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Mike Calhoun and Sarah Wolff: Who Will Receive Home Loans, and How Much Will They Pay?

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Any housing finance system's ability to provide broad access and affordability is predicated on two factors: how prices are set and, equally importantly, how costs are distributed. Price is important to focus on for many reasons; chief among them is because price is a barrier to accessing mortgage credit. One way to see this operating is to look at the difference between what kinds of loans the government-sponsored enterprises (GSEs) say they will purchase based on their guidelines and the loans they actually purchased. GSE guidelines allow borrower FICO scores as low as 620 and loan-to-value (LTV) ratios up to 97 percent. However, the loans actually purchased by the GSEs have much tighter underwriting than the guidelines allow. Why don't qualified buyers receive loans? One reason is that the price is too high to make them practically available even though they are technically available. The GSEs have made greater use of loan-level price adjustment and risk-based capital requirements, creating large differences between the prices different borrowers pay, with prices much higher for certain borrowers. Assessing housing finance reform proposals must involve an analysis of pricing that recognizes what different borrowers will pay. This is true for today's system and for proposed alternative systems.

Estimates of how structural changes will affect mortgage costs (i.e., the rates consumers pay on their mortgage) use several approaches, but nearly all provide a combined estimate or estimate costs for a "typical" borrower.[1] What is lacking is analysis of how costs will be **distributed.** Average price estimates mask huge variations in prices for borrowers with different risk profiles. The biggest drivers of credit risk pricing (rate of return and capital requirements) affect borrowers differently. Finally, different structures provide incentives for either finer distribution or greater sharing of costs, which affects who pays and how much.

Much of the interest rate borrowers pay goes to market participants that insure borrower credit risk. In today's system and proposed systems, different actors (e.g., GSEs, private mortgage insurers, lenders, and guarantors) can take on borrower credit risk. To assess the likely impact of future systems on borrower prices, we move some of the levers that most affect prices: the required rate of return on capital, overall capital requirements, and the degree to which costs are either distributed or pooled for guaranteed mortgages. Our estimates for four borrower profiles show how these levers independently and in combination affect prices for different kinds of borrowers. We use data made public by the Federal Housing Finance Agency (FHFA),[2] private mortgage insurers,[3] and the Urban Institute[4] to estimate the price borrowers pay to cover credit risk.[5]

Lever 1: Risk-Based Pricing

To determine the amount of capital required and the fee to be charged for that capital, a credit guarantor must assess risk and decide to what degree risk will be segmented or pooled, which is not as easy as it sounds. Should we assume future loans will behave like those originated in the past? Having recently experienced a major crisis, what time period should be used to predict future losses?

In its request for comment materials, FHFA described the process of setting guarantee fees (g-fees) and explained how current g-fees are, among other things, a function of historic loan performance and the rate of return FHFA is willing to accept on loans across a FICO/LTV matrix. These important decisions affect the prices new homebuyers pay. Less than a decade ago, the GSEs did not charge loan-level pricing adjustments, and the mortgage insurance (MI) pricing was largely the same across FICO scores (differing only by LTV), spreading costs among a large pool of loans. In 2014, FHFA decided to increase variation in pricing by risk but accept a lower rate of return on some loans (figure 1). The effect of a greater reliance on risk-based pricing is evident when we look at how recent g-fees compare with those calculated based on historical loan performance with a consistent rate of return for all borrowers.[6] Neither of these includes fees paid for private mortgage insurance (PMI), which further exacerbates the disparities in pricing.

FIGURE 1

Effect of Increased Risk-Based Pricing on Borrowers with Different Credit Profiles

	2014 GSE g-fees[a]	Full risk-based pricing[b] (10% rate of return)
Credit score >740 LTV 60–80	57	37
Credit score 700–740 LTV 80–97	64	62
Credit score 620–700 LTV 80–97	80	92
Credit score 620–700 LTV >97	Not available	136

Note: LTV = loan-to-value ratio.

[a] Estimated g-fees by risk bucket are from figure 3 in FHFA (2014). The estimates include up-front fees (loan-level pricing adjustments and delivery fees) and ongoing fees (g-fees) but do not include fees for PMI.

[b] These estimates include risk-based calculations for expected and stressed losses and assume credit for g-fees, as described in Goodman and colleagues (2014). The estimate includes 10 basis points for administrative costs. They do not include fees for PMI.

A core policy question is: are we going to maximize the benefits of pooling risk, or are we going to customize mortgages based on the profile of the individual borrower? In a future system, different structures are likely to decide differently. For example, private insurers and guarantors in competition with each other on price will be incented to finely price credit. If the systems structure has the pricing decision made by these entities on a loan-by-loan basis, pooling risk will be nearly impossible. These decisions increase or reduce prices for certain borrowers, ultimately affecting the degree of affordability and access to mortgage credit.

Credit guarantors could distribute costs even more finely, and they may be under competitive pressure to do so. Recent PMI pricing changes provide an example of such decisionmaking. In April, private mortgage insurers updated their pricing in response to finalized regulations called Private Mortgage Insurer Eligibility Requirements, which directed MI companies to hold more capital and to calculate capital based on credit quality of individual loans. In response, MI companies raised prices and increased the granularity of risk categorization use to determine prices. For example, considering 35 percent coverage on a loan with LTV from 95 to 97 percent before the changes, borrowers with credit scores from 620 to 679 paid 148 basis points. After the changes, borrowers in this range fall into three different categories, all paying different and higher amounts: borrowers with scores from 620 to 639 pay 225 basis points, borrowers with scores from 640 to 659 pay 205 basis points, and borrowers with scores from 660 to 679 pay 190 basis points. At the same time, prices fell for borrowers with higher credit scores; borrowers with credit scores above 760 paid 105 basis points before the changes and only 55 basis points after the changes.

Lever 2: Who Provides the Capital and at What Cost?

One key part of calculating the cost of capital and the resulting credit risk fee is the after-tax rate of return on capital. While other components of pricing calculations (e.g., administrative expenses, expected losses, and stressed losses) are fairly constant regardless of what entity takes on the risk, the required after-tax return on capital is likely to vary as different amounts of private capital are used to cover the same projected expenses. Researchers at the Urban Institute argue that the GSEs in conservatorship might require only a 5 percent after-tax return on capital (Goodman et al. 2014). In contrast, a privately held company might be held to a much higher standard by its investors. Various reform proposals bring in different amounts of private capital in several ways: in the form of equity investors (if the GSEs were released from conservatorship as private entities), through greater use of private mortgage insurers (as proposed in the 2016 appropriations bill), or by having private actors act as securitizers and guarantors (as proposed in the Protecting Americans from Tax Hikes Act of 2015). We varied this input at 5 percent, 10 percent, 20 percent, and 25 percent to test how isolating and varying this assumption affects the estimated g-fee when calculated to fully risk-base price on each product (figure 2).[7] We assume a 10 basis points cost for administrative expenses in each case.

FIGURE 2

Effect of Changing Rate-of-Return Assumptions on Borrowers with Different Credit Profiles

	Rate of Return			
	5%	10%	20%	25%
Credit score >740 LTV 60–80	26	37	48	52
Credit score 700–740 LTV 80–97	43	62	85	92
Credit score 620–700 LTV 80–97	65	92	126	136
Credit score 620–700 LTV >97	96	136	184	200

Note: LTV = loan-to-value ratio.

Increasing the required after-tax return on capital assumption increases the credit-risk fee for each combination of FICO score and LTV. For borrowers with higher credit scores, the estimated fee is similar to other published estimates. However, assuming a lower return (5 percent) results in a lower g-fee than other estimates, and assuming a higher return (25 percent) results in a higher fee. These capital changes unevenly affect prices for borrowers with different risk profiles; increasing the return assumption from 5 percent to 25 percent increases the estimated g-fee by 26 basis points for the borrowers with the highest credit scores and the lowest LTV loans (from 26 to 52 basis points), but by 104 basis points for the borrowers with lower scores and higher LTV loans (from 96 to 200 basis points).

Lever 3: Capital Requirements

FHFA calculated required capital based on predicted losses, but another system might have a different method of setting capital requirements. A future housing finance system might involve entities deemed to be systemically important financial institutions (SIFIs), subject to an overall capital requirement. In such cases, the amount of capital would not only be calculated from loss projections but also include a capital cushion. Assuming a loan portfolio similar to recent originations, the total calculated capital needed for stressed losses is less than what the cushion approach would yield.

Consider a 4 percent capital requirement and a 10 percent after-tax return on capital for a portfolio of loans that looks like the 2012 Fannie portfolio. The amount of capital for stressed losses totals 292 basis points (Goodman et al. 2014; see table 3, panel A). This is 108 basis points less than needed to meet a 4 percent capital requirement (400 basis points). Evenly distributed, this adds about 14 basis points to the costs of each loan. The cost increases for higher assumed capital requirements and after-tax return on capital assumptions, as a fully private guarantor might be subject to. A 10 percent capital requirement and a 20 percent rate of return results in 708 basis points in additional costs, not 108 basis points. Adding this assumption can more than double the fee calculated without this component. Like the costs of stressed losses, market participants could choose to pool or distribute this cost as well.

Why Does This Matter

Finer and finer risk-based pricing structures shoulder the costs of systemic risk on borrowers that are classified as risky but successfully pay their mortgages. While many more borrowers with higher-risk profiles defaulted on their loans during the crisis, the majority with responsible loans did not.[8] Furthermore, the crisis triggered a recession that cost jobs and depressed home values, setting off further defaults. In the crash, we saw borrowers fall behind on their loans because they lost their jobs in the recession, not because of personal financial failure. Changes such as the qualified mortgage requirements make today's market stronger and decrease the likelihood of a repeat event. Future pricing should not punish today's higher-risk profile borrowers for yesterday's macroeconomic events, such as weak lender regulation preceding the Great Recession.

The housing finance system provides credit insurance. Higher-risk profiles can be seen as a type of "preexisting" condition that profit-maximizing guarantors and insurers aim to minimize in the pool of loans they insure. Price and underwriting standards are the mechanisms these actors use to adjust

their portfolios to minimize risk. Allowed to operate unchecked, market incentives can result in only a select type of borrower having access to home loans.

This is what has happened in the postcrisis period. The average credit score on new originations has risen to over 750, up more than 40 points in the last decade (Goodman et al. 2016, 14). The Urban Institute's Housing Credit Availability Index has fallen to 5.6, less than half of where it stood in the late 1990s and early 2000s.[9] Borrowers of color have become a smaller share of mortgage borrowers even as their share of the population has risen; only 2.6 percent and 5.0 percent of conventional loans in 2014 were made to black and Hispanic borrowers, respectively (CRL 2015).

The demographics of which homebuyers have lower credit scores and lower wealth for a down-payment identify who is most likely to pay even more. Unfortunately, data that combine race and ethnicity, LTV, and FICO scores are rare.[10] Using our "merged dataset,"[11] we estimated the average credit risk fee paid by borrowers in different racial and ethnic groups. The results show that borrowers of color are likely to pay substantially more than white borrowers. On average, black borrowers would pay approximately 1.5 times the fee paid by white borrowers, even under modest assumptions (a 10 percent after-tax return on capital and no capital cushion).[12]

What Does This Mean for Reform?

Today's system does not provide broad access and affordability, which is troubling because future homebuyers will be more diverse than today's homebuyers; 30 percent of millennials are black or Hispanic (JCHS 2015). Unfortunately, the housing finance reform proposals that have gained political traction are unlikely to reverse these affordability trends and may exacerbate them. The Johnson-Crapo model, for example, would likely demand high rates of return and did not include an enforceable duty-to-serve requirement to exert pressure to spread costs across borrowers. To evaluate a proposal's effect on access and affordability, we need to consider how each proposal pulls the levers that we know affect prices: the rate of return on capital, the amount of capital required, and the incentives the structures create to more and more finely price mortgages.

Average price estimates obscure significant variation. To assess access and affordability, we need to look closely at differential prices, not just overall prices or prices for low–credit risk profiles. The variation documented here exists because the levers that drive costs operate through and on risk assessment. A higher required rate of return on capital will cause higher prices for some borrowers compared with others. Our estimates indicate that these differences are significant, increasing costs two to four times average estimates. In addition to affecting the amount and cost of capital, different proposals incorporate different sets of incentives that push actors to spread costs to greater or lesser degrees. For example, the Private Mortgage Insurer Eligibility Requirements framework resulted in higher costs for borrowers with lower credit scores and lower costs for borrowers with higher scores.

Housing finance reform proposals should estimate costs not just for borrowers with higher credit scores or borrowers like those getting loans today, but also for loans that might be made to a broader set of potential borrowers. Each proposal should be evaluated on how the structure is likely to distribute costs. Only through such an assessment can we truly consider the impact of any proposal on access and affordability.

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[1] In "Modeling the Impact of Housing Finance Reform on Mortgage Rates," the authors use two methods of estimating the costs on a pool of Freddie loans of comparatively high credit quality (Andrew Davidson 2013). "A More Promising Road to GSE Reform" presents an average cost estimate for all borrowers, assuming a distribution like Fannie and Freddie's current portfolio (Parrott et al. 2016). Other recent estimates, including those found in "Privatizing Fannie and Freddie: Be Careful What you Ask For" and "Cost of Housing Finance Reform," are based on a borrower credit score of 750 and an LTV less than 80 percent (Parrott and Zandi 2015; Zandi and deRitis 2013).

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[2] FHFA undertook a public process in 2014 to reassess the guarantee fees (g-fees) charged by the GSEs, providing data by which we can decompose their credit risk pricing process. See FHFA (2014).
[3] Private mortgage insurance (PMI) pricing comes from the published rates of Genworth and Radian.
[4] The loan default rates on which these calculations are based are from Goodman and colleagues (2014).
[5] Unless noted, we include only the credit risk fee that is not covered by PMI. Borrowers with loans that have LTV over 80 percent will pay a higher price than we estimate when that cost is added in.
[6] The loss rates are based on 2001 and 2007 originations.
[7] The calculation uses the risk-based pricing structure described in Goodman and colleagues (2014) and varies only the rate of return on capital component of the calculation. The estimates in figure 2, column 2 are the same as those in figure 1, column 2.
[8] See appendix A in Li and Goodman (2014) for default rates by loan type, FICO scores, and LTV for loans originated from 2001 to 2002 and from 2005 to 2006.
[9] Housing Finance Policy Center, "Housing Credit Availability Index," Urban Institute, April 12, 2016, http://www.urban.org/policy-centers/housing-finance-policy-center/projects/housing-credit-availability-index.
[10] Recently finalized changes to the Home Mortgage Disclosure Act will eventually make this combination of data publicly available.
[11] We used this dataset to estimate how many borrowers of each race and ethnicity fall in each risk bucket. The dataset is more fully explained in Bocian and colleagues (2011).
[12] These assumptions are consistent with those made in Parrott and colleagues (2016).