How to Think about Fannie Mae and Freddie Mac's Pricing

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Few decisions made by Fannie Mae, Freddie Mac, or their regulator, the Federal Housing Finance Agency (FHFA), are more important than how the government-sponsored enterprises (GSEs) price their guarantees. Yet the controversy over the GSEs' recent pricing changes has shown that the process remains poorly understood.[1]

To dispel some of the confusion, we explain in this brief what drives pricing decisions in financial services markets and how the GSEs address these challenges in pricing their business. We conclude with thoughts on why their approach makes sense and how it could be improved, focusing on the changes that should be made to an insufficiently risk-sensitive capital rule that puts unnecessary upward pressure on their pricing.

What Drives Pricing Decisions in Financial Services Markets

Financial services firms typically set pricing to generate enough revenue to cover their costs by enough to meet a targeted return on capital. Although simple in theory, the process often proves complex in practice.

Determining a firm's overall costs requires estimating both operational costs and the cost of the capital needed to cover losses by enough to meet the targeted return. Although estimating operational costs is usually straightforward, estimating the cost of covering losses often requires complex modeling and judgment calls that could produce any number of reasonable estimates.

The process is further complicated by the flexibility firms have in how much capital to hold against a given level of risk. Firms whose levels are not regulated set them according to their risk appetite, which varies widely by firm and sector. And firms whose levels are regulated must contend with a complicated mix of internal and regulator views on how to measure and manage risk (box 1).

BOX 1

Common Approaches to Setting Capital Levels

One common approach for determining capital levels is using a return on risk-adjusted capital (RORAC) framework. In this framework, the expected return on an asset or activity is divided by the risk-adjusted capital held for the asset or activity. That capital usually is an internal measure of economic capital derived from internal models, such as value-at-risk, and not the Basel regulatory capital framework.

The effect of regulatory capital, both risk-based and leverage ratios, is usually considered at the corporate level with some type of transfer pricing. The idea is for the decisions to be driven primarily by the risk and economics, with capital structure and compliance managed at the corporate level. Given that leverage ratios are often binding, the allocation of capital above any economic capital will be based on both asset (balance sheet use) and risk.

Alternative models to RORAC, especially for long-maturity investments, involve discounting cash flows by risk-adjusted interest rates to arrive at a risk-adjusted net present value to be used in evaluating the profitability of an asset or line of business. Considerable judgment is used in deriving the appropriate discount rates. The GSEs, which are largely monolines, have developed their own proprietary models (e.g., Freddie Mac for many years used a model named DEFCAP) to measure the risk-adjusted discounted cash flows from a mortgage. Mortgages are particularly complicated because they are often 30-year instruments, and it is difficult to disentangle prepayment costs from credit costs.[a]

And while either the RORAC or the discounted cash flow approach is useful in deciding what lines of business are more profitable and which ones to expand or contract, no financial firm uses these models to equate returns across all lines of business. These measures are also often applied to lines of business, not each transaction within the line of business, so some level of aggregation is typically applied.

[a] Yongheng Deng, John M. Quigley, and Robert Van Order, "Mortgage Terminations, Heterogeneity, and the Exercise of Mortgage Options," *Econometrica* 68, no. 2 (December 2003): 275, https://doi.org/10.1111/1468-0262.00110; and Chester Foster and Robert Van Order, "FHA Terminations: A Prelude to Rational Mortgage Pricing," *Real Estate Economics* 13, no. 3 (September 1985): 273, https://doi.org/10.1111/1540-6229.00355.

Determining the revenue needed to cover a firm's costs requires a similar mix of economic analysis and judgment calls. Firms must assess, among other factors, how pricing affects demand, how pricing changes affect long-term customer relationships, whether a price arrangement can be gamed, what kinds of cross-subsidy across region or customer maximizes revenues, and competitors' likely reactions to price changes.

Setting pricing is thus not a matter of applying a simple mathematical formula to determine the revenues needed to cover a targeted rate of return on capital. Setting pricing is a richer process driven by an often-complicated mix of regulatory, market, and firm-specific factors.

In some sectors, firms must also receive regulator approval for changes in their pricing, often referred to as the utility model of pricing. How this works in practice varies widely by sector, but firms typically present their business case for a proposed pricing framework to a commission, which decides whether the changes are warranted, given the firm's business interests and the interests of the affected community. There is a large economic literature debating how these decisions should be made, grappling with, for example, how to create proper management incentives, what costs should be allowed to be recouped, whether profits should be smoothed over time to create enough stability in earnings to lower the cost of capital, how to measure elasticities, what services should be subsidized, and how to provide public input and transparency.

How Fannie Mae and Freddie Mac Approach Pricing

Fannie Mae and Freddie Mac's approach to pricing falls within this common pricing framework, though since they entered conservatorship, their approach has shifted from the unfettered model initially described to something closer to the utility model.

The GSEs' primary source of revenue are the fees they charge for guaranteeing the payment of principal and interest on the mortgage-backed securities they issue. They charge the lenders that sell them the mortgages that go into these mortgage-backed securities two different types of guarantee fees, ongoing and up front. Ongoing fees are collected each month over the life of the loans based on the mortgages' unpaid principal balances. And up-front fees are one-time payments the lenders make when they sell the loan to Fannie Mae or Freddie Mac based on the original mortgage amount, though borrowers often choose to convert them into an equivalent ongoing payment.[2]

As with other financial services firms, the GSEs price these fees to cover their operational costs and the cost of covering losses by enough to meet their targeted return. The GSEs must also cover a 10 basis-point surcharge imposed by Congress to help pay for the 2021 Infrastructure Investment and Jobs Act.[3]

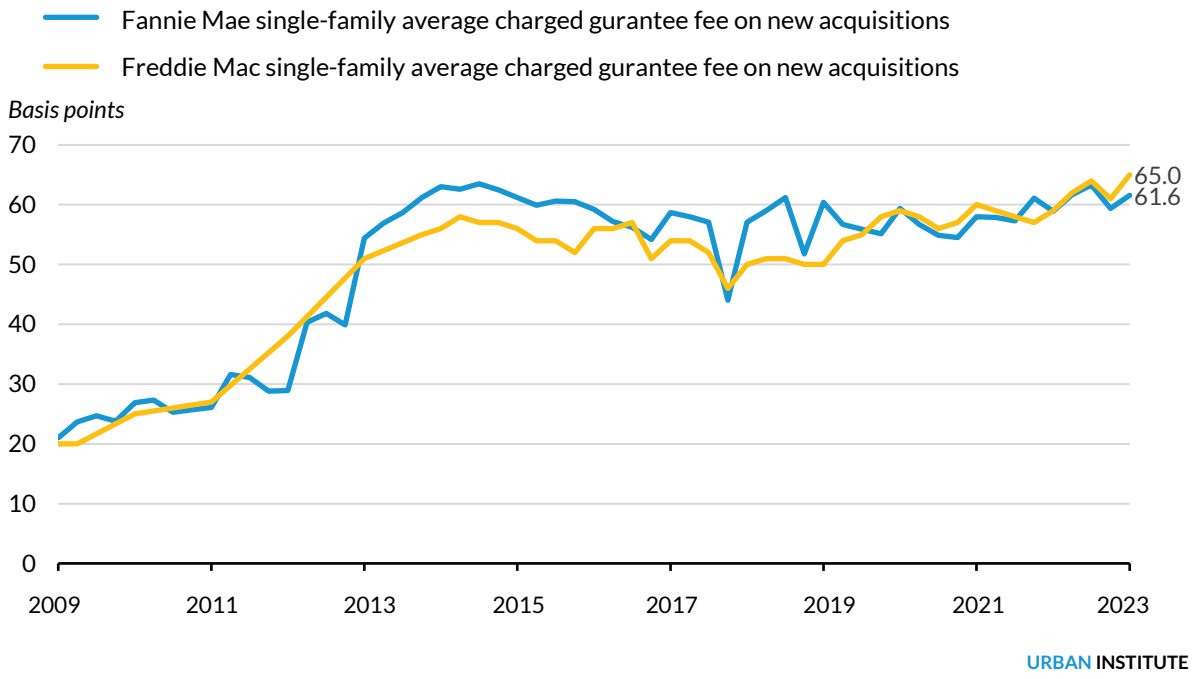
The GSEs' operational costs average 6 to 7 basis points (FHFA, n.d.). Adding the 10 basis-point statutory surcharge brings firms' total non-risk-related costs to 16 to 17 basis points.

The GSEs break the cost of covering losses by enough to meet their targeted return into two categories: the cost of covering expected losses and the cost of covering larger unexpected losses with enough capital to meet their targeted return. The GSEs estimate their cost of covering expected losses on new loans to be 4 to 5 basis points (FHFA, n.d.) and estimate the cost of covering unexpected losses on new loans by enough to hit their targeted return to be about 42 basis points, a number that will change as their targeted return changes. In all, they charge 62 to 65 basis points in average guarantee fees on new originations (figure 1).

This is a significant jump from 2009, when they charged 20 to 21 basis points in total guarantee fees. Even taking out the 10 basis-point statutory fee, guarantee fees have more than doubled. The increase reflects changes in the base guarantee fees and the addition of LLPAs.

FIGURE 1

Government-Sponsored Enterprise Pricing in Conservatorship



Source: Fannie Mae and Freddie Mac securities filings.

How Fannie Mae and Freddie Mac's Pricing Works in Practice

The GSEs set their targeted returns at the portfolio level. This is a common practice in the financial services industry, as it allows firms to vary their targeted returns by business line to reflect variations in investor expectations and other strategic interests. The GSEs have broken their businesses into three lines (Goodman et al. 2022). The first is mission lending, which are loans that qualify for one of the GSEs' affordability programs. The second is mission remote lending, which are loans for which there is little policy justification for aggressive government support. This includes lending for investor properties, second homes, high-balance lending, and cash-out refinancing. And the third is core lending, which is everything else and the overwhelming bulk of the GSEs' business.

The GSEs price each of these lines differently, reflecting the different level of government support appropriate for each. They price their mission remote lending *above* the overall target rate to create

enough room to price their mission lending *below* the overall target return, and they price their core business roughly in line with their overall targeted return.[4]

In each of these lines, the GSEs break their pricing into two pieces, a uniform base guarantee fee and an LLPA that varies by loan to provide the desired return on capital for each type of loan. To see how this works, consider a representative example from each of the three lines (table 1).

TABLE 1

Representative Examples of Return on Capital

	Mission Loan	Core Loan	Mission Remote Loan
Loan	**Owner-occupant loan: 725 FICO score and 97% LTV ratio, HomeReady**	**Owner-occupant loan: 750 FICO score and 80% LTV ratio**	**Investor loan: 750 FICO score and 70% LTV ratio**
Risk weight	96%	33%	19.2%
Risk multiplier	1.35	1.35	1.35
Risk-based weight	130%	45%	26%
Required risk-based capital	800.00	800.00	800.00
Risk-based capital	1,036.80	356.40	207.36
Base g-fee (bps)	42	42	42
LLPA up front	0	0.875	1.75
LLPA annual (bps)	0	17.5	35
Expected losses	25.92	8.91	5.184
Costs	16	16	16
Total return (bps)	0.08	34.59	55.816
Return on capital	**0.01%**	**7.47%**	**20.73%**
Tax rate	23%	23%	23%

Sources: The Federal Housing Finance Agency (risk weights), Fannie Mae (loan-level pricing adjustments), and Urban Institute calculations.

Note: bps = basis points; g-fee = guarantee fee; LLPA = loan-level pricing adjustment; LTV = loan-to-value.

When the mission, mission remote, and core business lines are combined, the GSEs' overall targeted rate of return is likely 5 to 6 percent.[5] This is a marked increase over the target before the GSEs' recent pricing changes but still well below that used by most financial services firms—which is currently 12 to 14 percent but changes with interest rates and other market variables—and even below that used by most utilities, which is 9 to 10 percent.[6]

For the GSEs to achieve a utility-like rate of return under their current capital requirements, pricing will need to increase by another 10 basis points or so. To achieve the current market rate of return, pricing would need to increase by around 25 basis points (box 2).

BOX 2

Fees Needed for Utility and Market-Rate Returns

For the GSEs to meet their current capital requirements and a targeted rate of return appropriate for a utility, they would need to charge around 73 basis points in guarantee fees. To meet the current market rate of return, they would need to charge around 89 basis points.

The Sensitivity of Guarantee Fees to Required Capital and Return on Capital

Illustrative calculation

	To make a utility-like rate of return	To make a market-rate return
Required after-tax return on capital (percent)	10%	13%
Capital requirement	400	400
Tax rate	23%	23%
To achieve target pretax return on capital (bps)	51.9	67.5
To cover expected credit losses (bps)	5.0	5.0
To cover general and administrative expenses (bps)	6.0	6.0
To cover congressional surcharge (bps)	10.0	10.0
Total (bps)	72.9	88.5

Source: Urban Institute calculations.

It is worth noting how sensitive the guarantee fees are to both the level of capital and the required return on capital.

Theoretical Guarantee Fees

In basis points

	After-Tax Return on Capital					
Capital requirements	**6%**	**8%**	**10%**	**12%**	**14%**	**16%**
200 bps	36.6	41.8	47.0	52.2	57.4	62.6
300 bps	44.4	52.2	60.0	67.8	75.5	83.3
400 bps	52.2	62.6	72.9	83.3	93.7	104.1
500 bps	60.0	72.9	85.9	98.9	111.9	124.9

Source: Urban Institute calculations.
Note: bps = basis points.

The FHFA's Request for Input

In May 2023, the FHFA released a request for input on how the GSEs set pricing, largely in response to the confusion that arose from their recent set of pricing changes (FHFA 2023). We have addressed those changes and the controversy elsewhere,[7] so here, we will focus on the core issues the request for input has raised: the structure of the GSEs' pricing, their capital requirements, and their targeted rate of return.

The Pricing Structure

The GSEs use a uniform base guarantee fee and LLPAs that vary by loan. This provides them the flexibility to set pricing in a manner that helps them manage their risk and target their support for the market according to which segments need it most.

If the FHFA moved the GSEs to a single, uniform fee applied to all loans across all business lines, it would be more difficult to tailor their support for the market according to its need. A uniform fee would send the GSEs' considerable cross-subsidy from *all* lower risk-borrowers, including those who need support, to *all* higher-risk borrowers, including those who do not need support. If the FHFA wanted to increase the GSEs' support for market segments that need it most, it would have to find a way to subsidize them, presumably using fees imposed on market segments that need their support least—effectively repeating the variation across business lines in place today.

The more difficult question is whether the FHFA should move the GSEs to uniform pricing *within* their core business. Doing so would simplify and improve the transparency of their pricing, which would make it easier for the industry to implement and for regulators to oversee.

Yet a move to uniform pricing would also make it at least somewhat more difficult for the GSEs to manage their risk. Higher-risk loans would be undercharged for their risk, and lower-risk loans overcharged for theirs, leading to too many of the former and not enough of the latter. This would put pressure on the GSEs to raise their flat fee to cover the riskier mix of loans overall, only reinforcing the difficult dynamic. The GSEs managed this dynamic before conservatorship by charging less in their flat guarantee fee than the risk warranted, which allowed them to retain lower-credit-risk borrowers but at the expense of vastly underpricing higher-credit-risk borrowers.

Capital Requirements

The GSEs' capital requirements more clearly need revision. Modeled on the Basel framework used for large banks, the GSEs' capital requirements include a leverage ratio requirement and a risk-based requirement that includes various risk-invariant buffers, with the GSEs' minimum capital levels determined by whichever of the two requirements is higher at a given time. For a sense of how the requirements work in practice, it is useful to see the numbers for each of the components (table 2).

TABLE 2A

Risk-Based Capital Requirements and Buffers

	Statutory	Supplemental		
	Total capital (statutory)	Common Equity Tier 1	Tier 1	Adjusted total capital
Capital requirement	8.00%	4.50%	6.00%	8.00%
Prescribed buffers				
Stress capital buffer		0.75%	0.75%	0.75%
Stability capital buffer		0.88%	0.88%	0.88%
Countercyclical buffer amount		0.00%	0.00%	0.00%
Requirement and buffers	8.00%	6.13%	7.63%	9.63%

TABLE 2B

Leverage Capital Requirements

	Statutory	Supplemental
	Core capital	Common Equity Tier 1
Capital	2.50%	2.50%
Leverage buffer[a]		0.44%
Requirement and buffer	2.50%	2.94%

Source: Federal Housing Finance Agency (FHFA), "Fact Sheet: Final Rule on Enterprise Capital" (Washington, DC: FHFA, n.d.).

[a] This was reduced by the 2022 amendment from 1.5 percent to 50 percent of the stability buffer.

The Basel framework this replicates is the result of a compromise reached among dozens of international regulators to handle the wide range of activities and complex set of risks the world's largest banks assume. As one might expect from such a process, the framework is conservative and complex, which is arguably as it should be, given the nature of the risks involved. Risk-based requirements may fail to capture the complicated risks larger banks assume, so better to safeguard their risk-based capital requirements with a series of risk-invariant buffers and backstop it with a leverage ratio.

The framework is a misguided approach to managing the risk the GSEs pose, however. Banks assume interest rate risk, credit risk, and funding risk on mortgages alone, not to mention the many other lines of business in which they operate. The GSEs, on the other hand, primarily assume only credit risk.[8] And they assume that risk on millions of loans over several years, making returns relatively stable and predictable.

The capital framework's strong mix of risk-invariant features is thus unnecessary for the GSEs. And it comes at a significant cost, forcing the GSEs to hold more capital than their risk warrants. How much more can be seen in table 2.

Other features of the capital requirements further distort the relationship between risk and capital, leading to still higher capital requirements than are needed.

The risk-based requirement sets a minimum risk weight of 20 percent on the lowest-risk loans, translating into 160 basis points of capital charge charged on nearly half the loans the GSEs guarantee

(Golding, Goodman, and Zhu 2020). Intended to cover the model risk involved in calibrating the credit risk used in the capital requirements, the capital charge is 5 to 10 times the level of risk implied by these loans, well above the model risk involved.[9]

The FHFA also uses the losses suffered during the 2008 financial crisis to determine how much capital is needed to cover unexpected losses. Though this is a commonly used metric, it is overly conservative, given the substantial policy changes that have taken place since.

The quality of lending the GSEs guarantee is considerably stronger than it was during the run-up to the financial crisis. The riskier products that led to the most severe losses have been banned by statute or regulation, and the GSEs now apply stricter income requirements.[10] Previously, a borrower could submit two pay stubs over a relatively brief period to establish the income used on their application. Today, they must submit tax returns showing stable income over two years. As a result, for any given combination of credit score, loan-to-value (LTV) ratio, and debt-to-income level, the credit performance of loans today is much stronger than those originated before the financial crisis.

The loss mitigation waterfall the GSEs use has also improved meaningfully, reducing the rate at which loans move from serious delinquency into foreclosure and real estate ownership. Before the financial crisis, the relief offered to borrowers was uneven and ineffective, doing little to stem their losses. Short-term assistance was available to some struggling borrowers, but it was not well codified; servicers often added delinquent interest and fees to the mortgage balance, dampening the relief. Permanent assistance through mortgage modifications were either unavailable or negotiated between the borrower and lender case by case.

The overwhelming number of delinquencies before the financial crisis forced policymakers and the industry to introduce a more aggressive, standardized approach to loss mitigation to reduce the stress to homeowners and losses in the mortgage market. The GSEs' loss mitigation efforts were strengthened further in their response to the COVID-19 pandemic, with an expansion of forbearance that has given struggling borrowers time to recover before the more costly steps of the loss mitigation waterfall kick in. All of this has dramatically reduced the cost to the GSEs of borrowers who default (Goodman et al. 2023).

These changes in the quality of lending and loss mitigation have reduced the risk of loss to the GSEs meaningfully since the financial crisis, yet they go unrecognized in the assumptions underlying the capital requirements.

Finally, the definition of capital in the capital requirements does not account for the contractual income that the loans guaranteed by the GSEs generate. For example, a loan with a risk-based capital charge of 100 basis points generates 64 basis points of income a year above that needed to cover expected costs and losses. Although the GSEs should not be able to count on *all* this revenue as capital, it makes little sense not to allow them to count *any* of this revenue.

Together, these and other features in the capital requirements lead to minimum levels that are above what is reasonable to require the GSEs to hold, given their risk.[11] To address these shortcomings, we recommend some combination of the following steps:

- Reduce the risk-invariant stability buffer, which shows up in both the risk-based capital requirement and the leverage ratio, from 0.88 percent to 0.44 percent. This change would make the risk-based capital requirement more risk-sensitive and the risk-invariant leverage ratio less often binding.
- Reduce the minimum risk weight for loans from 20 percent to 10 percent, so that it is more in line with the coverage needed to cover the model risk.
- Adjust the assumptions used in estimating unexpected losses to reflect the policy measures taken since the financial crisis.
- Allow the GSEs to count some portion of their guarantee fees as capital, appropriately discounted for the uncertainty and variability of the revenue stream. Conservatively, we estimate that this could add more than 1 percent to capital.

Any of these changes would better align the GSEs' capital requirements with their risk and reduce the excessive upward pressure the current rule is putting on pricing.

Return on Capital

To date, the FHFA has imposed most of the cost of these excessive capital requirements on the GSEs by lowering their targeted return, rather than on borrowers by raising pricing. But this raises the question of what the appropriate return is for the GSEs, the answer to which turns on the function the GSEs should serve in the market.

If their proper function is to compete with other holders of credit risk in the mortgage market—whether that be other government guarantors, banks, or investors in the private-label securities market—their return should be high enough to attract the investment needed to compete. In the current environment, that return would likely be near a target rate of 12 to 14 percent, though what investors would require of the GSEs in this model would ultimately turn on how policymakers structured the GSEs and the market in which they are to operate.[12]

If instead the GSEs' proper function is that of privately owned and controlled utilities, their rate of return should be high enough to attract investors looking for the steady, low-risk return expected of utilities but not so high that they pursue risks inconsistent with this more conservative model. These considerations suggest a return of 9 to 10 percent, consistent with the pricing approved for other return-regulated utilities.

And if the GSEs' proper function is that of *government*-controlled utilities, whether only while in conservatorship or also after their release, the appropriate rate of return is likely lower still, primarily reflecting economic policy considerations such as protecting the taxpayer and systemic stability rather

than investor expectations. Although this rate is more difficult to quantify, some models have placed it around 6 percent, roughly where it stands today (Parrott et al. 2016).

For now, then, the return the GSEs are targeting is about right, but that will change if the administration decides that the GSEs should prepare for their release from conservatorship as private guarantors or utilities. In either case, they will need to raise private capital, which will require a return attractive enough for whichever of the two models is chosen. If instead the administration decides to release the GSEs as government-controlled utilities, the current target return will remain appropriate.[13] As no such decision has been made, any increase in their targeted return would be premature.

Conclusion

As we discovered after the most recent round of GSE pricing changes, a fog of confusion hangs over how the GSEs price their guarantees. We have attempted to dispel some of that confusion here, walking through the GSEs' pricing framework and going into some detail on its three most important features: the capital requirements, their targeted return on capital, and the way they structure their pricing by business line and loan.

The GSEs' approach to pricing strikes us as reasonable, but it suffers from a capital framework unnecessarily tethered to the Basel framework. The risk-invariant components and complexity of that framework are arguably appropriate for large banks, given the number and complexity of the risks they manage, but they make little sense for Fannie Mac and Freddie Mac. Applied to the GSEs, they exert unnecessary upward pressure on pricing, pressure that has been borne by the GSEs thus far but, at some point, will be passed along to the consumer. Before that happens, the FHFA should revise the requirements, removing a headwind to homeownership and better aligning the GSEs' pricing with their risk.

Notes

1 Jim Parrott and Janneke Ratcliffe, "Fannie Mae and Freddie Mac's New Pricing Is Not Punishing Those With Better Credit: Follow the Numbers," *Urban Wire* (blog), Urban Institute, April 27, 2023, https://www.urban.org/urban-wire/fannie-mae-and-freddie-macs-new-pricing-not-punishing-those-better-credit-follow-numbers.

2 Fannie Mae refers to its up-front fees as loan-level pricing adjustments (LLPAs), and Freddie Mac refers to its fees as delivery fees. The industry generically refers to these fees as LLPAs, and we will do that in this brief.

3 The Housing and Economic Recovery Act of 2008 also requires firms to pay a one-time 4.2 basis-point fee on all new loans to fund the Housing Trust Fund and the Capital Magnet Fund.

4 The GSEs' statutory charters anticipate this variation in returns. Each states that "it is [their] purpose…to provide ongoing assistance to the secondary market for residential mortgages (including activities relating to mortgages on housing for low- and moderate-income families involving a reasonable economic return that may be less than the return earned on other activities) by increasing the liquidity of mortgage investments and improving the distribution of investment capital available for residential mortgage financing." See Federal Home Loan Mortgage Corporation Act, Pub. L. No. 91-351, 84 Stat. 450 (2010), 1.

[5] This range is consistent with our own estimates and those of the FHFA (2023, 12).

[6] According to S&P Global, in the first quarter of 2023, the average return on equity was 9.71 percent for electric utility rate cases, up from about 9.54 percent for 2022.The numbers for gas utility rate case are similar. This average return on equity has generally been between 9.5 and 10.5 percent over the past 15 years for both electric and gas utilities. See Dan Lowrey, "Electric Beats Gas in Exceeding Authorized Equity Returns over Past 15 Years," S&P Global Market Intelligence, May 25, 2023, https://www.spglobal.com/marketintelligence/en/news-insights/research/electric-beats-gas-in-exceeding-authorized-equity-returns-over-past-15-years.

[7] Parrott and Ratcliffe, "Fannie Mae and Freddie Mac's New Pricing."

[8] Although the GSEs also assume other risks, such as interest rate risk and counterparty risk, the scale of these risks is modest, nowhere near the scale of the additional risks banks assume.

[9] Enterprise Regulatory Capital Framework, 85 Fed. Reg. 82150 (Dec. 17, 2020), 82220.

[10] When the FHFA included losses from the financial crisis in the stress scenario used in its 2018 capital proposal, it removed losses suffered on loan products that have since been banned. In 2020, however, the FHFA put those losses back into its estimates, citing skepticism that it could usefully separate losses attributable to product risk from those attributable to credit risk. See Enterprise Regulatory Capital Framework, 85 Fed. Reg. 82150 (Dec. 17, 2020), 82151.

[11] Another particularly problematic feature is the countercyclical adjustment to the LTV ratios. The adjustment estimates a trend line for real annual home price appreciation from 1975 to 2012. When home prices are outside the 5 percent band of this trend line, the countercyclical adjustment adjusts prices to pull them back to the 5 percent maximum deviation, in turn affecting the mark-to-market loan-to-value ratio counted in the capital requirements. So if the market is "overvalued," the capital requirements on loans are calculated at the adjusted (higher) LTV ratios. This works well looking backward. But going forward, the adjustment will lead to distortions, particularly if some of the "overvaluation" is attributable to the lack of supply rather than overheated demand, as has arguably been the case in recent years.

[12] Considerations include how heavily the GSEs are regulated and how many other institutions would be allowed to provide the government guarantee.

[13] Although we each believe the GSEs should be released as utilities rather than guarantors of the sort that pre-dated conservatorship, we are of a mixed mind over whether, as utilities, the GSEs should be privately controlled, government controlled, or some mix thereof (Parrott et al. 2016; Stein and Ryan 2020).

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