



A roadmap for GSE reform

Fannie Mae and Freddie Mac have been under government conservatorship since the 2008 financial crisis, but reform might finally be in the works.



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Overview

Although Fannie Mae and Freddie Mac have spent over a decade in conservatorship, with seemingly no end in sight, real progress has been made on Government-Sponsored Enterprise (GSE) reform in recent years.

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Specifically, two important building blocks are finally in place:

- The development of Uniform Mortgage-Backed Securities (UMBS) means MBS issued by all mandated guarantors will trade as fungible credits, lowering the barrier to entry.
- The Credit Risk Transfer (CRT) market allows Fannie, Freddie and any new mortgage guarantors to shed mortgage credit risk efficiently¹. This should greatly reduce the amount of equity capital that a guarantor – including a post-conservatorship GSE – has to raise.

The focus of this paper is to suggest a series of steps the US administration, as well as Congress, might consider when addressing GSE reform. We believe successful reform should be guided by three principles: 1) getting private capital back into the US mortgage markets; 2) reducing the exposure of the US taxpayer to mortgage credit risk; 3) accomplishing the first two steps without disrupting the U.S. housing market.

Attracting private capital

In order to attract private capital, the GSEs would shrink their footprint in areas that are not part of their core mandate, such as second homes and investor and jumbo mortgages. The implicit government guarantee that Fannie and Freddie enjoy allows them to offer lower rates than the private sector. We believe that they should price guarantee fees for these loans without factoring in the advantages of the government backstop². This could modestly raise GSE guarantee fees on these loans, which would allow Private Label Securitization (PLS) to compete and could more than double annual PLS issued without a material effect on housing.

The 'GSE patch'³ grants the GSEs a big advantage over PLS on high debt-to-income (DTI) loans. The Consumer Financial Protection Bureau (CFPB) would level the playing field by issuing mitigating factors that allow private sector loans to achieve Qualified Mortgage (QM)⁴ status.

Policymakers could also urge industry groups and rating agencies to encourage standardization in PLS cash flow structures, representations, warranties and repurchase triggers, as well as in servicing practices. Standardization would increase liquidity, which would help the financing of PLS.

1 See related insert that explains the details of the CRT market.

2 The backstop allows GSE-guaranteed MBS trade with no credit risk, leading to better pricing than private label AAAs.

3 The 'GSE patch' essentially allows GSE-guaranteed high debt-to-income loans to be considered Qualified Mortgages.

4 QM loans give their originators 'safe harbor' status in case a borrower defaults.

Protecting the US taxpayer

In order to protect the US taxpayer while avoiding pro-cyclicality⁵, Fannie Mae and Freddie Mac could continue to shed mortgage credit risk using the CRT market. But what happens if the housing market deteriorates, making it hard to do so? Should the GSEs retain new mortgage credit risk on balance sheet or just stop guaranteeing new loans, which could make any housing crisis worse?

We suggest a new alternative – a revolving CRT structure⁶. This would allow the GSEs to shed credit risk on most future production, thereby avoiding pro-cyclicality while protecting the taxpayer.

A healthy US housing finance market

If Congress wants to get more entrants into housing finance, an overriding goal of GSE reform legislation must be to level the playing field to the extent possible, given that the GSEs start with enormous advantages on infrastructure, market share and the government backstop. If not, GSE reform is likely to lead to a housing finance system similar to pre-2008 – with a few giant firms guaranteeing most of the mortgages in the country.

In order to create a prudent capital framework, GSE legislation could reward guarantors that offload credit risk to the private sector with lower equity capital requirements.

In order to mitigate the pro-cyclical nature of new entrants, GSE reform legislation would insist that guarantors are monoline entities with capital devoted specifically to housing. Since most housing crises in the US (with 2008 a prominent exception) have been regional in nature, guarantors would be required to have a national footprint, with limits on geographical concentration.

Legislation would also enforce standardization and best practices in a number of areas, such as in mortgage servicing (including specifics on how to handle delinquencies, timelines for foreclosure), delinquent loan buy-outs and loss mitigation strategies, and standardized structured transactions (instead of every PLS prospectus having different cash structures, as often happened pre-2008).

Last but not least, any GSE reform legislation must seek to provide a smooth transition path to a world with more private capital and less governmental involvement.

5 The phenomenon where mortgage credit shrinks and becomes expensive in a housing downturn, thereby worsening any such downturn.

6 We explain below how such a structure would work, and what it would cost.



The story so far

The world has changed in the decade since the US mortgage market sparked a global financial crisis. Banks have recapitalized, home prices have recovered, existing home sales are back to healthy levels, and the US economy is enjoying its tenth uninterrupted year of expansion. But there is one very important corner of the US financial system that seems frozen in amber: the GSEs, their conservatorship status, and their outsized roles in US housing finance.

Successive administrations have rightfully lamented this ‘unfinished business’. Even after ten years, Fannie Mae and Freddie Mac are still wards of the US government. There is a reason for this inertia. GSE reform is difficult to pull off successfully. Do it right and you reduce the US homebuyer’s dependence on the GSE duopoly, manage to get private capital back in, and protect the US taxpayer against a repeat of 2008. Do it wrong, and you risk upending the world’s largest housing market.

In recent months, there have been signs that policymakers are ready to tackle this challenge. Treasury Secretary Mnuchin and FHFA Director Calabria have repeatedly underlined their determination to proceed with housing finance reform, there have been hearings in both the House Financial Services Committee and the Senate Banking Committee, and various lawmakers (such as Senators Crapo and Johnson) have circulated broad-brush legislative plans. But the details are missing. And when it comes to GSE reform, the details matter – immensely.

If policymakers were now designing from scratch a system for financing home buying, we doubt that they would suggest a GSE-based model with an emphasis on 30-year loans. But that is where the US is now; to avoid disrupting U.S. Housing, policy makers will need to build on the current system, centered around the 30 year mortgage. The goal of this paper is to detail a series of guiding principles that the administration and Congress might consider when tackling GSE reform.

Two critical building blocks are in place

It would be unfair to suggest that nothing has changed since 2008. Regulators and market bodies together have, in recent years, put in place building blocks that are a necessary (if not sufficient) condition for reform. The two most important are the development of a liquid market to transfer mortgage credit risk from guarantors to the private sector and the development of a common securitization platform.

Under the guidance of the Federal Housing Finance Agency (FHFA), the GSEs have built a vibrant market for CRT. These securities allow the GSEs to lay off a substantial portion of their credit risk to the private markets, thereby decreasing taxpayer risk. Any new mortgage guarantors (including post-conservatorship GSEs) – as envisaged by most legislative proposals – can now use the CRT market effectively to shed credit risk. This should significantly lower the amount of private capital they have to hold, in part because the CRT market tends to price credit risk far more efficiently than equity capital.

Starting in 2014, FHFA asked the GSEs to create a shared securitization infrastructure, referred to as the Common Securitization Platform (CSP), for the issuance, servicing and bond administration of MBS. Assuming multi-guarantor GSE reform is passed, new guarantors should be able to use this platform⁷ to benefit from the standardization and greater liquidity that GSE-backed MBS have always enjoyed. The CSP led to the introduction of the [Uniform Mortgage Backed Security \(UMBS\)](#) in 2019. The UMBS market allows collateralized securities issued by various entities to trade as fungible credits, as long as they have a government backstop; this is a significant benefit for any new mortgage guarantor.

These changes are necessary pre-conditions for far-reaching GSE reform, involving multiple mortgage guarantors and a world where Fannie and Freddie are out of conservatorship. The CRT and UMBS markets will allow all such guarantors to lay off their credit and interest rate risk, respectively, in the capital markets.

⁷ Mastered Servicing is not yet part of the Common Securitization platform.

Credit Risk Transfer Market

The GSEs currently guarantee \$4.5 trillion in residential mortgage loans. If any of these borrowers default, Fannie Mae and Freddie Mac bear the underlying credit risk. Historically, the GSEs have used various mechanisms, including private mortgage insurance companies, as ways to manage this exposure. Nonetheless, they faced significant credit losses in the 2007-09 financial crisis. Although underwriting standards have improved significantly relative to the pre-crisis period, the GSEs' credit exposure nevertheless remains substantial. If losses on the residential mortgages rise meaningfully, the GSEs could require additional taxpayer funds to cover such losses. In order to avoid such a situation, the Federal Housing Finance Agency (FHFA) began to require the GSEs to develop "loss-sharing agreements, under which private investors would assume a meaningful portion of the GSEs credit risk, in turn limiting GSE losses.

Beginning in 2013, the GSEs started to develop new structures that shared the credit risk of the mortgages they guaranteed with private investors in a number of different ways: CRT securities, credit-risk insurance transactions, and lender risk sharing (so called front-end risk sharing). The most common type of loss-sharing agreement involves CRT securities, in which Fannie Mae and Freddie Mac sell credit-linked notes that reference the performance of a pool of residential mortgage loans guaranteed by the GSEs. These are floating-rate securities that pay investors interest tied to one-month Libor plus a spread. The spread is determined based on investor demand for the CRT security at the time of issuance.

The securities are typically subdivided, or tranced. Lower tranches receive higher interest for bearing more of the credit risk. The GSEs receive proceeds up-front from investors who buy the CRT securities. Fannie Mae and Freddie Mac then make interest payments to these investors, while also forwarding along any scheduled and unscheduled principal received on the underlying mortgages. However, should a mortgage loan default, the GSEs retain the proceeds to reimburse themselves, effectively lowering their own credit losses.

The CRT agreements significantly reduce the GSEs' exposure to residential credit risk. There remains a vigorous debate as to how much credit risk sharing is optimal and how to make risk sharing more robust. But the agreements in place do effectively transfer credit exposure to the private market, which efficiently prices this risk. Fannie Mae and Freddie Mac have already transferred much of the credit risk on over \$2 trillion of mortgages that they guarantee. If the GSEs leave conservatorship, they would have to hold large amounts of capital as a private entity. The risk-sharing agreements would considerably lower the amount of capital the two firms have to hold. Similarly, new guarantors envisioned in the various legislative bills would be able to shed credit risk using the CRT market. The amount of capital that new guarantors will have to raise has often been cited as one of the main barriers to new entrants. But the CRT market would help to lower the capital required by a considerable extent.

With these building blocks in place, what are the next steps?

We consider the changes that the Administration could make without Congress. We then discuss what Congressional legislation on this issue could emphasize. But both the Administration and Congress seem to share the same goals.

- One goal is to get private capital back into housing finance. Very few influential policymakers disagree with the notion that it is not healthy for the government essentially to guarantee the majority of US mortgages.
- Both sides of the political aisle also want to protect the US taxpayer from the credit risk borne by GSE-guaranteed mortgages, to a much greater extent than in 2008.
- Finally, everyone agrees that GSE reform needs to occur without a major disruption of the US housing market.

Steps the administration could take to attract private capital

The administration could move the needle on GSE reform through agencies such as FHFA and CFPB. FHFA has a vital role to play in shrinking the GSE footprint – a necessary condition to attract private capital, given the enormous incumbency and pricing advantages the GSEs enjoy. Meanwhile, CFPB could soften the advantages granted by the ‘GSE patch’.

Shrink the GSE footprint in ‘non-core’ mortgages to allow PLS to compete

In 2018, \$29bn of mortgages was securitized in the PLS markets⁸. Meanwhile, Fannie Mae and Freddie Mac issued \$743bn of MBS in the same year⁹. In fact, while the GSEs’ core mandate is to facilitate conforming loans for borrowers,

they also issued \$137bn of MBS last year in three ‘non-core’ categories: second homes, investor properties, and jumbo loans. In our view, FHFA could get the GSEs to raise fees for these non-core loans, so as not to reflect the pricing advantage of the government backstop¹⁰. That would give PLS a chance to increase its market share in these sectors.

In 2018, Fannie Mae and Freddie Mac guaranteed \$79bn in second home and investor loans. This is low-hanging fruit that could be transferred to the private sector. Similarly, the GSEs guaranteed \$57bn of jumbo loans (above \$453k loan size) in 2018. Prior to the credit crisis, Fannie and Freddie guaranteed very few jumbo loans. They entered this market post-2008 as a temporary support, as private sector credit collapsed. Eleven years later, it is time for them to step back by increasing fees, allowing private capital to compete.

One issue that comes up: if Fannie Mae and Freddie Mac raise fees to reduce their footprint, will these loans move to the PLS market, or just to Ginnie Mae (which would keep the loans with the government and defeat the purpose of raising fees)? The good news: FHA guarantees only owner-occupied loans, which rules out investor properties or second homes. Most jumbo loans would not qualify for the FHA wrap, either. Bank portfolios are also unlikely to have a bid for investor and second home mortgages, though they could compete with the PLS market for some jumbo loans. Even so, if the GSEs shrink their footprint in these loan types and private label issuance could easily double in a year, kick-starting the process of attracting private capital back into the mortgage market.

⁸ According to Intex data, includes only new issuance and excludes re-securitizations of non-performing or re-performing deals.

⁹ For more details, see insert “A Stratification of current agency MBS issuance”.

¹⁰ The backstop allows GSE-guaranteed MBS to trade at better levels than private label AAAs with similar quality collateral. This allows the GSEs to charge lower rates on the underlying loans, giving them a structural advantage over the private sector.

A Stratification of Current Agency MBS Issuance

Figure 1 maps 2018 agency MBS 30-year fixed rate origination. It shows that the US government, in one form or another, guaranteed \$1.1 trillion of these mortgages last year. Ginnie Mae guaranteed a third of the total, about \$358bn. Fannie Mae and Freddie Mac made up the other two thirds, at about \$743bn. The outermost ring in the figure shows the various components of this \$743bn.

Fannie and Freddie guaranteed \$31bn in second home loans, \$48bn in investor loans, and \$57bn in jumbo loans, which have loan balances over the conventional limit of \$453k. This is 12% of the \$1.1 trillion, all in areas outside the GSE core function and where the private sector could make inroads if the GSEs shrink their footprint. Meanwhile, a whopping \$202bn mortgage loans were guaranteed by the GSEs because they could benefit from the exemption granted by the 'QM patch'.

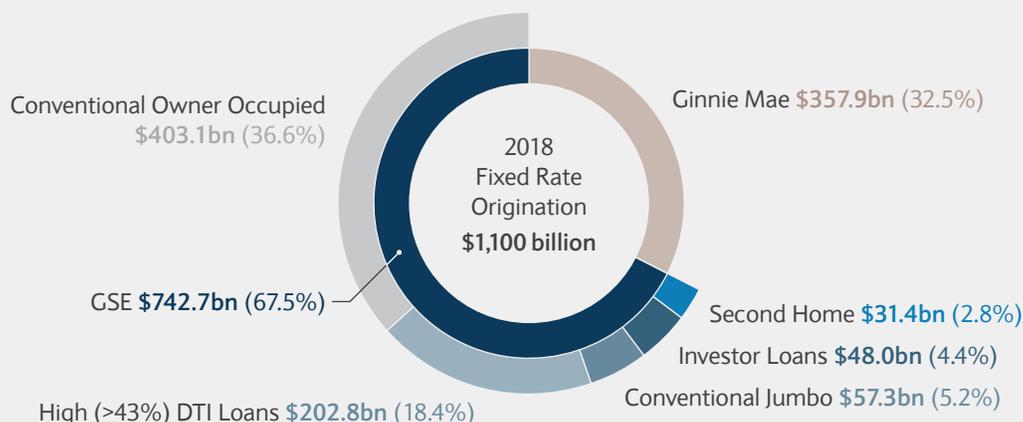
Second Homes and Investor Loans: In 2018, there was \$79 billion in second home and investor loans guaranteed by the GSEs, which are low-hanging fruit for transfer to the private sector. These loans are unlikely to move to Ginnie Mae since FHA guarantees only loans backed by owner-occupied properties. Banks are also unlikely to retain investor and second home loans on balance sheet, unless they are

exceptionally cheap. In 2018, the PLS market securitized about \$29 billion in total, of which over \$1 billion was agency conforming investor loans. This was possible because the loan level pricing adjustments (LLPA, or upfront guarantee fee) for investor loans are quite onerous and private markets were able to disintermediate the GSEs. Moreover, banks generally did not portfolio these loans but securitized them in the PLS market. Adjusting the loan level pricing adjustments until the private sector demand materialized provides a straight-forward road map for shrinking the GSE footprint in the sector.

Jumbo Loans: There was about \$57 billion of jumbo loans (above \$453k loan size) that were guaranteed by the GSEs in 2018. The vast majority of these loans were securitized in a special GSE program for high balance loans or allocated in small portions into conventional GSE pools. Prior to the credit crisis, GSEs generally did not guarantee loans above the conforming loan limit; however, as private sector appetite for home loans plunged in 2008, the GSEs were tasked to support this sector. These programs were always meant to be temporary and could be phased out by adjusting the pricing. Given the loan size, a vast majority of these loans would not qualify for FHA guarantee, but a portion of them are likely to move to banks, rather private label securitizations.

Figure 1

Agency MBS Mortgage Origination by Type



Note: Data reflects original loan balances of fixed rate securities originated in 2018. Source: CPRCDR, Annaly, Barclays Research

Fixing the ‘GSE patch’

Regulators put in place the QM rule after the 2008 crisis. QM loans require, among other things, more documentation about borrowers’ ability to repay. In return, lenders receive legal protection from lawsuits through ‘safe harbor’ provisions. While defining a qualified mortgage, the CFPB capped the maximum allowable DTI ratio at 43%¹¹. But it exempted GSE-backed loans from this DTI rule, the so-called ‘GSE patch’. One in three borrowers used a loan that had a DTI >43% to buy a home last year, with many of these guaranteed by the GSEs. Clearly, many borrowers struggle with the < 43% DTI requirement.

The GSE patch expires on January 10, 2021. But not extending it – and doing nothing else – might not be smart policy. The PLS market has limited appetite to originate non-QM (> 43% DTI) loans without legal protection. These loans would then either drift to Ginnie Mae, or there could be a significant pull-back in mortgage credit. Instead, we suggest that CFPB could issue a list of mitigating factors.

This is not a call to lower credit standards. But the DTI provision is just one indicator of borrowers’ ability to repay; it need not become the litmus test. High DTI loans already originated by the GSEs can give CFPB data to establish these mitigating factors. This would allow private capital to compete for high DTI loans and offset the advantage of the GSE patch.

Encourage standardization

When an investor buys an agency-backed pass-through, he/she does not need to do due diligence about rep and warranties, cash flow structures, or any surprises that might be hidden in the prospectus. GSE-backed pass-throughs all follow a standard set of rules. That is not the case with private label MBS.

As a result, an investor who is considering buying the AAA tranche of PLS might simply turn to agency pass-through MBS or demand a higher yield for the extra effort required with private label AAAs. Regulators and market bodies could actively encourage standardization in future PLS deals on the structure itself, reps and warranties, triggers within a deal, and servicing practices (including for delinquent loans). Such efforts would help make AAA tranches in PLS deals more competitive versus agency pass-through MBS.

Various industry bodies, such as the Structured Finance Industry Group (SFIG), have tried to standardize PLS structures. But they lack the power to compel investors and issuers to negotiate interests that are often in conflict. Regulators could help this process by ensuring that PLS deals that conformed to standards defined by the industry groups benefit from better risk retention and risk weight requirements. This is not without precedent. Currently, the risk retention and risk weight rules for qualified and non-qualified mortgages are different; this has clearly helped private markets’ appetite for qualified mortgages.

Challenges for PLS even if the GSEs pull back

The PLS market faces other challenges even if the GSEs successfully shrink their footprint, such as warehousing and financing. For example, sophisticated mortgage credit investors like to accumulate loans and finance them in a warehouse to meet their return thresholds, securitizing them when pricing in the private label market is attractive. This might be the ideal way to develop the PLS market. Pre-crisis, most participants were able to accumulate enough loans in one to two months to have enough size to securitize. Hence, the terms of the warehouse financing were not important. Post-crisis, it takes longer to accumulate enough loans to get to a minimum size to securitize and it is not always possible to securitize at attractive levels. So loans are warehoused for much longer, and the terms of the warehouse facility become far more important. This has been one of the impediments to growth in PLS markets.

In a similar vein, while financing terms for AAA tranches in private label MBS have improved in recent years, they are still much worse than pre-crisis. Currently, the haircuts for financing AAA PLS are 10%, vs. 5% for agency MBS pools¹². Similarly, the cost of financing the entire PLS AAA tranche is roughly 50bp higher than for GSE pools. Part of the reason for this increase is regulatory changes. While there is only so much policymakers can do when it comes to alternate financing sources or better warehouse terms, perhaps the best approach might be to tweak GSE fees until the GSEs get disintermediated by the private sector, as a means of nourishing the PLS market. As private sector securitizations become larger and more liquid, financing terms should improve.

11 In contrast to the CFPB, HUD guidelines for a qualified mortgage do not include the 43% cap on DTI.

12 For example, if a borrower is allowed to borrow only \$90 against collateral worth \$100, the haircut is 10%.

Steps the administration could take to protect taxpayers

The GSEs charged an average of 56bp in 2017 for the loans they guaranteed and then shed much of the credit risk in the loans using the securitized CRT market^{13, 14}. Depending on capital market execution and collateral characteristics, the cost to offload this risk tends to vary, from a high of 38bp in Q1 16 to the mid-teens more recently¹⁵. This usually leaves the GSEs with a meaningful spread, which more than covers their operating cost, the residual tail risk, and the 10bp they remit to the Treasury¹⁶, thus creating a profitable business.

But recent years have seen a benign environment for mortgage credit, with historically low rates, strong labor markets and steady home price appreciation. Should the US housing market or economy deteriorate, the cost of laying off the risk to capital markets will increase materially. At that point, the GSE will have to choose to either retain credit risk on new loans on balance sheet or continue to shed the risk at more expensive execution, locking in a loss on their pipeline¹⁷, which could then increase guarantee fees on future originations. Neither option is desirable. The former forces the taxpayer to assume housing credit risk when the private market is reluctant to do so. The latter, while more prudent, increases rates exactly when the housing market needs additional support. In theory, the GSEs could also pull back on mortgage lending when housing deteriorates, but such a step would be very pro-cyclical and could exacerbate any downturn in housing.

Why is pro-cyclicality such a focus in housing?

Most experts on GSE reform emphasize preventing pro-cyclicality in housing finance. The logic is: in periods when the housing market is weakening, pulling back on mortgage credit availability can make things worse. But is this a fair assumption? After all, policymakers do not seem to worry about pro-cyclicality in other areas such as credit cards, auto loans or corporate credit. What is so different about housing?

One big difference is that housing is the only asset class that US households buy with large levels of leverage. Thus any decline in credit availability hurts demand and home prices, creating a vicious cycle. This is exacerbated by a big lag between when home-building starts and when new houses are sold. Hence, a temporary pull-back in demand (as in a recession) can result in a supply overhang. If mortgage financing becomes less available at the same time, it could cause demand to shrink further, a recipe for boom/busts.

Weak housing markets often go hand in hand with a shakier economy and stressed financial conditions, which is also when the Fed is easing policy rates. But 30-year loans prevent rate cuts from helping US households as efficiently as other debt referenced off short rates. The only way for borrowers to benefit from lower rates is to refinance their mortgage, which comes with costs and requires continued credit availability. Finally, US housing is an enormously valuable asset, with a market value of over \$30 trillion. By contrast, markets such as credit cards and auto loans are far smaller. All of these are reasons why most experts support policy actions that prevent pro-cyclicality in US housing finance.

Revolving CRT: Protect the taxpayer without pro-cyclicality

We believe there is another approach that protects the taxpayer without worsening housing downturns: making the GSEs hedge their forward book of business. The cost of hedging can be illustrated by pricing a structure for securitized CRT with a re-investment period. These structures are popular in the leverage loan (CLOs) and ABS markets and are well understood by capital markets.

13 https://www.newyorkfed.org/research/staff_reports/sr838.html

14 <https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/CRT-Progress-Report-2Q18.pdf>

15 Reference for the cost of CRT transactions.

16 The GSEs remit to the Treasury 10bp to cover payroll taxes under the Temporary Payroll TAX Cut Continuation Act of 2011.

17 GSEs current sell credit risk on loans with x [meant to be variables?] months of seasoning. So their pipeline probably represents y months of origination.

Does the pricing work? The cost of Credit Risk Transfer on an existing CRT deal

We recommend that Congress push new guarantors to offload credit risk using CRT markets. But do the numbers add up? Or will guarantee fees rise sharply if a guarantor sheds credit risk on its mortgage book?

Consider a recent Freddie Mac CRT transaction (STACR-2019 DNA1); Figure 2 uses current market pricing. The bottom line: transferring credit risk is worth 14.4bp in guarantee fee terms. Readers not interested in the intricacies of mortgage credit pricing can stop reading right here.

The 14.4bp assumes that Freddie Mac offloads all five tranches (B3 to M1) in the table with a balance of \$425mn, part of the total collateral pool of \$10bn. While this is 4.25% and not 4.5%, borrowers rarely default in the first several months. Any initial principal pay-downs (both scheduled amortization and prepaes) are used only to pay down the AH tranche until the B3 to M1 tranches become 4.5% of the AH tranche. The typical structure also includes an optional call for the GSE after

10 years. For this pricing exercise, we assume that the deal is always called. This implies that the GSE retain some residual risk after the CRT deal is called. We estimate this risk to be relatively small.

The cost of credit risk transfer depends on three factors: the size of the various tranches, the compensation that investors demand for bearing this risk and the average life of each of the tranches. To calculate the last, we assume that the collateral prepaes at 10 CPR (market convention) and construct a default and severity vector. This gives us 30bp of base case collateral losses (also in line with market expectations). Then it is simply a matter of calculating the loss adjusted Discount Margin (DM). Multiply the DM by the average life and the original balance of each tranche and we get the cost of each tranche. In the case of the B3 tranches, it is \$391,448 and so on. The total cost ends up being a little over \$14.4mn, or 14.4bp for the \$10bn deal.

Figure 2

Cost of credit risk transfer – Typical structure used in STACR 2019 DNA1, indicative prices as of May 2019

Class	UPB	C/E	Thickness	WAL	Prin Loss	Loss Coverage	Loss-Adj DM	Cost in %	Cost in Cfee
AH	9,575,000,000	4.25%	95.75%						
M1	75,000,000	3.50%	0.75%	1.7	0.0%	11.8x	L + 0.70%	155,183	0.2
M2	240,000,000	1.10%	2.40%	6.5	0.0%	3.7x	L + 2.15%	5,704,554	5.7
B1	50,000,000	0.60%	0.50%	10.0	0.0%	2.0x	L + 4.10%	3,496,620	3.5
B2	50,000,000	0.10%	0.50%	8.5	39.2%		L + 6.42%	4,665,224	4.7
B3	10,000,000	0.00%	0.10%	2.7	100.0%		L + 8.60%	391,448	0.4
B3-M1	425,000,000							14,413,029	14.4
Collateral	10,000,000,000	0.00%	100.00%	5.9	0.30%				

Source: Annaly, Barclays Research

Consider how such a structure would work. In existing CRT structures, the deal is usually divided into five risk tranches¹⁸. The junior tranches have the higher coupon and bear the bulk of the credit risk, while the senior tranches have lower coupon and credit risk. Any prepayments from the reference pool pay the senior tranches down, while losses decrease the outstanding balance of the junior tranches. For example, in the stylized example in Figure 3, the junior most B3 tranche or “first loss piece” yields a coupon of L+41% to generate a loss-adjusted discount margin of 8.6%. It is only 10bp and is wiped out if/when losses on the underlying collateral hit 10bp. Any further losses are then absorbed by the next tranche (B1) and so on until the senior most tranche (M1) is fully paid down. Any further losses will be absorbed by the GSEs.

A tweak to this structure would be to allow the GSEs to replace loans that prepay from the reference pool with new loans of similar credit quality for the first few years. After this re-investment period, the structure would pay down just like current CRT deals. This change would let the GSEs sell forward future originations that arise from prepayment. For example, in 2018, they had total issuance of \$769 billion, but net issuance of only \$185 billion. The rest of the issuance came

¹⁸ https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr838.pdf

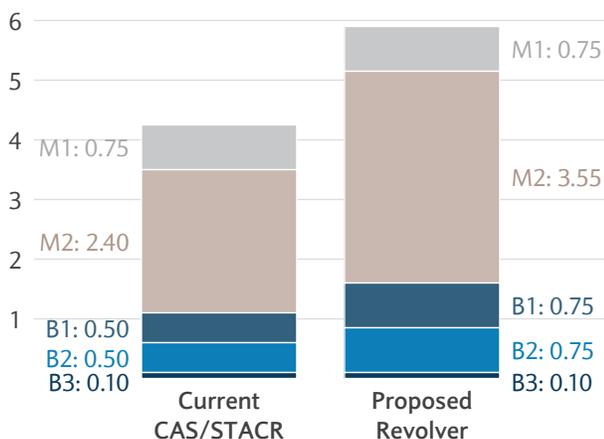
from prepayments on the existing book of business. By issuing securitized CRTs with a re-investment period, the GSEs could lock in the cost of shedding credit risk on future loans. Thus, in any housing downturn, the cost of credit transfer should not rise for the GSEs, making them less pro-cyclical.

This will admittedly come at a higher cost. In our stylized example (see insert), this cost comes to an extra 10bp, using reasonable assumptions for market pricing on the tranches. The extra spread is because investors will expect to be compensated for bearing the credit risk on not just the original reference pool, but also the loans substituted for prepayments. Also, the re-investment period makes the average life of the tranches longer and they de-leverage more slowly; investors will want wider spreads on CRT bonds for this reason as well.

Securitized CRT accounts for over 70% of credit risk transfers. But the GSEs also use lender risk sharing and insurance/reinsurance structures with large financial institutions. These could be forward flow agreements that offload credit risk on future production. All such approaches are likely to increase mortgage rates to borrowers a little. But if that is the price to make Fannie and Freddie less pro-cyclical while minimizing tax-payer risk, policymakers should require the GSEs to hedge their forward flow.

Figure 3

Illustrative CRT Tranche Structures



Source: Annaly, Barclays Research

Does the pricing work? The cost of Credit Risk Transfer assuming a 3-year revolver

We now look at what the cost of credit risk transfer would be assuming Freddie Mac included a 3-year revolver structure, which allowed it to sell credit risk on its future book of business. In Figure 4, we repeat the same exercise as in the previous insert, but include a 3-year revolver. Using the same 10 CPR prepay assumption, every year 10% of the pool pays down and is replaced. In this case, the cost of credit risk transfer rises to 26.6bp because of the 3-year revolver, from the original 14.4bp. The incremental 12bp seems a reasonable price to pay for allowing Freddie Mac to shed risk on its business.

After adjusting our default and severity vectors to account for the revolver structure, we estimate base cases losses of 43bp. We resize the various tranches so that they have similar loss coverage ratios to the previous exercise. Given the longer average life of the cash flows and the higher uncertainty associated with a 3-year revolver, we estimate the compensation that the market would demand (we cannot rely on market pricing, since existing CRT deals do not use a revolver structure). Based on our assumption, we find the cost of the revolver structure to be 26.6bp. This is our estimate for the first such transaction; if such deals become more common, execution should improve.

There have been some proposals for the GSEs to buy protection for excess losses of 10%. While we do not show the calculations here, we estimate that it would cost an extra 8-10bp (over the cost of the first \$4.5 of protection) to buy

this extra protection. We believe this is excessive caution; the 2006 loans did not see losses of 10% even through the 2008 crisis, and that it makes more sense to protect against execution risk by using the revolver structure.

So what do these structures mean for the overall guarantee fee? Even after protecting against the first \$4.5 of losses, the GSEs will continue to own the residual risk after the 10-year call. In addition, they have execution risk on CRT deals. Finally, there is the tail risk of losses exceeding 4.5% (or theoretically, even exceeding 10%). Figure 5 shows our estimate of total guarantee fee for three different CRT deals: a 4.5% credit enhancement, a 4.5% enhancement with a 3-year revolver, and for completeness the estimates if there is a 10% credit enhancement.

Figure 5

Total guarantee fees with 4.5% and 10% credit enhancement

(bps)	4.5% CE	4.5% CE + 3 Year Revolver	10% CE	10% CE + 3 Year Revolver
CRT Transfer Cost	15	26	22	37
Residual Risk	2-4	2-3	2-4	2-3
Operation Cost	10	10	10	10
Execution Risk	0-20	0-4	0-20	0-4
Total before Payroll Tax	27-49	38-43	34-56	49-54

Source: Annaly, Barclays Research

Figure 4

Cost of credit risk transfer – Excess losses up to 4.5% and 3-year revolver structure

Class	UPB	C/E	Thickness	WAL	Prin Loss	Loss Coverage	Loss-Adj DM	Cost in %	Cost in Cfee
AH	9,410,000,000	5.90%	94.10%						
M1	75,000,000	5.15%	0.75%	3.6	0.0%	11.8x	L + 1.20%	400,000	0.4
M2	355,000,000	1.60%	3.55%	8.2	0.0%	3.7x	L + 3.15%	11,320,556	11.3
B1	75,000,000	0.85%	0.75%	13.0	0.0%	2.0x	L + 5.60%	6,740,741	6.7
B2	75,000,000	0.10%	0.75%	10.2	39.2%		L + 8.30%	7,838,889	7.8
B3	10,000,000	0.00%	0.10%	2.7	100.0%		L + 9.74%	324,667	0.3
B3-M1	590,000,000							26,624,852	26.6
Collateral	10,000,000,000	0.00%	100.00%	8.1	0.43%				

Source: Annaly, Barclays Research

Steps Congress could take

The administrative reform proposals we have outlined above not only shrink the GSE footprint but also effectively de-risk them. Why not just follow this path, essentially keeping the GSEs as wards of the government? While this is the status quo approach, conservatorship keeps the GSEs in limbo; it cannot be a permanent solution. This leaves the administration with two choices: either convert Fannie and Freddie to government utilities or privatize them through some form of re-capitalization (see the insert for our thoughts on “recap and release”). The former option would make official the government control over housing finance. The latter would leave us with a system very similar to the one we had pre-crisis, with privatized profits and a government backstop for a giant duopoly. There is, however, a third path: a multi-guarantor system with checks and balances. But that will need legislative GSE reform.

As Congress considers far-reaching GSE reform legislation, it will doubtless consider the mistakes made in the run-up to the 2008 crisis. But it is also important to keep in mind what the GSEs have done well over the past several decades and try to protect these achievements:

- The GSEs have built a liquid market for AAA US mortgage debt, which attracts a broad investor base domestically and overseas. The agency MBS market is one of the most liquid and transparent ones for housing debt across the world, with liquidity comparable to the US Treasury market.
- Fannie and Freddie have developed an underwriting platform that allows lenders of various sizes to compete on relatively equal footing. For example, they have also established a cash window that enables smaller banks, finance companies and lenders to compete against large entities. They have created the expertise and infrastructure to manage a large number of originators, servicers and insurance providers¹⁹.

¹⁹ GSE critics would argue that the infrastructure had various shortcomings, but they are still best in class, particularly as the PLS sector never really developed sufficient infrastructure to manufacture, service, and structure the asset. For example, the owner of the equity tranche in a PLS transaction is tasked with managing the servicer, which most equity buyers have neither inclination nor the expertise to perform.

- The GSEs have established best practices for servicing and monitoring servicers closely, on managing defaults and foreclosure but also on soliciting and prepayments. In the capital markets, they approve every feature of a structure before a deal is finalized. GSE structures are standardized, with little confusion and clear rules on the priority of cash flows.

In short, the GSEs have led the way in developing the US housing finance market, far more so than the private sector. But this is due partly to their huge advantage in market share and incumbency, separate from the implied backstop. The GSEs' size allows them scale any new idea quickly; for example, changes that they make to underwriting guidelines are adopted by all market participants. The private label markets have had their share of innovation, both good and bad. Hybrid ARMs, IO loans, negative amortization loans, shared appreciation mortgages, home equity lines of credit (HELOCs) – they all came from the private sector.

While one can argue the relative merits of these products, it is fair to say that the 30-year fixed rate mortgage need not be the financing choice for everyone. Yet these products never challenged 30-year loans in part because the private sector lacked the scale, market share and control of infrastructure that the GSEs have. Congress may have to walk a tricky line on GSE reform: limiting the huge market share/incumbency advantages of Fannie Mae and Freddie Mac, making sure that the infrastructure they have built can be leveraged by new entrants, while also protecting their achievements.

The ideas proposed in the [Senate Banking Committee Housing Reform Outline](#), the [Corker-Warner Finance Reform and Taxpayer Protection Act](#) or by the [Mortgage Bankers Association \(MBA\)](#) all make this point. They envision a world with multiple privately capitalized guarantors using the GSE-developed underwriting and securitization platform to disseminate credit and rate risks. But these proposals would need to ensure that guarantors can attract private capital and minimize tax-payer risk; provide credit at reasonable rates for borrowers across the country in any macro environment; and be effective in managing servicers and counterparties. Finally, it is important for GSE reform to provide a transition path from the current system without significantly dislocating the availability and/or the price of mortgage credit.

GSE “Recap and Release”

Plans to recapitalize the GSEs and release them from conservatorship (“recap and release”) could return Fannie Mae and Freddie Mac to the pre-crisis model. The GSEs would once again be in private hands, enjoy government guarantee on their MBS and debt, and provide stability to housing finance as a duopoly. Newly raised private capital would provide a greater cushion against losses than existed pre-2008, and the Enterprises would likely be more tightly monitored by their regulator than in the past.

There are several arguments both in favor of, and against, any such plan. The relative ease of transition is a big positive. A ‘recap-and-release’ plan does not have the operational uncertainty inherent in other reform plans. But critics will be able to make several arguments. For example, such a plan entrenches the duopoly of the GSEs, instead of a transition to a multi-guarantor system. Once released, the GSEs (as private firms) might once again be incentivized to prioritize profits over safety and soundness concerns. Another argument that is sure to be raised – if a duopoly is preferred for ease of transition, why privatize the profits instead of turning the firms into government utilities? Moving retained earnings of future years to a dedicated ledger, instead of paying them out as dividends to private investors, could provide more taxpayer protection than a private market capital cushion.

In the event of ‘recap and release’, the onus will be on the GSE regulator to ensure that the GSEs prioritize safety and soundness concerns. The regulator will need to have an in-depth understanding of the GSEs’ businesses and the ability to ensure compliance. These objectives might be more difficult to meet in a duopoly structure, for a few reasons. The regulator would lack the option to transfer the book of business of one GSE to the other Enterprise in case of serious regulatory violations, if there are just two of them instead of many. Regulating multiple entities in the same line of business typically provides a financial regulator with different perspectives on similar situations. And importantly, regulating a larger number of entities would provide more weight to the regulator, as shutting down one guarantor and transferring the business to another would be more feasible and less disruptive to the overall system.²⁰

²⁰ <https://gsesafetyandsoundness.com/>

Enforce a prudent capital regime

One of the decisions that GSE reform legislation will make is the capital regime under which new guarantors will operate. Demand too much capital, and private entrants could be scared away. Mandate too little, and the US taxpayer could be exposed in periods of housing stress. This is not an argument about the government backstop; we believe that a government guarantee will always be needed in periods of crisis. Private market pricing for tail risk is inefficient. Governments can price low probability-high impact events (such as 2008-type housing crisis) more efficiently. But policymakers still need to decide the amount of protection they want mortgage guarantors to have for non-tail risk scenarios.

2008 strikes us as a reasonable approximation of a ‘severe stress’ scenario. Figure 6 shows losses on pre-2008 origination. The worst cohort – 2006 – has losses of just over 6%. But that is an unfair bar; regulatory changes since 2008 (such as an increased focus on the borrower’s ability to repay) should ensure that mortgages of the future are not as poor in credit quality as 2006 loans. Instead, consider the collateral that backed a recent Fannie Mae CRT deal (CAS 2019-R03 G01). If that had been the quality of the 2006 loans, expected losses would have been 4.5%, even in a 2008-like scenario. Current CRT deals already provide cushion against the first \$4.5 dollars of losses. This seems a defensible starting point to us. But in addition to laying off risk using CRT, Congress should demand a capital cushion for other risks, such as a ‘going-concern’ buffer, counterparty risk, or residual credit risk.

How much should that capital requirement be? FHFA has released a proposal for GSE capital requirements, in the event Fannie and Freddie return to private hands, which requires

them to hold 3.25-3.5% of capital. But this capital ratio includes their residual MBS holdings²¹, and it reflects the fact that the GSEs have yet to shed credit risk in the CRT markets on over half their existing production (let alone their forward book). There are other nuances too; for example, the GSEs usually retain the first loss piece in their CRT deals, which requires capital against it.

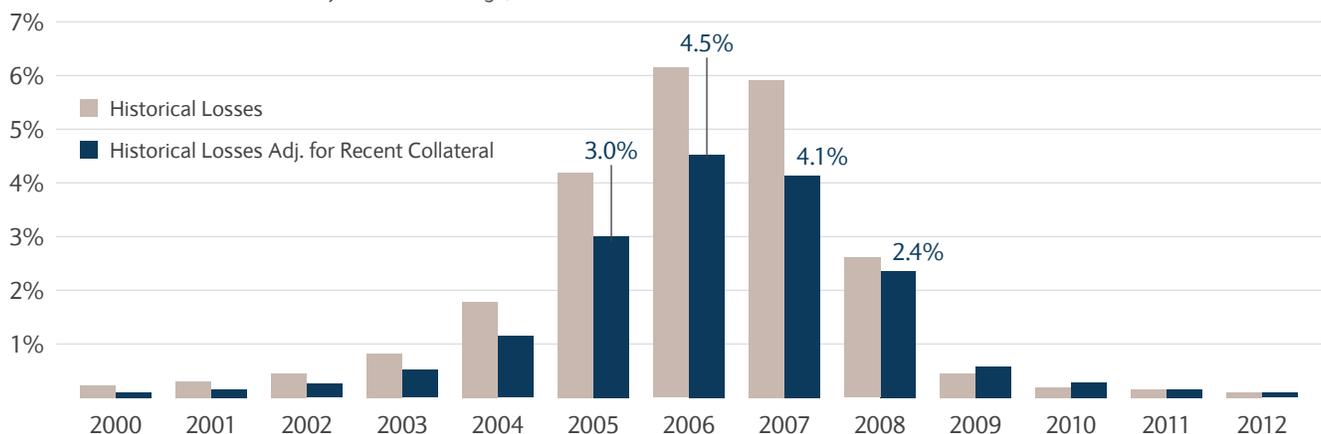
When we use the FHFA principles and apply them a new mortgage guarantor, we come up with 1.75%-2% as a capital requirement. This is mostly because the new guarantors carry less risk than the GSEs. They will transfer credit risk on their entire book of business (including forward flow), sell most if not all the 1st loss risk and have a much smaller portfolio of MBS and loans (please see insert for details). So we feel comfortable that the new guarantor will need less equity than the GSEs under the assumption that the guarantors sell 4.5 dollars of loss coverage²² in the CRT market (with most of their forward business hedged).

How much would all this cost, and would it raise guarantee fees? We noted in the insert on CRT pricing that the ongoing cost of laying off \$4.5 of losses is 27-38bp (assuming there is no discount for execution risk), depending on how much of the forward book is locked in for the next three years. For the 2% capital buffer, equity investors will probably want a return on equity of 10%, which adds another 20bp in ongoing costs. That suggests an all-in guarantee fee of 57-68bp, not very far from current levels. In sum, we believe that mandating prudent capital standards is entirely consistent with providing market-based returns on capital, as long as guarantors are asked to use the CRT markets to shed risk.

Figure 6

Fannie Mae collateral losses by vintage

CAS 2019-R03 G1 Net Loss Rates by Collateral Vintage, %



Source: Annaly, Barclays Research

21 A legacy of the days when the GSEs had a large investment portfolio of MBS, in addition to their guarantee business.

22 This can be adjusted for the quality of the underlying mortgage collateral.

Prudent capital standards for new guarantors - using FHFA principles

FHFA has published a detailed proposal for GSE capital requirements, which recommends that the GSEs hold capital corresponding to 3.24% of their assets if they ever enter a post-conservatorship world. Yet we are suggesting that Congress make new guarantors hold only 1.75-2% of capital. Why the discrepancy? In fact, our capital recommendation is a little stricter than FHFA's guidelines for the GSEs.

Figure 7 is the summary of Fannie Mae's and Freddie Mac's estimated risk-based capital requirements as of September 30, 2017, from the FHFA's Enterprise Capital Requirements proposal. It shows the GSEs are required to hold 162bp (or 1.62%) of capital for credit risk even after accounting for credit risk transfers (see the row labelled "Post-CRT Net Capital Credit Risk"). Under the FHFA framework, the capital required for credit risk covers: 1) the roughly 50% portion of their guarantee portfolio on which the GSEs have not yet transferred credit risk; 2) the first loss piece that they retain on the loans on which they have shed the credit risk; 3) potential residual losses after the term of the CRT expires; and 4) counterparty risk from mortgage insurance companies and the 30% of CRT through bilateral transactions with financial institutions. Our recommendation is for new guarantors to shed credit risk on all their production, including the first-loss piece. This would leave them with just the residual and counterparty risk. We conservatively estimate this to require 80-100bp of capital.

The other 1.62% includes some factors that should not apply to the new guarantor. For example, 48bp of capital is due to the deferred tax asset (DTA) that the GSEs hold on their balance sheet. A new guarantor, of course, will not have a DTA and will, thus, not have to hold capital against it. FHFA also proposes 35bp of capital against the GSEs' portfolio of loans and MBS (see row labelled "Market Risk"). Currently, the GSEs own about \$395bn in loans and MBS; the latter holdings are mainly a legacy from when the GSEs ran a big investment portfolio in addition to its guarantee business. A new guarantor should be required to operate with a much smaller portfolio; our estimate suggests that it could be less than half the size of the current GSE portfolio. The GSEs could also more aggressively sell their non-performing and re-performing loans to reduce risk. Overall, this would limit the market risk capital for a new guarantor to 17bp, about half the 35bp the GSEs require under the FHFA proposal.

FHFA recommends 72bp of capital as a 'going-concern' buffer and 8bp for operational risk; we will defer to their judgement on these. That means a new guarantor would have to hold capital only equal to 97bp of its balance sheet (97 = 72 + 8 + 17) for non-credit risk items. Taken together (97bp + 80-100bp), the capital required for credit and non-credit items are 1.75-2.0% of consolidated assets.

Figure 7

Risk-based capital requirements for new guarantors using FHFA capital requirements for GSEs

	\$ billion			in basis points			New Guarantor
	Fannie Mae	Fannie Mac	GSE' Combined	Fannie Mae	Fannie Mac	GSE' Combined	
Net Credit Risk	\$70.5	\$41.5	\$112.0				
Credit Risk Transferred	-\$11.5	-\$10.0	-\$21.5				
Post-CRT Net Credit Risk	\$59.0	\$31.5	\$90.5	176	142	162	80-100
Market Risk	\$9.5	\$9.9	\$19.4	28	44	35	17
Going-Concern Buffer	\$24.0	\$15.9	\$39.9	72	71	72	72
Operational Risk	\$2.6	\$1.7	\$4.3	8	8	8	8
Other (DTA)*	\$19.9	\$6.8	\$26.7	59	31	48	0
Total Capital Requirement	\$115.0	\$65.8	\$180.8	343	296	324	177-197
Total Assets and Off-Balance Sheet Guarantees, \$ billions	\$3,353.1	\$2,226.0	\$5,579.1				

Source: FHFA, Annaly, Barclays Research

Mitigating the pro-cyclical nature of new entrants

In a new structure with multiple mortgage guarantors (instead of a few large GSEs), policymakers would still need to put in safeguards against pro-cyclical lender behavior.

Below are some suggestions for achieving this:

- **Guarantors would be mono-line companies with capital dedicated to housing.** Banks and most other investors in PLS have the ability and fiduciary responsibility to allocate capital to the sector with the best risk-adjusted returns. So in periods of housing stress, they are more likely to shift away from that sector, unlike a mono-line. A mono-line business also has a greater incentive to worry about the long-term health of the sector instead of maximizing profits over the near term and should be easier to regulate.
- **Guarantors would be required to hedge the price of laying off credit risk to capital markets.** As we highlighted earlier, policymakers could achieve this with a combination of revolver CRT structures, forward flow agreements and similar structures. This would ensure that a guarantor is not mispricing current production (for example, in an attempt to buy market share) and pricing does not fluctuate widely with risk sentiment in capital markets.
- **Guarantors would be required to have a national footprint, with limits on geographic concentration.** Unlike the 2008 crisis, most home price declines are driven by local economic events, such as the oil slump in Texas in the mid-1980s²³, the tech retrenchment in Massachusetts in the late 1980s and military base closures in California in the 1990s. A diversified loan book that limits geographic concentration would protect guarantors against localized housing downturns.

Enforcing standardization through legislation

There are many perhaps unexciting but still crucially important functions that the GSEs perform that would have to be performed by all entities in a multi-guarantor world; GSE reform legislation could mandate these functions.

- **Establishing and enforcing best practices in servicing.** The GSEs have established clear guidelines for servicing mortgages. Most PLS could simply adopt the GSE standard on topics such as solicitation to refinance, how to handle delinquencies, reasonable time lines for foreclosure, etc. For example, it was the GSEs that structured the servicing strip such that it was large enough to be transferred if a servicer were in financial trouble or not performing its duties. The new guarantors would have to provide similar diligence.
- **Buying out delinquent loans increases flexibility on loss mitigation strategies.** The GSEs have traditionally bought delinquent loans out of the pool. This gives them flexibility to modify the loan rate, loan term and capitalize missed payments. While this is a key loss mitigation tool, it needs additional capital, as loans bought out have to be held on balance sheet. In PLS deals, delinquent loans were left in the trust and modified only at a servicer's discretion. There would need to be an accepted best practice for all guarantors.
- **Creating standardized and approved structured transactions.** Collateralized mortgage obligations (CMO) tranche the interest risk in mortgage pools, allowing investors to buy the part of the rate risk that best suits their investment objective. However, CMOs can become very complicated, and cash flow structures can become tricky. To avoid malpractice, the GSEs insist on approving every

²³ <https://www.bostonfed.org/-/media/Documents/neer/neer294d.pdf>

CMO structure and act as the trustee. Unlike PLS deals, where there is often a debate on the priority of cash flows, agency CMO cash flow rules are transparent. That approach would need to be extended to PLS deals.

- **Allowing smaller banks and finance companies to compete with large entities.** One thing that the GSE did effectively was put small originators and larger entities on equal footing by letting the former sell loans for cash (cash window). This allows such companies, which typically have higher funding costs and fewer sources of funding than larger banks, to compete in the mortgage market. The GSEs also help small servicers find ways to finance their servicing asset, decreasing their capital need.

A transition plan

A key aspect of legislative reform will be to ensure a smooth transition to a new housing finance system. This is not an easy task, given that the current system has grown organically over several decades and is complex. If policymakers want to realize their vision of having multiple guarantors replace the Fannie Mae/Freddie Mac duopoly, there needs to be a clearly defined path that evolves the GSEs to a guarantor that would be on par with new entrants. Remember that the GSEs control a large book of business that generates a lot of revenue; have built infrastructure over decades; and have human capital and experience in dealing with originators, servicers, mortgage insurers and investors. The very idea of competing with these behemoths can be daunting to private entrants.

In contrast, the new guarantors will typically have no legacy assets and limited infrastructure and human capital. Their sole focus, at least initially, is likely to be to underwrite and guarantee new mortgages that can be securitized. For a smooth transition, policymakers could consider the GSEs as three separate entities.

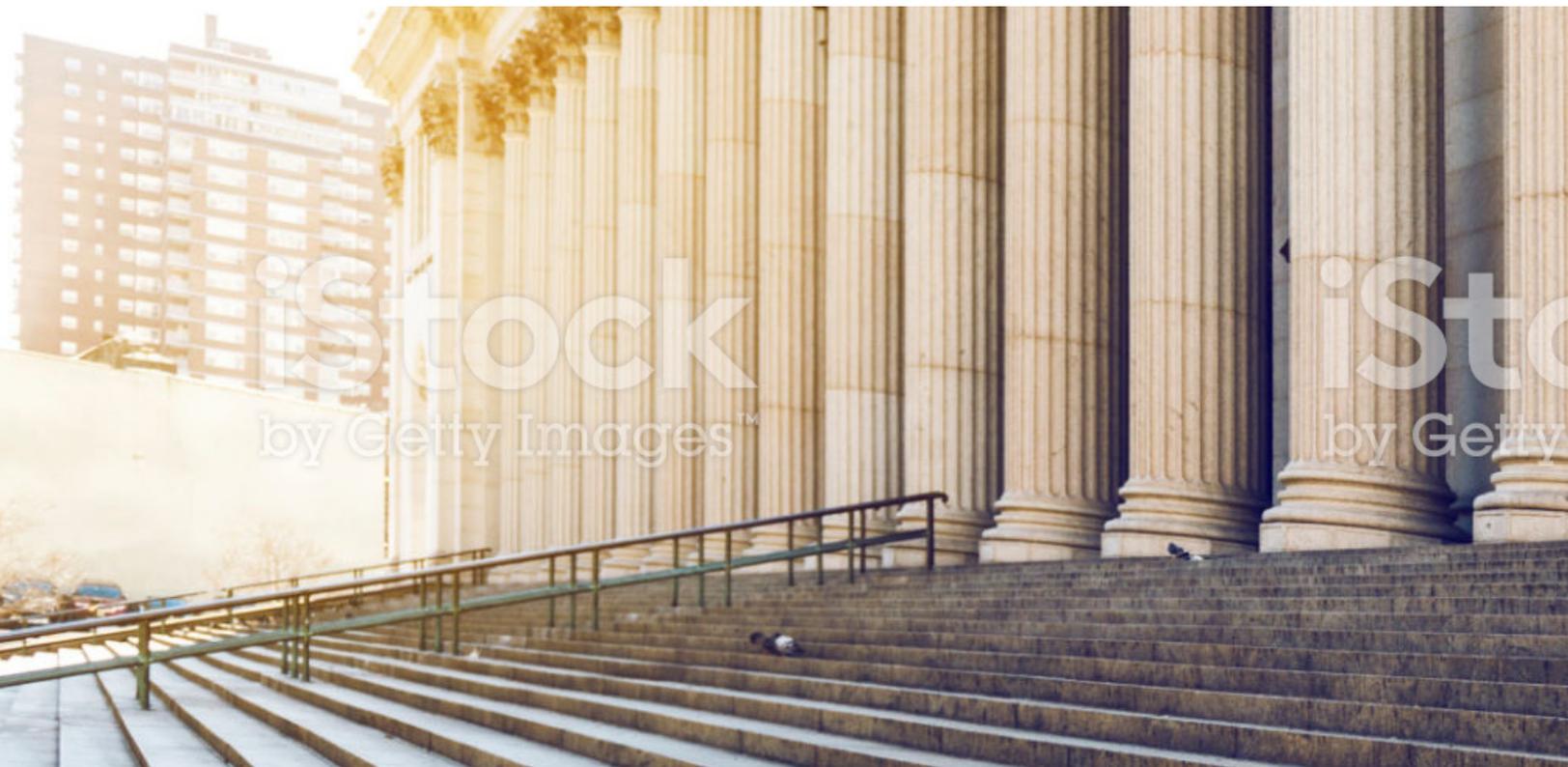
- **Legacy Assets:** One entity would deal with the GSEs' legacy assets and all of their revenue and related liabilities. This would allow future guarantee business to be separate from legacy assets, while maintaining the government's support for legacy MBS. The entity would wind down as these MBS prepay or mature.
- **Infrastructure:** GSE reform legislation could separate the GSEs' infrastructure (such as the Common Securitization Platform) into an entity that is available for all new entrants, including post-conservatorship GSEs. This entity would be utility-like, with fee-based revenue from GSE legacy assets and the various guarantors' new business.
- **New Guarantee book:** This entity could underwrite and guarantee new mortgages and manage these assets. Even here, the GSEs would start with a big advantage because of their desktop underwriting systems. Thus, they could be asked to share these systems with new entrants from day one. Over time, these systems will evolve differently as different guarantors target different types of borrowers and products, but initially the new guarantors would be able to compete effectively with post-conservatorship GSEs.

Conclusion

Making an imperfect system better

We realize that a discussion on GSE reform leaves several important questions unanswered. After all, the GSE-based model is but one approach to enabling home ownership. A broad discussion on housing finance would cover the pros and cons of other models, such as covered bonds, bank balance sheets, etc which are the mainstay in many developed countries. For that matter, what is so special about the 30-year mortgage, which is mainly a US phenomenon? After all, long maturity mortgages weaken the central bank's transmission mechanism. And as we noted earlier, it is doubtful that anyone would design a system that ends up with the government guaranteeing most mortgage loans in the country, through a few giant entities.

But like it or not, that is precisely where the US now finds itself. As a result, GSE reform has to take place within certain constraints. But even within these, policy makers have several decisions to make that will have ramifications for housing finance market for decades to come. Administrative reform can effectively de-risk the GSEs but would still leave us with duopolies and too big to fail risk. Legislative reform could mitigate this risk and increase competition, but given the existing structure of US housing financing, both options will require a government backstop to minimize disruption to housing finance. We believe there is a viable end-state where private capital creates healthy competition by stepping in ahead of the taxpayer and government involvement in mortgage lending is limited, all without a drag on US housing. Our hope is that this discussion provides policy makers, in both the Administration and Congress, with a roadmap to a more effective system of housing finance.



About the authors

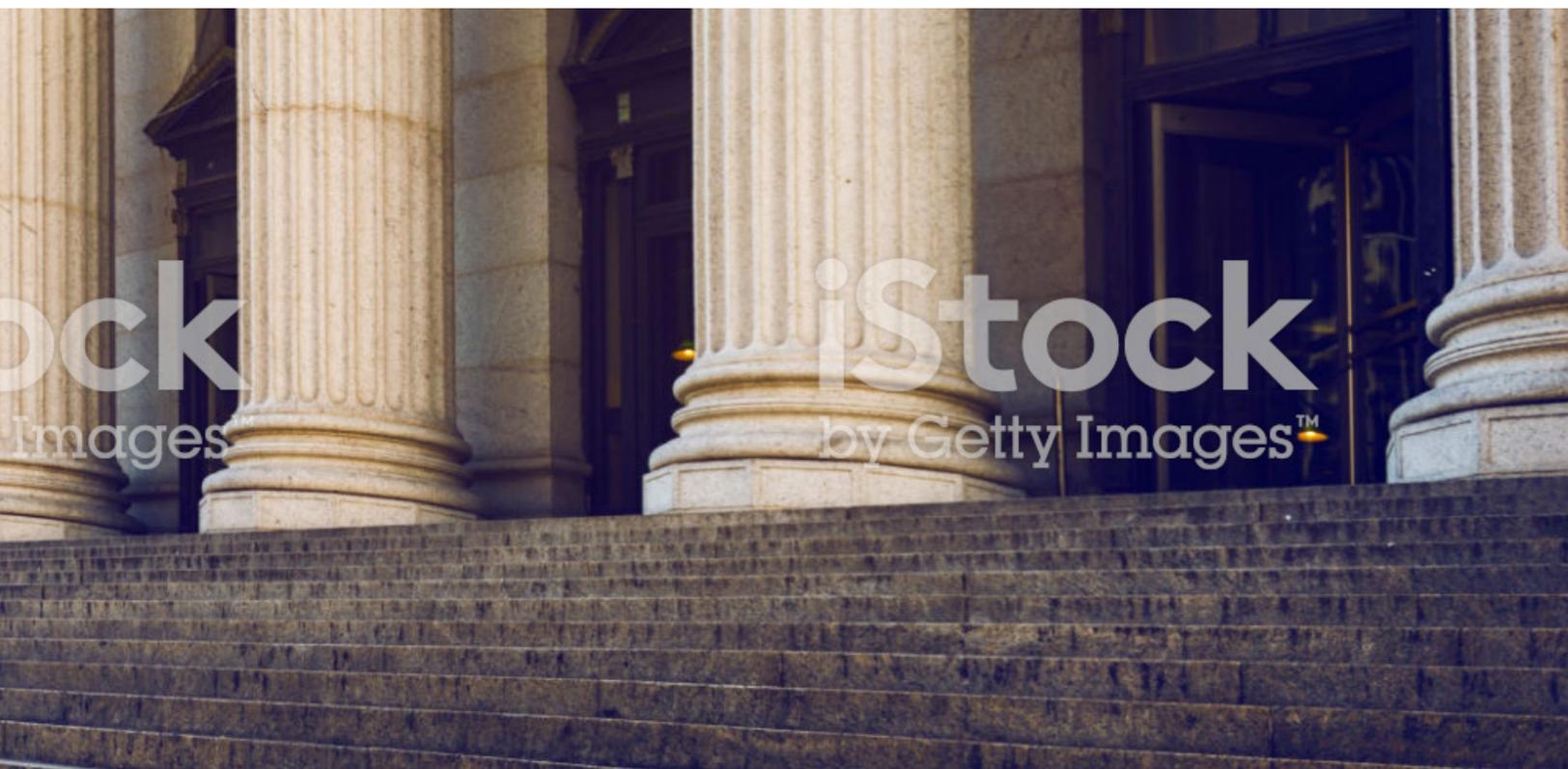


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