The Trump Administration's Perplexing Plans for Fannie and Freddie

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n September 5, the Trump administration finally released its long-awaited plans to reform the nation's housing finance system. They came in the form of two proposals: one from the Treasury Department, focused primarily on reforming Fannie Mae and Freddie Mac, the government-sponsored enterprises; and another from the Department of Housing and Urban Development, focused primarily on reforming the Federal Housing Administration and Ginnie Mae. In this paper, we assess the Treasury Department's proposal.

Treasury lays out a general recommendation for legislative reform but devotes most of its attention to what it would do administratively, whether Congress acts or not. This administrative course is an aggressive one, in which Treasury would work with regulators to reduce the dominance of Fannie and Freddie and then release them from conservatorship. It is also a perplexing one, as it would decrease access to credit, increase the credit risk exposure of the taxpayer, and create a significant drag on the economy, all while leaving unresolved the central structural problem of the system: its dependence on a too-big-to-fail duopoly. It is also not clear that the plan would work, since its efforts to reduce the dominance of Fannie and Freddie would make it difficult, perhaps impossible, to attract the investment needed to get Fannie and Freddie out of conservatorship.

Treasury's approach

The desire to reduce the dominance of the GSEs is of course widely shared, leading to dozens of reform proposals over the years. In most of these, the focus has been on reducing their dominance within the government-supported segment of the market, either by forcing them to compete with more guarantors or by pushing many of the GSEs' functions into a utility that expands competition elsewhere in the guarantor channel. The central notion behind these approaches has been that the government's support of this channel of mortgage lending gives it a material advantage over other channels. To reduce the GSEs' dominance of the housing finance system as a whole, then, one would have to reduce their dominance of the government-backed channel.

That is not the approach that Treasury takes. It supports a multiguarantor system, at least rhetorically, but its vision of such a system is primarily to have Congress allow the Federal Housing Finance Agency to charter new guarantors. There is little focus on reducing the significant barriers to entry that would prove prohibitive to meaningful entry by new guarantors.

Prior multi-guarantor proposals would have expanded the common securitization platform to reduce the GSEs' infrastructure advantage or set market caps on the GSEs to give new entrants more room to compete. Treasury proposes to ease new entry by opening up some GSE data to competitors and possibly reducing guarantee fees and other regulatory requirements for new guarantors. Although such steps might open the door to niche entry, they cannot be expected to reduce the dominance of the GSEs in any meaningful way.

Treasury focuses instead on reducing the GSEs' dominance by exposing them to competition from outside the government-backed channel, from banks and the private-label securities market. Contending that the primary reason Fannie and Freddie dominate these competitors is that they are more lightly regulated, Treasury looks to open them up to meaningful competition by leveling the regulatory playing field.

The most important regulatory difference, in Treasury's view, is the GSEs' capital treatment, which allows them to underprice their competition. Treasury thus proposes to require all market participants to hold the same capital against the same risk and thus compete on equal footing. The administration suggests other regulatory differences as well, such as how regulators handle the qualified mortgage rule and issuer disclosure requirements. These differences too should be removed, with all market participants regulated in the same way for the same risks.

By removing what it views to be the GSEs' main market advantage, their regulatory treatment, Treasury believes that the GSEs would shrink to a healthier, less dominant share of the market.

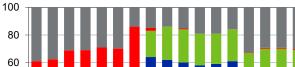
GSEs' market share

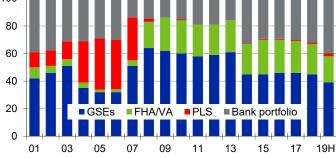
The GSEs have long accounted for a sizable share of single-family residential mortgage originations, garnering between one-third and two-thirds of total originations over the past two decades (see Chart 1). Their share of the origination market hit its low point during the height of the housing bubble in the mid-2000s, when private label securitization dominated the market. Their share then hit its peak in the late 2000s as the housing market collapsed, the PLS market disappeared, and bank portfolio lenders struggled to survive and rebuild their capital. Their origination share has since fallen back to prior levels as bank lenders have regained their footing, with the GSEs and banks each currently accounting for about 40% of originations, similar to their typical shares during the early 2000s prior to the housing bubble and bust.

Though the GSEs continue to have a large footprint in originations, their share of mortgage credit risk has actually never been lower, falling to an estimated 2.5% of the market during the first half of this year (see Table 1). This compares with a peak of close to one-half of the credit risk taken during and in the wake of the financial crisis. The dramatic drop is due to the GSEs' use of the credit risk transfer market to off-load its credit risk to private investors. The CRT market was established in 2014 and has flourished ever since, taking an estimated 22.6% of mortgage credit risk originated today.

All told, the federal government and thus taxpayers are currently taking on about half of the credit risk being originated in the mortgage market, with almost all of that through Ginnie Mae. Fannie and Freddie are off-loading nearly all of their credit risk to private sources

Chart 1: GSEs' Footprint Is Typically Large Share of residential mortgage originations, %





Sources: Fannie Mae, Freddie Mac, FHA, FDIC, Moody's Analytics

of capital, which are currently taking the other half of the credit risk being originated. For historical context, taxpayers are taking on the same amount of credit risk today, at least implicitly, as they were in the early 2000s.

Why Treasury's plan will not work

With the GSEs holding on to only a small amount of credit risk, the only way in which Treasury might meaningfully reduce their dominance is by reducing their mortgage origination footprint. But its proposal would not do this, since the GSEs' main advantage in the origination market is not their capital and regulatory treatment but the federal government's backstop of the institutions. Prior to the financial crisis, that backstop was implicit, but with the GSEs'

Table 1: Credit Risk Share of First-Lien Single-Family Residential Mortgage Originations

First half of 2019

	Originations		Expected credit loss			Unexp	Unexpected credit loss			Total credit loss		
	\$ tril Share Bps		Bps	\$ bil	Share	Bps	\$ bil	Share	Bps	\$ bil	Share	
Total	0.931	100%	20	1.64	100%	301	23.3	100%	321	25.0	100%	
GSEs	0.370	40%	12	0.25	15%	290	6.0	26%	302	6.3	25%	
CRT	0.216	23%	10	0.22	13%	251	5.4	23%	261	5.6	23%	
Non-CRT	0.154	16%	2	0.03	2%	39	0.6	3%	41	0.6	3%	
Ginnie Mae (FHA/VA)	0.172	18%	55	0.95	58%	656	11.3	48%	711	12.2	49%	
Portfolio	0.370	40%	5	0.19	11%	95	3.5	15%	100	3.7	15%	
Private-label securities	0.019	2%	20	0.04	2%	141	0.3	1%	161	0.3	1%	
Private MI	0.112		20	0.22	14%	200	2.2	10%	220	2.5	10%	
GSE + Private MI					29%			35%			35%	
Government: GSE Non-CRT + Ginnie Mae					60%			51%			51%	

Notes:

Non-CRT credit risk on originations measures the risk on GSE originations not covered by CRTs. Non-CRT credit risk on outstandings measures the risk on GSE UPB not covered by CRTs. PMI credit risk is for coverage on GSE loans down to 80% LTV.

After-tax PMI return (100-bp premium, 6 bps G&A, 20 bps EL, 23% tax rate) is 12.6%.

Source: Moody's Analytics

move into conservatorship it has been made explicit in the form of a commitment from Treasury to invest up to about \$250 billion more in Fannie and Freddie to cover their losses.

The government backstop allows the GSEs to issue mortgage-backed securities in which the purchasers of the securities assume only the interest rate risk. This attracts a large number of global investors who are interested only in interest rate risk, resulting in lower and more stable mortgage rates and significant demand for long-term fixed rate loans. Long-term prepayable fixed rate mortgages currently account for close to 85% of all mortgages originated, a much higher percentage than in much of the rest of the world, where investors in mortgage-backed securities are forced to shoulder both credit and interest rate risk.

The backstop also allows the GSEs to hold much less capital than bank portfolio lenders, even where both are holding the same level of capital for the same risks. Like systemically important banks, the FHFA requires the GSEs to hold capital sufficient to withstand mortgage credit losses suffered in stress tests similar in severity to the financial crisis of a decade ago and remain going concerns. Recent stress-testing on the loans the GSEs currently guarantee has determined that capitalization to be about 3%. And indeed, the guarantee fees they charge today are consistent with a 3% capitalization and an implicit return on that capital of about 9% after tax, a return consistent with that of systemically important bank lenders today.¹

Bank lenders are required to hold more capital for their mortgage lending—generally closer to a 5% capitalization, though it varies by bank—because they bear more risk on these loans. GSEs bear only the credit risk, whereas bank lenders bear the interest rate risk and significant funding risk.²

Banks designated too systemically important to fail also have a government backstop, though the nature of that backstop will become clear only during a crisis. The support thus does not provide them the same market advantage that it provides the GSEs, where mortgage-backed securities investors know that they are protected from even the most severe of credit losses.

The GSEs' government backstop further provides the institutions a substantially lower cost of debt, because the GSEs are able to borrow at the risk-free U.S. Treasury rate. Bank portfolio lenders borrow at a rate that ranges from a few basis points to a few hundred basis points higher, depending on their credit rating, where the market is in the cycle, and the maturity of the debt. The difference in the cost of debt is especially important in stressed environments, when the spread between yields on bank and U.S. Treasury debt widens, raising costs for banks and thus mortgage rates for borrowers at the worst possible time. The GSEs' more stable cost of capital translates into lower, more stable costs to borrowers.

The CRT market, through which the GSEs transfer that risk to private investors, also benefits from the government backstop, as it makes the GSEs risk-free counterparties to the CRT investors. Investors do not need to worry that the GSEs may fail and not make a payout if the mortgages underlying the CRTs begin to default. When

combined with the investors' ability to rely on a consistent market for the risk, this creates a deeper, more liquid market into which the GSEs can transfer their credit risk, which in turn further lowers their capital burden. But again, this lower capital burden is driven by lower risk and thus not an opening for regulatory arbitrage.³

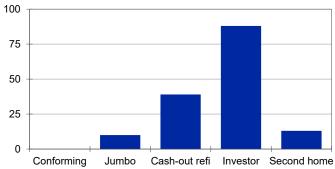
The GSEs should of course compensate taxpayers for this support, as the administration suggests. Determining the appropriate level of compensation is difficult given the remoteness of the risk the government is taking and the absence of a private market to determine its cost, but the most prominent legislative reform effort put this fee at 10 basis points. This is precisely the amount by which the GSEs' current guarantee fee already exceeds the level of capitalization for systemically important financial institutionsn to cover the payroll tax. And that suggests their capitalization and pricing are already in line with what is needed to cover the government's backstop.

The only way to level the playing field through capital may well be to set this fee not at a level to reflect the risk involved, but at whatever level would be needed to remove the market advantage the backstop affords. However, rather than leveling the playing field in the sense of making all participants hold the same capital for the same risks, this would unlevel it simply to give competitors a fighting chance against more efficient competitors.

In addition to all of the market advantages that flow from the government's backstop, the GSEs also have a significant, if difficult to quantify, advantage in their massive size and omnipresence throughout the housing finance system. They have developed and own much of the system's securitization infrastructure, infrastructure that dictates rules and processes throughout both the primary and secondary mortgage markets. Departing from these systems to use a competitor with the GSEs comes at a considerable cost for lenders, servicers, private mortgage insurers, and other stakeholders in the system.

The problem with Treasury's effort to address regulatory differences is thus not what it proposes to do—consistent capital and regulatory rules across the housing finance system is indeed a laudable objective—but what it expects it to achieve. Since the GSEs' domi-

Chart 2: GSE Loans Critical to Their Cross-Subsidy Difference between GSEs' guarantee fee & risk-implied g-fee, bps



Sources: CoreLogic, Moody's Analytics

nance is not primarily the result of capital and regulatory arbitrage, removing any differences will do little to end their dominance.

Abandoning some loan products

Perhaps in part recognizing this, Treasury also recommends that the GSEs consider pulling back on some loan products, perhaps even withdrawing support for them altogether. In particular, it suggests rethinking the GSEs' support of cash-out refinancing, high-balance loans, and loans for investor properties and second homes. Withdrawing from these products would reduce the GSEs' origination footprint, possibly dramatically (see Table 2). But it would also dramatically reduce the cross-subsidy they provide, not to mention their profitability, which is key to the administration's ultimate o bjective of getting them out of conservatorship.

The primary way that Fannie and Freddie help maintain broad access to affordable mortgage credit is by cross-subsidizing the loans they guarantee. By charging some borrowers more than is needed to cover the GSEs' risk and expected return on their loans, they are able to charge others less than is needed on their loans. This cross-subsidization occurs both within and across products, generating an estimated more than \$4 billion a year in cross-subsidy.

The product lines Treasury identifies for reduction or elimination are the GSEs' most profitable lines of business, providing the financial resources for the lion's share of their cross-subsidy. Chart 2 shows for each product how much borrowers are charged relative to what their risk implies, per dollar guaranteed, per year. Investor loans provide the largest cross-subsidization per dollar, though cash-out refinancing provides slightly more in total when the total volume for each product is factored in (see Appendix).

If the FHFA were to try to make up for the loss in crosssubsidy that comes from these loan products by charging still more for some of its remaining loans, the GSEs would lose even more of the loans that generate the cross-subsidy to bank portfolio lenders and the PLS market, leading to an even deeper loss in cross-subsidy.

Treasury's affordability plan

The question that this manner of reducing the GSEs' footprint raises is whether the administration can make up for the loss in cross-subsidy through other efforts to support access and affordability.

Treasury is understandably critical of the affordability regime in place today, in which the FHFA is required by statute to impose on Fannie and Freddie a set of affordability goals intended to push them to provide adequate liquidity in historically underserved communities, which they do through the cross-subsidy discussed above. As Treasury points out, this is an inefficient way to go about supporting historically underserved communities, as not all low- to moderate-income borrowers are high risk, nor are all high-risk borrowers of low to moderate income. As a result, almost one-quarter of the cross-subsidy goes to higher-income borrowers, some of which, perversely, is being provided by low- to moderate-income borrowers. And not all who need help getting a mortgage need it in the form of a lower mortgage rate. For instance, many would benefit more from down payment assistance.

To address these shortcomings, the administration recommends legislation replacing the affordability goals with a fee on guarantors, the revenue from which would be used to provide help for borrowers who actually need it, in the forms in which they actually need it.

Although this restructuring of the affordability regime makes a great deal of sense, whether it can make up for the significant hit in cross-subsidy the system will take under the administration's broader reform plan—much less expand access to keep up with the changing demographics of the nation—depends on several issues: how and how much it reduces Fannie and Freddie's footprint; how high the affordability fee is; and how effectively its revenues are allocated. It could maintain or even increase access and affordability in the proposed system, but only if it is cautious in how much it reduces the GSEs' footprint, matches that reduction with a fee of appropriate size, and implements a regime to allocate the revenues effectively.

However, none of this is possible within the administrative reform proposal, as the fee and the overhaul of the affordability regime would both require action by Congress. Unfortunately, of the steps

Table 2: Contraction of GSE Footprint

	2013	2014	2015	2016	2017	2018	2019
Percent of balances over conforming limits	7.1%	9.3%	10.1%	10.1%	9.9%	7.8%	7.1%
Balances at or under conforming limits:							
Percent cash-out refis	15.2%	15.3%	18.3%	20.5%	19.8%	17.6%	16.9%
Percent investor homes	7.7%	6.8%	6.0%	6.1%	7.1%	6.0%	4.5%
Percent second homes	3.8%	3.5%	3.2%	2.9%	3.4%	3.8%	3.8%
Percent cash-out refi+investor home	1.0%	1.4%	1.5%	1.7%	2.0%	1.8%	1.4%
Percent cash-out refi+second home	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
How much could the footprint contract if high-balance loans, cash-out refis, investor homes, and second homes were eliminated?	32.4%	33.1%	35.7%	37.7%	37.9%	33.2%	30.7%

Sources: Urban Institute calculations from eMBS data, Moody's Analytics

that it proposes to take administratively, the only ones that bear on access and affordability all cut the wrong way. By reducing the origination footprint of the GSEs without anything to make up for the loss in cross-subsidy, the administration would meaningfully, perhaps dramatically, reduce access and affordability in the system.

Macroeconomic impact

Consider a scenario in which Fannie and Freddie pull out of the products suggested, the Consumer Financial Protection Bureau replaces the Patch with a qualified mortgage

rule that applies evenly across the market, and the Securities and Exchange Commission syncs up the disclosure requirements for the GSEs and private label securitization.

In this scenario, the GSEs' share of single-family residential mortgage originations declines by about half, from its current 40% to closer to 20% (see Table 3). Of the 20-percentage point decline in the GSEs' origination share, 14 percentage points go to bank portfolio lenders; 4 percentage points to the FHA, Department of Veterans Affairs, and Department of Agriculture; and the remaining 2 percentage points to the private-label

securities market. Because the GSEs are no longer permitted to guarantee cash-out refinancing, investor and second-home loans, and high-balance loans, they do not have the wherewithal to provide the same level of cross-subsidy to higher-risk borrowers, including first-time and lower-income homebuyers, many of whom would now find FHA loans more economical.

Risk to the taxpayer increases in this scenario. Between the smaller GSE footprint and the improved PLS execution, the CRT market would become less liquid, increasing CRT yield spreads and making risk transfer less

Table 3: Macroeconomic Impact of Treasury Administrative Reforms

		2018	2019	2020	2021	2022	2023	2024	2025
GSE origination market share, %									
	Status quo	45.1	39.0	39.4	39.1	38.5	38.3	38.5	38.8
	Treasury reforms	45.1	39.0	39.4	22.6	19.1	18.2	18.9	19.3
	Difference	0.0	0.0	0.0	-16.5	-19.4	-20.1	-19.6	-19.5
Government credit risk market share,	%								
	Status quo	52.8	51.9	51.5	51.4	51.4	51.5	51.6	51.6
	Treasury reforms	52.8	51.6	51.5	56.8	58.2	58.6	58.6	58.4
	Difference	0.0	-0.3	0.0	5.4	6.8	7.1	7.0	6.8
New- & existing-home sales (ths)									
	Status quo	5,956	5,991	6,011	6,239	6,464	6,594	6,766	6,814
	Treasury reforms	5,956	5,991	6,011	6,428	6,707	6,856	7,026	7,071
	Difference	0	0	0	-189	-243	-262	-260	-257
Housing starts (ths)									
	Status quo	1,250	1,264	1,312	1,621	1,978	1,996	1,937	1,857
	Treasury reforms	1,250	1,264	1,312	1,691	2,082	2,111	2,055	1,972
	Difference	0	0	0	-70	-104	-114	-118	-115
House price growth (1980Q1=100)									
	Status quo	424.0	444.4	459.5	472.5	484.8	499.3	518.5	541.8
	Treasury reforms	424.0	444.4	459.5	460.2	467.9	477.3	497.2	520.2
	Difference, %	0.0	0.0	0.0	-2.6	-3.5	-4.4	-4.1	-4.0
Real GDP (2000\$ bil)									
	Status quo	18,638	19,067	19,387	19,795	20,375	20,819	21,259	21,659
	Treasury reforms	18,638	19,067	19,387	19,765	20,332	20,771	21,206	21,607
	Difference, %	0.00	0.00	0.00	-0.15	-0.21	-0.23	-0.25	-0.24
Employment (ths)									
	Status quo	149,064	151,335	152,619	152,526	153,850	154,894	155,769	156,649
	Treasury reforms	149,064	151,335	152,619	152,656	154,045	155,124	156,021	156,893
	Difference	0	0	0	-130	-195	-230	-252	-244

Note: Assumes Treasury administrative reforms take effect in 2021.

Source: Moody's Analytics

financially viable for the GSEs. This, along with the higher FHA share of originations, in which taxpayers take all of the credit risk, would increase the federal government's share of credit risk from 52% currently to 58%. Ironically, the administration's move to shrink the GSEs' footprint in the mortgage origination market would actually increase taxpayers' exposure to the mortgage market.

The hit to the housing market and economy in this scenario is meaningful. New- and existing-home sales ultimately fall by 260,000 homes, housing starts decline by 115,000 units, and house prices are nearly 4 percentage points lower than they would be otherwise. Real GDP would be nearly a quarter-percentage point lower and the economy would lose 245,000 jobs.

Re-privatization of Fannie and Freddie

While the Trump administration's ultimate objective is the release of the GSEs from conservatorship as privately owned financial institutions, it is not at all clear that is where its proposed reforms would actually lead.

In order for the GSEs to build the level of capital presumably needed under the capital regime eventually imposed by the FHFA, they will need to go to the capital markets for what would likely be the largest capital raise in the nation's history. This is only possible if the administration can get investors comfortable with what they are being asked to invest in.

This will be no easy task given the political dynamics of the issue, particularly before we know which political party will be in control after 2020. Politically charged questions about the government's role in supporting the institutions, the GSEs' market share, their public policy mission, and whether and how their returns will be regulated will inevitably hang over any offering. Whatever this administration's position on these issues, there will always be the risk that Congress steps in to change the terms of the investment.

The administrative path Treasury has laid out compounds this challenge significantly. In proposing to do what it can to remove the

GSEs' market advantages and reduce or eliminate altogether their most profitable business lines, investors will be asked to invest in institutions that are not only subject to significant political uncertainty, but will be meaningfully smaller and less profitable.⁷

In short, there is significant tension among the administration's objectives in housing finance reform, making it difficult to see how it would succeed.

Conclusion

It is nonetheless the prospect that Treasury does succeed in privatizing the GSEs that is most concerning. Even if the administration were to shrink Fannie and Freddie to about half their current size, which appears to be its objective, they would still dominate the housing finance system. The system would once again be dependent on a privately owned and controlled duopoly that policymakers cannot possibly let fail. It would thus once again give these two institutions on which the nation's housing market and economy depend every reason to take excessive risk in pursuit of the greatest possible return, knowing that if they fail, the taxpayer will bail them out. Indeed, the success of Treasury's administrative reform plan may present the worst of all outcomes: a system that manages to decrease access to credit while increasing risk to the taxpayer and generating a headwind for the economy.

There is a path for administrative reform available to them that would actually reduce the dominance of Fannie and Freddie, without disrupting access to credit or the economy. If the FHFA and Treasury were to deepen the CRT market, so that it provides a more durable replacement for the GSEs' assumption of credit risk, and expand the common securitization platform, so that it handles much of the securitization processes by which Fannie and Freddie are able to dominate the market today, they would lay the groundwork for a move away from our overreliance on Fannie and Freddie without disrupting the flow of credit. It is perplexing that they have chosen instead a path that will likely achieve neither.

Endnotes

- 1 This is consistent with the FHFA's 2018 proposed capital framework for the GSEs. It is also consistent with the Congressional Budget Office's estimate of the federal government's fair-value subsidy to the GSEs.
- 2 Banks' 5% capitalization is consistent with the 50% risk-weight bank Basel regulations put on their single-family residential mortgage lending and a 10% overall capitalization.
- 3 The advantage the GSEs have as counterparties in CRT transactions may be mitigated by the REMIC structures of more recent CRT securities.
- 4 This is the mortgage insurance fund fee in the Johnson-Crapo GSE reform proposals.
- The GSEs currently charge close to 60 basis points as a guarantee fee, of which 35 basis points go to capital (9% after-tax ROE, 3% capitalization), 10 basis points for expected loss, and 5 basis points for G&A—and an additional 10 basis points for the payroll tax legislated as part of the Temporary Payroll Tax Cut Continuation Act of 2011, which expires in 2021. The current 60-basis point guarantee fee is thus consistent with systemically important financial institution-like capitalization and a 10-basis point fee for the government guarantee.
- 6 This is based on the FHFA purchase-only repeat-sales house price index.
- 7 The GSEs currently have profits of approximately \$17.5 billion per annum on the single-family mortgage business. If they are unable to insure loans that Treasury has identified in its proposed administration reforms, their profits would be cut by more than half. And this assumes that the GSEs will not need to pay some form of dividend to the federal government for its investment in the institutions.

Appendix: Fannie and Freddie's Cross-Subsidy

To determine the cross-subsidization provided by the GSEs, we compare the FHFA's estimated capital risk charges across loan and borrower characteristics to the guarantee fees the GSEs actually charge. The capital risk charges represent the FHFA's assessment of the risk and expected return on the loans. In the absence of cross-subsidization, the capital risk charge equals the guarantee fee charged. Where it does not, the loans are either creating or receiving a cross-subsidy.

Cross-subsidy by credit risk

The GSEs cross-subsidize between low and high credit-risk borrowers, even for plain vanilla, 30-year purchase mortgage lending. To see this, we must calculate the guarantee fee that the GSEs charges on each loan, which is equal to the sum of a base guarantee fee and a loan-level pricing adjustment, or LLPA.

Table 4 shows the base capital charges across FICO score and loan-to-value ratio buckets estimated by the FHFA for an owner-occupied purchase mortgage with two borrowers and a debt-to-income ratio in the 25-40 range. Loans to investors, refinances, one-borrower loans, and higher DTIs require more capital, while lower DTIs require less. Assume the base guarantee fee is 50 basis points, 10 basis points of which goes for the payroll tax and 7 basis points for general and administrative expenses. This leaves 33 basis points of loss-absorbing capacity.

Table 5 shows the LLPAs expressed on an annualized basis. For example, the LLPA for a 700-719 FICO, 80 LTV loan is 1.25% upfront. To annualize it, divide by 5, as that is roughly the duration of a mortgage; this requires us to add 25 basis points per annum to the 33-basis point loss-absorbing capacity of the base guarantee fee. Thus, guarantee fees for loans in the 700-719 FICO, 80 LTV buckets would be 58 basis points (see Table 6).

Now compare the values in Table 4, the capital risk charges, with Table 6, the guarantee fees. The guarantee fee for the 700-719 FICO, 80 LTV bucket is 58 basis points and the capital charge is 293 basis points, for a ratio of 0.197. For a 30-60 LTV, there are no LLPAs, so the guarantee fee is 33 basis points, the capital charge is 46 basis points, and the guarantee fee required to match the capital charge on the 80 LTV loan is 9 basis points (0.46*0.197). Thus, this loan provides an incremental guarantee fee that is 24 basis points higher than the 700-719 FICO, 80 LTV loan, indicating a cross-subsidy. For a 90.01-95 LTV, the guarantee fee is 53 basis points and the implied g-fee is 112 basis points, indicating even more cross-subsidy. A cross-subsidy is also evident when fixing LTV and assessing across FICO, with the higher FICO loans subsidizing the lower FICO loans.

Cross-subsidy by product

There is also cross-subsidization across mortgage loan products. The LLPAs on jumbo mortgages, cash-out refinances, investor properties and second homes are higher than on other products (see Table 5). That is, in addition to the FICO/LTV charges, there is an additional charge if the loan is a jumbo mortgage, a cash-out refinance, an investor loan, or a second home. While LLPAs for jumbo mortgages and second homes are relatively modest, they are higher for cash-out refinancing and higher still for investor properties. For example, a 75-80 LTV investor property would have an additional LLPA of 3.375% upfront, or 67.5 basis points per annum.

Thirty-year high-balance jumbo loans have a 25-basis point additional upfront surcharge, equal to 5 basis points per annum. As these loans do not generate any additional capital changes, jumbo mortgages are going to provide a modest cross-subsidy across all FICO/LTV buckets. Purchase jumbo mortgages also tend to have more high FICO scores and fewer high LTV loans than their conforming counterparts, which further increases the amount of the subsidy. For 30-year jumbo purchase mortgages in the first eight months of 2019, 67.9% have FICOs greater than 740, versus 62.5% for plain vanilla owner-occupied purchase mortgages; 9.5% have FICOs less than 700, versus 14.5% for vanilla owner-occupied purchase mortgages; and jumbo loans have virtually no LTVs above 95, versus 13.5% of vanilla conforming product (see Table 7).

In order to understand the full extent of these subsidies, we compare the aggregate guarantee fee to the guarantee fee implied from the aggregate capital charge (see Table 8). The differences are illustrated in Chart 2. For jumbo purchase loans in 2019, the average capital charge is 260 basis points, compared with 310 basis points for the vanilla conforming product. Guarantee fees average 49 basis points for the vanilla conforming product. If we assume the guarantee fee should be commensurate with the risk, the risk-implied guarantee fee on the jumbo product is 41 basis points; the jumbo mortgages thus provide a 10-basis point subsidy versus the vanilla bucket.

Cash-out refinances have higher LLPAs than vanilla mortgages, an extra 1% upfront, or 20 basis points per annum. They also have capital charges 1.4 times that of vanilla product to account for the incremental default risk. On a bucket-by-bucket basis, the differences are fairly modest. For example, looking at the 700-719 FICO, 80 LTV, the capital charge for cash-outs is 4.1%, versus 2.93% for purchase, and the guarantee fee is 78 basis points, versus 58 basis points for purchase. The cross-subsidization comes from the fact that with a few exceptions, the maximum LTV on a cash-out refinance is 80 (see Table 9). Thus, the average capital charge on the cash-out book of business is 1.9%, for a risk-implied guarantee fee of 30 basis points. Yet guarantee fees average 68 basis points, suggesting 38 basis points in cross-subsidization.

Investor properties have very high LLPAs, much higher than cash-out refinances. And the capital charge is 1.2 times that of vanilla product, rather than 1.4 times from cash-out refinancing. Thus, each cell is much more lucrative. Moreover, investor loans are not permitted above 85 LTV, as shown in Table 9. Moreover, the credit scores of the borrowers are very high, with 76.5% above 740. The net result: The average capital required for investor properties is 1.59%, suggesting risk-implied guarantee fees of 25 basis points. In fact, actual guarantee fees tally 111 basis points, for an 86-basis point subsidy. Investor properties have the highest cross-subsidization per dollar of any of the activities.

While there are higher capital charges for investor properties (1.2 times the base case) and for cash-out refinancing (1.4 times the base case), these products still provide cross-subsidization because the higher LLPAs more than offset the increases in capital charges in any given FICO/LTV bucket. The FICO/LTV distribution in these products is also less risky.

Mortgages on second and vacation homes have modest LLPAs, with capital charges about the same as for vanilla product. However, borrowers with mortgages on second and vacation homes are much lower risk on average, with lower LTVs and higher FICOs on average. As a result, the overall capital charges for second and vacation homes are much lower than for vanilla product (1.91% versus 3.13%). The risk-implied guarantee fee for second homes is 30 basis points, versus an actual guarantee fee of 44 basis points, suggesting a 14-basis point subsidy.

To determine the total impact of a product line on cross-subsidization, we need to also factor in the volume of the loans. Note that this does not consider any additional risk-layering. Nor do we take into account loans in more than one category. We simply multiply the difference between the actual guarantee fee and the risk-implied guarantee fee by the market share. If an activity was 10% of the total book and the cross-subsidization was 10 basis points, it would contribute 1 basis point of cross-subsidization to the system. As can be seen from the result in the right column of Table 8, for 2019, cash-out refinancing provides the single largest total subsidy, at 6.5 basis points; investor properties, which make the largest contribution per dollar, contribute 3.8 basis points in total; and jumbo mortgages and second homes each contribute less than 1 basis point.

These estimates have some limitations, as we considered only the distributions of 30-year owner-occupied purchase loans, jumbo purchase loans, investor purchase loans, second home purchase loans, and cash-out refinancing. Neither the effects of risk-layering nor the cross-subsidization that comes from shorter-term mortgages is considered. Nonetheless, the results clearly indicate the significant loss in cross-subsidy that would result from Treasury's proposed elimination of some GSE loan products.

Table 4: Single-Family New Originations Base Credit Capital

						Loan	-to-value	ratio				
		≤30%	>30% but ≤60%	>60% but ≤70%	>70% but ≤75%	>75% but <80%	80%	>80% but ≤85%	>85% but ≤90%	>90% but ≤95%	>95% but ≤97%	>97%
	780+	0.1%	0.2%	0.6%	0.9%	1.1%	1.3%	1.5%	2.0%	2.6%	2.9%	3.3%
e)	760-779	0.1%	0.3%	0.8%	1.1%	1.5%	1.7%	2.0%	2.6%	3.4%	3.7%	4.3%
score	740-759	0.1%	0.3%	1.0%	1.4%	1.8%	2.1%	2.4%	3.3%	4.2%	4.6%	5.3%
	720-739	0.1%	0.4%	1.2%	1.7%	2.2%	2.5%	3.0%	4.0%	5.1%	5.6%	6.3%
credit	700-719	0.1%	0.5%	1.3%	2.0%	2.6%	2.9%	3.4%	4.5%	5.7%	6.2%	7.0%
	680-699	0.1%	0.5%	1.5%	2.3%	3.0%	3.4%	4.1%	5.3%	6.6%	7.2%	8.0%
Original	660-679	0.1%	0.6%	1.8%	2.6%	3.5%	3.9%	4.7%	5.9%	7.2%	7.8%	8.7%
rië	640-659	0.1%	0.7%	2.0%	3.1%	4.0%	4.5%	5.4%	6.7%	8.0%	8.6%	9.7%
0	620-639	0.1%	0.8%	2.3%	3.5%	4.6%	5.2%	6.2%	7.6%	9.1%	9.6%	11.1%
	<620	0.1%	1.1%	2.9%	4.4%	5.7%	6.5%	7.8%	9.6%	11.3%	12.2%	13.6%

Sources: Urban Institute, Moody's Analytics

Table 5: Loan-Level Pricing Adjustment

				I	oan-to-value	ratio				
		≤60.00%	60.01%- 70.00%	70.01%- 75.00%	75.01%- 80.00%	80.01%- 85.00%	85.01%- 90.00%	90.01%- 95.00%	95.01%- 97.00%	>97.00%
	≥740	0.000%	0.250%	0.250%	0.500%	0.250%	0.250%	0.250%	0.750%	0.750%
	720-739	0.000%	0.250%	0.500%	0.750%	0.500%	0.500%	0.500%	1.000%	1.000%
	700-719	0.000%	0.500%	1.000%	1.250%	1.000%	1.000%	1.000%	1.500%	1.500%
D	680-699	0.000%	0.500%	1.250%	1.750%	1.500%	1.250%	1.250%	1.500%	1.500%
Representative credit score	660-679	0.000%	1.000%	2.250%	2.750%	2.750%	2.250%	2.250%	2.250%	2.250%
credit score	640-659	0.500%	1.250%	2.750%	3.000%	3.250%	2.750%	2.750%	2.750%	2.750%
	620-639	0.500%	1.500%	3.000%	3.000%	3.250%	3.250%	3.250%	3.500%	3.500%
	<620	0.500%	1.500%	3.000%	3.000%	3.250%	3.250%	3.250%	3.750%	3.750%
	Second home	0.000%	0.000%	0.000%	0.000%	0.000%	0.250%	0.250%	0.250%	0.250%
D., J., ., C.,	Investment property	2.125%	2.125%	2.125%	3.375%	4.125%	4.125%	4.125%	4.125%	4.125%
Product feature	Jumbo	0.250%	0.250%	0.250%	0.250%	0.250%	0.250%	0.250%	0.250%	0.250%
	Cash-out refi	1.000%	1.000%	1.000%	1.000%					

Sources: Fannie Mae, Moody's Analytics

Table 6: Guarantee Fees Available to Absorb Risk—30-Year Fixed Rate Mortgages

		Loan-to-value ratio										
		≤60.00%	60.01%- 70.00%	70.01%- 75.00%	75.01%- 80.00%	80.01%- 85.00%	85.01%- 90.00%	90.01%- 95.00%	95.01%- 97.00%	>97.00%		
	≥740	0.33%	0.38%	0.38%	0.43%	0.38%	0.38%	0.38%	0.48%	0.48%		
	720-739	0.33%	0.38%	0.43%	0.48%	0.43%	0.43%	0.43%	0.53%	0.53%		
	700-719	0.33%	0.43%	0.53%	0.58%	0.53%	0.53%	0.53%	0.63%	0.63%		
	680-699	0.33%	0.43%	0.58%	0.68%	0.63%	0.58%	0.58%	0.63%	0.63%		
Representative	660-679	0.33%	0.53%	0.78%	0.88%	0.88%	0.78%	0.78%	0.78%	0.78%		
credit score	640-659	0.43%	0.58%	0.88%	0.93%	0.98%	0.88%	0.88%	0.88%	0.88%		
	620-639	0.43%	0.63%	0.93%	0.93%	0.98%	0.98%	0.98%	1.03%	1.03%		
	<620	0.43%	0.63%	0.93%	0.93%	0.98%	0.98%	0.98%	1.08%	1.08%		

Sources: Urban Institute, Moody's Analytics

Table 7: Distribution of FICOs and LTVs by Product Type

	FICO distribution											
Activity	<620	620-639	640-659	660-679	680-699	700-719	720-739	740-759	760-779	≥780		
Owner-occupied purchase	0%	1%	2%	4%	7%	10%	12%	15%	17%	31%		
Jumbo	0%	1%	1%	2%	6%	9%	13%	17%	20%	31%		
Cash-out refi	0%	3%	4%	7%	10%	13%	13%	15%	15%	21%		
Investor	0%	0%	1%	2%	4%	7%	10%	14%	21%	42%		
Second home	0%	1%	1%	2%	4%	6%	9%	11%	18%	47%		

	LTV distribution												
	≤30%	>30% but	>60% but	>70% but	>75% but	>80% but	>85% but	>90% but	>95% but	>97%			
Activity		≤60%	≤70%	≤75%	≤80%	≤85%	≤90%	≤95%	≤97%				
Owner-occupied purchase	0%	6%	5%	5%	26%	4%	13%	27%	13%	0%			
Jumbo	0%	5%	7%	9%	26%	6%	18%	28%	0%	0%			
Cash-out refi	3%	29%	22%	18%	27%	2%	0%	0%	0%	0%			
Investor	0%	10%	11%	52%	23%	4%	0%	0%	0%	0%			
Second home	0%	10%	9%	10%	43%	3%	25%	0%	0%	0%			

Sources: Urban Institute calculations of eMBS data, Moody's Analytics

Table 8: Comparison of Profitability by Activity

	Avg cap	Avg g-fee	Ratio	Implied g-fee	Difference	Market share	Total cross-sub (bps)
2018							
Conforming	3.13%	0.50%	15.97%				
Jumbo	2.47%	0.51%	20.65%	0.39%	0.12%	7.80%	0.900
Cash-out refi	2.03%	0.70%	34.48%	0.32%	0.38%	17.60%	6.613
Investor	1.63%	1.11%	68.10%	0.26%	0.85%	6.00%	5.098
Second home	1.90%	0.45%	23.68%	0.30%	0.15%	3.80%	0.557
2019							
Conforming	3.14%	0.49%	15.61%				
Jumbo	2.62%	0.51%	19.47%	0.41%	0.10%	7.10%	0.718
Cash-out refi	1.90%	0.68%	35.79%	0.30%	0.38%	16.90%	6.481
Investor	1.59%	1.11%	69.81%	0.25%	0.86%	4.50%	3.878
Second home	1.91%	0.44%	23.04%	0.30%	0.14%	3.80%	0.539

Sources: Urban Institute, Moody's Analytics

Table 9: Example of Cross-Subsidization Across Owner-Occupied Purchase Mortgages

	FICO	LTV	Cap charge	G-fee (bps)	Implied g-fee	Cross-subsidy
Base example	700-719	80.00%	2.93%	58	58	0
Lower LTV	700-719	30.00%-60.00%	0.46%	33	9	24
Higher LTV	700-719	90.01%-95.00%	5.66%	53	112	-59
Lower FICO	620-639	80.00%	5.18%	93	103	-10
Higher FICO	760-779	80.00%	1.66%	43	33	10

Sources: Urban Institute, Moody's Analytics

About the Authors

Laurie Goodman is vice president and co-center director of the Housing Finance Policy Center at the Urban Institute. This center is dedicated to providing policymakers with data-driven analysis of housing finance policy issues that they can depend on for relevance, accuracy and independence. Prior to joining Urban in 2013, Laurie spent 30 years as a mortgage-backed securities analyst and research department manager at a number of Wall Street firms, including Amherst Securities, where she developed a reputation for her analysis of housing policy issues, and UBS, where she was a top-ranked research analyst. Laurie also spent time as a mortgage portfolio manager, and as a senior economist at the Federal Reserve Bank of New York. Laurie serves on the board of directors of MFA Financial and Arch Capital Group, is an adviser to Amherst Capital Management, and is a member of Morningstar Credit Ratings Regulatory Governance Board. She has published more than 200 articles in professional and academic journals and co-authored/co-edited five books. She has a BA in mathematics from the University of Pennsylvania, and an AM and PhD in economics from Stanford University

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He is a trusted adviser to policymakers and an influential source of economic analysis for businesses, journalists and the public. Dr. Zandi frequently testifies before Congress and conducts regular briefings on the economy for corporate boards, trade associations, and policymakers at all levels. He is often quoted in national and global publications and interviewed by major news media outlets, and is a frequent guest on CNBC, NPR, Meet the Press, CNN, and various other national networks and news programs.

Dr. Zandi is the author of Paying the Price: Ending the Great Recession and Beginning a New American Century, which provides an assessment of the monetary and fiscal policy response to the Great Recession. His other book, Financial Shock: A 360º Look at the Subprime Mortgage Implosion, and How to Avoid the Next Financial Crisis, is described by the New York Times as the "clearest guide" to the financial crisis.

Dr. Zandi earned his BS from the Wharton School at the University of Pennsylvania and his PhD at the University of Pennsylvania.