GSE reform: Unfinished business

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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Executive summary

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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 in one important area of the US financial system, reform remains unfinished. We refer to the Government Sponsored Enterprises (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 up-ending the world's largest housing market.

In partnership with Annaly, this report outlines a series of steps that the US Administration, as well as Congress, could take when addressing GSE reform. Most policymakers, on either side of the political aisle, seem to agree on three goals related to GSE reform, summarized below. We see the first two goals as two sides of the same coin and consider steps that the Administration could take unilaterally to achieve them. The third goal would require the intervention of Congress. Proponents of reform also agree on a broader principle: any steps taken to accomplish these goals must minimize any disruption to the housing market.

Goal #1: Protecting the US taxpayer

The development of the Credit Risk Transfer (CRT) market allows Fannie Mae and Freddie Mac to offload a substantial amount of their credit risk to capital markets. While this is an important stepping point, more can be done to reform the GSEs. In order to protect the US taxpayer, 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 offload credit risk? We suggest a new alternative – a revolving CRT structure. This allows the GSEs to shed credit risk on most future production, thereby avoiding execution risk while protecting the taxpayer.

Goal #2: Attracting private capital

To attract private capital, the GSEs could shrink their footprint in areas that are not part of their core mandate, such as second homes, investor and jumbo mortgages. The implicit government guarantee that Fannie and Freddie enjoy allows them to offer lower rates than the private sector. We recommend that the GSEs reduce their presence in non-core areas, by pricing these loans without factoring in the advantages of the government backstop[1], thus allowing the private sector to compete.

Policymakers could also urge industry group and rating agencies to encourage standardization in Private Label Securitization (PLS) cash flow structures, representations, warranties and repurchase triggers as well as in servicing practices. Standardization would increase liquidity, which should help financing of PLS.

Goal #3: Creating a more competitive landscape

If the goal of GSE reform is to foster competition and materially decrease 'too big to fail' risk, Congress has to pass legislation that replaces the GSE duopoly with multiple smaller guarantors. This is a complicated undertaking. In the report, we focus on a few particularly important parts, including enforcing a prudent capital framework as well as creating a transition path.

A healthy US housing finance market

Critically, GSE reform legislation must provide a smooth transition path from the current system to an alternative world with more private capital and less governmental involvement. The GSEs start with enormous advantages over new entrants: on infrastructure, market share, and the implied government backstop. 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. If not, GSE reform is likely to lead to a housing finance system similar to pre-2008 – with two giant entities guaranteeing the majority of mortgages in the US.

1 The government backstop allows GSE bonds to trade with little to no credit risk. This materially improves the pricing of the highest rates tranches (i.e AAA) which are typically over 90% of the entire capital structure.

The story so far

Although Fannie Mae and Fredie Mac have spent over a decade in conservatorship, with seamingly no end in sight, there are growing signs that policy makers are planning to tackle this challenge. Treasury Secretary Mnuchin and FHFA Director Calabria have repeatedly expressed their determination to proceed with GSE reform, there have been hearings in both the House Financial Services Committee as well as the Senate Banking Committee, and various lawmakers have circulated broad-brush legislative plans.

In this paper, we outline several steps that policymakers could take to advance their stated goals in housing finance. We break these into two categories. First, we consider steps the Administration can take unilaterally. While these fall short of the vision of a fully privatized system (with the GSEs exiting conservatorship), such steps could still result in substantially lower taxpayer exposure, and a corresponding increase in the role of the private sector.

Second, we consider several issues that would require the intervention of Congress, if it wants to enact more sweeping reform that does end conservatorship. In particular, by building on work done by the Federal Housing Finance Authority (FHFA), we can estimate what equity ratio privatized GSEs (or new mortgage guarantors) would require to achieve safety and soundness while remaining economically viable. Finally, if Congress wants to create a more competitive landscape it has to ensure a level playing field for all guarantors, and this is unlikely to be achieved without significant changes to the structure of Fannie Mae and Freddie Mac.

Options for Administrative reforms

Two of the goals that are most frequently cited when discussing housing finance reform are: a) protecting the US taxpayer; and b) bringing private capital 'back' into the US mortgage markets. We view these as two sides of the same coin: in order to protect the taxpayer from the consequences of an increase in mortgage delinquencies, some other (presumably private) party must bear any losses. Of course, a cynic might suggest that the role of private capital was always limited; certainly critics of the pre-crisis GSE structure would suggest that the taxpayer was ultimately on the hook for losses in the mortgage market. Nonetheless, the goal of reducing the role of the government in favour of the private sector has wide support across the political spectrum.

Alongside this goal, proponents of reform want to minimize any disruptions to the housing market. For the purposes of this section, we assume that maintaining uninterrupted and consistently priced access to 30-year fixed mortgages for qualifying (i.e. not jumbo) owner-occupied homes meets that criteria. Later, we will ask if this is too strict – i.e. whether more far-reaching reforms could achieve a better outcome. But such reforms would require action from Congress, and in this section we restrict ourselves to actions that the Administration could take on its own.

We believe that the CRT market, which allows Fannie Mae and Freddie Mac to offload mortgage credit risk efficiently, is an important development. From this building block, the Administration could take several unilateral steps that would reduce the role of the government in favor of the private sector, even without more far-reaching legislative reform.

- Fannie Mae and Freddie Mac currently offload their credit risk via the CRT market on over 90% of targeted new production[2]. We believe CRT transfers mostly accomplish the goal of replacing taxpayer exposure to housing risk with private capital – the risk transfer of up to 4.5% in losses in current deals is sufficient to protect the taxpayer against even severe housing downturns, especially given the improvements in lending standards since 2008. The GSEs continue to own credit risk on much of their more seasoned and HARP related origination[3]. They have also mostly retained the 1st loss tranche in CRT deals. The GSEs could continue to transfer credit risk in the CRT market, including the 1st loss tranche, and opportunistically transfer risk on their legacy originations.
- Current CRT pricing allows the GSEs to offload risk and remain profitable. However, we are in the midst of a 10y expansion, and a multi-year rise in home prices. CRT market pricing in a housing recession could worsen materially, sharply pushing up guarantee fees. In such a scenario, the GSEs would have to either reduce the amount of CRT (and add to taxpayer risk at the worst time) or raise guarantee fees. We suggest a new alternative – a revolving CRT structure. This would allow the GSEs to shed credit risk on most future production, thereby avoiding pro-cyclicality while protecting the taxpayer.
- The FHFA should mandate that the GSEs shrink their footprint in areas that are not part of their core mandate: second homes, investor and jumbo mortgages. The implicit government guarantee that Fannie Mae and Freddie Mac enjoy allows them to offer lower rates than the private sector. We recommend that the GSEs reduce their presence in non-core areas, by pricing guarantee fees for these loans without factoring in the advantages of the government backstop[4]. This would allow Private Label Securitization (PLS) to compete, and could more than double annual PLS issued, without a material impact on housing or the core mandate of the GSEs.
- The 'GSE patch'[5] grants the GSEs a big advantage over PLS on high debt-to-income (DTI) loans. The Consumer Financial Protection Bureau (CFPB) could level the playing field by issuing mitigating factors that allow private sector

2 HARP/Freddie Mac Relief Refinance/Fannie Mae Refi Plus loans are excluded. Loans with terms less than or equal to 20-years or with LTVs of less than or equal to 60% are also excluded. Source: https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/CRT-Progress-Report-4Q18.pdf

3 Fannie Mae has not transferred risk on any of their HARP related originations while Freddie Mac has done 4 deals.

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

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

loans to achieve Qualified Mortgage (QM)[6] status, thereby giving the PLS market a level playing field.

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

CRT materially reduces GSE credit risk

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 FHFA began to require the GSEs to develop 'loss-sharing agreements', under which private investors would assume a meaningful portion of the credit risk, 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: credit-risk transfer (CRT) securities, credit-risk insurance transactions, and lender risk sharing (also 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.

CRT securities are floating rate with 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 tranched. 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 scheduled and unscheduled principal received on the underlying loans. However, should a mortgage loan default, the GSEs retain the proceeds to reimburse themselves, effectively lowering their own losses.

The CRT agreements significantly reduce GSE exposure to residential credit risk by transferring it to the private market. Fannie Mae and Freddie Mac have already transferred much of the credit risk on over $2.5 trillion[7] of mortgages that they guarantee. This represents a substantial transfer of risk to the private sector (with a corresponding reduction in taxpayer exposure), accomplished without any disruption to the mortgage market. On an ongoing basis, the GSEs now transfer the risk on over 90% of their 30 year new production with over 60 LTV that does not come through their HARP related channels. As the insert on page 7 shows, under current market pricing, the cost of credit risk transfer is substantially below the guarantee fee that the GSEs charge[8].

While this pricing reflects the cost of transferring the risk on the 1st loss tranche, the GSEs have historically retained much of this risk. We would recommend that they sell more of the 1st loss tranche too. It is also important to note that the GSEs still have execution risk on their origination pipeline before the credit risk is transferred. While the current pricing of credit risk transfer is attractive, it has varied from a high of 38bp in Q1 2016[9] to mid-teens in more recent transactions, despite the fact that the housing market has been in relatively solid footing for the past few years. In a more adverse credit environment, the GSEs might have to pay a substantially higher price to transfer credit risk. We would recommend that the GSE hedge their forward flow risk using revolving CRT.

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

7 Source https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/CRT-Progress-Report-4Q18.pdf

8 The GSEs charged an average of 56bp in 2017 and the current cost of credit. https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/GFee-Report_12-10-18.pdf

9 Using pricing of CAS 2016-C01 in Feb 2016.

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

Using the structure of recent Freddie Mac CRT transaction (like STACR-2019 DNA deals) we estimate the cost of risk transfer. The table below uses current market pricing. The bottom-line: transferring credit risk is worth 14.4bp in guarantee fee terms.

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 prepays) are only used to pay down the AH tranche until the B3 to M1 tranches become 4.5% of the outstanding balance. The typical structure also includes an optional call for the GSEs after 10 years. For this pricing exercise, we assume that the deal is always called. This implies that the GSEs retain some residual risk after the call. We estimate this risk to be relatively small.

The cost of credit risk transfer depends on three factors: 1) the size of the various tranches; 2) the compensation that investors demand for bearing this risk; and 3) the average life of each of the tranches. We assume that the collateral prepays 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's simply a matter of calculating the loss adjusted Discount Margin (DM). Multiply the DM with 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.

After credit transfer, the GSEs are left with three residual risks on the target collateral: – a) Risk of losses that occur after the CRT deal expires, i.e. timing risk; b) losses in excess of the total risk transfer, i.e. catastrophic risk; c) counterparty risk with private mortgage insurers. Our estimate of timing risk using pre-crisis mortgage vintages suggests that it is relatively small and in the order of 2bp to 4bp. Counter-party risk is managed by covenants but, like catastrophic risk, is hard to estimate in extreme stress scenarios.

Figure 1

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

Class	UPB	C/E	Thickness	WAL	Print Loss	Loss Coverage	Loss-Adj DM	Cost in $	Cost in Gfee
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

Revolving CRT: protect the taxpayer, without pro-cyclicality

The major concern with expanding the use of CRT is that in a housing downturn, CRT spreads may rise, and it may no longer be the case that the GSEs could offload risk in that market and remain profitable. If that were to happen, the GSEs would have two choices: retain the credit exposure (and thus increase taxpayer risk at the worst time) or increase g-fees on future production to match the execution in the CRT market, while taking a loss on their pipeline of 9 to 12 months' worth of production[10]. While some increase in g-fees is likely fine, since interest rates are likely to be falling at the same time, the pipeline losses could be significant given higher refinancing activity in lower rate environment. We think structural innovations that would buffer against this outcome make sense. One approach is to allow the GSEs to hedge their forward book of business.

We illustrate this with a sample structure: CRT with a re-investment period. These structures are popular in the leverage loan and ABS markets, and are well understood by capital markets. In existing CRT structures, the deal is usually divided into five risk tranches[11]. 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 2, the junior-most B3 tranche or 'first loss tranche' yields a coupon of L+41%, which generates a loss adjusted discount margin of 8.6%. The B3 tranche 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. After that, any losses will be absorbed by the GSEs.

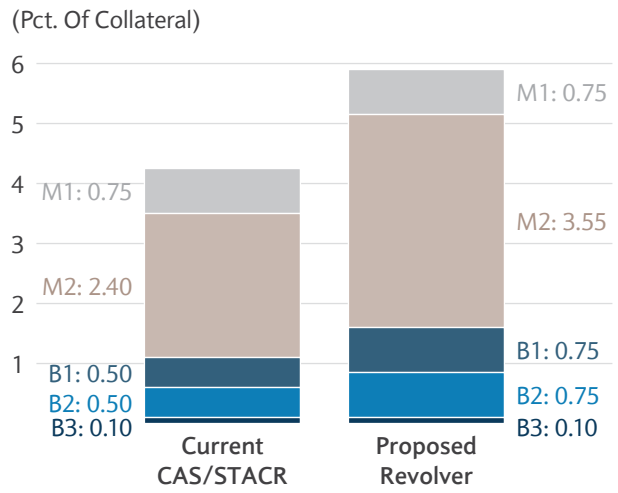
A tweak to this structure would be to allow the GSEs to replace loans that prepay from the reference pool with new loans of similar credit quality for the first few years. After this re-investment period, the structure pays down just like current CRT deals. This change would let the GSEs sell forward future originations that arise from prepayment. For example, in 2018 the GSEs had total issuance of $769 billion but net issuance of only $185 billion. The rest of the issuance was offset by 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 the GSE cost of CRT does not materially rise in a housing downturn, preventing losses on the loans in the pipeline and making them less pro-cyclical.

This will admittedly come at a higher cost. In our stylized example (see insert on page 9), this cost comes to an extra 12bp, using reasonable assumptions for market pricing on the tranches for the first transaction. 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-lever more slowly; investors will want wider spreads on CRT bonds for this reason as well. As these transactions become more prevalent, the cost differential to standard CRT is likely to compress.

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. In the future, more of these could be forward flow agreements that offload credit risk on future production[12]. All such approaches are likely to increase mortgage rates to borrowers a little, but we believe the costs are worth the buffer these structures would provide against downturns.

Figure 2

Illustrative CRT tranche structures



Note: umbers next to the tranche names refer to the tranche thickness in %
Source: Annaly; Barclays Research

10 GSEs currently sell credit risk on loans with an average of 8/9 months of seasoning and so their pipeline probably represents 10 to 12 months of production.

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

12 The GSEs have already done some foward flow agreements with lenders and insurance companies, but these pose some counterparty risk, unlike such transaction carried out in the CRT markets.

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 the table below, 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 bottom line is: the 3-year revolver increases the credit risk transfer cost to 26.6bp, from the original 14.4bp. That seems a reasonable price to pay for allowing Freddie Mac to shed risk on future 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 don't use a revolver structure). Based on our assumption, we find the cost of the revolver structure to be 26.6bp. This is our estimate on the first transaction. As these become more prevalent, the execution relative to standard CRTs is likely to improve.

There have been some proposals for the GSEs to buy protection for excess losses of 10%. While we don't 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; even the 2006 loans did not see losses of 10% even through the 2008 crisis. We feel that it makes more sense to protect against future 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%). The table below 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 4

Comparison of estimated cost of various credit risk sharing scenarios

(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 3

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

Class	UPB	C/E	Thickness	WAL	Print Loss	Loss Coverage	Loss-Adj DM	Cost in $	Cost in Gfee
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

Shrinking the GSE footprint in 'non-core' mortgages to enable PLS to compete

In 2018, 29bn of mortgages were securitized in the Private Label Securitization (PLS) markets[13]. Meanwhile, Fannie Mae and Freddie Mac issued 743bn of MBS in the same year[14]. 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 backstop[15]. That would level the playing field, giving 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 can be transferred to the private sector. Similarly, the GSEs guaranteed $57bn of jumbo loans (above $450k loan size) in 2018. Prior to the credit crisis, Fannie Mae and Freddie Mac 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 still keep the loans with the government and defeat the purpose of raising fees)? The good news: FHA only guarantees 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, private label issuance could easily double in a year, kick-starting the process of attracting private capital back into the mortgage market.

Leveling the playing field on the 'GSE patch'

Regulators put in place the Qualified Mortgage (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 Consumer Financial Protection Bureau (CFPB) capped the maximum allowable debt-to-income (DTI) ratio at 43%[16]. But CFPB exempted GSE-backed loans from this DTI rule; the so-called 'GSE patch'. One in three borrowers used a loan with > 43% DTI to buy a home last year, with many of these loans being 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 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 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 should 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.

13 According to Intex data, this includes only new issuance and excludes resecuritizations of non-performing or re-performing deals.

14 For more details, see insert 'A Stratification of current agency MBS issuance'.

15 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.

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

A stratification of current agency MBS issuance

Figure 5 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.

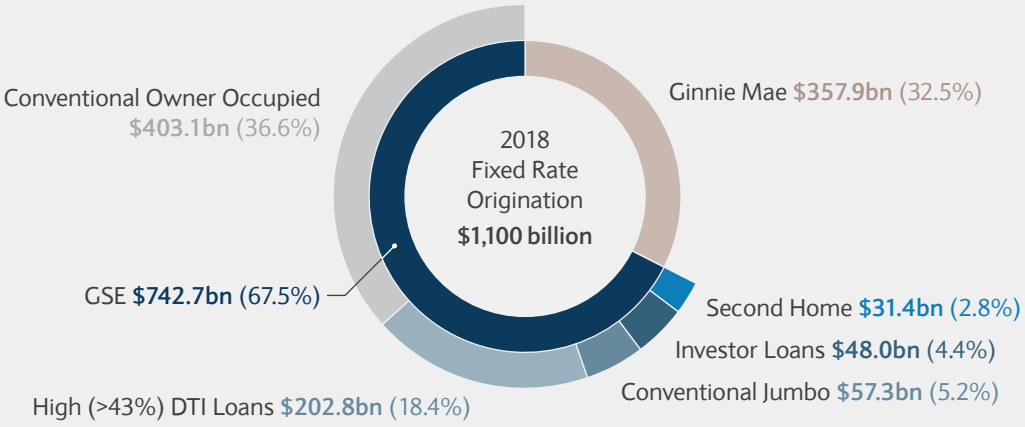
Fannie Mae and Freddie Mac guaranteed $31bn in second home loans, $48bn in investor loans, and $57bn in jumbo loans, which have loan balances over the conventional limit of $453k. This is 12% of the $1.1 trillion, all in areas outside the GSEs' core function and where the private sector could make inroads 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 $79bn 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 $29bn in total, of which over $1bn 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 $57bn of jumbo loans (above $453k loan size) that were guaranteed by the GSEs in 2018. The 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 5

Agency MBS mortgage origination by type



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

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, any surprises that might be hidden in the prospectus for the MBS. 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, 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 bring investors and issuers to the table 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 in the areas of 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 would 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 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 pools[17]. Similarly, the cost of financing the entire PLS deal is roughly 50bp higher than for GSE pools. Part of the reason for this increase in financing cost are 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.

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

Creating a more competitive landscape

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, which is not a permanent solution. This leaves the Administration with two choices: convert Fannie Mae and Freddie Mac to government utilities or privatize them through some form of re-capitalization (see the insert on 'recap and release'). The former option would make the government control over housing finance official. The latter would leave a system similar to the one pre-crisis: a duopoly with a government backstop.

The only way, in our view, to change the landscape of US housing finance is for Congress to pass far-reaching GSE reform legislation. The proposals 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 attempt to do so. While many of the specifics vary, all the legislative plans envision a world where the GSE duopoly is replaced by multiple smaller guarantors (including post-conservatorship GSEs) that would foster completion and materially decrease 'too big to fail' risk. Fortunately for policymakers, two critical building blocks are in place for the evolution of a multi-guarantor model.

- As discussed earlier, the GSEs have built a vibrant market for CRTs. Any new mortgage guarantors (including post-conservatorship GSEs) can use the CRT market to shed credit risk.
- Starting in 2014, FHFA asked the GSEs to create a shared securitization infrastructure, referred to as the Common Securitization Platform (CSP). The CSP is a shared operational platform for issuance, servicing and bond administration of MBS[18]. The new guarantors can use this 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.

Assuming policymakers opt for a multi-guarantor model with some form of government backstop, these building blocks are required pre-conditions. However, the goal of creating a US finance structure that decreases 'too big to fail' risk, increases competition, and protects the tax-payer is a complicated task with many challenges. In this section, we focus on two important questions that Congress will need to answer, if it wants to create a multi-guarantor world.

First, what is the capital regime under which new mortgage guarantors will operate? To attract equity capital, these new entrants will need to have an appropriate risk/reward profile. On the other hand, policymakers will need to ensure that guarantors prioritize safety and soundness concerns, thereby limiting returns but also reducing risk to both equity investors and tax-payers.

Second, how do we transition from the current duopoly to multiple guarantors? Over the past few decades, the GSEs have led the way in developing the US housing finance market. The agency MBS market is one of the most liquid and transparent markets for housing debt across the world, with liquidity comparable to the US Treasury market. They have created mechanisms[19] that enable smaller banks, finance companies and lenders to compete against large entities. They have built infrastructure and underwriting systems that allow for the seamless origination and distribution of mortgage risk. Policymakers will need to walk a tricky line to achieve a seamless transition: 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, and protecting their achievements.

18 Master Servicing is not yet part of the Common Securitization Platform.

19 For example, the cash window allows small originators to sell loans directly to the GSEs. These not only gives them the liquidity that large originators get from creating single pools but also allows them to operate less capital and/or warehouse lines.

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 is: 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 would 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/

Enforcing a prudent capital regime

One of the decisions that GSE reform legislation will make is on the capital regime under which new guarantors will operate. This decision is particularly important because we assume that these guarantors will ultimately have a government backstop. 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. Policymakers need to decide the amount of protection they want mortgage guarantors to have before the catastrophic risk backstop kicks in.

2008 strikes us as a reasonable approximation of a 'severe stress' scenario. Figure 2 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% 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, and residual credit risk.

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

requires them to maintain 3.25% of consolidated assets as risk-based capital. But this capital ratio includes their residual MBS holdings[21], 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 a significant portion of 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 to a new mortgage guarantor, we come up with a risk-based capital requirement 1.75%-2% of consolidated assets (please see insert on page 16 for details). This is mostly because the new guarantors carry less risk than the GSEs. They will transfer credit risk on their entire book and business (including forward flow), sell most if not all the 1st loss risk and have a much smaller retained portfolio of MBS and loans. So we feel comfortable that the new guarantors would need less equity than what is proposed for the GSEs, but any legislation should mandate that a new mortgage guarantor sell the entire 4.5% loss coverage[22] in the CRT market and hedge most of their forward business. Their MBS and loan portfolio should be capped at levels that are required for operational expediency.

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, operating cost and residual timing risk is 27-38bp (at current market pricing), depending on how much of the forward book is locked in for the next three years. It is always hard to handicap the required return on equity to attract capital. However, for a company with a well-defined business model, effective regulation and governance, and limited risk in an expected range of economic outcomes, a 10% ROE should attract equity capital. This suggests that the 2% equity ratio will add another 20bp in ongoing costs[23]. That put the all-in guarantee fee in the 57-68bp range, 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.

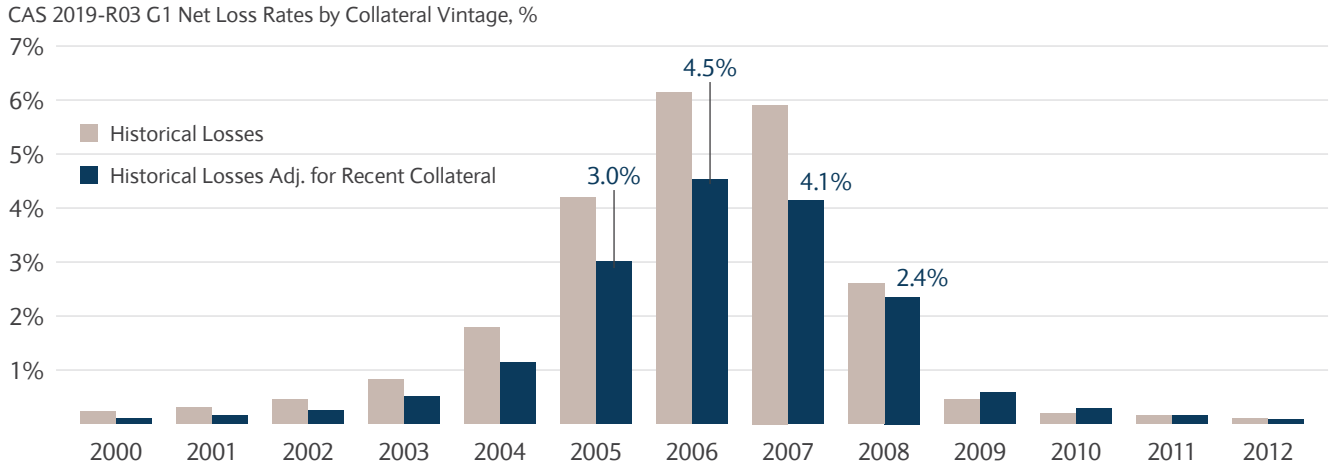
21 A legacy of the days when the GSEs had a large investment portfolio of MBS, in addition to their guarantee business.

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

23 In theory, one could argue that as the equity ratio increases, the required return on equity should fall proportionally. But in this case, we are assuming that the debt issued by the guarantors (in the form of MBS) will have a government backstop. Thus, their cost of debt is relatively inelastic to the equity ratio of leverage of the guarantor.

Figure 6

Fannie Mae collateral losses by vintage



Note: Losses for mortgages originated after 2012 are currently negligible Source: Fannie Mae; Annaly; Barclays Research

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 their 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 (97bp = 72bp + 8bp +17bp) 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			
	Fannie Mae	Fannie Mac	GSE' Combined	Fannie Mae	Fannie Mac	GSE' Combined	New Guarantor
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				

Based on Enterprise Capital Requirements Notice of Proposed Rulemaking (RIN-2590-AA95) as of September 30, 2017.
*The DTA capital requirement is a function of Core Capital. Both Enterprises have negative Core Capital as of September 30, 2017. In order to calculate the DTA capital requirement, we assume Core Capital is equal to the Risk-Based Capital Requirement without consideration of the DTA capital requirement. Source: FHFA; Annaly; Barclays Research

A healthy US housing finance market

A key aspect of legislative reform will be to ensure a smooth transition from the GSE system to any future 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 are two key areas to consider: ensuring the continued smooth operation of US housing finance and creating an environment in which guarantors can effectively compete with privatized GSEs.

There are many perhaps unexciting but crucially important functions that the GSEs currently perform that will have to be performed by all entities in a multi-guarantor world. Policymakers should ensure that these do not slip through the cracks.

- **Establishing and enforcing best practices in servicing.** The GSEs have established clear guidelines for servicing mortgages. Most PLS simply adopt the GSE standard on topics such as solicitation to refinance, how to handle delinquencies and reasonable time lines for foreclosures. 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. These practices have continuously evolved over the years, and new guarantors will have to provide similar diligence.
- **Buying out delinquent loans to increase flexibility on loss mitigation strategies.** The GSEs have traditionally bought delinquent loans out of the pool[24]. This gives them flexibility to modify the loan rate and loan term and to capitalize missed payments. While this is a key loss mitigation tool, it needs additional capital because 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 needs to be an accepted best practice that all guarantors must adopt on this issue. This, too, has to evolve over time.
- **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, CMO cash flow structures can become tricky. To avoid malpractice, the GSEs insist on approving every CMO structure and acting 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 will need to be extended to new guarantors in a post-GSE reform world.
- **Allowing smaller banks and finance companies to compete with large entities.** One thing that the GSEs did effectively was to level the playing field between small originators and larger entities by letting smaller lenders sell loans for cash (cash window). This allows small banks, which typically have higher funding costs and fewer sources of funding than larger ones, to compete in the mortgage market. The GSEs also help small servicers find ways to finance their servicing asset, decreasing their capital need.

The GSEs control a large book of business that throws off 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; the new guarantors will typically have no legacy assets, 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, we recommend that policymakers 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 should 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 would be utility-like, with fee-based revenue from both GSE legacy assets and the various guarantors' new business.
- **New guarantee book:** This entity would 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 should be asked to share these systems with new entrants from day one. Over time, these systems will evolve as different guarantors target different types of borrowers and products, but initially the new guarantors should be able to compete effectively with post-conservatorship GSEs.

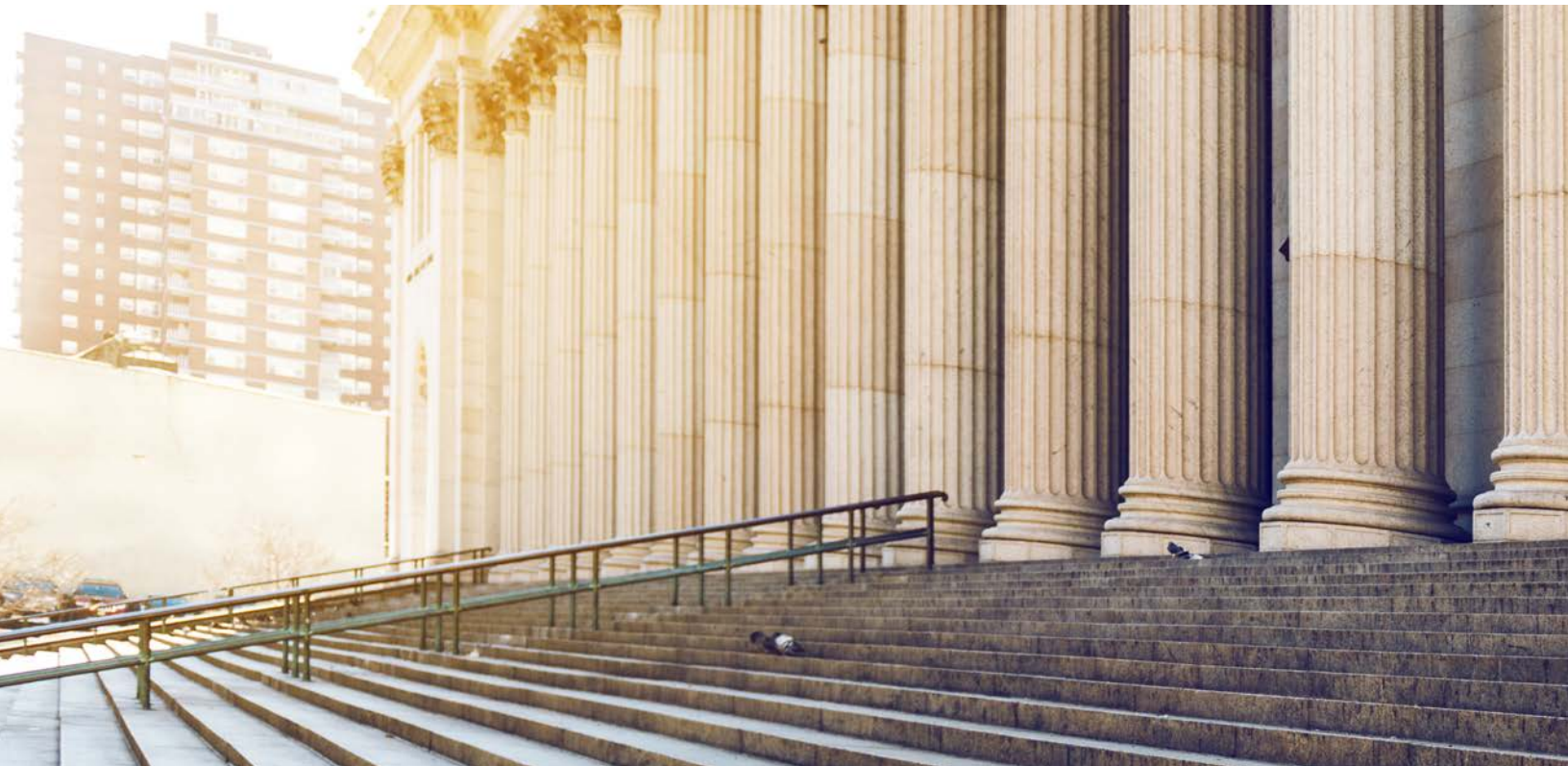
24 Unlike GNMA, which expects the servicers to buy out the loans. During the credit crisis, the ability of the GSEs to buy out loans was very helpful.

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 homeownership. A broad discussion on housing finance would cover the pros and cons of other models, such as covered bonds, bank balance sheets, 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? And as we noted earlier, it is doubtful that anyone would design a new system which requires 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, policymakers 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 duopolies and 'too big to fail' risk would still remain. Legislative reform could mitigate this risk and increase competition, but given the existing structure of the agency MBS market, some form of government backstop will remain in place to minimize disruption. 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, without a drag on US housing. Our hope is that this discussion helps policymakers, in both the Administration and Congress, as they take the next steps on GSE reform.



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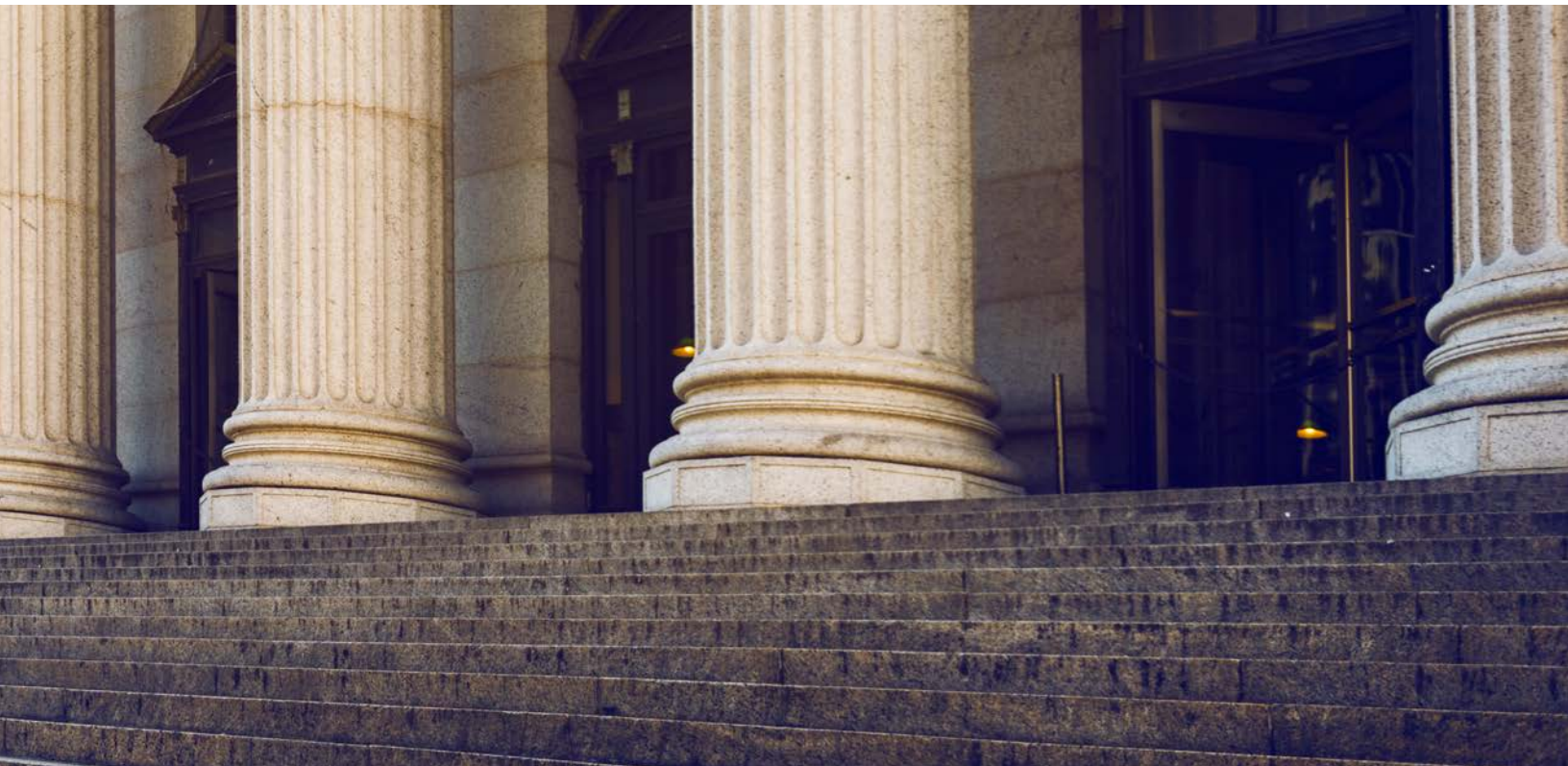

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