management. The Appraisal Zone and Class Valuation are appraisal management companies that use technology to enhance the appraisal process. The Appraisal Zone automates assignment and facilitates electronic delivery of the appraisal report, reducing the time to complete the appraisal. Class Valuation offers Dynamic Calculator, a pricing tool that provides current and historical county-level interactive market data to aid appraisers. Companies such as ACI provide software that allows appraisers to sketch floor plans and calculate square footage, create aerial maps, and analyze market conditions.

Fintech companies have also made progress in the closing space. Companies such as DocMagic, Spruce, and Qualia, have digitized the title and closing process such that most closing documents can be generated, transmitted, and signed online. DocMagic provides software and web-based systems for producing and delivering regulation-compliant loan document packages. The company offers paperless eClosing, eSignature, and eDelivery platforms. Qualia is a cloud-based title and closing platform that unifies various title and escrow functions, such as reporting, documentation, email, accounting, task management, and customer and vendor management. Finally, Spruce, a digital title firm, aims to disrupt the paper-based title and escrow industry as part of the real estate industry's march toward a more digital experience.

## The Postpurchase Phase

Fintech companies are also beginning to offer products to households after they become homeowners. This includes companies that offer mortgage servicing and home improvement products, home equity lending options, and homeowners insurance.



TABLE 5

**FinTech in the Postpurchase Phase**

Focus areas	Core contribution	Select companies
Mortgage servicing	Enhance efficiency	Scratch
Homeowners insurance	Enhance efficiency	Hippo, Lemonade
Home improvement loans	Enhance efficiency	Avant, Earnest, SoFi
Home equity extraction	Reduce barriers (monetize home equity)	Easy Knock, Figure, Hometap, Irene, Patch Homes

**Home Insurance, Lending, and Mortgage Servicing**

Fintech homeowners insurance start-ups such as Lemonade and Hippo offer a streamlined user experience and a more efficient process for buying homeowners insurance. Both use advanced technology and minimal user input to generate quotes and sell insurance. Lemonade donates up to 40 percent of unclaimed premiums to a nonprofit organization chosen by the customer. Hippo claims to offer 25 percent lower premiums because their fully automated process reduces costs.

Other fintech companies are entering the home improvement lending market. As homes age, homeowners need to make periodic repairs and improvements to accommodate changes in family structure and aging. For instance, seniors may need to add safety improvements such as no-step entry, grab bars, ramps, or a lower-level bedroom to improve accessibility. Avant, Earnest, and SoFi provide home improvement loans online. In addition to using traditional credit metrics, Earnest relies on additional information such as education, spending habits, and career history to offer more accurate pricing.

Housing is also a huge source of untapped wealth for US homeowners. Companies such as EasyKnock, Figure, Hometap, and Patch Homes have made it easier to cash out home equity to help households smooth their consumption. Hometap and Patch Homes offer home equity financing without requiring a mortgage and monthly payments. Instead, the companies take a portion of the house value when the property is sold, similar to the shared appreciation model. Figure and Irene offer a reverse mortgage alternative where borrowers can sell the home, receive cash proceeds, and stay in the home as renters. Finally, Scratch is an early-stage start-up that aims to help borrowers manage their mortgages postclosing, including keeping track of the outstanding balance and making monthly payments.

## Where Have Housing FinTech Companies Had the Most Impact, and Where Are the Gaps?

The fintech firms discussed in this brief are beginning to affect the homebuying process in two ways: (1) making existing functions more efficient and (2) mitigating structural barriers. Firms in the first category attempt to generate efficiencies using advanced technology and automation. This is not surprising,

given that the fundamental promise of technology is to automate manual tasks, making them faster, easier, and more accurate. Fuster and colleagues (2019) find that the speed of processing mortgage applications for fintech lenders is about 20 percent faster than non-fintech lenders. Traditional lenders have also adopted technology to improve mortgage lending, often by partnering with fintech firms.

At the same time, technology has its limits. Prospective homebuyers research homes and neighborhoods online and see what homes are on the market and at what price. But most homebuyers eventually hire locally knowledgeable realtors to help make an offer and seek guidance to avoid missteps along the way. Similarly, home sellers seek realtor services to sell and market their homes and evaluate offers to maximize proceeds. Fintech firms are attempting to disrupt this market by buying or selling homes online, but it remains a niche market. It is too early to tell how comfortable mainstream consumers will be with online providers when making their biggest financial decision. The use of fintech in home transactions is less prevalent among young first-time homebuyers who are likely to be tech-savvy but inexperienced and less knowledgeable about homebuying (Fuster et al. 2019). Many homebuyers may not be comfortable engaging only with fintech. This suggests that technology will not fully replace human interaction in the homebuying phase (at least in the short run) and is likely to coexist with and complement face-to-face transactions.

Fintech innovation within mortgage lending also has limits. In most cases, an online mortgage application submitted by the borrower is eventually picked up by a loan officer for further processing. This is done to verify that all required documentation is submitted, walk the borrower through the process and various options (e.g., loan terms, rate lock, appraisals), and other items. This is different from the process for a personal loan, credit card, or auto loan, where the entire process from loan application to approval is completed online in a few minutes. Although major technological innovation has taken root in mortgage lending, the end-to-end process is less automated than the process for other loan products.

It is also unclear exactly who is served by fintech firms in the housing market.<sup>5</sup> Jagtiani, Lambie-Hanson, and Lambie-Hanson (2019) find that fintech firms are more likely than non-fintech lenders to lend to consumers from nonmetropolitan areas with less lender competition and lower borrower credit scores. This suggests that fintech firms may be penetrating previously underserved markets. But studies from Buchak and coauthors (2018) and Di Maggio and Yao (2019) find that fintech lenders are more likely to provide loans to more creditworthy borrowers than non-fintech lenders, and they charge a premium for the convenience. Buchak and coauthors (2018) showed that borrowers served by fintech lenders tend to have higher incomes. They also showed that interest rates for mortgages originated by nonbank fintechs are, on average, 14 to 16 basis points higher than rates charged by traditional banks. Additionally, both fintech and non-fintech lenders charge higher interest rates to black and Hispanic borrowers than to white borrowers with similar credit characteristics, such as loan-to-value ratio, income, debt-to-income ratio, and location. Bhutta and Hizmo (2019) also show that lenders charge higher rates to minority borrowers but that this is offset by differences in discount points. This suggests more work needs to be done both to understand the scope of and remove the potential for inadvertent

algorithmic bias, though research also shows that fintech lenders discriminate less than non-fintech lenders (Bartlett et al. 2019).

Additional study is required to understand why fintech firms charge higher rates to low-income and minority borrowers. One potential reason could be the fragmented nature of the mortgage market, where credit availability and credit pricing are largely dictated by the holder of the risk, who is not the institution making the loan. That is, although fintech firms are simplifying lending, they are not necessarily the ones deciding how much credit risk to take and how much to charge for it.

The second category of fintech firms that aim to reduce structural barriers in housing do so by offering new products. These firms seek to help consumers build credit to eventually qualify for a mortgage, provide financial assistance for purchasing a home or extracting home equity, among other goals. While this is no doubt progress, innovation has been lacking when it comes to approving more creditworthy borrowers for mortgages even as credit remains tight by historical standards (Goodman and Zhu 2019) for such reasons as less lender willingness to take on credit risk, increased bank capital requirements, and more stringent regulation.

Higher origination and servicing costs are also a big factor. Although efficiency-enhancing automation has helped mitigate it, the origination cost per loan, at well over \$8,000, is still too high. The servicing space, which has also witnessed major cost escalations, has remained largely devoid of fintech innovation. Nonperforming loan servicing, where costs are highest, is largely a high-touch, labor-intensive function that requires substantial in-person interaction and has proven difficult to automate using technology.

Lastly, gaps in fintech innovation exist when it comes to using the latest available data to score mortgage applicants. For instance, rent payment is the largest monthly expense for millions of renters who aspire to become homeowners. But these data are neither collected nor reported to credit bureaus. Although most renters likely make rent payments from their checking accounts, technology that gleans these data from consumer bank statements and uses them to evaluate mortgage applications is not available yet, limiting homeownership opportunities for financially responsible renters.

Other data that are not used in mortgage underwriting include telecom, cable TV, and utility bill payment history. These data are reported to the National Consumer Telecom and Utilities Exchange, a comprehensive database with payment history for more than 300 million telecom, TV, and utility accounts and more than 200 million consumers. Although FICO uses these data to generate credit scores for borrowers with sparse credit histories, their use in the mortgage market is not permitted by the federal agencies and regulators that oversee the mortgage market (Kaul and Goodman 2018).

Part of the reason for these gaps may be the fragmented structure of the mortgage market, in which different entities control various aspects of the mortgage process. Auto loans, credit cards, and personal loans are often managed by a single institution from application to approval, to holding the risk, to servicing and eventual payoff, but multiple actors perform these functions in the mortgage market: brokers, aggregators, lenders, appraisers, servicers, and the ultimate holder of credit risk, which is generally the federal government. Because each actor controls only a portion of the end-to-end process,

they do not always have an incentive to improve the whole process, which can require substantial investment and the benefits of which might not be proportionally distributed. Additionally, different actors often have different views of how the market should operate, often reflecting their own interests.

In conclusion, substantial innovation has taken place across the mortgage ecosystem, producing clear benefits for consumers. But major gaps in the availability of fintech services exist. In some cases, market structure and regulations have kept innovation from reaching its full potential. Other functions may be too difficult to automate using present technology. Still, targeted opportunities exist to expand the promise of technological innovation to serve more consumers by improving access to credit, streamlining mortgage servicing, and providing a better level of service. We would expect some of these improvements to take place in the coming years as fintech start-ups mature into more established companies.

## Notes

- <sup>1</sup> Jung Choi, Jun Zhu, and Laurie Goodman, “The State of Millennial Homeownership,” *Urban Wire* (blog), Urban Institute, July 11, 2018, <https://www.urban.org/urban-wire/state-millennial-homeownership>.
- <sup>2</sup> Laurie Goodman and Jun Zhu, “Rental Pay History Should Be Used to Assess the Creditworthiness of Mortgage Borrowers,” *Urban Wire* (blog), Urban Institute, April 17, 2018, <https://www.urban.org/urban-wire/rental-pay-history-should-be-used-assess-creditworthiness-mortgage-borrowers>.
- <sup>3</sup> Andrea Riquier, “Selling Your Home to an ‘iBuyer’ Could Cost You Thousands,” *MarketWatch*, June 30, 2019, <https://www.marketwatch.com/story/selling-your-home-to-an-ibuyer-could-cost-you-thousands-heres-why-2019-06-11>.
- <sup>4</sup> See McManus, Liu, and Yi (2018) and “Know before You Owe: Mortgage Shopping Study,” Consumer Financial Protection Bureau, May 15, 2018, <https://www.consumerfinance.gov/data-research/research-reports/know-before-you-owe-mortgage-shopping-study/>.
- <sup>5</sup> Karan Kaul, “Will FinTech Innovation Benefit Borrowers of All Incomes?” *Urban Wire* (blog), Urban Institute, April 16, 2018, <https://www.urban.org/urban-wire/will-FinTech-innovation-benefit-borrowers-all-incomes>.

## References

- Barlett, Robert, Adair Morse, Richard Stanton, and Nancy Wallace. 2019. *Consumer-Lending Discrimination in the FinTech Era*. Berkeley: University of California, Berkeley, Haas School of Business.
- Butta, Neil, and Aurel Hizmo. 2019. “Do Minorities Pay More for Mortgages?” Washington, DC: Board of Governors of the Federal Reserve System.
- Buchak, Greg, Gregor Matvos, Tomasz Piskorski, and Amit Seru. 2018. “FinTech, Regulatory Arbitrage, and the Rise of Shadow Banks.” *Journal of Financial Economics* 130 (3): 453–83.
- CB Insights. 2018. “The Rise of Real Estate Tech.” New York: CB Insights.
- Citi GPS. 2018. *Disruptive Innovations VI: Ten More Things to Stop and Think About*. New York: Citi.
- Di Maggio, Marco, and Vincent W. Yao. 2019. *FinTech Borrowers: Lax-Screening or Cream-Skimming?* Cambridge, MA: Harvard University and National Bureau of Economic Research; Atlanta: Georgia State University.
- Fuster, Andreas, Matthew Plosser, Philipp Schnabl, and James Vickery. 2019. “The Role of Technology in Mortgage Lending.” *Review of Financial Studies* 32 (5): 1854–99.
- Golding, Edward, Laurie Goodman, and Sarah Stochak. 2018. “Is Limited English Proficiency a Barrier to Homeownership?” Washington, DC: Urban Institute.
- Goodman, Laurie, Alanna McCargo, Edward Golding, Bing Bai, and Sarah Stochak. 2018. *Barriers to Accessing Homeownership: Down Payment, Credit, and Affordability*. Washington, DC: Urban Institute.
- Goodman, Laurie, and Jun Zhu. 2019. *Housing Affordability for Renters Index: Local Perspective and Migration*. Washington, DC: Urban Institute.
- Jagtiani, Julapa, Lauren Lambie-Hanson, and Timothy Lambie-Hanson. 2019. “FinTech Lending and Mortgage Credit Access.” Working paper.
- Kaul, Karan, and Laurie Goodman. 2018. “The FHFA’s Evaluation of Credit Scores Misses the Mark.” Washington, DC: Urban Institute.
- McManus, Doug, Liyi Liu, and Mingzhe Yi. 2018. “Why Are Consumers Leaving Money on the Table?” Washington, DC: Freddie Mac.

## About the Authors

**Jung Choi** is a research associate with the Housing Finance Policy Center at the Urban Institute. She studies urban inequality, focusing on housing, urban economics, real estate finance, and disadvantaged populations in the housing market. Before joining Urban, Choi was a postdoctoral scholar at the University of Southern California Price Center for Social Innovation, where her research examined innovative housing and social policies to enhance quality of life for low-income households. Choi holds a PhD in public policy and management from the Price School of Public Policy at the University of Southern California.

**Karan Kaul** is a research associate in the Housing Finance Policy Center at the Urban Institute. He publishes innovative, data-driven research on complex, high-impact policy issues to improve the US mortgage finance system. A strategic thinker and thought leader with nearly 10 years of experience in mortgage capital markets, Kaul has published nearly 100 research articles on such topics as mortgage servicing reforms, efficient access to credit, benefits of alternative credit data and scoring models, and single-family rentals. He has advocated for efficient industry practices, regulation, and legislation to make the mortgage market work better for all Americans. Kaul is the lead researcher on the Mortgage Servicing Collaborative and regularly speaks at housing conferences. Before joining Urban, he spent five years at Freddie Mac as a senior strategist analyzing the business impact of postcrisis regulatory reforms. He holds a bachelor's degree in electrical engineering and a master's degree in business administration from the University of Maryland, College Park.

**Laurie Goodman** is a vice president at the Urban Institute and codirector of its Housing Finance Policy Center, which provides policymakers with data-driven analyses of housing finance policy issues that they can depend on for relevance, accuracy, and independence. Goodman spent 30 years as an analyst and research department manager on Wall Street. From 2008 to 2013, she was a senior managing director at Amherst Securities Group LP, a boutique broker-dealer specializing in securitized products, where her strategy effort became known for its analysis of housing policy issues. From 1993 to 2008, Goodman was head of global fixed income research and manager of US securitized products research at UBS and predecessor firms, which were ranked first by *Institutional Investor* for 11 straight years. Before that, she held research and portfolio management positions at several Wall Street firms. She began her career as a senior economist at the Federal Reserve Bank of New York. Goodman was inducted into the Fixed Income Analysts Hall of Fame in 2009. Goodman serves on the board of directors of MFA Financial and Arch Capital Group and is an adviser to Amherst Capital Management, a member of Morningstar Credit Ratings Regulatory Governance Board, and a member of the Federal Reserve Bank of New York's Financial Advisory Roundtable. She has published more than 200 journal articles and has coauthored and coedited five books. Goodman has a BA in mathematics from the University of Pennsylvania and an AM and PhD in economics from Stanford University.

# Acknowledgments

The Housing Finance Policy Center (HFPC) was launched with generous support at the leadership level from the Citi Foundation and John D. and Catherine T. MacArthur Foundation. Additional support was provided by The Ford Foundation and The Open Society Foundations.

Ongoing support for HFPC is also provided by the Housing Finance Innovation Forum, a group of organizations and individuals that support high-quality independent research that informs evidence-based policy development. Funds raised through the Forum provide flexible resources, allowing HFPC to anticipate and respond to emerging policy issues with timely analysis. This funding supports HFPC's research, outreach and engagement, and general operating activities.

This brief was funded by these combined sources. We are grateful to them and to all our funders, who make it possible for Urban to advance its mission.

The views expressed are those of the authors and should not be attributed to the Urban Institute, its trustees, or its funders. Funders do not determine research findings or the insights and recommendations of Urban experts. Further information on the Urban Institute's funding principles is available at [urban.org/fundingprinciples](http://urban.org/fundingprinciples).



500 L'Enfant Plaza SW  
Washington, DC 20024

[www.urban.org](http://www.urban.org)

## ABOUT THE URBAN INSTITUTE

The nonprofit Urban Institute is a leading research organization dedicated to developing evidence-based insights that improve people's lives and strengthen communities. For 50 years, Urban has been the trusted source for rigorous analysis of complex social and economic issues; strategic advice to policymakers, philanthropists, and practitioners; and new, promising ideas that expand opportunities for all. Our work inspires effective decisions that advance fairness and enhance the well-being of people and places.

Copyright © July 2019. Urban Institute. Permission is granted for reproduction of this file, with attribution to the Urban Institute.