The Taxpayer Protection Housing Finance Plan

Gradually Winding Down
Fannie Mae and Freddie Mac and Improving the FHA

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Executive Summary

The following are the major points in this proposal:

It will be difficult to substantially reduce the government's dominant role in the US housing finance system through legislation. Given the policy disagreements in the Senate Banking Committee and the Senate generally, it is likely that the outcome—if there is one during the Trump administration—will be either another government-backed system or a stalemate in which no reform occurs.

However, the Trump administration could, through administrative action alone, create a stable housing finance market by (i) eliminating the GSEs over time, (ii) reforming the FHA, and (iii) turning the government-dominated US housing finance system into a predominantly private-sector system based on free market principles.

***Steps to reform*:** In order to accomplish this, we would recommend the following steps, described in more detail in Section IV:

1. Begin a gradual reduction in the conforming loan limits of the GSEs, starting with the elimination of the high-cost area limits in the first year.

2. In subsequent years, begin to focus the GSEs primarily on financing home purchases by eliminating their support for the financing of cash-out refinance mortgages, the purchase of second homes, and "investor" loans for what will be rental properties. All these mortgages entail increased risks and should be borne by the private sector and not the taxpayers.

3. Thereafter, we would begin to reduce the standard conforming loan limits, allowing banks, S&Ls and private mortgage securitization to take over increasing portions of the market. The pace with which this can be done is variable, and could eliminate the GSEs from the market entirely over a given period of years.

As the wind-down progresses, larger and larger portions of the housing market will be taken over the private sector—depositories, other whole loan investors, and securitizers of single-family private mortgage backed securities (PMBS). The private system, when it develops, will be largely a prime mortgage system, under which borrowers will bear the costs of risky mortgages.

***Little or no change in mortgage rates*.** There should be no significant change in mortgage rates. Research at AEI has shown that for at least the last three years mortgages fully funded by portfolio investors have had lower interest rates than GSE-funded mortgages. This should reduce or eliminate whatever policy or political support the GSEs currently retain. See Section II and Appendix 2.

***FHFA's roles*:** The steps we recommend above can be taken by FHFA as conservator (not as regulator) of the GSEs. With a new director taking over in January 2019, these policies may be promptly instituted. See Section VII.

Availability of private capital. We believe that there will be sufficient private capital to take the place of the GSEs as they are withdrawn from the market. Some of it will be picked up by banks, S&Ls and other portfolio investors, the rest by securitization through PMBS. The private system, when it develops, will consist largely of prime mortgages, under which borrowers will bear the costs of risky mortgages. See Section IV and Appendices 6 and 7.

The PMBS market will revive. Because it has been squeezed between the GSEs' high conforming loan levels and the willingness of the banks to portfolio about $3 trillion in prime mortgages, a robust PMBS market has not developed since the financial crisis. We believe it will return when the reduction in the GSE footprint has provided more mortgage product to work with. See Section III and Appendix 6.

30-year fixed rate mortgages available. Nor will there be any problem with assuring Congress and the public that 30-year fixed-rate mortgages will be available (although in our view 15 or 20 year mortgages will be more sustainable and better wealth building vehicles for homeowners). Despite frequent statements in Congress and elsewhere that government backing is necessary for a 30-year fixed rate mortgage, banks are offering these loans on the Internet, and at *lower rates* than GSE-funded mortgages. See the Introduction.

Home price growth will slow; affordable homes will be available for Low- and Moderate-Income (LMI) borrowers. Today government policies at all levels stoke demand and constrain supply. As the federal government's efforts to stimulate home ownership through increased leverage are reduced or eliminated, the current unsustainable rate of home price growth will slow, falling more in line with income growth. This will create a more stable market that will support sustainable homeownership by LMI families. See Section V and Appendix 4.

Most mortgages will be prime loans. Our plan provides assurance that most securitized mortgages will be prime loans. Not only is this likely in a largely private mortgage market, but the Private Mortgage Insurance Eligibility Requirements (PMIERs), which FHFA adopted at the end of 2015, assure that the risks associated with a mortgage will be reflected in the mortgage rate. This will prevent the subprime frenzy that infected the PMBS system before 2008. See Sections IV and V.

Mortgage insurance with deeper cover. Our plan would also require mortgage insurance down to 60 percent loan-to-value (LTV), or some other equivalent loss-protection coverage for all securitized mortgages. We have been advised by the PMI industry that there will be capital available for this coverage. See Section IV and Appendices 3 and 3A.

FHA reforms. In order to prevent a flow of mortgages to the FHA as the GSEs' footprint is reduced, FHA's conforming loan limits should also be reduced commensurately. HUD has the authority to do this. We also propose other steps that would focus FHA on purchases by low and moderate income families. See Section IV and Appendices 8 and 8A.

Benefits for Treasury and the taxpayers. Benefits from our plan flow to the Treasury and the taxpayers. The GSEs' securities compete with Treasury securities, and we estimate that reducing and eventually eliminating this competition will save the Treasury $17 to $29 billion annually in interest costs. Elimination of the GSEs will also reduce government guaranteed private debt (about $15 trillion) by $5 trillion (about 35 percent) and all government debt by 16 percent. See Section VIII and Appendix V.

Benefits to Ginnie Mae and FHA. Just as with Treasury debt, GSE securities compete with FHA loans securitized by Ginnie Mae, causing Ginnie MBS to yield higher rates than without this competition.

Further, adoption of a housing finance reform proposal that would extend an explicit federal guarantee to the GSEs (including extending the Ginnie guarantee to GSE debt) would cause rates required on GSE debt to go down and rates on Ginnie debt to go up. See Section IX.

***False Claims by Housing Lobby*.** Customarily, when the role of the GSEs is challenged, the Housing Lobby makes many false claims about the "disasters" that will result. We list and rebut each of these in Section X.

A Unique Plan. No other reform proposal creates a safer and more stable housing market, gets the taxpayer off the hook for losses, and provides substantial revenue to the Treasury. These and other accomplishments are listed in Section XI.

Introduction

Since the financial crisis, Congress has been unable to develop or agree on a workable housing finance system. The current system, dominated by the government-sponsored enterprises (GSEs) Fannie Mae and Freddie Mac, seems unacceptable to the Republicans and conservatives in the House, and a system that does not include subsidized government support for "affordable housing" seems unacceptable to the Democrats in the Senate.

We believe that the election of Donald Trump has made it possible to break this logjam, not because President Trump has endorsed a particular policy that can attract majorities in the House and Senate, but because a new and successful policy can be adopted by his administration without legislation. As we will show in this paper, such a plan needs only the approval of the the new FHFA director starting in January 2019, HUD, and certain modest regulatory actions by various financial regulatory agencies. The expected effect of these actions can be closely monitored using the extensive and previously unavailable data resources at AEI. See Appendix 1.

Briefly, what we propose is to begin with the elimination of the high-cost area loan limits of Fannie and Freddie. These loan limits—which place a cap on the size of mortgages the GSEs can acquire—are set according to a statutory formula but can be reduced by FHFA acting as the GSEs' conservator.

This will be followed by the elimination of most GSE products that are not related to the purchase of homes (cash-out refinancing, loans for second homes and investor loans for rental properties), then followed by a gradual reduction in the regular or standard conforming loan limits. The CBO made a similar suggestion in December 2016, pointing out that reductions in the conforming loan limits would reduce taxpayer risk and would favor lower income buyers over higher income buyers in the distribution of the subsidies that the GSEs provide.[1]

These steps will not have any significant effect on two elements of the housing finance market that have traditionally elicited support in Congress—the interest rates that home purchasers have to pay for a mortgage or the continued availability of a 30-year fixed rate mortgage.

Those who continue to support a government role in the housing market, through the GSEs or otherwise, will undoubtedly claim that reducing the loan limits of the GSEs will cause interest rates to rise for home purchasers. The data we have collected at AEI, which we believe is the most comprehensive available anywhere, shows that this is untrue. In fact, since 2014, the rates on loans held by private portfolio lenders have been about ¼ percent lower than those on loans acquired by the GSEs. Over the same period, the PMBS market has been offering rates roughly equal to the GSEs. These statements are true after controlling for risk characteristics such as credit score, downpayment, debt-to-income ratio, and many other variables. We outline our findings on this issue in Section II and provide a detailed discussion in Appendix 3.

In addition, there should be no question that a 30-year fixed rate mortgage will still be available to home purchasers after the GSEs have been wound down. The simple fact is that a 30-year fixed rate mortgage is available today in the private sector and at a lower rate than that available from Fannie and Freddie. This can be

[1] The CBO suggested two approaches to reducing the federal subsidies that Fannie Mae and Freddie Mac receive. First, raise the average guarantee fee that Fannie Mae and Freddie Mac assess on loans they include in their MBSs by 10 basis points. Second, reduce the maximum size of a mortgage that Fannie Mae and Freddie Mac could include in their MBSs in steps, dropping to $175,000 in 2024. It further suggested that for consistency, similar changes could be made to the limits on loans guaranteed by the Federal Housing Administration (FHA). https://www.cbo.gov/budget-options/2016/52173

demonstrated by looking at what banks are currently offering on the internet. You will see many, many offerings for 30-year fixed rate FHA loans; 30-year fixed rate, conventional conforming loans usually acquired by Fannie Mae and Freddie Mac; and 30-year fixed rate, jumbo conventional loans made by private lenders, which are larger than the loan limits imposed on Fannie Mae and Freddie Mac.

We conducted an analysis using extensive loan-level data on closed loans from CoreLogic covering 2001 to 2016 (see Appendix 2 for methodology and detailed results). From 2014 to 2017 the rates on jumbo portfolio loans were 25 bps to 27 bps *below* those on GSE loans with the same risk characteristics. We found that GSE loans had rates below those on jumbo loans from 2001 through 2012. This changed to no difference in 2013.

In other words, not only is a 30-year fixed rate mortgage available without government backing, but it is available at a lower rate from a bank than from an agency backed by the government. This is not an anomaly; as noted above, the private sector has been offering lower rates than the GSEs for about four years.

The steps we have recommended will have two principal results: first, investment dollars that had previously sought government guaranteed credit through acquiring mortgage-backed securities (MBS) will migrate to the Treasury market, reducing Treasury's interest costs; and second, private capital and investment dollars that seek mortgage investments will respond favorably to the expanded availability of private sector mortgage assets.

Eventually, if the gradual reductions in the conforming loan limits continue as we propose, the U.S. housing finance system will become a largely private market, supplemented by much more targeted home buyer assistance for highly leveraged mortgages provided by the FHA, the VA, and the Rural Housing Services, all utilizing Ginnie Mae.

This result is consistent with the Treasury Department's February 2011 "Report to Congress: Reforming America's Housing Finance Market: "In addition to winding down Fannie Mae and Freddie Mac, FHA should return to its pre-crisis role as a targeted provider of mortgage credit access for low- and moderate-income Americans and first-time homebuyers."[2]

Our overall approach is also consistent with the National Housing Act of 1949, the seminal act for US housing policy, which provides: "The policy to be followed in attaining the national housing objective established shall be: (1) private enterprise shall be encouraged to serve as large a part of the total need as it can; …"[3]

These changes will have major implications for housing finance, but as we will show the results for the economy will be almost wholly favorable, producing a stable housing finance market with more affordable homes for first-time buyers.

The steps necessary to achieve this privatization of the housing market will be detailed below, but they assume that important changes in policy by FHFA and other agencies will be brought about by Treasury and

[2] US Treasury, Report to Congress on Reforming America's Housing Finance Market, February 2011, https://www.treasury.gov/initiatives/Documents/Reforming%20America%27s%20Housing%20Finance%20Market.pdf. The Obama administration never followed up this report with a specific proposal to Congress.
[3] National Housing Act of 1949, https://www.law.cornell.edu/uscode/text/42/1441

HUD, and may involve the Financial Stability Oversight Council (FSOC). None, however, will require legislation and, as noted above, the proposed changes implement long-standing congressional policy goals.

I. The Housing Finance Market before and after the 2008 Financial Crisis

The following is a brief summary of those elements of today's housing finance market that are necessary for an understanding of our proposal.

The GSEs. In the decades before the 2008 financial crisis, Fannie and Freddie dominated the US housing finance system. With the implicit backing of the government, they were able to borrow at rates only slightly higher than those of Treasury itself. These subsidized funds allowed them eventually to acquire—and either hold in portfolio or securitize—almost half of all mortgages in the United States. As the major buyers of mortgages, their automated underwriting systems were almost universally used by originators to check the acceptability of mortgages. This enabled the GSEs to influence underwriting standards while at the same time to provide a bid for loans that met their standards.

Because of their funding advantages, the GSEs could have grown even larger and more important, but they were held in check by a restriction known as the "conforming loan limits"—restrictions on the size of the mortgages they could acquire. These were set by their regulator at the time, the Office of Federal Housing Oversight (OFHEO), and are now set by FHFA, under a statutory formula. In 2008 Congress adopted a two-tiered limit for the GSEs—the regular or standard conforming limit and a new high-cost area limit at the MSA level. Thus, just before the financial crisis, there were two limits in effect, a standard limit of $417,000 applicable throughout most of the country, and a "high cost area" limit of $625,500 applicable in areas with expensive housing. Both limits remained at that level between 2008 and 2016, when FHFA approved, for 2017, an increase in the standard limit to $424,100 and an increase in the high cost area limit to $636,150.[4]

Operating within both these limits, in 2016, Fannie and Freddie were together responsible for acquiring and securitizing, respectively, about 46 percent of all purchase mortgages and 60 percent of all refinance mortgages (both by count) made that year. In terms of activity and assets, Fannie has been the larger entity for a number of decades.

FHA and Ginnie Mae. Despite the GSEs' funding advantages, they have had competitors. One of them is the combination of FHA (which insures mortgages with explicit federal backing) and Ginnie Mae (which provides an explicit government guarantee on securities backed by FHA-insured loans). In 2016, FHA/Ginnie insured and securitized mostly high risk home purchase mortgages with a median loan balance of $180,000, and the GSEs acquired and securitized home purchase mortgages that were largely of low and medium risk and had a median loan balance of $212,000. Before the financial crisis, competition from Fannie and Freddie had substantially reduced the role of FHA/Ginnie from around 10 percent of the mortgage market (by dollars) in the 1990s to about 2 percent in 2006; the GSEs did this simply by outcompeting FHA for the same low-income and risky mortgages in which FHA/Ginnie had specialized.

In this competition with FHA, the GSEs were spurred by the Affordable Housing Goals—a set of regulations, administered by HUD at the time but now administered by FHFA—that required the GSEs to meet

[4] This ignores a temporary high-cost area limit that was about $100,000 above the regular high-cost area limit and higher limits for Alaska and Hawaii.

certain quotas of LMI mortgages when they bought mortgages from banks and other originators.[5] In 2008, Congress gave FHFA the authority to set the goals. FHFA's subsequent moderating of the goals, which along with the FHA's liberal lending standards and a substantial increase in its maximum loan size, enabled FHA/Ginnie to increase FHA's role in the total agency and private home purchase finance market to approximately 22 percent in 2016.

Jumbo Mortgages and PMBS. Mortgages that are larger than the GSEs' conforming loan limits are known as jumbo mortgages. Before the financial crisis, mortgages in the so-called "jumbo" market were either bought and held in portfolio by banks and other investors or securitized by banks and others in the form of private mortgage-backed securities (PMBS, sometimes known as private label securities, or PLS).

Bank and other private sector acquisition of jumbo mortgages for portfolio investment, and jumbo prime loan origination for PMBS,[6] reached a dollar peak of $650 billion in 2003, or 17 percent of the total 1st-lien housing finance market. It then declined to $570 billion in 2005 (21 percent), $480 billion in 2006 (19 percent), and $348 billion in 2007 (17 percent). PMBS issuances backed by jumbo originations alone reached a dollar peak of $449 billion in 2005, or 16 percent of the whole market, declining to $409 billion (15 percent) in 2006 and $336 billion (16 percent) in 2007.[7]

For the period 2001-2006, interest rates on the jumbo 30-year fixed rate mortgages for portfolio investment and for PMBS pools averaged 27 bps and 72 bps respectively above the equivalent GSE conforming loan rates.[8]

Jumbo Subprime and Alt-A PMBS. Between 2004 and early 2007, about one half of the PMBS market was devoted to the securitization of subprime and Alt-A mortgages. As used in this discussion, a subprime mortgage is one made to a borrower with weak credit (71 percent had a FICO (credit) score of less than 660)[9] and an Alt-A[10] mortgage is one with one or more deficiencies such as low or no documentation, acquisition by an investor rather than a prospective homeowner, lack of amortization (interest only), or a low or no downpayment. By 2006, its peak year, the volume of subprime and Alt-A PMBS loan originations (jumbo and non-jumbo) amounted to $814 billion, or 32 percent, of total 1st mortgage originations.

The sharp growth in this market before the financial crisis came largely from two factors. First, in order to meet the Affordable Housing Goals, which had been enacted by Congress in 1992, the GSEs needed to

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[5] The Affordable Housing Goals required the GSEs to meet quotas of loans to low- and moderate-income borrowers when they purchased mortgages from banks and other originators. The quota was initially 30 percent when the goals were enacted in 1992, but they were raised aggressively by HUD in succeeding years, reaching 50 percent in 2000 and 56% in 2008. In 2005, there were also special goals for underserved (largely minority) communities and for low-income borrowers that also rose during this period, and faster than the main goals. In 2005 HUD added purchase money subgoals, requiring that a large percentage of all the mortgages they acquired was used to purchase a home (rather than to refinance a home).

[6] Private Mortgage Backed Securities are instruments that used a senior-subordinated structure to provide AAA ratings for the top tranches in the structure (usually 85-90 percent all the securities issued) by concentrating the risk in the lower rated tranches.

[7] Source: Inside Mortgage Finance

[8] This analysis controlled for all salient observable loan risk factors, including LTV, credit score, DTI, state, presence or absence of a prepayment fee, presence or absence of private mortgage insurance, and the loan's documentation type (full, low, or no-doc). In addition, loan size was controlled for this the jumbo and near-jumbo rate comparison. As a result, this 2001-2006 set of loans largely consisted of prime jumbo loans.

[9] In 2001, the bank regulators determined that a mortgage with a FICO score of less than 660 was a subprime mortgage, irrespective of any other mortgage terms.

[10] Traditionally, the GSEs would not buy Alt-A mortgages because of their risks, and for that reason the term "Alt-A" was said to be shorthand for loans that had to be sold through "alternatives to the Agencies," as Fannie and Freddie were called in the housing finance business.

acquire mortgages that had been made to low-and moderate-income borrowers. Before 1992, the GSEs were known for acquiring only prime mortgages, and this was thought by community activists and many in Congress to have limited the ability of LMI borrowers to buy homes.

To address this concern, HUD was given authority to increase the goals. As initially enacted by Congress, the goals required that 30 percent of the mortgages acquired by the GSEs had to be made to borrowers at or below the median income where they lived. But beginning in 1996 and continuing until 2008, HUD aggressively tightened the goals. In response, the GSEs reduced their underwriting standards in order to acquire lower quality goals-eligible mortgages, and these lower standards spread to the wider market.[11] By 2008, 56 percent of all mortgages the GSEs acquired had to be made to MLI borrowers.

As a result, throughout the late 1990s and into the 2000s, the GSEs became avid buyers of subprime and Alt-A PMBS mortgages within the conforming loan size limits. Between 2003 and 2006, the peak years of the housing bubble, Fannie and Freddie acquired about 50 percent of all Alt-A loans and 40 percent of all subprime loans originated nationally (including both whole loans and PMBS backed by Alt-A and subprime loans). This included about 25 percent of all the AAA rated PMBS backed by prime, subprime, and Alt-A mortgages and about 43 percent of all PMBS (whether or not rated AAA) backed by subprime and Alt-A mortgages. Since the GSEs were limited to PMBS backed by mortgages within the conforming loan limits, their percentage of conforming subprime and Alt-A PMBS was certainly well above 50 percent.[12]

Finally, because of the sharp increase in homebuyer leverage brought about by the decline in mortgage underwriting standards (see Section IV), particularly the decline in downpayments and increases in debt ratios relative to income, an immense housing bubble developed in the U.S. between 1997 and 2007. As bubbles grow, default rates decline—because borrowers can easily sell their houses to pay off their loans or refinance and take cash out to extend the maturity of their mortgages. Thus, PMBS backed by risky mortgages with low defaults and relatively high interest rates became highly attractive investments in the U.S. and around the world. With their low cost funds, Fannie and Freddie could acquire the "best of the worst," leaving it to the private sector to either leave the business or move out the risk curve.

Both the jumbo PMBS and the subprime/Alt-A PMBS markets collapsed in 2007 and 2008, and neither has revived. It's easy to understand why this was true for the subprime/Alt-A PMBS market; the losses on these securities in 2007 and 2008 showed investors that, in the presence of a housing price bubble, mortgages with low FICO scores and other deficiencies were dangerously risky. However, the reasons that the jumbo PMBS market has not revived are more complex, and will be discussed below.

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[11] This continual deterioration in credit standards spread to the market generally through the GSEs' automated underwriting systems (AUS), which accepted more and more subprime and Alt-A loans. Because of the GSEs' dominance in the market, virtually all loans, regardless of whether destined for a GSE, were run through Desktop Underwriter (Fannie's AUS) or Loan Prospector (Freddie's AUS). Eventually, because it had looser standards than Freddie, Fannie's AUS became the first stop—the default bid that would need to be topped—for everyone in the market who was seeking to determine where to sell a mortgage. This enabled the GSEs, using their government bestowed funding advantage, to buy the "best of the worst" in order to meet the goals, but left the private lenders and securitizers to meet the balance of the demand by moving even further out the risk curve.

[12] Pinto, Government Housing Policies in the Lead-up to the Financial Crisis, a Forensic Study, http://www.aei.org/publication/government-housing-policies-in-the-lead-up-to-the-financial-crisis-a-forensic-study/ and Pinto, Three Studies of Subprime and Alt-A Loans in the U.S. Mortgage Market, http://www.aei.org/publication/three-studies-of-subprime-and-alt-a-loans-in-the-us-mortgage-market/

II. Do the GSEs Lower Mortgage Rates or Promote Home Ownership?

a. Mortgage rates

A critical fact largely unknown even to those who regularly participate in the debate over housing finance policy. As noted earlier and detailed in Appendix 2, since 2014 the private market has been offering mortgage loans with lower rates than the GSEs—usually by about 25 bps, after controlling for the risk characteristics of the mortgages. Accordingly, despite their government backing and the subsidies and costs that entails, the GSEs do not offer lower rates than banks and other portfolio lenders. This will certainly come as a surprise to the members of Congress who have been told for years by the Housing Lobby that the GSEs' lower mortgage interest rates were helping put Americans in homes.

About half of the borrowers that would be affected by our proposed reduction in the conforming loan limits for home buyers would fit within the current underwriting guidelines—LTV, credit score and debt-to-income (DTI) ratio—used by portfolio lenders. The other half would also, but for having an LTV above 85 percent. These borrowers have relatively high incomes and therefore these loans would likely still be made with (i) higher down payments, (ii) the purchase of a less expensive house with the same downpayment, or (iii) loans made at a 90 percent LTV by the private sector. Overall, the resulting decline in leverage would be to produce a more stable housing market.

To absorb this increase in loan demand, portfolio lenders (and, in time, a revived PMBS market) might boost rates somewhat from their current levels. However, the GSE-portfolio rate differential of ¼ percentage point leaves room for portfolio lenders to raise rates while still remaining within the range that the GSEs would charge.

Even if we were to agree with the views that the Housing Lobby will advance, the difference between the costs of a private sector mortgage and a GSE mortgage are not so great that substituting the private sector for the GSEs over time will have a significant effect on mortgage rates or housing prices. Moreover, the benefits of introducing the private sector as the principal source of mortgage financing will be significant in terms of financial stability for the housing market, reduced risks for the taxpayers, lower entry costs for first-time homeowners, and lower borrowing costs for the Treasury Department.

Further, the private sector will likely be able, in most market conditions, to employ more capital-efficient structures for transferring mortgage credit risk to the investors most interested in and best equipped to manage it. Such cost reductions will be reflected in private sector mortgage rates.

As described below, competition from the GSEs and the resulting very low volumes available to PMBS issuers are what, in large measure, prevented the restart of a single-family PMBS market. Reducing the role of the GSEs will create private market opportunities that will attract additional investors and improve liquidity, which in turn will draw in more investors, producing more liquidity. Over time both will increase, as will operating efficiencies.

In addition, as discussed in Section IX and Appendix 5, if the role of the GSEs is reduced as we propose, some investors in GSE MBS will substitute Treasury securities, thus lowering Treasury rates. Our analysis suggests that Treasury rates will decline 20-33 basis points because of this shift, and that would likely induce a

decline of some amount in mortgage rates, which historically have closely tracked the Treasury's 10-year note.[13]

The results of our analysis indicate that if the dominance of the GSEs were reduced over time, the initial effect on private rates would be minimal or zero, as private portfolio lenders expand their investments in both whole loans and PMBS, and as securitizers expand the issuance of PMBS. Over time, any upward trend on rates will likely be muted as new investors are attracted by the greater supply of private mortgage assets and the diminishing supply of GSE MBS. Throughout this proposal we have identified many salutary effects that will flow from diminishing the role of the GSEs, including lower Treasury yields, reduced taxpayer exposure, and improved market functioning.

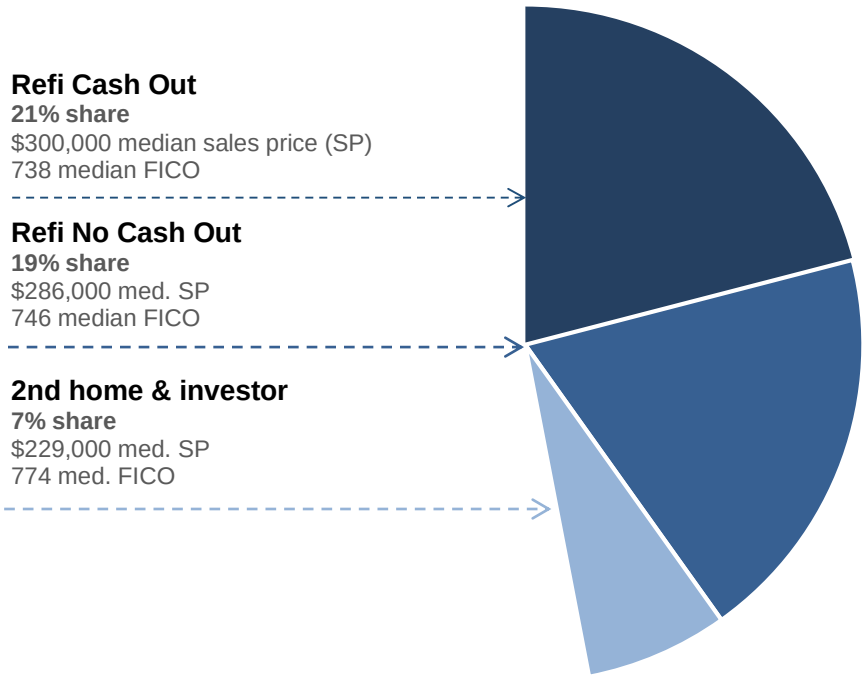
b. GSEs make a minimal contribution to homebuyers of more modest homes

Despite the claims of their supporters, the GSEs make only a minimal contribution to assisting homebuyers buying more modest homes, defined as those taking out a loan for less than $250,000 with a downpayment of less than 15 percent.[14] Half of these households have an estimated income below $66,000 which is 120 percent of US median household income.[15]

As a principle, the only plausible reason for government to back the housing market is to help low- or-moderate income families buy homes so as to build sustainable wealth. Yet an evaluation of the GSEs' 2017 business shows that they fail to meet this simple test.

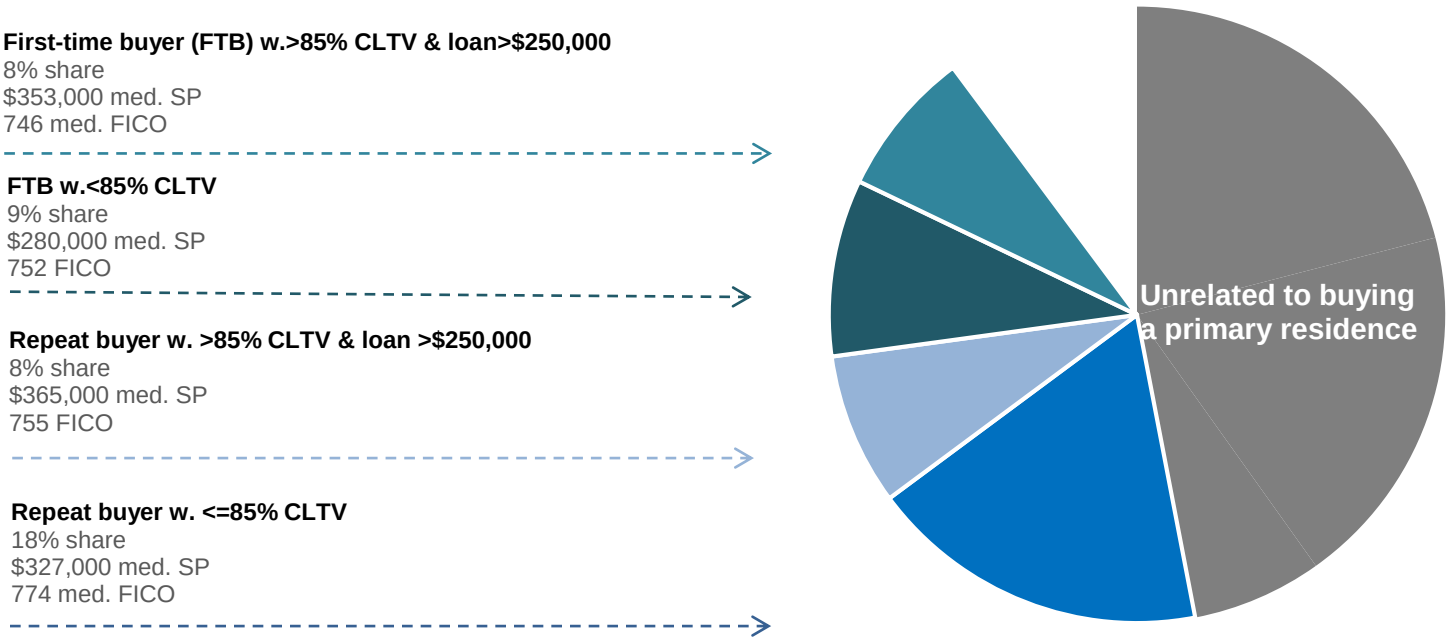
As the pie chart below indicates, almost half of the GSEs' 2017 volume wasn't even related to buying a primary residence.[16] These borrowers—who are refinancing an existing home or buying a second or investment home—could be served by the private sector.

[13] http://www.calculatedriskblog.com/2014/01/mortgage-rates-compared-to-ten-year.html
[14] A $250,000 mortgage with less than 15 percent down represents a downpayment of about 10 percent and a sales price of about $275,000, slightly above the median sales price for new and existing homes purchased in 2016.
[15] Source: HMDA 2015
[16] Source for the next three pie charts: AEI Center for Housing Markets and Finance. All share percentages based on dollars (YTD Aug. 2017)



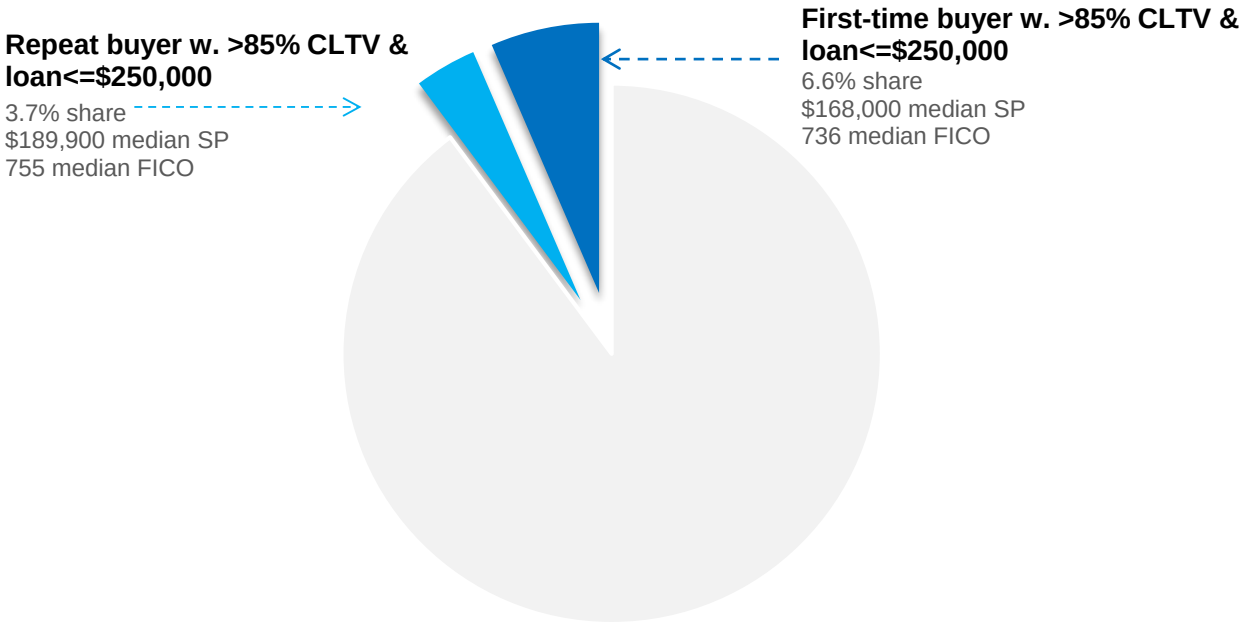
Almost half of the GSEs' 2017 volume wasn't even related to buying a primary residence. These borrowers could be served by the private sector

As the next pie chart demonstrates, another 41% of the GSEs' 2017 business went to help well-to-do buyers (defined as homebuyers putting at least 15% down or getting a loan for more than $250,000 financing a home costing about $270,000 or more), of which 25 percentage points went to well-to-do repeat buyers of primary residences and 16 percentage points went to well-to-do first-time buyers. Once again, these borrowers could be served by the private sector.



The third pie chart demonstrates that only 1 in 10 GSE dollars went to buyers of more modest homes. Only 6.5% (1 in 16) GSE Dollars went to first-time buyers of more modest homes and only 3.7% (1 in 30) GSE Dollars went to repeat buyers of more modest homes. The private sector and a targeted and reformed FHA could replace the GSEs over time:

- The private sector could handle the 50% who are not buying a primary residence and the 40% well-to-do repeat & 1st time buyers of primary residences
- The remaining 10% could be handled by the FHA and the private sector



In Appendix 5, we show that competition from the GSEs' debt costs the Treasury about $17 billion to $29 billion each year in additional payments on outstanding Treasury debt. The GSEs' small contribution to assisting buyers of more modest homes cannot possibly justify the GSEs continued dominance of the housing finance market, free taxpayer support, or this large a cost to the US Treasury. Most of these borrowers would, in any event, be eligible for FHA loans.

These facts, while both key to the debate and incontrovertible, are sure to elicit a powerful backlash from the Housing Lobby—the combination of realtors, homebuilders, banks, community advocates, and their economists and lobbyists, all of whom engage in rent-seeking by exploiting the government's guarantees or benefit from government funding. In Section X we list and rebut the false claims that this group has always used to oppose any reform of the GSEs.

In Section V below, we provide detail on the effect of government housing finance policies on home prices and home ownership generally.

III. Why the Private Securitization Market Has Not Revived

Until the spring of 2007, the prime jumbo PMBS market was strong, issuing approximately $400 billion in mortgage securities in 2006 and 2007. As shown in the table below, new securities based on prime mortgages had risen from $49.9 billion in 1997 to $280.7 billion at its peak in 2005. In 2004, as the subprime and Alt-A markets boomed, the prime market was eclipsed by subprime and Alt-A issuances, which grew from $63.4 billion in 1997 to $814 billion at its 2006 peak. Even in 2007, as the bubble began to deflate, more than $450 billion in PMBS backed by subprime and Alt-A loans were issued. It is noteworthy that, in an effort to meet the Affordable Housing Goals, from 2003 to 2007 the GSEs actively sought out and purchased an average of $150 billion each year in PMBS backed by subprime and Alt-A loans.[17]

Table 1 New Issue Volumes of Mortgage Securities ($ in billions)

Year	Prime PMBS	Subprime PMBS	Alt-A PMBS	GSE purchases of PMBS
1997	49.9	56.9	6.5	6.0
1998	97.3	75.8	21.2	31.4
1999	74.6	55.8	12.0	31.8
2000	53.5	52.4	16.4	18.8
2001	142.2	87.1	11.4	28.0
2002	171.5	122.7	53.5	66.9
2003	237.4	195.0	74.1	103.1
2004	233.4	362.5	158.6	211.7
2005	280.7	465.0	332.3	221.3
2006	219.0	448.6	365.7	180
2007	180.5	201.5	249.6	113.5

Source: Inside Mortgage Finance

For nearly a decade since then, however, there has been only a smattering of PMBS issues, virtually all prime jumbo. Serious efforts by the Treasury Department, the Structured Finance Industry Group, and others, have so far failed to stimulate the growth of this market.

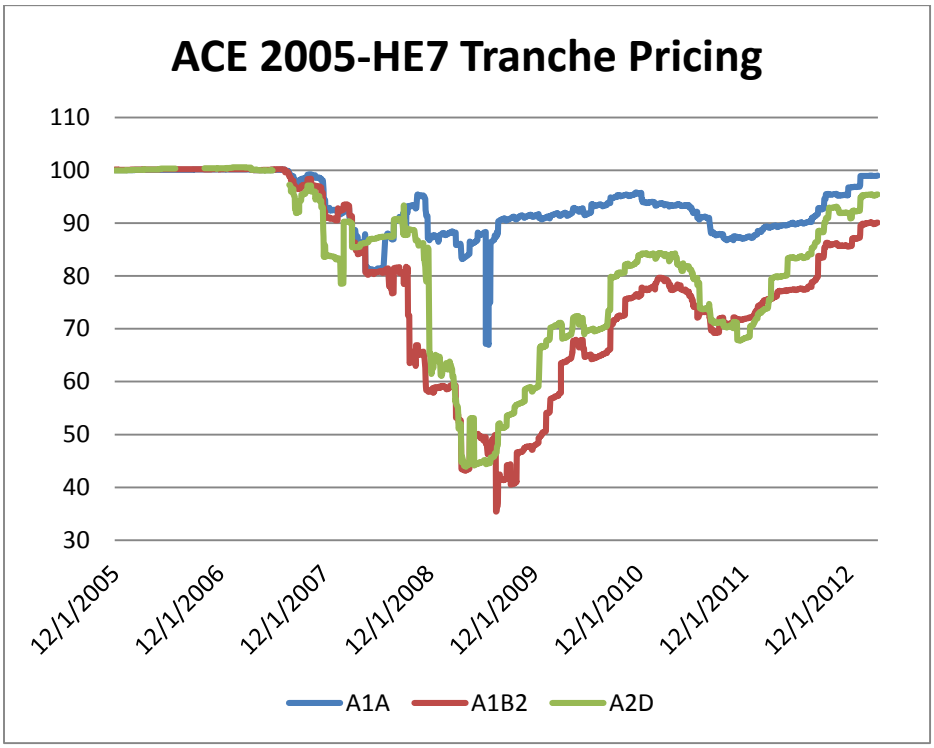
Many commentators have argued that the slow recovery of the PMBS market since the financial crisis is attributable to the losses suffered by PMBS investors in the sharp downturn that occurred in 2008. Other commentators have suggested that servicing failures, failures by rating agencies, or insufficient or misleading disclosures in offering documents were reasons for the reluctance of investors to return to the PMBS market. As shown in the charts below, all other major mortgage and asset-backed securities markets have recovered, with the exception of the single-family and multifamily PMBS markets.

But the complaints about PMBS grew largely out of the initial perceptions of the market, in the immediate aftermath of the Lehman bankruptcy. These perceptions have remained dominant, although later academic work has shown them to be inaccurate. First, most of the losses by banks and others that held PMBS came from the relatively small group of BBB tranches that had been re-securitized (that is, used as a pool of mortgages for another structured offering) into collateralized debt obligations (CDOs). These suffered very high

[17] In 1995, HUD ruled that the GSEs could get affordable housing goals credit for goals-eligible mortgages that were included in PMBS pools.

rates of loss, especially on those that were retained by the banks that issued them.[18] However, first level PMBS (not CDOs) rated AAA, which were the vast majority of the securities issued, did not suffer significant losses.[19]

Second, because of the panic that ensued after the Lehman bankruptcy, investors initially fled the PMBS market, causing severe market declines, but PMBS, and especially the AAA tranches, recovered almost all their value in succeeding years. The following Bloomberg chart shows the sharp decline in one PMBS offering in 2007 and 2008, and its subsequent recovery from 2009 to 2012 as investors realized that the cash flows to the tranches shown were roughly as expected.



Source: Bloomberg. Price history for ACE Securities Corp. Home Equity Loan Trust, Series 2005-HE7. The A1A, A1B2, and A2D references are to various subclasses of the main AAA tranche.

This analysis is supported by a 2013 Fitch study that compared jumbo PMBS default rates with the default rates of the best Fannie and Freddie ("agency") MBS during relevant periods. As Fitch noted:

> To provide a comparable frame of reference, it is useful to compare the loan performance in the agency datasets to that of non-agency prime jumbo RMBS borrowers with the same loan product. The agency GSEs' datasets for the years in the table contain only 30-year, fixed-rate, fully-amortizing loans with full documentation. In other words, these were the GSEs' best loans during the years 1999 to 2011. For purposes of the comparison to the non-agency (PMBS) dataset, Fitch selected a sample of prime jumbo

[18] Larry Cordell, Yilin Huang, and Meredith Williams, "Collateral Damage: Sizing and Assessing the Subprime CDO Crisis," Working Paper no. 11-30 Research Department, Federal Reserve Bank of Philadelphia, May 2012.
[19] Juan Ospina and Harald Uhlig, "Mortgage-Backed Securities and the Financial Crisis of 2008: a Post Mortem," Revision of October 26, 2016.

loans with similar characteristics to those in the agency dataset.[20]

The table below summarizes the Fitch findings.

Origination Year	Dataset *	% Defaults to Date**	CLTV (%)	FICO score	DTI (%)
1999-2004	Freddie Mac	2.6	75	718	34
	Fannie Mae	2.6	74	716	34
	Non-Agency	1.6	71	729	33
2005-2008	Freddie Mac	10.3	75	728	38
	Fannie Mae	11.1	75	725	39
	Non-Agency	10.8	74	738	36
2009-2011	Freddie Mac	0.5	70	763	33
	Fannie Mae	0.5	71	762	33
	Non-Agency	0	68	772	31

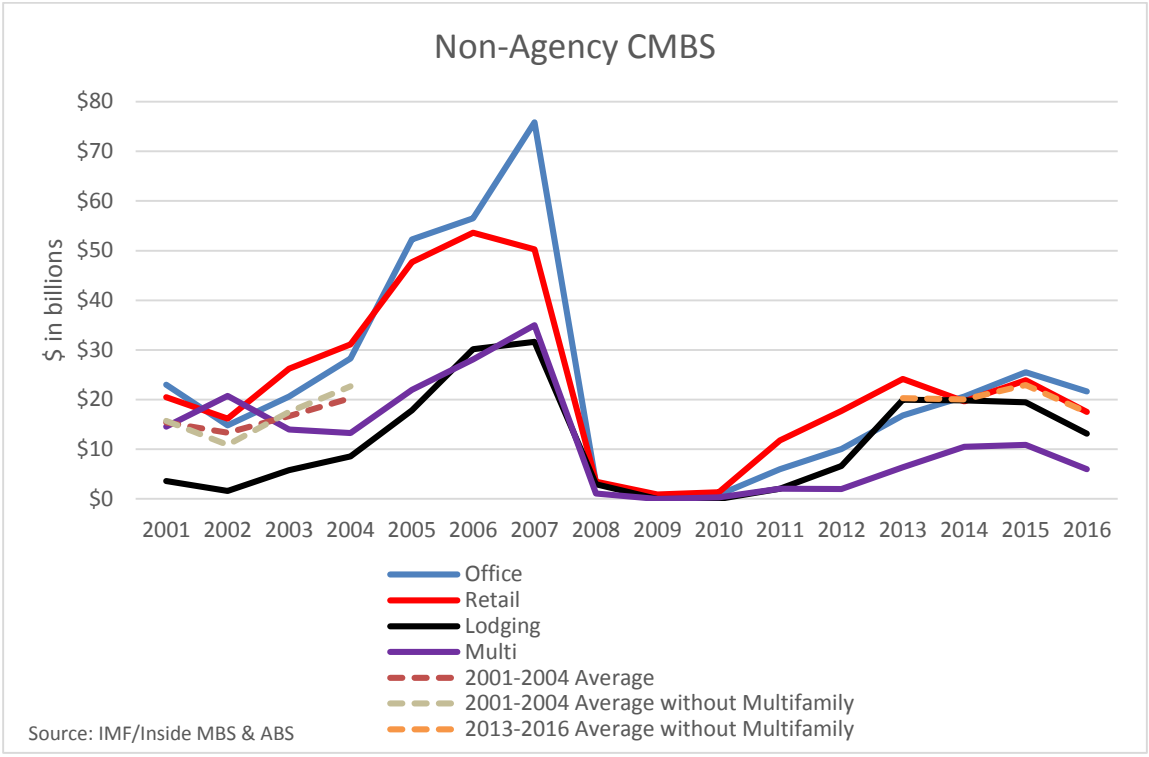
* Size: conforming for Freddie and Fannie and jumbo for Non-Agency, other features: fixed-rate, full documentation, 30-year amortizing term. CLTV – Combined loan to value ratio. DTI – Debt-to-income ratio.
**Defaults definition: 180+ days delinquent or an involuntary resolution prior to 180 days.
Source: Fitch Ratings, "GSE Mortgage Credit Risk Analysis," July 1, 2013, p3

The table shows that non-agency PMBS loans selected by Fitch to match the GSEs' best loans performed as well as Fannie and Freddie's best loans in each of the relevant periods, including the financial crisis period.

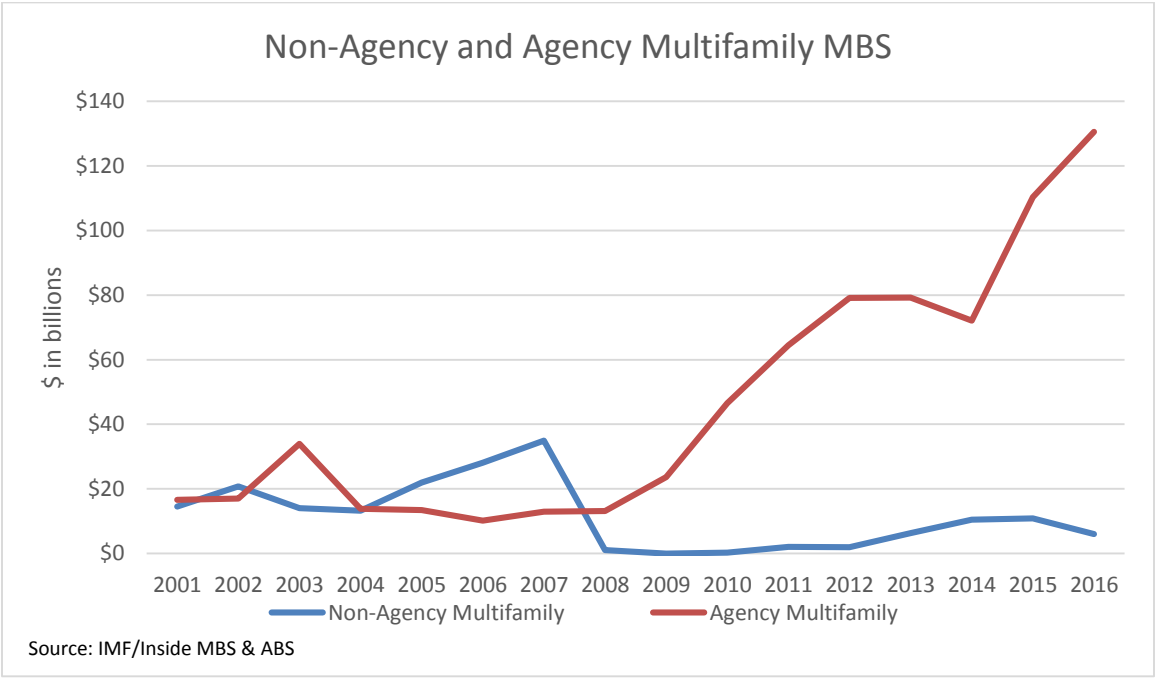
"In short," Fitch concluded, "loans with similar attributes have historically performed similarly regardless of whether they are Freddie Mac, Fannie Mae or non-agency. As such, Fitch finds no inherent risk unique to any one dataset that cannot be explained by differences in loan attributes."[21] In other words, loan quality is the determinant of performance over time, and when the loans underlying a PMBS pool are of good quality they will perform as well as the best loans of the GSEs.

As shown in the charts below, there is compelling evidence that the financial crisis did not cause securitizers and investors to shun the securitization market in general, only those markets where competition from government agencies—the GSEs, FHA or Ginnie—was the greatest. Most of the other major asset securitization markets—the commercial MBS sector, (consisting of office, lodging, and retail, but excluding multifamily) and the Asset Backed Securities (ABS) sector (consisting of credit cards, auto loans, and business loans)—have, post-crisis, generally recovered so that they are approaching 2001-2004 levels. Only the PMBS single-family and multifamily markets are lagging. Multifamily CMBS has not recovered to 2001-2004 levels due to strong competition from the GSEs and Ginnie, notwithstanding the presence of a boom in multifamily lending.

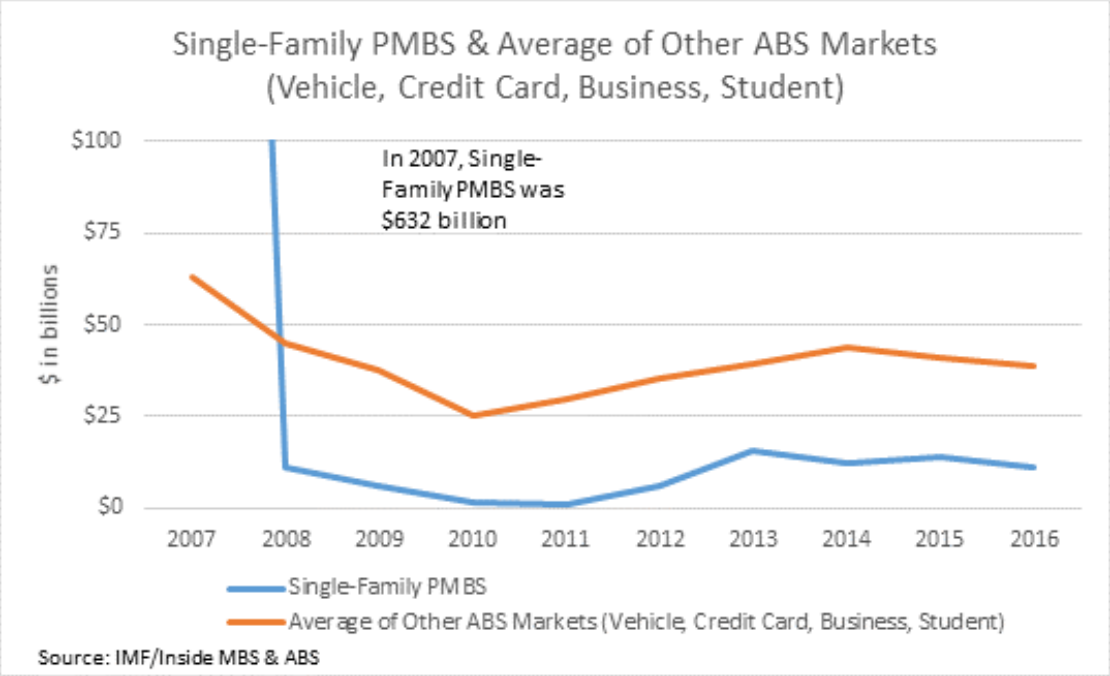
[20] Fitch Ratings, "GSE Mortgage Credit Risk Analysis," July 1, 2013, p3
[21] Id., p 1



Source: IMF/Inside MBS & ABS



Source: IMF/Inside MBS & ABS



Thus, in our view, the lagging PMBS market is not caused by investors' loss of faith in the securitization markets in general, or—as shown by the Fitch study—in PMBS in particular, but because there has been a decline in the amount of available mortgage product. In effect, the PMBS market has been squeezed between the high conforming loan levels of the GSEs and the willingness of banks and other lenders to portfolio a substantial proportion of all the remaining prime mortgages coming into the market. As an extreme example of investor willingness to reenter markets, consider that "Argentina sold $2.75 billion of a hotly demanded 100-year bond in U.S. dollars on June 19, 2017, just over a year after emerging from its latest default, according to the government."[22]

Although housing prices fell drastically in the financial crisis—in many places by 30-40 percent—not only was there no substantial change in the GSEs' conforming loan limits, but the high cost area limits were added in 2008. As a result, unlike other areas of the economy where no business is reserved for government activity, keeping the GSEs' conforming limits and adding high cost area limits when housing prices had fallen drastically made those loan limits now much larger as a proportion of the lower-priced housing market than they were before the crisis.

Thus, the fact that the GSEs hold or have guaranteed about 50 percent of all US mortgages in the US today, while banks and other portfolio investors are acquiring most of the balance, suggests strongly that the lagging recovery of the PMBS market is caused by an insufficient amount of private mortgage assets.

As Redwood Trust, one of the few securitizers that has continued to function through today's market, has written: "A reduction in the GSE loan limit is the only immediate and viable step that can be taken to bring more private capital back into the mortgage market…The loan limit was reduced from $729,750 to $625,500 in October 2011, and private capital has filled the space."[23]

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[22] http://www.cnbc.com/2017/06/20/argentina-sees-strong-demand-for-surprise-100-year-bond.html
[23] Redwood Trust, A Guide to Reviving the Private Label Securitization Market," August 2014. P11.

We have spoken with a number of participants in and analysts familiar with the PMBS market and asked about the cause for the current low level of PLS activity and whether—if there were more mortgage product available—the PMBS industry would be in a position to ramp up issuance volume both in the short and longer term Uniformly, the responses were that the current supply of prime loans available for securitization is too small to induce the industry to spend much time or effort on restarting the market, and that if the supply of mortgages were to expand the industry would expand accordingly.

This view is confirmed by DBRS, a bond-rating service, in its January 2017 outlook: "despite a healthy market recovery, post-crisis non-agency RMBS recovery has remained stagnant for several reasons. Firstly, agency (Fannie Mae and Freddie Mac) issuance has dominated the market. Secondly, banks' balance sheets are so robust that they prefer to hold mortgage portfolios rather than securitize them. Finally, a persistently low interest rate environment has rendered securitization uneconomical for many issuers."[24]

As our measured but substantial reduction in the GSEs footprint proceeds, and as fewer GSE securities are available for investment, we believe PMBS securitizers as well as portfolio lenders will expand their mortgage-acquisition activity, creating a robust private market.

IV. How We Would Proceed

As noted above, the principal constraint on the growth of the GSEs has been what is known as the conforming loan limit. Today, this limit is $424,100 for most of the country and $636,150 for high cost areas. As outlined in Section VII, FHFA, as the conservator of the GSEs, has the authority to reduce these limits, and its cooperation will be necessary to complete this plan. If it does so, more of the market will be open to investment by banks and others, to whole loan trading, and to private securitizers.

a. Reducing the Role of the GSEs and Opening the Market to Greater Private Investment

Accordingly, we propose to reduce the role—and ultimately the importance—of Fannie Mae and Freddie Mac in current and future mortgage markets. We would achieve this result through the following steps:

January 1, 2019: Eliminate high cost area limits. Immediately eliminate the high cost area GSE loan limits, lowering them to the standard limit level. Mortgages under the high cost limits, but above the standard limit, were 4.8 percent by number and 11.0 percent by dollar volume of the GSEs' total acquisitions in 2016, amounting to $109 billion.[25] An estimated $87 billion (80 percent) of these mortgages will migrate to the private market, with about $13 billion (12 percent) likely to be recaptured by the GSEs (see Appendix 6).[26] A portion of the private sector pickup of $87 billion sum will be available to the PMBS market because these volumes are likely to exceed what banks and others want to hold on their balance sheets. In order to prevent much of this business from being captured by the FHA, we also suggest that the FHA's high cost area loan limits be reduced so as to track the elimination of the GSEs' high cost area limits (see Appendix 8).

[24] DBRS, U.S. RMBS – Review and Outlook, January 2017

[25] These and subsequent volume estimates were calculated using AEI's extensive data sets, in particular GSE and other agency acquisition volumes, dollar distributions of loans, and risk characteristics. Calendar year 2016 was used as the benchmark year for these calculations.

[26] The remaining balance of $9 billion (9 percent) is the result of (i) reduced loan balances due to lower loan leverage, (ii) loans being guaranteed by the VA, or (iii) loans that are no longer originated.

This step should be attractive to opponents of rent-seeking, because these high cost area limits are an unnecessary subsidy for the well-to-do and a glaring example of the government providing subsidies to the unneedy. Most important, it will send a strong signal to the private market that henceforth the direction of the GSEs' conforming loan limits will be down, encouraging the start-up of new businesses in securitization.

January 1, 2020: Eliminate the remaining volume of two special products.[27] Next, we would eliminate certain GSE-eligible loan types—loans for non-owner occupied homes (known as "investor loans") and second homes (otherwise known as "vacation homes"). In 2016, investor loans and vacation homes were 10.9 percent of GSE acquisitions by count and 8.7 percent by dollar volume, amounting to $86 billion with balances at or below $417,000. Both these loan types have nothing to do with encouraging home ownership, raise the risks for taxpayers, and could be better done by the private sector. Eliminating these two products will make an estimated $77 billion of mortgages available to the private market. Once again, a portion of the private sector pickup of the $77 billion sum will be available to the PMBS market because these volumes are likely to exceed what banks and others want to hold on their balance sheets.

January 1, 2021: Eliminate remaining cash out refinances. In 2016, these were 19.1 percent by count and 18.1 percent by dollar volume of GSE acquisitions, amounting to $179 billion. There is no reason that the government should encourage cash-out refinancing. These mortgages are far riskier than purchase loans and thus become a burden on the taxpayers, particularly under stress conditions. In addition, cash-out refinancing reduces the equity in homes and thus promotes housing market instability. Eliminating these two products will make an estimated $90 billion of mortgages available to the private market. In order to prevent much of this business from being captured by the FHA, we suggest that the FHA also be restricted from insuring cash out refinance loans (see Appendix 8).

Annually on January 1, 2022, 2023, and 2024: Reduce standard GSE conforming loan limits. Following a reduction in the high cost area limits, and the elimination of the special products described above, we would then reduce the standard conforming loan limit for the two loan types remaining (primary purchase and no cash out refinance) by 20 percent in each year, starting in the year 2021.[28] The 2016 limit of $417,000 would drop to $333,600 in 2022 (a 19.7 percent reduction in 2016 dollar volume), $266,880 in 2023 (an additional 16.8 percent reduction in 2016 dollar volume), and $213,504 in 2024 (a further 13.2 percent reduction in 2016 dollar volume).[29] In order to prevent much of this business from being captured by the FHA, we suggest that the FHA's national loan limit be reduced so as to track the reduction in the GSEs' standard conforming limit (see Appendix 8).

The chart below graphically depicts how our plan would reduce the GSEs' annual volume and outstanding liabilities over time.

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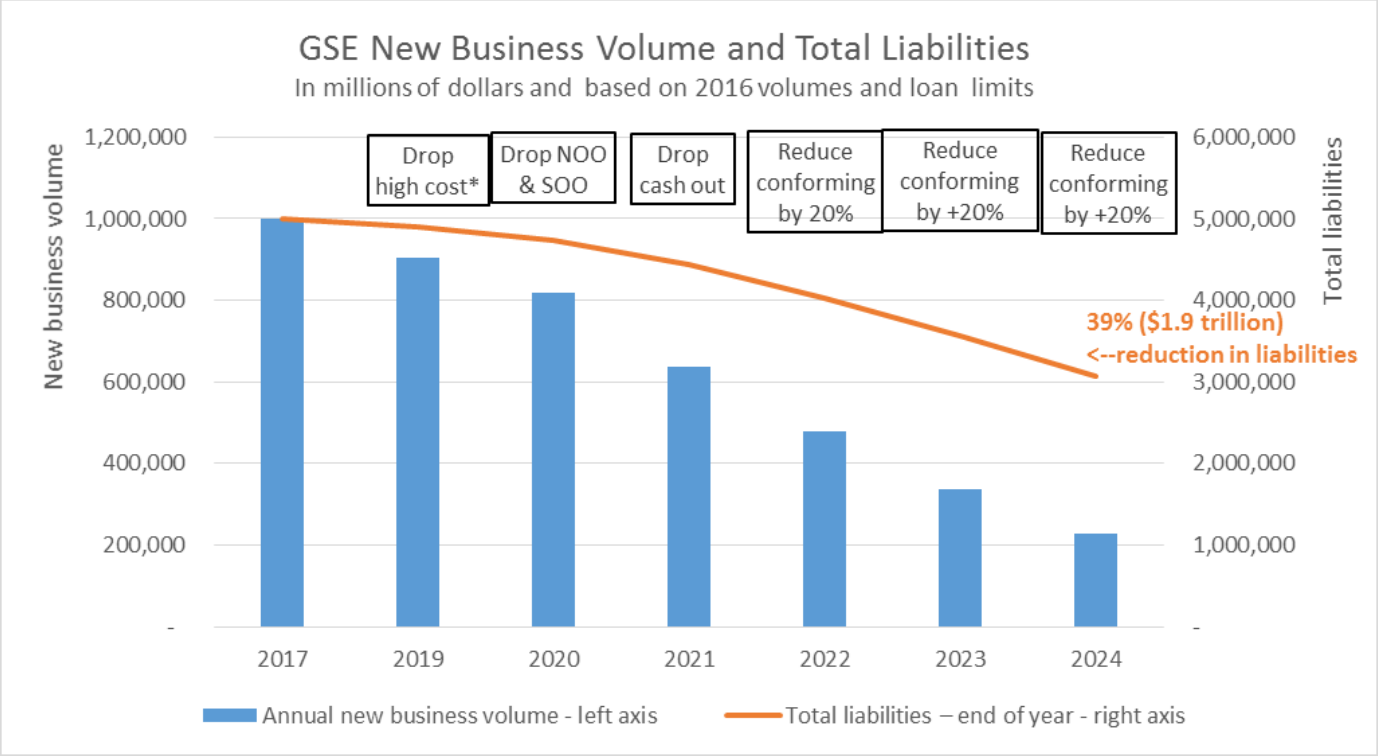
[27] For each product elimination category that follows, the estimated impact is net of any prior reduction in volume due to any previous product elimination. For example, $10 billion in investor loans and loans for second homes were in excess of $417,000 therefore were eliminated in step 1, thereby reducing the 2016 volume of these loans from $96 billion to $86 billion.

[28] The dollar amounts that follow are based on the conforming loan limits in effect in 2016. Insufficient data are available for loans acquired under the limits that took effect on January 1, 2017.

[29] As the conforming dollar loan limits are reduced by 20 percent each year, the impact on dollar acquisition volume is reduced since the loan balances are becoming smaller.



*The high cost area limits were put in place in 2008 to cover areas of the country where home prices were especially high, mostly east and west coasts. They are now about $200,000 higher than the standard limit of $417,000 ($424,100 and $453,100 in 2017 and 2018 respectively)
** NOO: Non-Owner Occupied or investment properties and SOO: Secondary Owner Occupied or second homes.

These steps will also substantially reduce the GSEs' share of the federal financial safety net. By the end of 2024, the GSEs' annual flow of business will have been reduced by about 77 percent with their stock of guaranteed mortgages having been reduced by about 38 percent. The stock would continue to decline in subsequent years since the annual runoff would be more than double the new flow. The GSEs will no longer be the dominant players in the conventional housing finance market. Of course, the pace of reductions can be increased or reduced by policymakers at the beginning or at any point along the way. For example, the conforming loan limit reductions could begin in 2019, at a rate of 20 percent per year.[30] On this pattern, the conforming loan limit in 2019 would be $333,600 and would become $109,504 in 2024. Another pattern would reduce the loan limit by $50,000 per year, beginning in 2019. This would produce a loan limit of $167,000 in 2023.

As the GSEs' footprint declines, we believe, a growing cohort of PMBS securitizers will expand their capacity, as increasing portions of the housing finance market become accessible to the private sector. We are willing to assist the administration, to the extent requested, in monitoring the market impact of these reductions in near real time, using what we believe are the country's most complete data sources on the US housing market.

[30] Based on conforming loan limits in effect for 2016.

We believe that soon after the high cost area conforming loan limits are reduced the PMBS market will begin to revive. This step will give the private sector confidence that the GSEs will eventually be removed as dominant factors in the market, and it will make sense again to invest in the business of securitizing mortgages.

By 2023, most mortgages will either be acquired as whole loans by banks and other investors such as insurance companies and pension funds, or will be securitized and sold to investors. By that point, we believe, a sufficiently large private mortgage market will have developed to sustain both robust portfolio investment and an ongoing and robust private securitization pooling and issuance infrastructure. It would also be feasible to continue the reductions in the ceiling until Fannie and Freddie are essentially eliminated or no longer too big to fail.

In summary, we believe that PMBS investors will return to the market when it begins to grow, and it will begin to grow when more prime jumbo mortgage product is available for securitizers. This result will come about merely by lowering the conforming mortgage limits, but additional competitive opportunities for the private sector will occur if we require the GSEs to recognize costs that bring their guarantee fees closer to what a private securitizer would have to charge.

It is not possible to determine at this point the share of the market that would be taken over by private portfolio investors like banks versus the share that would migrate to other investors or the PMBS market. That would depend on mortgage rates and other factors that influence bank investment. As we will explain below, this approach will produce a stable housing finance market, slowing in the growth of real housing prices yielding more affordable homes, a return of the home as a reliable source of family wealth, and a return to a mortgage market largely dominated by prime mortgages.

b. Reducing the GSEs' Footprint by Reducing Their Government Support Provides Financial Advantages to the Private Sector

Although, as we have described, the GSEs do not offer lower rates than the private sector, they gain share in part by offering loans with more leverage on both higher and lower loan amounts. Many of these borrowers could either put more money down or purchase a less expensive home. The GSEs' high leverage policies have a negative effect on financial stability because higher leverage loans are more vulnerable to default, and thus expose other homeowners and taxpayers to losses. In addition, high leverage loans produce higher mortgage interest deductions, reducing government revenues. Finally, the GSEs are again trying to compete with the FHA by taking on higher risk mortgages, thus increasing the risks to the taxpayers. In just the most recent example, in June 2017 Fannie Mae raised its acceptable debt-to-income ratio without any compensating factors to 50 percent, another example of unhealthy competition among the GSEs, FHA and the Rural Housing Service. [31]

We would propose, accordingly, to make these actions more difficult by requiring the GSEs to recognize the true costs of their operations.

First, we believe that Fannie Mae and Freddie Mac should have at least 5 percent capital behind their MBS, which would be consistent with leverage requirements for private, systemically important financial institutions (SIFIs).[32] Assuming an after tax 9 percent cost of equity capital (consistent with bank earnings over

[31] HousingWire, June 9, 2017

[32] Congress directed that GSE pricing should reflect private sector capital needs in Title IV of the Temporary Payroll Tax Cut Continuation Act of 2011, but it has been ignored by both FHFA and the GSEs. www.gpo.gov/fdsys/pkg/PLAW-112publ78/pdf/PLAW-112publ78.pdf

time), we would require a charge of 69 basis points on the mortgage principal they guarantee. The GSEs' guarantee fees also cover two types of additional costs--expected loan losses and administrative expenses. In a 2014 analysis, the FHFA estimated these costs at 11 basis points, producing a total in guarantee fee cost of 80 basis points. An offset would be the share of investment portfolio earnings attributable to the equity, which at the risk free 10-year Treasury yield of 2.5 percent would be 13 basis points. This results in a net private sector-equivalent cost of 68 basis points. FHFA's most recent annual guarantee fee analysis reports that the GSEs' 2015 average guarantee fee was 59 basis points, suggesting that a 9 basis point increase in guarantee fees would be needed to cover the private sector-equivalent cost of 68 basis points.[33]

Second, a companion change would be for Treasury to charge the Periodic Commitment Fee (PCF) contemplated in the original SPSPA to compensate for the effective guarantee provided to the GSEs. FDIC deposit insurance premiums of 19 bps for undercapitalized banks would serve as a reasonable proxy for calculating this fee, although the SPSPA provided that the rate would be set in negotiation between the Treasury and the FHFA, in consultation with the chair of the Fed. Assuming a commitment fee of 19 bps on newly acquired outstanding securities, this would add an additional 19 basis points to the GSEs' guarantee fees.

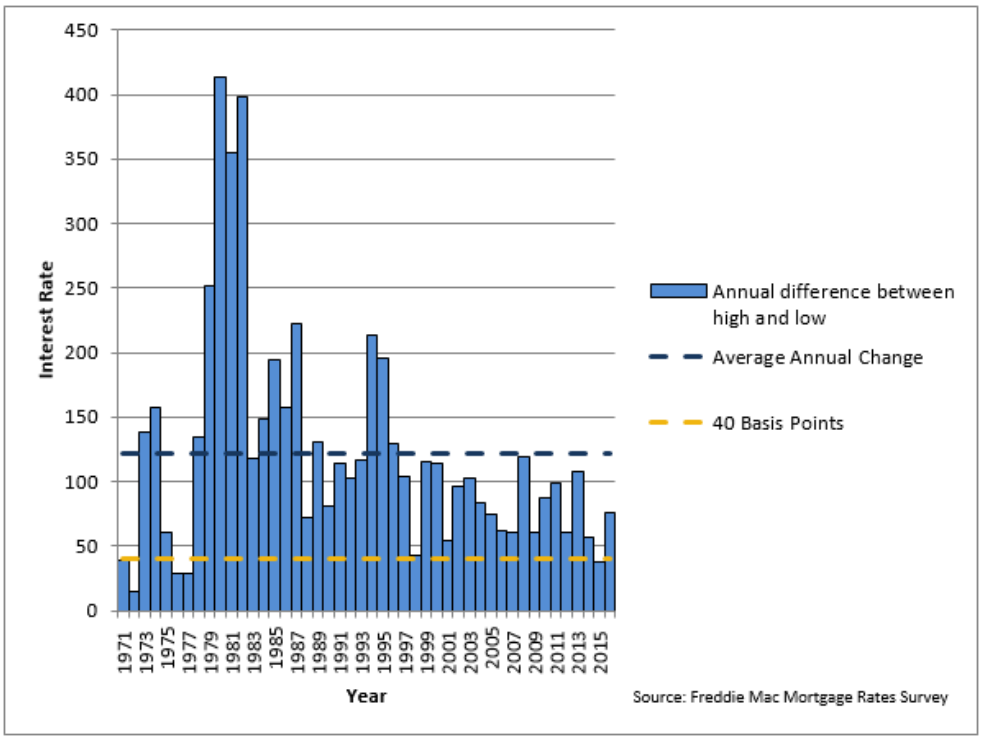
The combination of these 9 and 19 basis point increases total 28 additional basis points and would produce a total GSE guarantee fee of 87 basis points. This would likely put them in a cost position comparable to PMBS securitizers, and likely in a disadvantageous cost position with respect to portfolio lenders. The latter are able to operate more efficiently than PMBS securitizers, because they benefit from retail footprints, a diversified business model, and government deposit insurance.

There will, of course, be complaints that it is unfair to require homebuyers to pay an additional 28 bps for a mortgage the GSEs will acquire, but the answer is that the true costs of the GSEs should be included in their pricing. To put this increase in perspective, we compare it to historical rate volatility and how GSE and private rates compare today.

As shown in the graph below, the average variation in conforming 30-year mortgage rates over the period 1971 to 2016 is 122 basis points per calendar year (calculated as the highest rate during the calendar year minus lowest rate during same year). In other words, a 28 basis point increase that would equalize the GSEs' costs with those of their private sector competitors amounts to less than one-quarter of the historical average annual fluctuation in rates and should not then cause any kind of shock to the housing finance system.

[33] Full calculation is as follows: A 9 percent after tax ROE at a 35 percent tax rate = 13.85 percent pretax. To achieve this return on 5% in equity = 69bps (5 percent x 13.85 percent). Add expected losses and admin costs of 11bps = 80bps. Subtract yield on equity at 2.5 percent risk free rate = 13bps (2.5 percent x 5 percent) rounded.

Average variation in conforming 30-year mortgage rates for the period 1971 to 2016



c. Despite the Gradual Elimination of the GSEs, the Private Housing Finance Market Will Remain Stable and Free of the Kind of Subprime Loans that Caused the Financial Crisis

If the GSEs' footprint is substantially reduced and the GSEs are eventually wound down, we expect that the resulting private market will largely be a prime loan market. This would be the natural result of a profit-driven system, where few investors would prefer to invest in low-quality or subprime loans or PMBS backed by them. Even Fannie and Freddie, as profit-making entities, insisted on acquiring only prime mortgages before the enactment of the Affordable Housing Goals in 1992.[34]

[34] A review of private lending standards from 1935 to the 1960s finds that the private sector had more restrictive standards than the government sector (the FHA and VA) during this period. In the early 1970s, (i) Fannie was authorized to acquire non-government (dubbed "conforming conventional") loans and (ii) Freddie was created and given the same powers. From this point until 1992, Fannie and Freddie were authorized to acquire prime loans—that is loans made or acquired by private institutional investors. The result was that the combined GSE and private market continued to have more restrictive standards than the government sector (the FHA and VA).
This nearly 60 year trend was upended by the imposition of the GSEs' affordable housing mandates in 1992, which put the GSEs in direct competition with the FHA and subprime lenders. They all needed the same higher risk loans for lower income borrowers. As noted earlier, this put the private sector into competition with a greatly expanded government sector (the FHA and the GSEs), where the GSEs were no longer required to make prime loans. This competition ended with the GSEs' 2008 conservatorship. After 2008, the FHFA significantly reduced the risk of the loans the GSEs had been acquiring, while the FHA continued to make high risk loans. Since 2009, the private sector has reverted to more restrictive standards than the government sector (now the GSEs, the FHA, the VA, and the Rural Housing Services).

However, in order to reassure others that the PMBS market will not again become a vehicle for low quality and subprime mortgages, our proposal requires that no mortgage could be securitized without various market-based enhancements. These, outlined below, include

PMI. Private mortgage insurance (PMI) that meets FHFA's Private Mortgage Insurance Eligibility Requirements (PMIERs), expanded as we describe below.

Credit enhancements from other insurers. These include credit enhancements provided by diversified property/casualty insurers that have risk absorbing capacity similar to PMI.

Other risk absorbing credit enhancements. These are credit risk-transfer (CRT) securities or subordinated tranches that include first loss coverage beyond the limits currently used in most GSE CRTs and that have similar risk absorbing capacity to PMI and adhere to the risk-based relationships under our expanded PMIERs proposal.

All of these enhancements operate according to market principles in the sense that they assume that private sector entities will take risks on mortgage quality and include the costs of these risks in the cost of the mortgage itself. Thus, each of these measures would make risky mortgages more expensive and thus less attractive to borrowers, unless they are willing to pay the additional costs.

The PMIERS standards for private mortgage insurance were originally established by FHFA for, and in consultation with, the GSEs, and are broadly applicable to all business insured by private mortgage insurers, regardless of whether acquired by a GSE. Thus, as described in Section VI, the same standards can easily be made applicable for all private securitizations by using the concept of the Qualified Residential Mortgage (QRM), which was established in Section 941(e)(4) of the Dodd-Frank Act.

In this connection, it is important to recognize that FHFA requires the GSEs to comply with PMIERs for all the high LTV mortgages they acquire, and that we would expand PMIERs—or standards equivalent to PMIERs outlined below—to all PMBS through the QRM standard as described in Section VI. PMIERs requires mortgage insurers to have assets backing their insurance coverage that are commensurate with the risks of the mortgages they have insured, so that the required assets (which, for this purpose, might be thought of as capital) increase as mortgage risk increases. The core of the PMIERs approach sets these requirements on the basis of a loan-by-loan assessment of risk, taking into account a set of relevant risk factors, including LTV, credit score, loan purpose, total debt-to-income (DTI) ratio, loan term, tenure, and documentation.[35]

This loan-by-loan assessment forces insurers to hold additional assets when underwriting standards deteriorate, replacing what has historically been a static asset standard with a dynamic one. A rise in required assets will be reflected in higher mortgage rates, which will provide an important countercyclical influence to keep markets stable.

Thus, PMIERs provides an effective way to assure that as mortgages become more risky they also become more expensive for the borrower, and this would help prevent the deterioration of mortgage underwriting standards as occurred before the financial crisis. In effect, any mortgage could be included in a PMBS offering, but its risks would be paid for by the borrower. This does not guarantee that all mortgages will

[35]The current PMIERs rules take account of DTIs only when they exceed 50 percent. We would suggest lowering that threshold to 43 percent to further address risks posed by increasing income leverage. This form of leverage becomes especially relevant in periods of rising mortgage rates, which boost monthly payments, all else equal.

be prime, but it goes a long way toward preventing the kind of deterioration in underwriting standards that we saw in the years preceding 2008. A similar effect would be achieved through the use of other risk-absorbing credit enhancements we described above.

However, this loan-by-loan assessment, as reflected in the current PMIERs approach, does not fully address the potential buildup in systemic risk during a housing boom. That is, even loans that appear relatively safe when evaluated in isolation can become risky if many other loans in their market default. This cascade of defaults reduces home values, heightening default risk for all loans in the local area.

To address these spillover effects, the National Association of Insurance Commissioners (NAIC) is currently considering a parallel approach to PMIERs that would adjust the required assets implied by the loan-by-loan analysis for (i) the level of house prices relative to a longer-term trend and (ii) the overall riskiness of the national pool of mortgage originations. We support this proposed approach. When house prices are high relative to trend or mortgage originations as a whole are risky (or both), the proposed rule would boost the insurer's required asset holdings; conversely, when house prices are low relative to trend or when mortgage lending overall is relatively safe, the required holdings would be reduced. In this way, the proposed PMIERs structure would strengthen the countercyclical features of the mortgage market.

We will suggest additional countercyclical features later on that raise capital requirements on new loans if house prices rise beyond normal bounds, inhibiting the development of any bubbles.

A key feature of our proposal is that we would expand mortgage insurance coverage so that it insures for all risk over LTVs above 60 percent. This will require that we enhance PMIERs in two important ways so as to assure adequate assets are backing securitized mortgages. Thus, we would (i) expand the point at which a mortgage must have insurance from an LTV of 80 percent, as FHFA currently requires, to an LTV of 61 percent or greater; and (ii) expand the depth of coverage requirement from the current level of about 72-75 percent to 60 percent. The basic PMIERs standards and our suggested enhancements, which we call Expanded Private Credit Risk Transfer Eligibility Requirements (PCRTERs), are in Appendix 3 and 3a.

d. Investment capacity and risk capital

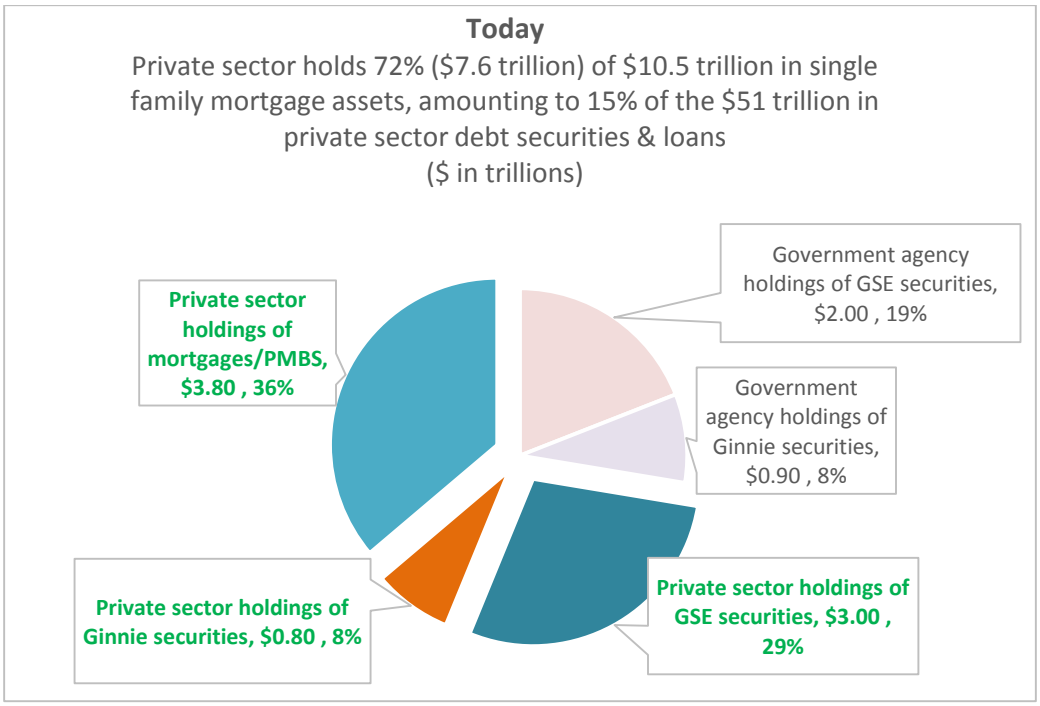
The gradual reduction we propose in the GSEs' role could cause some market observers to question whether there will be sufficient investment capacity and risk capital in the US financial system to support the US housing system and, if necessary, cover potential credit losses. There is, of course, no way to know where exactly new investment will come from, but for the reasons outlined below, we believe that there will be more than sufficient investment capacity for the housing finance system if the GSEs are wound down as we propose.

Considering only the US fixed income market, there is $39.4 trillion in capital invested in fixed income securities of various kinds at the end of 2016—over 75 percent of which is private capital. This total increased by $1.2 trillion from year end 2015 to year end 2016.[36] There is another $19 trillion invested in whole loans and trade credit of various types. This total increased by $950 billion from year end 2015 to year end 2016.[37] Combined these total $58 trillion, of which the private sector accounts for an estimated $51 trillion. Thus the additional private investment required to compensate for the decline in investment in mortgages by the GSEs

[36] http://www.sifma.org/research/statistics.aspx
[37] Source: Federal Reserve Financial Accounts of the United States, Quarter 1, 2017

will be a small fraction of both the total amount invested in debt securities, loans, and trade credit, and of the annual growth of such investments.

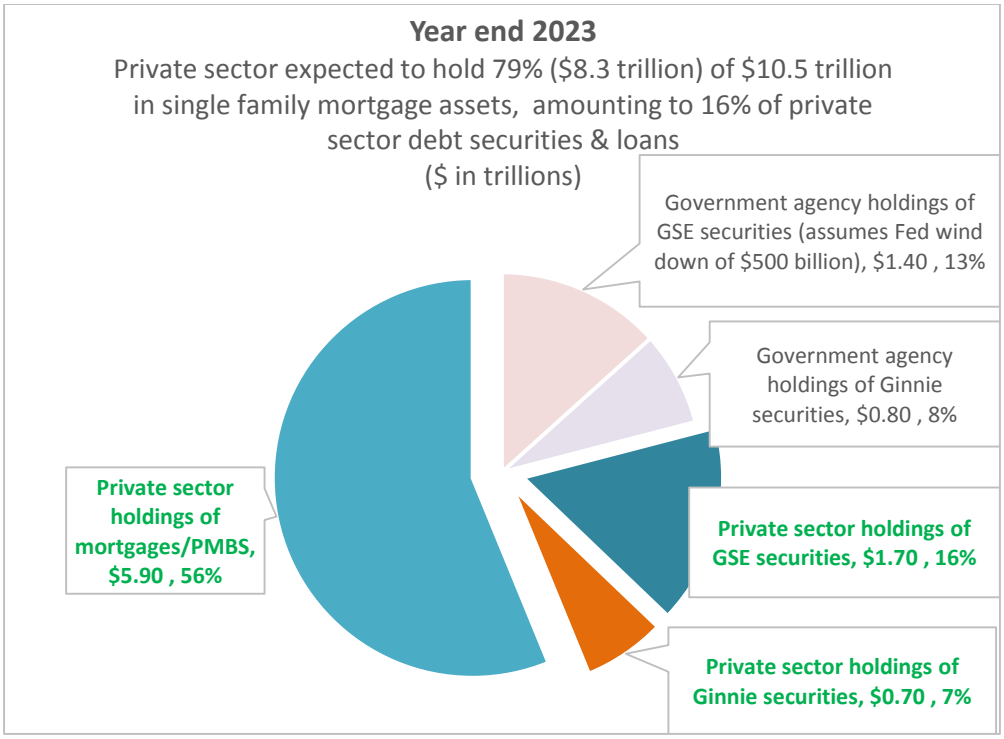
Current investment capacity. As the graphic below demonstrates, the US single family mortgage market currently totals $10.5 trillion. Private investors account for $7.6 trillion or 72 percent of this total. The balance, $2.9 trillion, is held by various government agencies (the Fed, state and local governments, the GSEs, and foreign central banks)[38] largely in the form of GSE and Ginnie MBS. We believe a reasonable estimate is that $2.0 trillion are GSE securities. Of the private sector's $7.6 trillion, $3.0 trillion is in the form of GSE securities.[39]



Thus, as of today, there are $5.0 trillion of GSE securities outstanding. If the wind-down of the GSEs continues as described in this proposal, we estimate that, by 2023, there will be $3.1 trillion in GSE securities outstanding. The reduction in the dollar amount of outstanding GSE securities will mean that private investment in nongovernment-guaranteed mortgage assets will have to increase by $1.9 trillion, with about one-quarter occurring in 2023.

We believe the private sector will easily accommodate this $1.9 trillion reduction in GSE guaranteed investments. As noted above, the private sector has $51 trillion in debt securities, loans, and trade credit.[40] About 6 percent is invested in government-guaranteed mortgage assets, and 10 percent is invested in nongovernment-guaranteed mortgage assets. This is demonstrated in the graphic below.

[38] Id.
[39] Inside Mortgage Finance
[40] Supra. Federal Reserve, 2017 and SIFMA

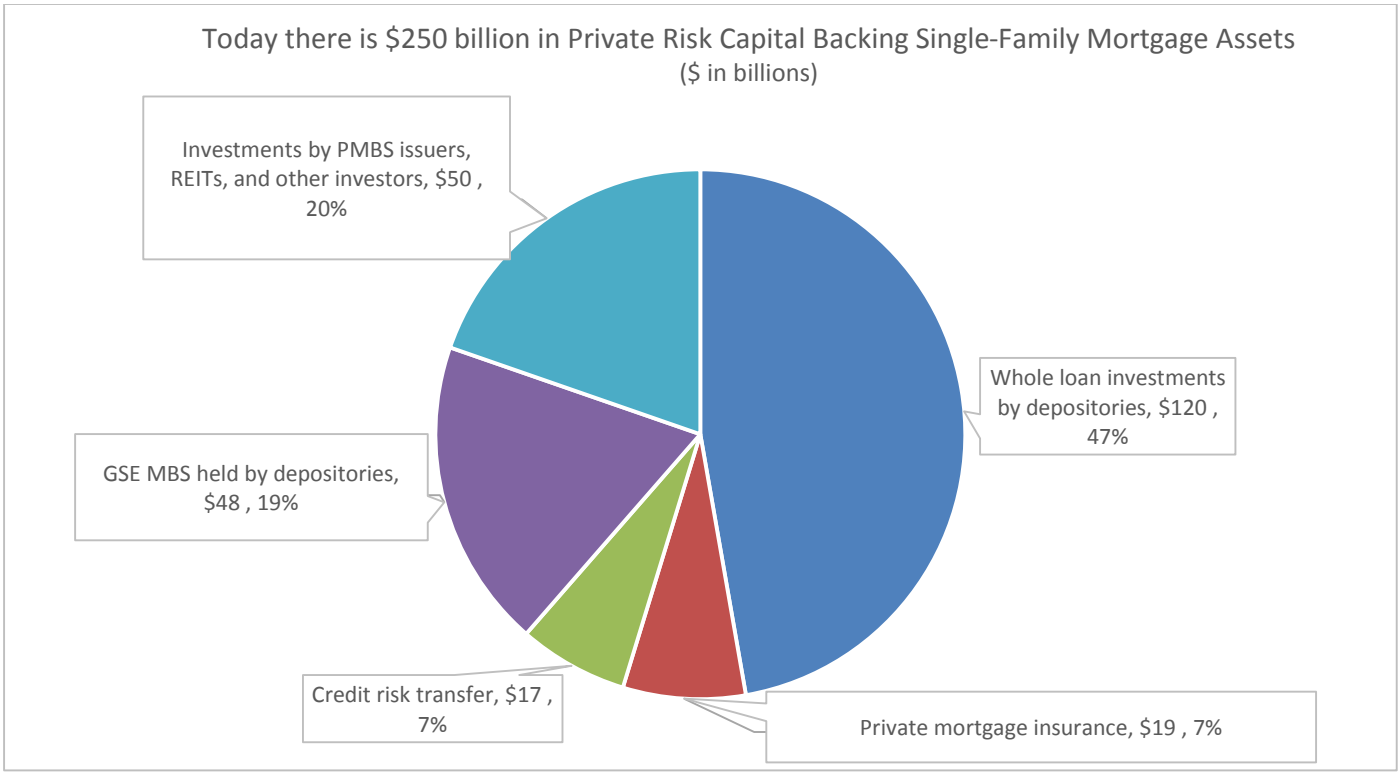


Thus, 4 percent of the capital market as a whole will have to shift its investment to nongovernment–guaranteed mortgage assets in order to compensate for the decline in GSE investment during the five year period between 2018 and 2023. If the GSEs are wound down at a faster pace, or eventually eliminated, the investment in these assets will have to be increased commensurately over the full wind-down period.

We expect that most of this increase will come from increased investment by private portfolio investors. We would expect depositories would both replace a portion of their current $3 trillion invested in GSE securities with whole loans and otherwise add to their whole loan portfolios. This will be supplemented by substantial growth of the PMBS market, backed by prime mortgages and PMIERs or its equivalents as described earlier in this section. In addition, some new investors will be attracted by the expanded supply of long term assets at the somewhat higher yields than are available today. For more on the likely evolution of the private housing finance sector see Appendix 7.

Risk capital. There are a number of entities to absorb credit risk currently in the market, including private mortgage insurers, property and casualty insurers, PMBS issuers, hedge funds and REITs. These have substantial additional capacity to invest the necessary risk capital.

As demonstrated by the graphic below, these entities have already invested an estimated $250 billion in risk capital.



The private mortgage insurance (PMI) industry, is currently backed by $18.9 billion in PMIERs assets, and has insured $904 billion in outstanding mortgages (approximately $230 billion of risk–in-force based on a loan coverage ratio of about 25 percent). The PMI industry has advised us that, while it cannot commit to a specific amount of or increase in assets, if there were additional market demand, the industry has assets and the ability to raise additional assets to meet such demand.[41]

Further, in the last year, the GSEs used a number of additional risk transfer vehicles. Most were achieved by selling securities with attractive interest rates that charge a pro rata share of pool mortgage losses to investor principal. Last year, they transferred $13 billion of risk on $423 billion of loans in this way. They also transferred more than $4 billion in risk on $101 billion of loans to diversified insurance and reinsurance firms. Other small programs included lender recourse and pool coverage deals with MIs made by lenders.[42]

Substantial additional capital would also be available through the use of traditional PMBS with senior/subordinated structures or other risk transfer methods.

In recent years, a type of so-called "front end" lender recourse CRT deals has developed. For example PennyMac originates a pool of loans and then delivers them to Fannie. Simultaneously, it creates a trust with

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[41] We have shared with PMI industry representatives our general approach for expanding third-party credit enhancement by means of deeper and broader coverage under PMIERs and the resulting required assets necessary to replace, over time, the entirety of the GSEs' current $5 trillion in outstanding book to this new asset standard.

[42] The various methods of risk transfer are not directly comparable—private MI is front-end, first-loss, while the other credit risk transfers come in many different flavors. In addition to the PMIERs assets, private MI loans have an ongoing substantial premium stream that historically has added risk-absorbing capacity equal to PMIERs-type assets. On the other hand, credit risk transfer securities entail no counterparty risk whatever, and they spread the risk to a broader and less leveraged group of investors.

some amount of capital (say, roughly 3-4 percent of the unpaid principal balance of the loans in the reference pool). This trust holds the cash as an asset on behalf of the REIT to absorb first loss risk on loans it produces. Then, as servicer, it remits some portion of Fannie's ~60bps guarantee fee to the trust as a yield on this first loss asset, and the remainder of the guarantee fee it remits to Fannie to pay for operating costs and its "catastrophic" insurance – e.g. Fannie's absorption of any losses above the ~3-4 percent cash. A second structure which JPMorgan has done – often called "L Street" – is very similar mechanically, but instead of holding the ~3-4 percent first loss themselves, JPMorgan tranches that pool into multiple securities and sells them to investors.

A third approach is used by Redwood, a REIT, to structure its PMBS. It gets the first loss piece sized and it then purchases the entire first loss piece as a REIT investment.

Finally, PMBS could also be issued with private mortgage insurance replacing senior/subordinated structures. If the loans backing new PMBS were backed by substantially deeper coverage from a suitably rated mortgage insurer, there would be little risk left to deal with.

All these structures, particularly front-end, first-loss ones, require private sector entities to price the risk they are taking and thus to pass along to the borrower the cost of a risky mortgage. This will both limit the degree to which low quality mortgages will be originated and create important countercyclical effects. As described above in this Section, the use of deeper mortgage insurance coverage, down to all mortgages with LTVs greater than 60 percent, provides for countercyclical reserves, which lessens the likelihood of a future market catastrophe and provides protection if it does occur. This is the ultimate defense against a repeat of the housing bubble and the crash of 2007 and 2008.

V. Effect on Housing Prices

a. Housing prices and government policies

US housing policy has created a housing finance system that is an "economics free zone," substituting government intervention and the inevitable market distortions for the price signals a true housing finance market would provide. This government-dominated system has promoted a massive liberalization of mortgage terms, countless trillions of dollars in lending, and many millions in home foreclosures, yet housing has become less, not more affordable, and less, not more, accessible. The results are not unlike our government-dominated health care and student loan systems.

Mortgage underwriting standards, and not interest rates, are the key determinants of housing prices. To some extent, of course, all things being equal, housing prices will be higher in a market where interest rates are low, but the most important factor in housing prices is leverage—the amount of money that a home purchaser is able to borrow and still qualify for a mortgage.

The GSEs, for example, are willing to acquire mortgages with 3 percent downpayments, which means that the homebuyer will be borrowing 97 percent of the price of the home. This puts strong upward pressure on home prices. The GSEs are also willing to accept mortgages from borrowers who have debt-to-income (DTI) ratios higher than 43 percent. This increase in income leverage also pushes up housing prices. On the other hand, if the private sector requires a 10 percent downpayment, and a DTI ratio of 43 percent or less, the homebuyer's leverage will be lower and so will the rate of home price increase.

As of May 2017 we are in the 57th month of a seller's market (defined by the National Association of Realtors as less than 6 months of housing inventory for sale). As noted below, national real home prices are 28

percent above their 2012 trough. This is roughly the pace that eventually led to an enormous housing price bubble in 2007 and the financial crisis when the bubble collapsed in 2008. See Appendix 3 for material on natural experiments in the housing market that show these effects.

Our proposal, especially because of the PMIERs or other standards we would embed in the PMBS structure, would tilt underwriting standards heavily toward higher downpayments (and less upward pressure on home prices) because lower downpayments would require more assets or capital to cover the insurer's risk. So, as noted above, housing prices in the private structure we are proposing—whatever the difference in mortgage rates—would tend to be lower than in areas where the GSEs' looser standards predominate. And housing prices in these areas would also be more stable, houses would become a store of value for families, and as outlined below prices for first-time homebuyers would tend to be lower, even if mortgage rates are somewhat higher.

Moreover, even if GSE rates were lower than private rates, there are good policy reasons not to provide subsidies to high income borrowers. Borrowers who currently benefit from GSE loans between the standard loan limit and the applicable high-cost limit are not poor. According to HMDA, in 2015, the median gross income for these conventional borrowers was $150,000. Whatever benefits they are receiving from the GSEs are a result of the subsidies that the GSEs receive from the government, and there is no sensible policy reason to continue such a subsidy. Subsidizing their loans has virtually nothing to do with increasing homeownership, which should be the primary purpose of any government housing policy; instead, well-to-do borrowers are simply encouraged to buy bigger, more expensive houses. They are receiving subsidies in the form of uncompensated GSE taxpayer risk and increasing high income borrowers' interest tax deduction. Ending these subsidies leaves more resources for those who need smaller and less expensive houses, and in the broadest sense other types of investments that increase worker productivity and grow the real economy.

The same arguments apply to the other GSEs products we would eliminate over time—investor loans, second home mortgages, and cash-out mortgages. These loans can all be made by the private sector and at rates commensurate with the risks they reflect; there is no reason the government should subsidize these products or that the taxpayers should be burdened with the risks and costs they entail.

It is easy to see how this works to hurt first time home buyers. By subsidizing home ownership through tax benefits (deductibility of interest on mortgages) and other home ownership programs, the government increases demand; by subsidizing such agencies as Fannie and Freddie to acquire mortgages with low down-payments and high debt-to-income (DTI) ratios, the government increases the leverage in the housing market, which raises home prices.

For example, in the run-up to the 2008 financial crisis, the GSEs were accepting mortgages with downpayments of 5 percent or even 0 percent, and DTIs of 50 percent or more. The minimum downpayment for a prime mortgage is ordinarily 10 percent. Accordingly, if a potential homebuyer has $10,000 with which to buy a home, he or she can buy a $100,000 home. But if the downpayment is reduced to 5 percent, the same homebuyer can purchase a $200,000 home, putting heavy upward pressure on housing prices. This higher priced home has a higher mortgage payment, of course, but if the GSEs and FHA are willing to accept a DTI of 50 percent or more, the homebuyer can take on a larger mortgage by taking on more debt. Before the great credit liberalization of the 1990s and early-2000s, the usual DTI limit for a prime loan was 38 percent, which itself place a limit on the debt a homebuyer could assume.

Policies like this drive up housing prices. In 1989, nearly 90 percent of U.S. housing markets were rated as affordable (a median home price to median income ratio of 3.0 or less) with only 4 percent rated as severely unaffordable (a ratio of greater than 5.0). However, fueled by 13 years of continuous growth in loan leverage, the median house price nationally increased from 2.86 times the median income at the end of 1992 to 4.05 times

median income in 2006. Today, after the collapse of house prices in 2008, it stands at 3.32 up from its low point of 3.03 in 2012. In the New York City and Los Angeles areas, numbers are even worse, standing at 5.51 and 8.81, respectively.[43] This may be endurable for people who already own homes, since they will benefit from the rising prices in the market. They can sell their existing home and use the proceeds of sale for the purchase of a larger home, but first time homebuyers are the ones who are hurt by these policies.

b. Government policies and low-income homeownership

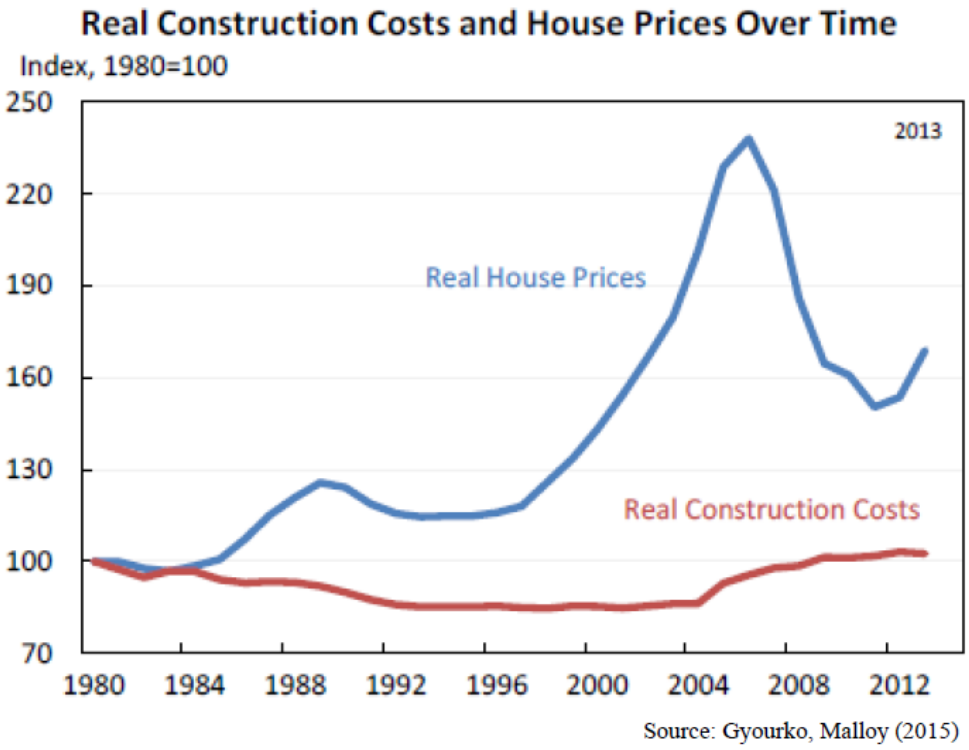
The underwriting policies of the GSEs (and other government guarantee agencies) cause home prices to rise and make homes for low-income first-home buyers unaffordable. It is not too much to say that US homeownership policy—notwithstanding the countless trillions of dollars in home loans and the massive liberalization of credit terms—has failed to achieve its two primary goals: broadening access to homeownership, and achieving wealth accumulation for low- and moderate-income homeowners.

Government housing policies—implemented primarily through the GSEs, but also including the FHA, VA and others—try simultaneously to expand demand, increase liquidity and leverage, and provide subsidies to "fill in" the resulting "price or affordability gap." It is all, ostensibly, in the name of increasing home ownership, but that too has been a failure. In 1964, the homeownership rate in the US was 64 percent. In 1992, the affordable housing goals were enacted, requiring Fannie and Freddie to meet certain quotas of mortgages made to LMI borrowers. The goals were increased aggressively by HUD between 1996 and 2008, forcing the GSEs to reduce their underwriting standards. Homeownership did rise temporarily, to almost 70 percent in 2004, but the reduced underwriting standards also built an enormous housing price bubble. When it deflated, many of the subprime and other low quality mortgages that had been made in the preceding years defaulted. Today, the homeownership rate in the US is about 63 percent.

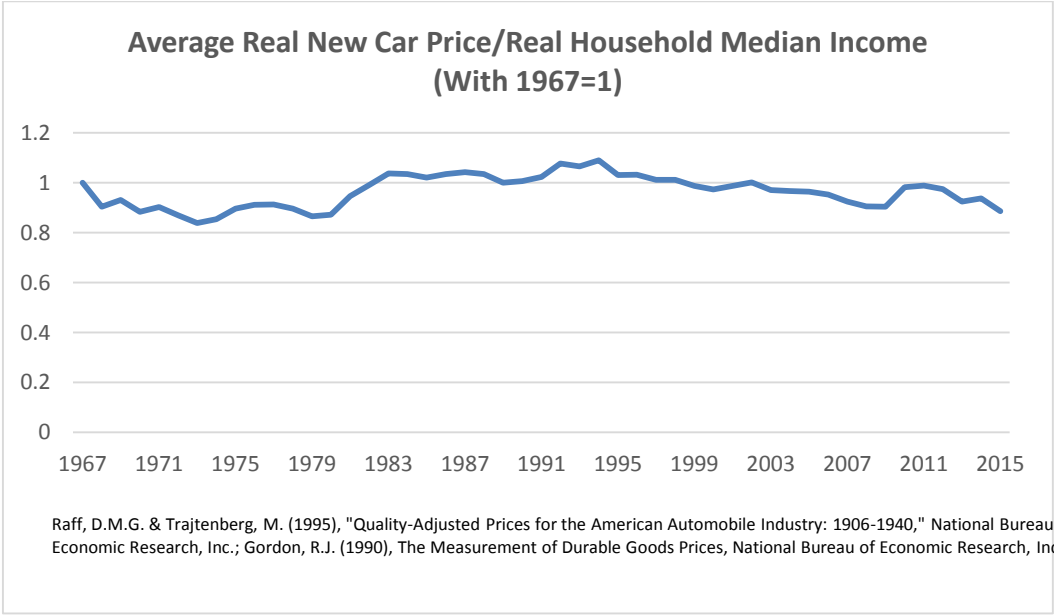
First-time low-income homebuyers suffer the most. They are faced with rising prices that historically have exceeded the increases in their incomes. The government attempts to mitigate the consequences of its policies by doubling down on them—pressing agencies like the GSEs to reduce their underwriting standards, especially downpayments and debt ratios, so first-time borrowers can buy homes. Many of these buyers, particularly when faced with economic stress, find they cannot afford the debt they are encouraged to take on.

The following charts show that (i) house prices have not been rising because of construction costs, (ii) average new car prices (sold in a market free of government interference) have remained stable in relation to median household income, (iii) first-time buyers are taking more risks, and (iv) house prices have been rising rapidly in real terms for the past 5 years and are now well above their longer-term trend.

[43] Source: created by author where price is *ZHVI All Homes* series and income is seasonally adjusted *Median Household Income* series for all homes, https://www.zillow.com/research/data/



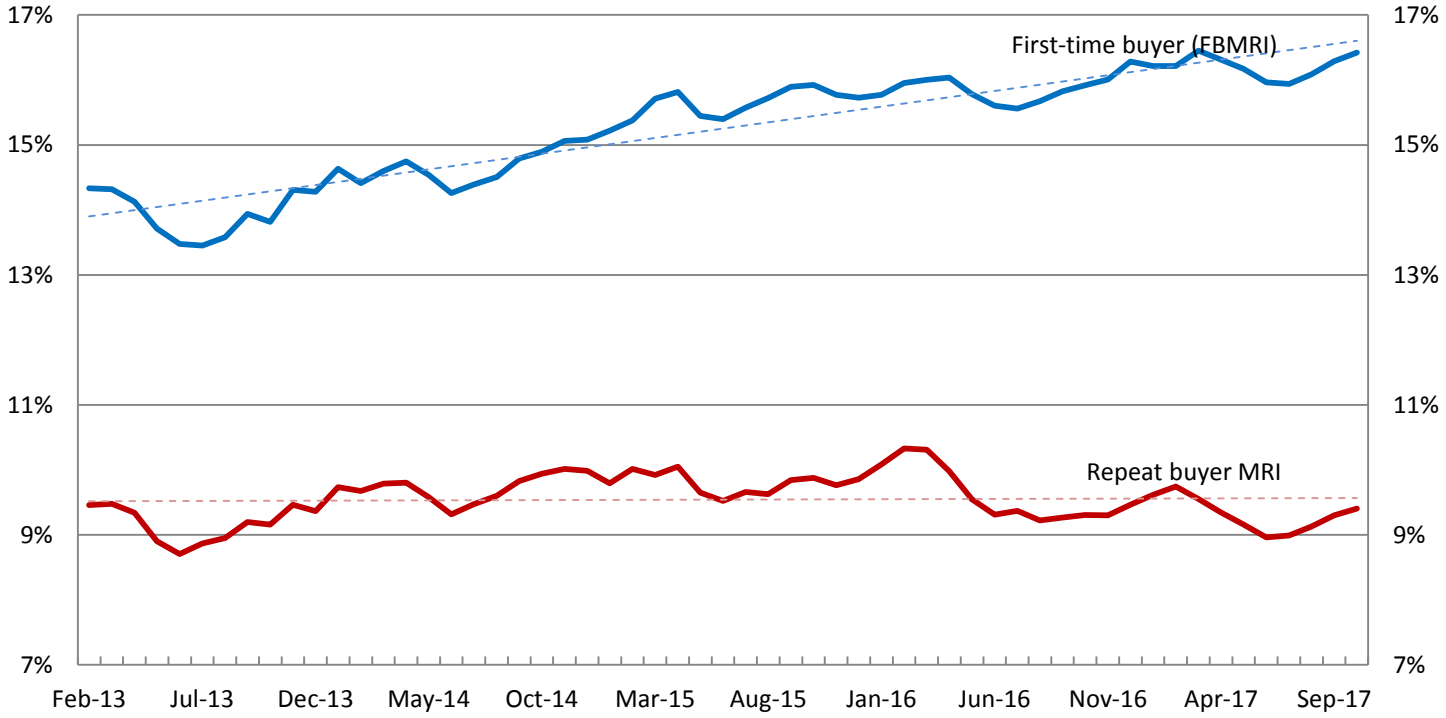
Source: White House Housing Development Toolkit, October 2016



This same process is at work in today's booming mortgage market. As the next chart demonstrates, leverage on first-time buyer loans measured by AEI's National Mortgage Risk Index has increased substantially over the last 4 years, while repeat buyer leverage was unchanged over the same time period. The agency First-Time Buyer Mortgage Risk Index (FBMRI) was at 16.4 percent in

October 2017, up 1.9 ppt. from February 2013. The agency FBMRI is 7.1 ppt. higher than the mortgage risk index for repeat buyers.[44]

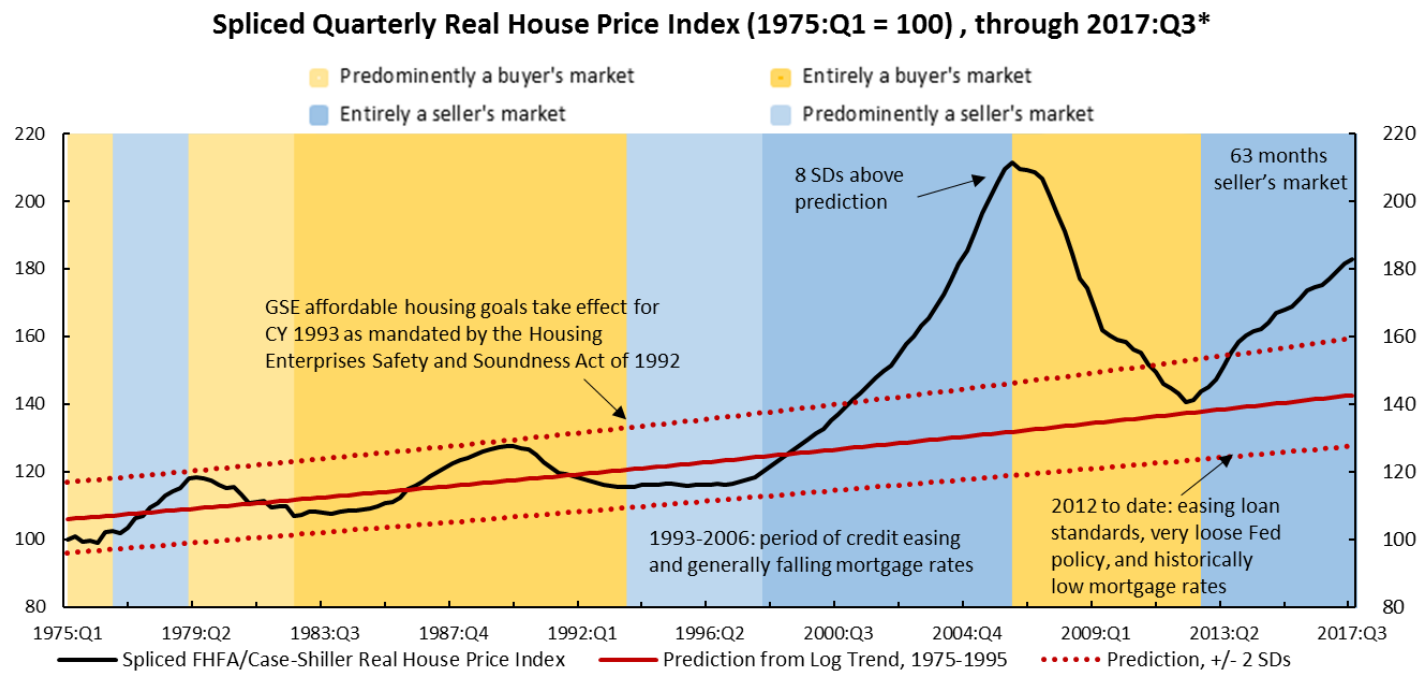
Agency First-Time and Repeat Buyer Mortgage Risk Indices



Source: AEI Center on Housing Markets and Finance, www.HousingRisk.org.

Historically, there is a strong relationship between the level of supply and price movements. Increasing leverage combined with a constrained supply of homes (denominated a seller's market) is once again fueling a home price boom. Since the early 2012 trough, real home prices have increased 30 percent. This trend is similar to initial years of the real home price boom that began in 1998. If the current trend continues, the risk of serious house price correction over the next 2-6 years will become even larger as, historically, real house price booms are followed by mean reversion. This is demonstrated by the next chart, which features a time series of quarterly inflation-adjusted house price index.

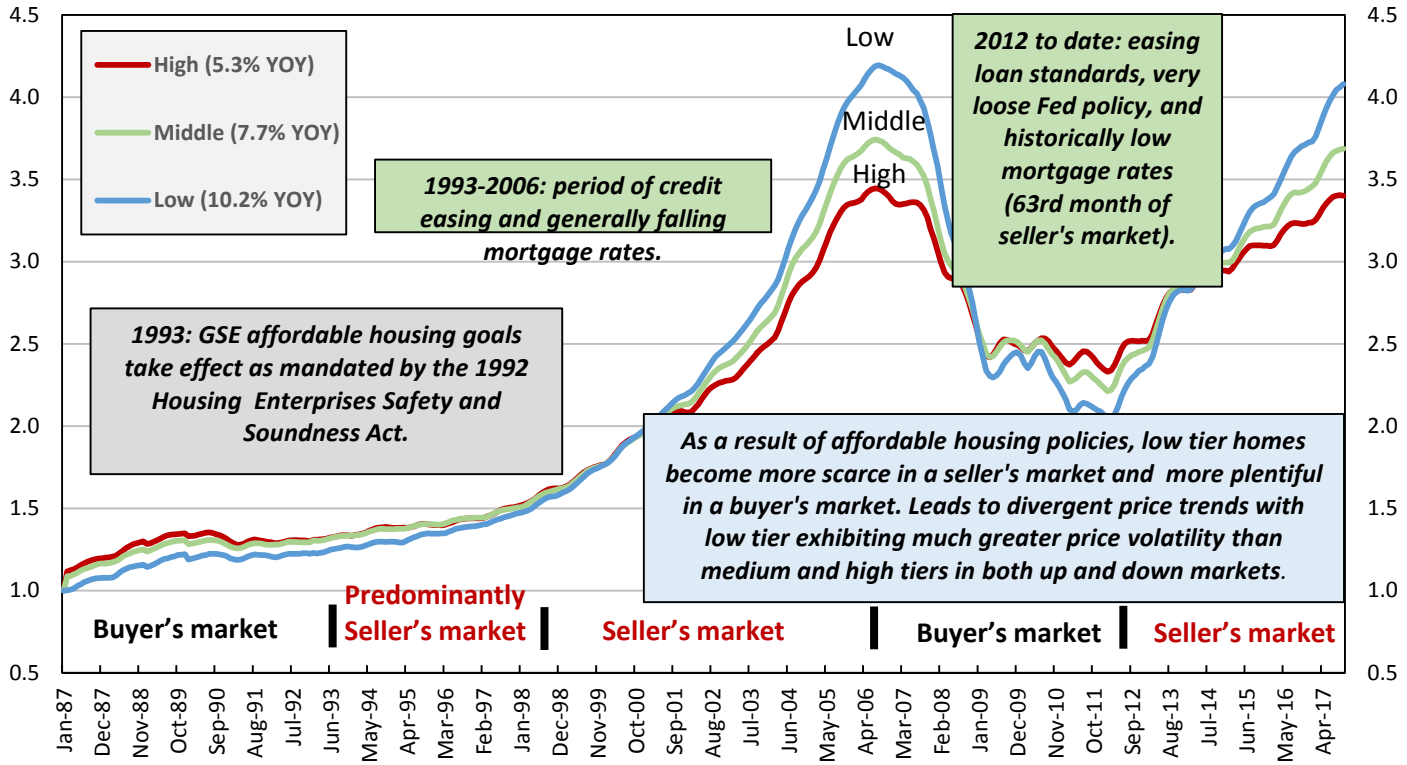
[44] See Appendix 1 for an explanation of AEI's various mortgage risk indices which measure stressed default rates.



* Calculated as FHFA's all-transaction house price index until 1987, then Case-Shiller U.S. National Home Price Index divided by BEA's price index for personal consumption expenditures.
Source: AEI Center on Housing Markets and Finance, www.HousingRisk.org, Prof. Stephen Malpezzi, S&P CoreLogic Case-Shiller Home Price Index, FHFA, BEA, Census Bureau, and the NAR.
Note: National Association of Realtors (NAR) defines a seller's market as inventory that is less than or equal to 6 months of sales. NAR data pertain to existing homes; not available before June 1982. Data from the Census Bureau for new home inventories used before June 1982.

This disconnect between supply and demand is even more problematic for entry-level buyers. The GSEs and FHA encourage low down payments and high debt-to-income ratios that push up price and debt levels in a seller's market* particularly for lower income buyers. As the following charts indicate, entry level homes are more volatile in both up and down markets, both historically and since the housing price trough occurred in 2011-2012.

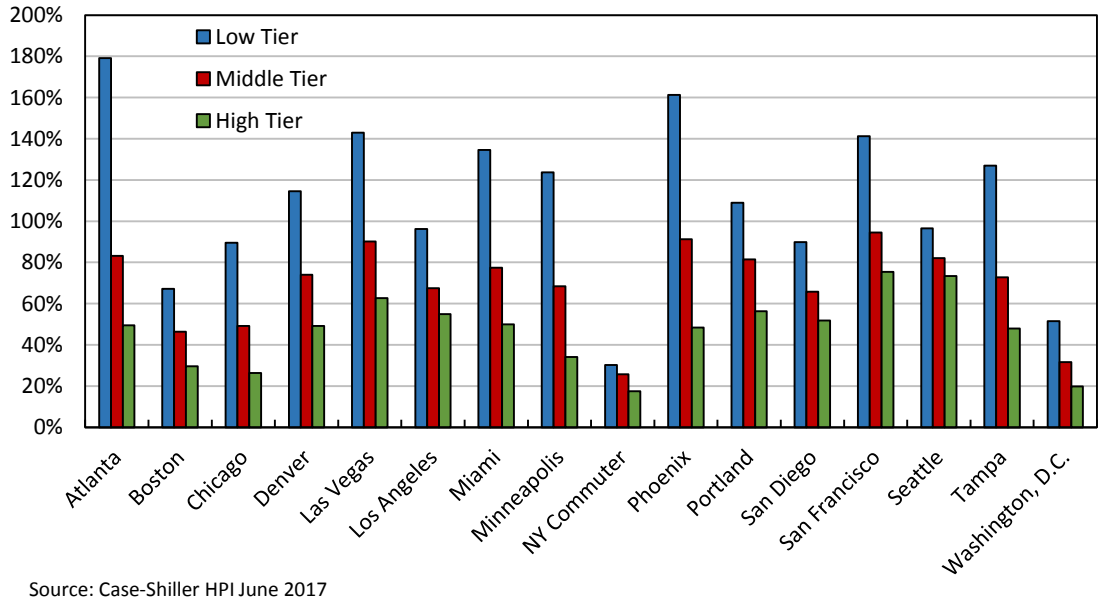
CoreLogic Case-Shiller Tiered Home Price Index (1987=1), through October 2017



Tiers price breakouts are calculated by breaking up all sales for each period, so that there are the same number of sales, after accounting for exclusions, in each of the three tiers. These 16 metro areas are used to derive the Tiered HPI: : Boston, NYC, DC, Chicago, Denver, Las Vegas, Los Angeles, San Diego, San Francisco, Miami, Atlanta, Minneapolis, Phoenix, Portland, Seattle, and Tampa. Only 8 metro areas included at beginning of series. This number grows until 1993, when 16 metro areas are consistently reported.

*** A seller's market: an economic situation in which goods are scarce and sellers can keep prices high. (Google.com)**

Percent increase in house prices from 2011 or 2012 trough to June 2017



Source: Case-Shiller HPI June 2017

It is not possible to arrest this process when the government controls the housing finance system, as it does today. First, the Housing Lobby is comprised of powerful constituencies—the realtors, homebuilders and banks, among many others—that have grown up around these government policies and in true crony capitalist fashion will likely impede any legislative change by appealing to Congress.

In addition, the government itself has a strong incentive to take and keep control of the housing finance system. One of the quickest ways to boost economic growth is to increase the sale of homes. This promotes the purchase of rugs, furniture and construction materials, spurs employment, and realizes the American dream. In some respects, it works much like a Fed reduction in interest rates, but without the need for a lot of economists to conclude an interest rate cut is necessary.

The result is the same. A housing boom feeds on itself as buyers and banks conclude that the growth will continue and thus the risks of lending and borrowing are low; and the boom continues until house prices are so high that no amount of concessionary lending will enable buyers to pay for them. Then the decline begins, as it did in 2007 and 2008, and large percentages of first-time buyers lose their homes and their downpayments.

The way to stop this process is to remove the government from the housing finance system. What will happen then is that the private sector returns to a market in which prime mortgages predominate. With leverage declining, house prices stabilize. Then the private homebuilding market takes over, providing homes in the size—and with the amenities—that first-time buyers can afford. While price booms cannot be eliminated completely, the pain of mean revision is much less in a market where prime loans predominate.[45]

Even if mortgage rates were somewhat higher than the subsidized rates offered by the GSEs, and downpayments have been raised to at least 10 percent, it will be easier for first-time buyers to find a home they can afford because homebuilders will build them to be sold in that market. That's the way a private market works.

Given the longstanding seller's market noted above, we can apply an observation made by Ernest Fisher, the FHA's first chief economist, in 1951: "a liberalization of loan terms in a seller's market easily becomes capitalized in higher home prices." Under our approach, a diminishing role for the GSEs and an expanded role for the private sector will reduce leverage and, during seller's markets, have the positive result of less upward pressure on home prices.

VI. Addressing the Regulatory Issues that Stand in the Way of Jumbo PMBS

There are a few regulatory issues raised by our proposal, but we believe they can be surmounted. The most significant concern for private mortgage securitizers is the provision in the CFPB's Qualified Mortgage (QM) rule. This Dodd-Frank requirement provides that all mortgages that do not meet the terms of the rule—for example, exceed 30 years in length, have a debt-to-income ratio that exceeds 43 percent, and fail a few other statutory tests—will not qualify as a QM. If they don't, the lender or securitizer has the burden of proof to show that the borrower had the ability to repay (ATR) the mortgage. On the other hand, if a loan meets the QM standards, the lender and the securitizer will have the benefit of a presumption that the lender has properly determined the borrower's ATR.

[45] In December 2017, only about 37 percent of agency guaranteed home purchase loans had a risk rating of prime (an NMRI value of 6 percent or less).

We have ascertained, as far as is known in this area, that any loan in a securitization pool that does not meet QM standards—and thus could be vulnerable to a claim under the ATR standard—can be isolated from the pool and not affect the validity of the pool or the pool's compliance with QM. In the ordinary case, the lender would have to make reps and warranties to buyers of PMBS that all loans sold to the pool meet the QM standard. If these promises are not met, the securitizer may have obligations to the holders of securities backed by the pool, but it appears that the pool itself will remain valid.

Under another provision of the Dodd-Frank Act, all securitizers must retain at least 5 percent of the risk in a private securitization, unless all the loans in the securitized pool meet the requirements of a Qualified Residential Mortgage, or QRM. Risk retention could be a substantial burden for securitizers, and might impair the ability of some firms to enter the securitization business or market the securities backed by the pool.

The QRM idea, as included in the Dodd-Frank Act, was intended to be a very high quality mortgage, the terms of which were supposed to be defined jointly by the banking agencies and the SEC. However, the agencies could not agree on a definition of a high quality. Instead, they agreed that any mortgage that meets the QM standards would also meet QRM requirements. A securitizer does not therefore have to hold a 5 percent slice of the mortgage pool if all mortgages in the pool meet QM standards.

Accordingly, the failure of one mortgage in a pool to meet the QM standard could potentially cause the entire pool to fail to qualify for exemption from risk retention. In addition, compliance with QM could be very restrictive or expensive for some sponsors and in some PMBS structures. It may also be difficult to get the CFPB, which is in charge of the QM definition (but not the QRM definition) to alter the QM rule so that compliance is easier.

Nevertheless, there is a potential work-around that also provides a vehicle for inducing the market to adopt the PMIERs or the use of equivalent credit enhancements. The original idea for a high quality QRM, which is still a viable part of the Dodd-Frank Act, could be modified by the agencies originally tasked to define it, but this time they would agree that if the mortgages in a pool are covered by PMIERs or any other suitable risk absorption provisions that are equivalent to those in PMIERs, they would all qualify as QRM mortgages. Any PMBS pool that meets these standards, then, would be exempt from the risk retention requirement.

The Volcker Rule and its restrictions on proprietary trading by bank-related firms could also impinge on the buying and selling of securities that underwriters use to stabilize a market during a securities offering. This could make it difficult for bank-related underwriters to underwrite offerings of PMBS, but there are many non-bank related underwriters that can perform this role, and it appears that there may be a bipartisan view in Congress that the Volcker rule should be substantially modified or repealed.

VII. Action by FHFA

The steps we recommend above can be taken by FHFA as conservator (not as regulator) of the GSEs. With a new director taking over in January 2019, he or she can promptly institute these policies.

VIII. Benefits to Treasury

The plan we recommend has many benefits for the housing market, but also many benefits specifically for the US Treasury as the main financial agency of the United States. These benefits—some of which can be described as simply avoiding the economy-wide disasters of the past—are described below.

Reduce the Cost of Treasury Debt

For many years, Treasury officials believed that the ability of the Fannie Mae and Freddie Mac to issue debt that was "implicitly" backed by the US government competed with and thus raised the cost of Treasury debt. Foreign buyers, and in particular foreign central banks, were avid buyers of GSE securities because they believed—correctly as it turned out—that they could get the same credit quality at a significant yield premium over Treasuries.

Although the Treasury was aware of this problem, there was never any way to demonstrate a cost to Treasury that would allow them to make this point to Congress. However, when the Fed began buying mortgage backed securities issued by the GSEs as part of its Quantitative Easing program, this became possible. A large body of research has shown that these purchases, which reduced the supply of Treasuries available to other buyers, lowered Treasury rates.

As shown in the memorandum attached as Appendix 4, these studies imply that the Fed's acquisition of $600 billion in GSE MBS reduced the interest rate on the Treasury 10 year note by about 15-20 basis points. Scaling up that reduction for the total amount of GSE and Treasury securities outstanding would suggest a reduction in the Treasury's interest cost for the 10 year note by almost 1.5 percent.

However, many Treasury securities are of longer or shorter maturities than 10 years, and the studies show that the reduction is less for shorter majorities. Accordingly, it is necessary to estimate the size of the reduction for the different maturity levels of the Treasury securities outstanding in order to come to a total for the value of the reduction.

After this and other adjustments, the memorandum estimates that if Fannie and Freddie securities were eliminated as competitors for Treasury securities this would result in a reduction in the average Treasury interest rate of approximately 20-33 basis points, or a total reduction in Treasury interest costs of $17 to $29 billion annually.

Eliminate Agency Debt from the Federal Safety Net

The Richmond Fed regularly publishes and updates what it calls a Bailout Barometer, detailing the elements of the US government's "financial safety net"—that is, the government's explicit and implicit backing of the outstanding credit of US financial firms. The most recent Bailout Barometer was issued in 2015 and updated through January 2017.[46]

[46] Liz Marshall, Sabrina Pellerin and John Walter, Bailout Barometer, 2015 Estimate, updated and published in January 2017. http://www.richmondfed.org/publications/research/special_reports/safety_net/

The publication includes the debt of explicitly guaranteed private financial institutions such as banks and S&Ls, credit unions, and private pension funds, as well as the GSEs.

The Richmond Fed estimates that the explicitly backed private debt of US financial firms is $15.4 trillion. Although the GSEs were once considered only implicitly backed, because they were taken over by the government after their 2008 insolvency their outstanding debt of $5.2 trillion is now considered explicitly guaranteed. Accordingly, the GSEs' outstanding debt amounts to approximately one-third of all the private debt guaranteed by the US government.

The total outstanding public debt of the United States is approximately $19 trillion in 2017. Adding to this the explicitly guaranteed private debt of approximately $15.4 trillion yields a total outstanding US debt of approximately $34 trillion.

Thus, if, over time, Fannie and Freddie were to be privatized and eliminated from the government's books, the government's explicit obligations would be reduced by about $5 trillion. This would be 35 percent of all the explicitly guaranteed private debt and 16 percent of the total of the government's outstanding public and explicitly guaranteed private debt.

Reduce Rent-Seeking and Crony Capitalism

Many industries in the United States have successfully used their connections to government to increase their profitability, but none compares to the ability of the housing finance industry to gain benefits from Congress that will increase their profitability at the expense of the taxpayers.

The many advantages accorded to the housing industry include a mortgage interest deduction, FHA insurance, the S&L housing finance system, the Community Reinvestment Act, the Clinton administration's National Homeownership Strategy and HUD's Best Practices Initiative, numerous rental assistance programs, and of course the government sponsored enterprises Fannie Mae and Freddie Mac.

All of these programs were intended to, and did, enrich the members of the Housing Lobby—the realtors, who profit from the higher housing prices that result, the homebuilders who profit from the larger houses that greater leverage promotes, the largest banks, which profit from trading tens of trillions of dollars each year in Ginnie Mae and GSEs securities that were spawned by these programs, and of course the community activist groups who are funded to push for affordable housing and community reinvestment programs.

Most of these benefits came from the taxpayers, but higher credit quality homebuyers had to pay more for a mortgage because the banks under CRA and the GSEs under the Affordable Housing Goals cross-subsidized the subprime loans they acquired under these programs. Further, a substantial body of research has concluded that much of the GSEs' subsidies have not been passed on to the borrowers.[47] This is not surprising for a massive duopsony. Any scale advantages, if they exist, are offset by a lack of competitive pressure to minimize expenses and customer cost.

[47] These studies were done when the GSEs' borrower rates were below those charged by the private sector, unlike today when GSE borrower rates are generally higher than the private sector. See CBO, 2001, Federal Housing Subsidies and the GSEs, Jaffee, Dwight M., and John M. Quigley. 2007. "Housing Subsidies and Homeowners: What Role for Government-Sponsored Enterprises?", Passmore, Wayne. "The GSE Implicit Subsidy and Value of Government Ambiguity." Working Paper 2003-64, Board of Governors of the Federal Reserve System, December 2003.

Reducing the size of Fannie and Freddie, by eventually taking as much as $5 trillion in government-backed securities out of the financial system, will automatically and dramatically reduce the total amount of rent-seeking and crony capitalism in the American economy.

Reduce Moral Hazard

Moral hazard, originally an insurance term, refers to the increased risk-taking that occurs when the loss on an asset or an activity is protected by insurance. The concern was that insurance itself promoted careless actions that would not be taken if the insured had to bear all the associated risks and losses.

In today's economy, where the government has taken on so many insurance-like activities, moral hazard has grown to be as much a problem for government policy-makers as for insurers. Some examples are FDIC insurance on bank deposits up to $250,000, which absolves depositors of the need to concern themselves with bank risk-taking; federal flood insurance, which encourages the building of homes in areas susceptible to flooding; and the pension insurance provided by the Pension Benefit Guarantee Corporation, a government entity that covers the risk that private corporations may not be able to meet their pension obligations.

Although many of these activities should be cut back, the required legislation has been very difficult to obtain.

However, one of the greatest sources of moral hazard in the US economy—the operations of Fannie Mae and Freddie Mac—can be substantially reduced by actions of the Trump administration itself, without any need for legislation.

Fannie and Freddie create moral hazard when they buy risky mortgages without receiving adequate compensation for the risk. Their guarantee fees are kept at levels that will encourage home-buying but not compensate them for the risk that many of the mortgages they acquire will default in conditions of market stress. Taxpayer subsidies keep guarantee fees low, which encourages mortgage bankers and others to sell pools of mortgages to the GSEs because their low guarantee fees create more profit for the seller than other market-based purchasers could provide.

Reducing the conforming loan limits of the GSEs and increasing their guarantee fees will reduce and potentially eliminate the moral hazard they create in the housing finance market.

Promote Financial Stability

The 2008 financial crisis is only the most recent example of the instability that results when the government intervenes in major areas of the economy. In 1992, Congress enacted a statutory regime known as the Affordable Housing Goals, intended to increase mortgage credit for low- and moderate-income homebuyers. The goals required Fannie and Freddie, then the dominant players in the housing finance system, to reduce their underwriting standards. These lower standards spread to the housing finance system as a whole, especially as HUD increased the goals over time. The result was an explosion of debt, the growth of an enormous housing price bubble between 1997 and 2007, and a financial crisis when the bubble collapsed.

Only a few years earlier, in the mid-1980s, the savings and loan (S&L) industry collapsed, which created both a recession and a costly bailout of the S&Ls. The recession also resulted in the default of 1600 banks, requiring the FDIC to compensate insured depositors while resolving large numbers of failed banks. The recession resulted in the defeat of George H. W. Bush's bid for a second term (remember "It's the economy, stupid.")

The S&Ls were the product of an earlier governmental intervention in the housing market, this one beginning in the New Deal era. The S&Ls, chartered by both the states and the Federal Home Loan Bank Board, were forbidden to invest in anything but housing-related assets, and encouraged to favor fixed rate, longer term mortgages. Eventually competition from the FHA, which began the widespread insurance of 30-year, fixed rate mortgages in the 1960s, led the industry to also offer 30-year fixed-rate mortgages. This system produced a boom in housing, led by the S&Ls, in the 1960s and 1970s, largely because the Fed fixed interest rates at a low level and—in an effort to support housing—allowed the S&L industry to offer a quarter of a point more in interest on deposits than banks.

This favorable environment came to an end in the late 1970s, when a period of high inflation caused savers to withdraw their deposits from banks and S&Ls in order to find higher rates of return through money market mutual funds and other non-depository savings vehicles. This required Congress to adopt the Depository Institutions Deregulation and Monetary Control Act of 1980, which authorized the Treasury Department and the financial regulators to eliminate deposit interest rate controls over time, so that banks and S&Ls could compete for deposits from savers.

This freed S&Ls and banks to attract deposits again, but it was too late. They already held billions of dollars in fixed-rate mortgage assets, with low interest rates and thus low values. The losses on these assets caused the recession and bailouts of the late 1980s.

The lesson here is clear. Allowing the government into the housing finance market in the future will only bring on more instability, more crises and impediments to economic growth like the Dodd-Frank Act.

Make Homes More Affordable

There is indisputable data that government housing policies, and particularly the operations of Fannie Mae and Freddie Mac, have decreased housing affordability in the United States.

In 1989, nearly 90 percent of U.S. housing markets were affordable (defined as having a median home price to median income ratio of 3.0 or less) with only 4 percent severely unaffordable (a ratio of greater than 5.0). At the time, the US home ownership rate was approximately 64 percent and had changed little over the previous 30 years. In 1992, Congress imposed the Affordable Housing Goals on Fannie and Freddie, and by 2005 the character of the US housing market had radically changed; after more than a decade of government affordable housing policies, lending standards had been hollowed out, less than a third of markets were affordable, and 30 percent of markets were now severely unaffordable. Although homeownership hit a high of 69.2 percent.in 2004, it now stands at 63.7 percent. The result of affordable housing policies? Higher leverage, a stagnant homeownership rate, reduced affordability, and a lack of wealth building by LMI households.

In the house price trough that followed the financial crisis, housing prices fell to three times median income in 2012—still higher than before the adoption of the goals. Today, after the financial crisis and the nationwide decline of housing prices it caused, housing prices are rising again and are now again in unaffordable territory, almost 3.5 times the median income.

How was it possible that government policies intended to make housing more affordable actually contributed to its unaffordability?

The Affordable Housing Goals required Fannie and Freddie to meet certain quotas in their purchase of loans from mortgage originators. Initially, the quota was 30 percent—that is, 30 percent of the loans they bought had to have been made to borrowers whose incomes were at or below the median where they lived.

HUD was given authority to increase the quotas, and did so aggressively, raising the goals to 50 percent by 2000 and 56 percent by 2008. In order to meet the goals, Fannie and Freddie had to reduce their underwriting standards; it was simply not possible to find enough borrowers below median income who could meet the traditional underwriting standards—particularly the requirement for a down payment of at least 10 to 20 percent.

Accordingly, beginning in the mid-1990s, the GSEs began to reduce their downpayment requirements, accepting mortgages with 3 percent downpayments. By 2000, they were accepting zero downpayments. Lower downpayments mean higher leverage on each loan, and higher leverage drives up housing prices. It's easy to see why. If a borrower has $10,000 to buy a home and the downpayment is 10 percent, he can buy a $100,000 home. But if the downpayment is reduced to 5 percent, he can afford to buy a $200,000 home (subject to meeting the DTI limit). It is therefore no coincidence that DTI ratios, a measure of homeowner income leverage, also soared over the same period. Led by the GSEs, these reduced standards spread to the market as a whole.

Thus, the additional leverage drove up housing prices. Indeed, prices became so high by 2007 that the price bubble collapsed, bringing on the financial crisis.

The Affordable Housing Goals are still on the books, and have been modified by HERA (2008) to apply solely to low-income households (below 80 percent of area median). This could make them even tougher for the GSEs to meet, and drive underwriting standards even lower, particularly since the FHA has become an even fiercer competitor for goals rich loans.

Since then, the CFPB's mortgage regulations have made the problem of homeowner leverage even worse. The regulation sets an overall pre-tax maximum DTI ratio of 43 percent, which is already too high, but loans sold to the GSEs or insured by the FHA are exempt from this limitation. Thus, for December 2016, 18 percent of purchase loans sold to the GSEs had DTI ratios in excess of 43 percent. For the FHA for the same month, 50 percent of insured loans had DTI ratios excess of 43 percent and 21 percent had DTIs in excess 50 percent. All of these ratios are growing.

That's why home prices are rising again and housing has become less affordable than it was before the 1992 enactment of the goals.

One of the ways to increase the affordability of homes is to change the CFBP regulation, reducing the permissible DTIs on loans that are sold to Fannie and Freddie or FHA. This will help rein what is now an unsustainable upward trend in DTIs, which if left unchecked, increases the risk of a serious house price correction in future years. An additional step would be to require a residual income test for all loans, including the GSEs, the FHA, and the Rural Housing Services. The residual income test has been put to positive effect by the VA for many decades.

Another way—as we have described fully above-- is to reduce the size of loans that Fannie and Freddie can buy. This can be done without legislation and would automatically reduce their effect in increasing housing market leverage. As set forth in Appendices 8 and 8a, changes should be considered in the operations and policies of the FHA; otherwise its market share, along with risk to homeowners and tax payers will balloon. Appendix 9 discusses the impact of our proposal on the Veterans Administration. While the VA will capture a modest increase in share as the GSEs' dominance declines, we suggest leaving the VA's loan parameters alone.

IX. Benefits to Ginnie Mae and FHA

Just as with Treasury debt, GSE securities compete with FHA loans securitized by Ginnie Mae, causing Ginnie MBS to yield higher rates than without this competition. Further, adoption of a housing finance reform proposal that would extend an explicit federal guarantee to the GSEs (including extending the Ginnie guarantee to GSE debt) would cause rates required on GSE debt to go down and rates on Ginnie debt to go up.

X. False Claims

Anyone who wants to reduce the federal government's role in housing will immediately receive attacks from the Housing Lobby—a large group that includes the realtors, homebuilders, mortgage bankers and left-leaning economists who have always supported the GSEs and other government activity in the housing space. Much of this can easily be attributed to crony capitalism, rent-seeking and ideological commitment, but over the years this group has assembled a number of false claims that have been largely accepted by the media and many in Congress.

Much of what appears in our proposal shows, with data and analysis, that these arguments are false. However, if our proposal is advanced by the administration, those involved in the process will have to be prepared to meet the arguments of the Housing Lobby. Accordingly, we summarize the claims and the best responses below.

False Claim 1: The GSEs lower interest rates.

The numbers do not bear this out. We believe that AEI has more and better data on the housing market than any other organization, and these data show that private sector prime mortgages have, for more than the last three years, had lower rates on average than the same mortgages acquired by the GSEs, even when risk adjusted.

Of course, there are many reasons why the GSE guarantee should result in lower rates to consumer-homebuyer:

First, free government credit support should lower mortgage rates than otherwise, and their supporters claim this benefit is passed onto as a benefit to homebuyers. But, as has been noted, much of this benefit is captured by the GSEs and not passed onto consumers. In point of fact, other government backing is provided to other financial entities and it is not free. For example, the FDIC charges a deposit insurance premium of 19 basis points to large, undercapitalized banks, and the GSEs would certainly qualify as that. But even deposit insurance covers only deposits and not all of the debts of a bank, while the free government backing the GSEs receive covers all their financial obligations.

Second, the GSEs fail to price their guarantee fees using the same capital level as private institutional investors. Congress required this treatment in Title IV of the Temporary Payroll Tax Cut Continuation Act of 2011[48], but it has been ignored by both FHFA and the GSEs.

[48] www.gpo.gov/fdsys/pkg/PLAW-112publ78/pdf/PLAW-112publ78.pdf

Third, because of the government's backing the GSEs can offer what is in effect a government-guaranteed security, enabling them to avoid the additional costs of a structured transaction in which the senior securities (rated AAA) receive credit support by compensating the subordinated tranches with higher returns.

Fourth, because many investors, including foreign central banks, are required to invest only in sovereign or sovereign-guaranteed debt, the GSEs have a ready market around the world. This is often treated as a great benefit—attracting global credit to the US housing market—but it is actually a burden for the taxpayers. Because the GSEs' debt pays slightly more than Treasury securities, and is regarded as a legal investment for many sovereign and private investors that are restricted to acquiring only sovereign debt, it is often a substitute for Treasury securities. Elsewhere, we have discussed the fact that the Treasury has to pay 20-33 bps more in interest on its debt because of competition from GSE securities.

Fifth, again because of their government backing, they are not required to have any significant capital in order to do business. For many years, their capital was set by statute and couldn't be modified. Before they became insolvent, the GSEs were required to have only minimal capital--2.5 percent to support outstanding debt of about $1.5 trillion, and 45 bps to support almost $4 trillion in outstanding MBS. Today, under the control of their conservator, and as provided in an agreement with the Treasury Department, Fannie and Freddie have only $3 billion each in capital underlying their remaining stocks of approximately $3 trillion and $2 trillion in outstanding MBS and other securities respectively. After the end of 2017 under the Third Amendment, even this trivial amount of capital will be paid over to the Treasury.

As discussed elsewhere, we believe that to have sufficient capital for operating without the government's support, the GSEs would need about 5 percent capital. Adding the cost of that capital, roughly 20 basis points, to their guarantee fees would reduce their competitive advantage over private sector securitizers.

Sixth, although they operate nationally, they are not required to pay any state or local income taxes.

Taking all these factors into account, the GSEs should be required to raise their guarantee fees by at least 28 bps, and probably more. This would bring up the rate on the mortgages they acquire and, at the same time, reduce the distortions and risks this mispricing engenders. Any comparison of GSE rates with those of private portfolio lenders requires an adjustment for these subsidies, making it even more remarkable that GSE rates on normal 30-year, fixed rate, fully-documented mortgages are higher than rates offered by private portfolio lenders.

False Claim 2: Government support and guarantees make housing more affordable.

There is only one group who should be at the center of public policy concern here—the first-time homebuyer—and the data show that under the housing policies of the federal government since the early 1990s the ratio of median income to median house price has risen. In other words, housing for the first-time homebuyer has become less affordable. There are a number of reasons for this, but the principal ones are government policies that seek to increase demand for housing while also increasing leverage. As a result, housing prices have consistently risen faster than incomes, especially for low- and moderate-income first-time home buyers. Ironically, this process—which their policies caused—is the reason Progressives cite for needing government action on affordable housing.

In 1989, nearly 90 percent of U.S. housing markets were rated as affordable (a ratio of median home price to median income of 3.0 or less) with only 4 percent rated as severely unaffordable (a ratio of greater than 5.0). At the time, the US home ownership rate was approximately 64 percent and had changed little over the previous 30 years. In 1992, Congress imposed the Affordable Housing Goals on Fannie and Freddie, and by

2005 the character of the US housing market had radically changed; after more than a decade of government affordable housing policies, lending standards had been hollowed out, less than a third of markets were affordable, and 30 percent of markets were severely unaffordable. Although homeownership hit a high of 69.2 percent in 2004, it now stands at 63.7 percent. The result of affordable housing policies? Higher leverage, a lower homeownership rate, and reduced affordability.

In the house price trough that followed the financial crisis, housing prices fell to three times median income in 2012—still higher than before the adoption of the goals. Today, after the financial crisis and the nationwide decline of housing prices it caused, housing prices are rising again and are now again in unaffordable territory, at almost 3.5 times the median income and rising.

False Claim 3: The 30-year fixed rate mortgage is a great benefit for homebuyers and would not exist without a government guarantee.

This statement is consistently recited by members of Congress who have been inculcated with this idea by years of Housing Lobby "education."

First, the 30-year fixed rate mortgage is a benefit only for two kinds of homebuyers—those who will keep their homes for 30 years and those who itemize on their income tax returns.

The principal financial characteristic of the 30-year fixed rate mortgage is that for at least the first few years of ownership mortgage payments consist overwhelmingly of interest on the mortgage loan, with very little repayment of principal. Most 30-year mortgages are only in place for 3-7 years, transaction costs are high, and many homes experience substantial home price volatility, so at the time of sale homeowners have accumulated very little of the wealth that homeownership is supposed to provide. Also, of course, because a 30-year fixed rate loan is riskier and more expensive for a lender, it usually carries a higher interest rate than a shorter maturity loan that builds equity and reduces lender risk much more quickly.

Because only 25 percent of taxpayers itemize on their tax returns, it is only this largely high income group that reaps the tax benefit of paying mostly interest for the initial period of ownership.

The 30-year fixed rate mortgage also raises home prices by reducing the monthly payment of homebuyers and spreading the principal repayment over a longer period. Here we get to the point of why the 30-year fixed rate loan is treated as the "gold standard." The gold goes mostly to realtors, who receive higher fees at closing and homebuilders who build larger homes. It is yet another way that housing policies increase leverage and risk in the housing market, and drive housing prices out of reach of low-income and minority buyers.

Second, any visit to the Internet—say, to Wells Fargo's website—will show that 30-year fixed rate mortgages are available without a government guarantee.

False Claim 4: Without the GSEs the so-called to-be-announced (TBA) market could not function, making it impossible for mortgage originators to "lock in" mortgage rates.

Whenever there is an effort to eliminate Fannie and Freddie, there is an outcry that this will end the TBA (To-Be-Announced) market—always presented as a unique benefit conferred by the GSEs, for which there can be no adequate substitute.

This is not true. Although the existence of the GSEs provides the mortgage industry with certain benefits free of additional charge, it is a collateral benefit of the fact that the GSE market is large and highly liquid. If the GSEs were to disappear, the mortgage industry, as we discuss below, could obtain almost the same benefits in other ways and at no substantial additional cost.

The fundamental utility of the TBA market, as used today by the mortgage industry, is that it allows mortgage originators and issuers to hedge their interest rate risks while they accumulate a pool of mortgages for sale or securitization. It also allows them to "lock in" a firm interest rate on a mortgage well before the mortgage closes. An interest rate hedge is important because there is generally an extended period (say, 30-90 days) between the time that a mortgage originator agrees to a rate with a borrower and the time the mortgage is actually closed, added to a pool of mortgages for securitization, and delivered to an issuer for securitization. During this period, market interest rates may change, going either up or down.

If, during the pool assembly period, the Fed raises interest rates, the mortgages in the pool become less valuable; if the Fed lowers interest rates, the mortgages become more valuable.[49] The same thing is of course true if interest rates rise or fall for some other reason. To protect against these consequences, originators and issuers hedge their interest rate risks in the TBA market.

Observers of the TBA market believe that the interest hedging opportunity provided by the TBA market reduces interest rates by reducing originator risks, just as the forward sale of corn or wheat—by reducing farmers' risks—probably reduces market prices.

As long as Fannie and Freddie exist, the MBS they issue provide a highly liquid mechanism for hedging against interest rate changes while an originator or issuer is assembling mortgages for an MBS pool.

For example, if interest rates rise, the values of outstanding Fannie or Freddie (agency) MBS will fall, and if interest rates fall, agency MBS will rise in value. So an originator or issuer who wants to hedge against a change in interest rates while it is assembling a pool of mortgages for sale can hedge against both a rise or fall in interest rates by going long and short at the same time on an equal amount of agency MBS. The MBS bought long will become less valuable if interest rates rise, and that will be matched by an increase in the value of the MBS sold short, and vice versa if interest rates fall. Since the agency market is highly liquid, there is little danger that the originator or issuer will not be able to close out these trades.

Many other industries have to use market mechanisms to hedge their risks. Buyers and sellers of agricultural products, jet fuel, freight rates and other industries subject to swings in commodity prices, interest rates and currency values, are required to find ways to hedge changes in key prices. These are often somewhat costly, but hedging can be done in a variety of ways.

Considering the costs and risks to the taxpayers, preserving the GSEs so that a TBA market will continue to exist would be bad policy. Mortgage originators and issuers—as in other industries—should be required to find alternative hedging mechanisms and either pay the additional costs as other industries currently do or pass those costs on to the consumer. Indeed, before the GSEs had established the liquid market that now exists for MBS based on residential mortgages, mortgage borrowers paid an additional charge for a rate lock.

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[49] There are other changes that are important to originators or issuers in this case. For example, when interest rates decline, borrowers generally have the right to cancel the contract, and many do; correspondingly, if interest rates rise, more borrowers will want to go through with the transaction at the lower locked-in rate. So originators and issuers may find that they have more or fewer mortgages in the pool than they assumed they would have. There are ways to address this in the market that are beyond the scope of this discussion.

It happens that Fannie and Freddie, because they have created a large highly liquid market for MBS based on residential mortgages, are a near-perfect hedge for private MBS. However, if, as we recommend, the GSEs were to disappear, the mortgage industry would have another hedging mechanism that would be almost as good as the MBS issued by the GSEs.

Ginnie Mae MBS can serve as a hedging mechanism for private MBS

As it turns out, even if Fannie and Freddie were to disappear from the market, we would still have a security—Ginnie Mae MBS—that can serve as a hedging mechanism, locking in mortgage rates, hedging against interest rate changes. The market for Ginnie MBS is nearly $2 trillion in size, highly liquid, globally accepted, and allows for all of the flexibility to which the mortgage market has become accustomed.

Ginnie Mae is a federal agency created in 1968 by the partition of the agency market into the Government National Mortgage Association (GNMA, or Ginnie Mae) and the Federal National Mortgage Association (FNMA, or Fannie Mae). Ginnie Mae, a government agency, was to securitize government guaranteed mortgages, and Fannie, a government chartered corporation (joined eventually by Freddie)—neither formally backed by the government—was to provide a secondary market for conventional mortgages.

Ginnie Mae is not the issuer of MBS. Instead, in a Ginnie MBS, the issuer is a private party, typically the originating lender. Ginnie puts a government guarantee on the credit enhancer that has provided insurance (mostly FHA, USDA, or VA). The Ginnie MBS investor gets an MBS with a full faith and credit guarantee.

It is important to note that Ginnie Mae MBS are highly liquid and fungible with a wide range of mortgage loans. This is evident in the enormous increase in the size of the program in recent years. Ginnie, in fact, is expected to become bigger than Freddie Mac this year.

To be sure, Ginnie MBS is not as good a match as GSE MBS for hedging a pool of conventional mortgages. Ginnie MBS and Fannie/Freddie MBS have bases that can move separately, but the movements in these bases are muted compared to the general move in the overall spread between mortgage rates and Treasury or swap rates. Thus, Ginnie MBS would still be a very effective tool as a TBA instrument.

In fact, Ginnies have some advantages. The clearly defined and explicit government wrap on Ginnie MBS is why the Bank of Japan and other central banks purchase the securities, adding to their liquidity. All of this taken together, it is clear that Ginnie MBS are well suited to step in and serve as a means of locking in a mortgage rate and trading mortgage interest rate risk.

Accordingly, we need not be deterred in shrinking the GSEs' footprint by concerns over the TBA market. With Ginnie Mae continuing in existence, a very successful TBA market will still exist. All of the things the market relies on can continue without much disruption, and we may be able to usher in a more competitive and healthy housing market along the way.

False Claim 5: There is insufficient private capital to support a privatized mortgage market.

As noted in section IV d, private sector fixed income investment today amounts to at least $51 trillion in debt securities, loans, and trade credit.[50] About 6 percent is invested in government-guaranteed mortgage assets, and 10 percent is invested in nongovernment-guaranteed mortgage assets.

[50] Supra. Federal Reserve, 2017 and SIFMA

As of today, there are $5.0 trillion of GSE securities outstanding. If the wind-down of the GSEs continues as described in this proposal, we estimate that, by 2023, there will be $3.1 trillion in GSE securities outstanding. The reduction in the dollar amount of outstanding GSE securities will mean that private investment in nongovernment-guaranteed mortgage assets will have to increase by $1.9 trillion, with about one-quarter occurring in 2023.

We believe the private sector, with at least $51 trillion in fixed income investment in 2016, will easily accommodate this $1.9 trillion reduction in GSE guaranteed investments. In effect, 4 percent of the capital market as a whole will have to shift its investment from government-guaranteed mortgage assets to nongovernment-guaranteed mortgage assets in order to compensate for the decline in GSE investment during the five year period between 2018 and 2023. If the GSEs are wound down at a faster pace, or eventually eliminated, the investment in these assets will have to be increased commensurately over the full wind-down period.

We expect that most of this increase will come from increased investment by private portfolio investors supplemented by substantial growth of the PMBS market, backed by prime mortgages and PMIERs or its equivalents as described in section IV. In addition, some new investors will be attracted by the expanded supply of long term assets at the somewhat higher yields than are available today. For more on the likely evolution of the private housing finance sector see Appendix 7.

In terms of risk capital, the private mortgage insurance (PMI) industry, is currently backed by $18.9 billion in PMIERs assets, and has insured $904 billion in outstanding mortgages (approximately $230 billion of risk–in-force based on a loan coverage ratio of about 25 percent). There are also a number of credit risk transfer vehicles such as private mortgage insurers, property and casualty insurers, hedge funds and REITs currently in the market. These have substantial additional capacity to invest the necessary risk capital. In the last year, for example, other credit risk transfer entities transferred $13 billion of risk on $423 billion of loans, with diversified insurance and reinsurance firms involved in the transfer of more than $4 billion on $101 billion of loans.[51] Finally, an estimated $150 billion in risk capital backs the $3.5 trillion in whole loan home mortgage assets held by the private sector.

Compare the private sector's estimated $250 billion of risk capital to the federal government's $3 billion in GSE retained earnings and the FHA's approximately $25 billion in its Mutual Mortgage Insurance fund covering some $5.6 trillion in outstanding MBS. See Appendices 5 and 6 for additional background.

False Claim 6: Fannie and Freddie are needed to support the market in times of stress.

This idea is almost entirely fanciful. Elsewhere, we have discussed the role of the Affordable Housing Goals in forcing the GSEs to lower their mortgage underwriting standards. Because they were and still are the dominant players in the housing finance markets, their reduced mortgage requirements spread to the wider market. By 2008, just before the crash, more than half of all mortgages in the US were subprime or Alt-A, and of these 76 percent were on the books of government agencies, primarily Fannie and Freddie. This shows, beyond question, that the government—and primarily the GSEs--created the demand for these deficient mortgages. In other words, far from supporting the market in a time of stress, the GSEs caused the stress.

[51] The various methods of risk transfer are not directly comparable—private MI is front-end, first-loss, while the other credit risk transfers come in many different flavors. In addition to the PMIERs assets, private MI loans have an ongoing substantial premium stream that historically has added risk-absorbing capacity equal to PMIERs-type assets.

As the subprime and Alt-A markets were gradually collapsing in 2007 and 2008, there were many naïve expectations in Congress and elsewhere that the GSEs would step in to help in some way. There is no indication that they ever did. Nor could they have helped, given their own weak financial condition. It could not of course be otherwise. Because the GSEs are the principal players in the housing finance markets, if those markets are in a stress condition the GSEs will also be in a stress condition and unable to provide any support. More broadly, efforts of the GSEs to stabilize markets in earlier, milder crises were instrumental in convincing investors that house prices could never go down on a national basis and as a result, also contributed to the enormous bubble of the last decade.

If policymakers want to avoid these continual stress conditions in the housing market—events like the collapse of the S&Ls and later the GSEs—the most effective step would be to remove the government from the market.

XI. What Our Proposal Accomplishes that No Other Does

- **A safer home finance market**
- **Gets the taxpayer off the hook with a privatized system of housing finance with no explicit government guarantee by reducing moral hazard by private actors not as inclined to take on excessive risk given the lack of a government guarantee**
- **Wealth building and financial stability by reducing reliance on the 30-year loan**
- **Transparent, on-budget assistance to prospective low-income, first-time homebuyers**
- **Minimizes distortions in capital allocation; allows more capital to flow into other areas of the economy; enables more long-run economic growth; reduces inflationary pressure on housing assets**
- **Robust, counter-cyclical asset requirements on credit risk transfer entities**
- **Addresses shortcomings in both QM ATR and QRM risk retention through provisions contained in our proposed Private Credit Risk Transfer Eligibility Requirements**
- **Substantial revenue accruing to Treasury**
- **Low-risk start; policy driven, minimal downside risk, easily monitored and adjusted**

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Background on AEI Housing Indices

Appendix 2 (Pages 60-76)

Eliminating the GSEs' High-Cost Area Loan Limits and Other Steps to Reduce the GSEs' Footprint: Implications for the Mortgage Market

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Private Mortgage Insurance Industry and Private Mortgage Insurance Eligibility Requirements

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Expanded Private Credit Risk Transfer Eligibility Requirements (PCRTERs) to Replace Current Private Mortgage Insurance and Private MBS Eligibility Requirements (PMIERs)

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Proposal to Keep the FHA's Share from Expanding and Targeting Its Mission so as to Return to Its Historical Level

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While the VA Will Capture a Modest Increase in Share as the GSEs' Dominance Declines, We Suggest Leaving the VA's Loan Parameters Alone

Appendix 1

Background on AEI Housing Indices

AEI publishes three housing indices: the National Housing Market Index (NHMI), the National Mortgage Risk Index (NMRI), and the First-time Buyer Mortgage Share Index (FBMSI).

AEI-First American National Housing Market Index (NHMI)

Principle behind the index:

Provide comprehensive and timely statistics for the entire home purchase market, allowing for accurate coverage of sale trends from many key perspectives.

NHMI data sources:

The National Housing Market Index (NHMI) combines AEI's Center on Housing Markets and Finance (CHMF) data on the federal agency market with public records data provided by First American via DataTree.com.

- Federal agency market data come from:
  - Monthly Loan-Level Disclosure for Single-Family Mortgage-Backed Securities from Fannie Mae and Freddie Mac. These data are updated monthly and provide loan-level details for loans underlying single-family MBS.
  - Monthly Loan-Level Disclosure for Single-Family Mortgage-Backed Securities from Ginnie Mae, which provides loan-level details for loans guaranteed by the various Ginnie Mae agencies (FHA, VA, and Rural Housing Service).
- Public records data for the private side of the mortgage market and for cash and non-institutionalized lender sales.

Coverage:

The 2016:Q4 NHMI covers almost 23 million home purchase transactions dating back to 2012:Q4.

The NHMI covers an estimated 90 percent of the entire housing market. Coverage rates vary by financing type and range from 95 percent coverage (for institutional financed sales) to 79 percent coverage (for cash sales and other financed sales).

For institutional financed sales, the coverage rates vary by financing type. Also provided are agency and private shares of market in dollars (see table, data are for 2016).

Financing Type	Coverage	Share of Market (by $s)
Institutional financed	**95%**	**100%**
Agencies	99%	45%
Fannie Mae	100%	26%
Freddie Mac	100%	18%
FHA	100%	18%
VA	98%	9%
RHS	92%	2%
Private	79%	27%

For more details, please refer to the methodology posted online.[52]

Advantages of the NHMI over other data sources:

- Timely Tracking of the Entire Housing Market

Unlike other indices, the NHMI covers the entire housing market, not a subset of it. The most widely cited indices on the national housing market are the National Association of Realtors (NAR) Existing Home Sales (EHS) (which account for around 90 percent of sales) and the Census Bureau's New Residential Sales (NRS) (which account for around 10 percent). The vastly different sample coverage of these two indices creates the potential for conflicting messages on the state of the housing market.[53]

The NHMI breaks out sales into institutional financed sales, cash sales, and other financed sales (i.e. private party loans or seller-carried loans) for a complete picture of the housing market. Data are available by count and dollar volume on a quarterly basis.

Example:

NHMI for 2016:Q4 revealed a decline of the cash sales share vis-à-vis the institutional financed sales share (see chart below). Further disaggregation of growth rates by financing type revealed stronger growth from institutional financed sales as the reason for the decline. Cash sales had actually remained roughly constant over the past 3 years (see inset box).

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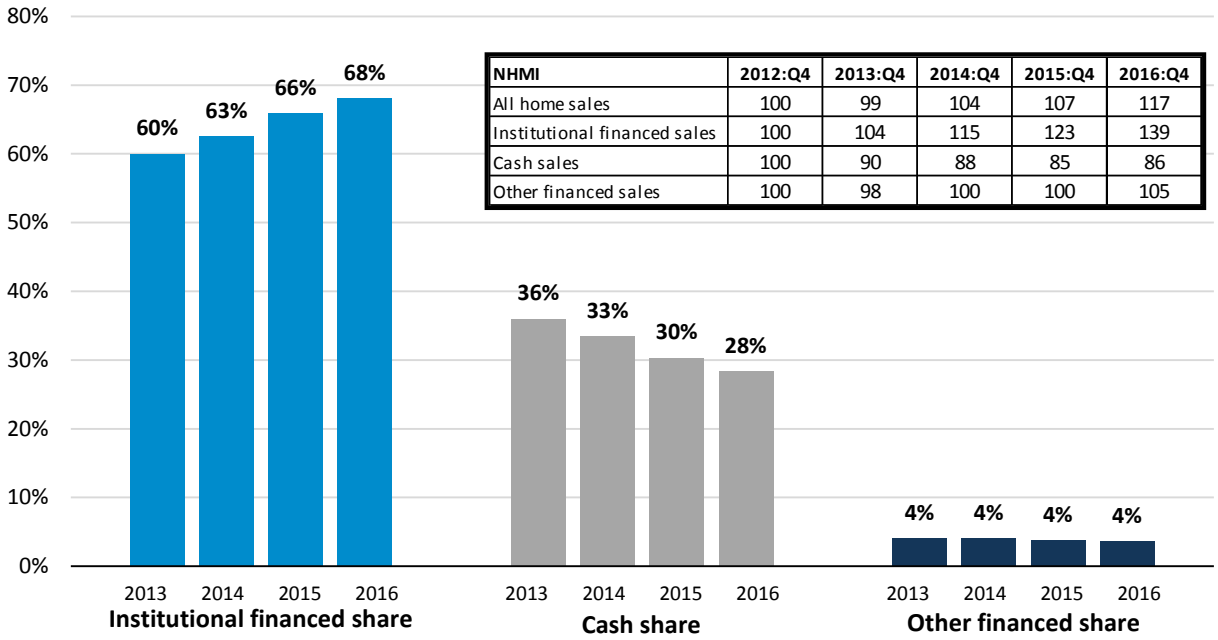
[52] http://www.housingrisk.org/wp-content/uploads/2017/01/NHMI-methodology-January-2017-FINAL.pdf

[53] For example, in March 2017 the NAR's press release stated "Home Sales Stumble in February" while the media reported the Census Bureau's New Residential Construction numbers, which were released just a day later, as "surging to seven-month high in February" and "beating expectations."



NHMI	2012:Q4	2013:Q4	2014:Q4	2015:Q4	2016:Q4
All home sales	100	99	104	107	117
Institutional financed sales	100	104	115	123	139
Cash sales	100	90	88	85	86
Other financed sales	100	98	100	100	105

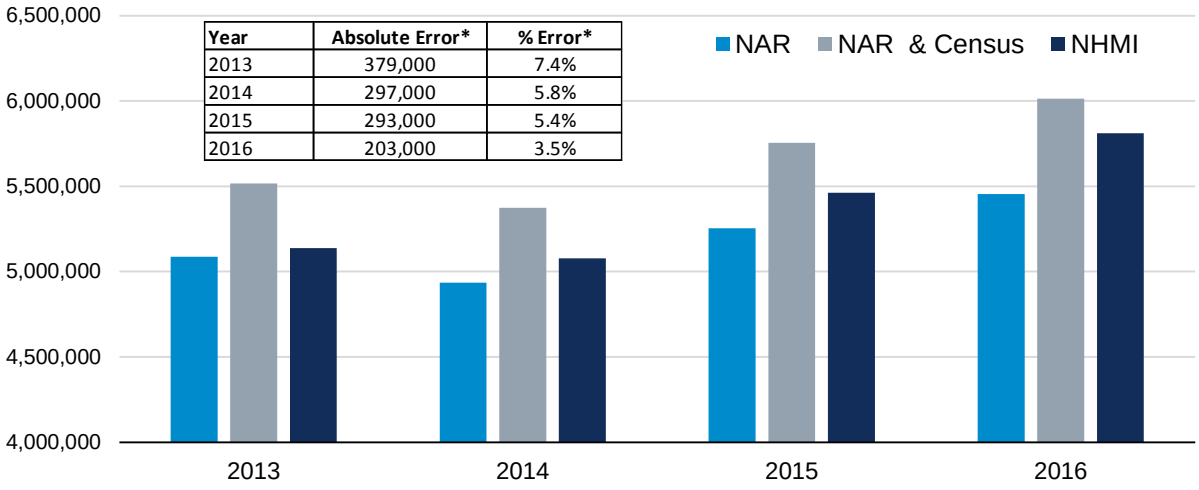
- Unrivaled Accuracy

The NHMI is superior to other measures of housing sales. The NAR's EHS and the Census Bureau's NRS are based on surveys with sizeable confidence bands due to relatively small sampling sizes. In addition, if a survey is not representative of the entire market, it can introduce errors into the estimation results. The NHMI by contrast is based on a near-census of sales and therefore highly representative of the entire market with a very small confidence band. Hence, it is by far the most accurate measure of housing data available.

Example:

The combined total of EHS and NRS have on average reported housing sales about 5.5 percent above actual sales levels over the last 4 years. This is little surprising as EHS are based on a sample of 40 percent of Multiple Listing Service Data (MLS) and not every house is listed on the MLS. The NRS, according to the Census Bureau, have a confidence interval of +/- 10 percent.

NAR's Existing Home Sales and Census Bureau's New Residential Sales vs. NHMI



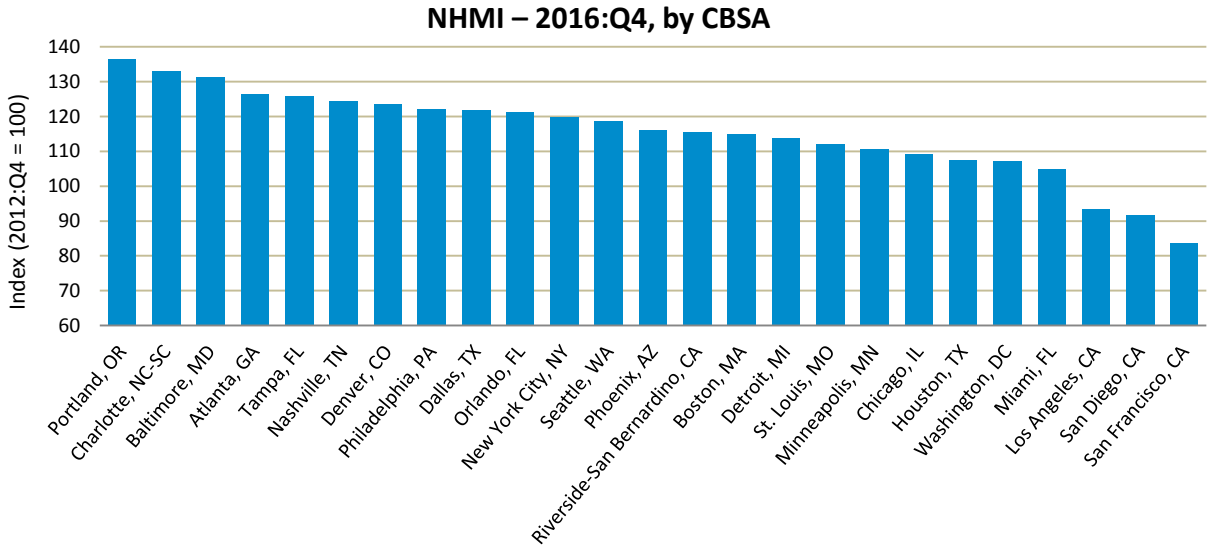
Year	Absolute Error*	% Error*
2013	379,000	7.4%
2014	297,000	5.8%
2015	293,000	5.4%
2016	203,000	3.5%

- New Geographical Detail

Sales transactions (by count and dollar) are available on the State and Core-Based Statistical Areas (CBSA) level. NHMI currently tracks the top 25 CBSAs in the nation. Finer geographical detail can reveal important differences in housing market trends:

Example:

Higher-priced metros in California have seen their sales decline relative to 4 years ago, while more moderately-priced metros have seen their sales increase by as much as 25 percent.



All index results, as well as further housing market commentary and past NHMI presentations, are available online.

AEI National Mortgage Risk Index (NMRI)

Overall goal:

Monitor market stability through accurate, real-time tracking of leverage that, if left unchecked, results in destructive housing booms/busts.

NMRI data sources and coverage:

- Utilizes same agency data as NHMI (see described in NHMI)
- Covers an estimated 99 percent of government-guaranteed mortgages for home purchases. Similar percentages apply to refinance loans.
- The January 2017 NMRI covers 26.2 million agency loans back to Sept. 2012.
- The total consists of 12.0 million agency purchase loans and 14.2 million agency refinance loans

Principle behind the index:

- NMRI is a stress test, similar to a car crash safety rating or hurricane rating for buildings.
- The NMRI's stress event is the financial crisis from 2007.

Basics of index construction: Risk bucketing

We tracked the performance of Freddie Mac's 2007 vintage of acquired loans over the course of the 2007 financial crisis.[54] Similar to a car crash test where the injuries to the passenger depend on a couple crucial variables such as seatbelt usage, the car's speed at impact, or the type of the car driven, we found that the combination of cumulative loan-to-value ratio (CLTV), credit score, and debt-to-income ratio (DTI) was a good predictor of a loan's performance.

We then create risk buckets for home purchase loans, each of which represents a combination of credit score, CLTV, and DTI. The ranges used to create the risk buckets for each loan characteristic are as follows:

Credit Score	CLTV	DTI
770 or higher	60% or below	33% or below
720 to 769	61 to 70%	34 to 38%
690 to 719	71 to 75%	39 to 43%
660 to 689	76 to 80%	44 to 50%
640 to 659	81 to 85%	Greater than 50%
620 to 639	86 to 90%	
580 to 619	91 to 95%	
579 and lower	Above 95%	

The table below summarizes the cumulative default rates for 2007 Freddie vintages through year-end 2012 by risk bucket for home purchase loans:[55]

[54] The loans included in the calculation are all primary owner-occupied, 30-year fixed-rate, fully amortizing, fully documented, home purchase loans. The data come from Freddie Mac's Single Family Loan Performance files.

[55] Analogous tables for cash-out and no-cash-out refinance loans exist.

Periodic Table of Housing Risk: Home Purchase Loans									
GREEN (low risk) = <6%, minor smoothing ORANGE (medium risk) = 6-<12%, minor smoothing RED (high risk) = >=12%, minor smoothing		Cumulative Default Rates through December 2012							
FICO Buckets	DTI Buckets	1 - 60 CLTV	61 - 70 CLTV	71 - 75 CLTV	76 - 80 CLTV	81 - 85 CLTV	86 - 90 CLTV	91 - 95 CLTV	>= 96 CLTV
>= 770	1 - 33	0.3%	0.8%	0.9%	1.7%	1.7%	3.0%	5.0%	5.3%
>= 770	34 - 38	0.5%	0.9%	1.7%	2.4%	4.3%	5.4%	6.7%	8.0%
>= 770	39 - 43	0.5%	1.4%	2.5%	3.3%	3.4%	5.8%	7.8%	9.9%
>= 770	44 - 50	1.0%	1.6%	2.3%	3.2%	4.0%	6.7%	9.3%	9.7%
>= 770	> 50	0.4%	2.3%	3.2%	4.4%	3.8%	8.0%	11.0%	14.7%
720 - 769	1 - 33	0.6%	1.6%	2.4%	2.9%	2.9%	5.2%	6.4%	9.7%
720 - 769	34 - 38	1.2%	2.5%	4.1%	4.2%	4.3%	7.0%	10.0%	10.5%
720 - 769	39 - 43	1.6%	2.6%	4.2%	4.8%	5.3%	8.7%	11.5%	12.5%
720 - 769	44 - 50	0.9%	3.1%	5.1%	5.8%	8.4%	9.8%	14.1%	14.4%
720 - 769	> 50	2.3%	3.9%	3.9%	7.2%	8.6%	11.7%	16.2%	19.7%
690 - 719	1 - 33	1.2%	2.5%	5.4%	4.5%	4.0%	7.8%	10.3%	14.9%
690 - 719	34 - 38	2.7%	4.8%	5.0%	6.4%	7.8%	9.9%	13.8%	16.8%
690 - 719	39 - 43	2.6%	4.3%	7.7%	7.9%	9.3%	13.1%	17.4%	20.2%
690 - 719	44 - 50	4.2%	3.5%	9.3%	8.5%	7.7%	14.4%	17.9%	19.7%
690 - 719	> 50	3.3%	6.0%	9.7%	10.9%	15.7%	18.2%	22.8%	27.7%
660 - 689	1 - 33	2.1%	5.1%	8.0%	6.5%	6.4%	11.4%	13.7%	18.7%
660 - 689	34 - 38	3.6%	7.6%	9.6%	8.8%	10.4%	13.5%	18.4%	20.4%
660 - 689	39 - 43	3.2%	6.6%	10.9%	10.2%	13.6%	15.9%	21.9%	22.7%
660 - 689	44 - 50	4.4%	6.6%	9.9%	12.2%	15.4%	17.5%	22.7%	26.1%
660 - 689	> 50	5.3%	9.3%	13.0%	14.0%	18.6%	24.2%	28.7%	34.5%
640 - 659	1 - 33	4.3%	9.8%	8.6%	9.7%	8.3%	14.7%	18.6%	25.6%
640 - 659	34 - 38	5.5%	6.3%	8.6%	14.7%	10.8%	17.5%	21.0%	31.4%
640 - 659	39 - 43	6.2%	12.2%	12.2%	13.8%	13.5%	18.5%	25.1%	31.9%
640 - 659	44 - 50	4.1%	13.4%	15.8%	15.1%	25.4%	27.0%	30.1%	35.2%
640 - 659	> 50	5.2%	13.4%	20.3%	18.6%	22.7%	29.4%	32.3%	43.0%
620 - 639	1 - 33	5.5%	11.6%	15.7%	13.6%	14.2%	16.6%	24.0%	28.6%
620 - 639	34 - 38	6.0%	12.8%	12.5%	14.9%	14.3%	22.4%	26.7%	35.7%
620 - 639	39 - 43	9.8%	13.9%	11.1%	19.4%	25.4%	18.5%	29.7%	37.7%
620 - 639	44 - 50	10.0%	16.2%	21.1%	21.5%	19.1%	22.7%	33.9%	42.6%
620 - 639	> 50	10.6%	11.0%	18.2%	24.0%	19.7%	32.0%	36.6%	45.8%
580 - 619	1 - 33	11.4%	15.7%	11.8%	16.8%	30.1%	22.7%	26.3%	37.3%
580 - 619	34 - 38	7.4%	14.6%	17.4%	19.9%	17.2%	31.0%	30.6%	38.0%
580 - 619	39 - 43	8.6%	21.7%	29.5%	20.9%	19.7%	30.0%	33.1%	43.4%
580 - 619	44 - 50	8.8%	21.6%	29.8%	24.4%	36.6%	28.4%	39.4%	43.3%
580 - 619	> 50	12.5%	23.7%	30.9%	26.4%	45.7%	39.0%	41.9%	44.4%
300 - 579	1 - 33	23.6%	29.2%	30.9%	32.4%	34.4%	37.2%	41.5%	47.6%
300 - 579	34 - 38	25.2%	30.8%	32.4%	34.0%	36.0%	38.8%	43.1%	49.2%
300 - 579	39 - 43	26.9%	32.5%	34.2%	35.7%	37.7%	40.5%	44.8%	50.9%
300 - 579	44 - 50	29.2%	34.8%	36.5%	38.1%	40.0%	42.9%	47.1%	53.2%
300 - 579	> 50	32.0%	37.2%	39.3%	40.8%	42.8%	45.6%	49.9%	56.0%

The table shows wide spreads of default rates across risk buckets. Generally, as CLTVs and DTIs increase and FICO scores decline, the stressed default rates increase.

For non-plain-vanilla loans we apply an adjustment factor to account for differences in the risk of each loan type. For more, please see methodology online.

Advantages of the NMRI over other risk indices:

- Covers Entire Agency Market

Other risk indices may only focus on a subset of the agency market. But because there are large differences in trend and level of risk between individual agencies it is important to cover the entirety of the market. A singular focus on the GSEs for example will underestimate overall risk.

Example:
The composite NMRI rose 1.3 points between Jan-2013 and Jan-2017 but large differences between the agencies exist (see table). While the GSEs account for over 55 percent of Jan-2017's market share, their risk rating is medium with 6.5 percent. On the other hand, while FHA accounts for 27 percent of market share, its risk rating is high with 25 percent - and it is getting rapidly riskier.

NMRI and Market Share for Home Purchase Loans				
	NMRI			Market Share
Agency	Jan-2013	Jan-2017	Change (2013-2017)	Jan-2017
Composite	11.3%	12.6%	1.3%	100.0%
GSE	5.1%	6.5%	1.4%	56.9%
FHA	20.9%	24.7%	3.8%	27.1%
RHS	19.4%	18.6%	-0.8%	4.3%
VA	10.9%	11.7%	0.8%	11.7%

- Near-Complete Coverage by Agency

Because the NMRI agency data is a near-census of loans, it provides a better benchmark of quality than other datasets.

All index results, as well as further commentary on the housing market and past presentations, are available online.

AEI First-time Buyer Mortgage Share Index (FBMSI)

Overall goal:
Accurately measure first-time buyer (FTB) activity in the housing market.

NMRI data sources and coverage:
- FBMSI covers both government guaranteed and private-sector loans.
- Utilizes same agency data as the NMRI

- For the private mortgage market we use NHMI and CoreLogic data to estimate a FTB share[56]
- Covers an estimated 93 percent of FTB mortgages

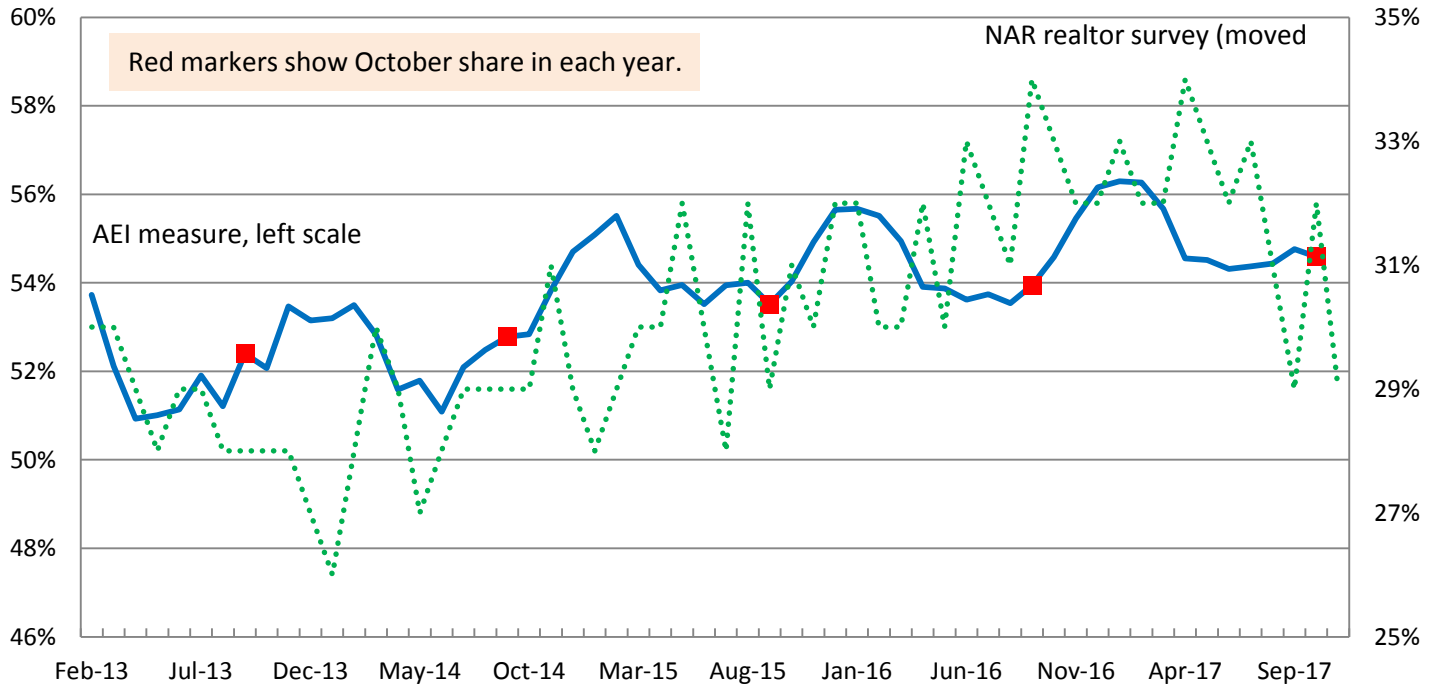
Advantage of the FBMSI over other FTB indices:

- More trend, less noise

Due to their completeness, the FBMSI, as well as the NMRI and NHMI, provide significant signals of market trends without the noise of other indices.

Example:
The NAR's first-time homebuyer share is computed from a realtor survey of only around 2,000 closed sales each month. When comparing month over month, the NAR's series provides a noisier picture than the FBMSI, which exhibits a clear seasonal pattern of rising first-time buyer numbers during the fall, winter, and spring, and declining numbers during the spring relative to repeat buyers (see chart below).

First-time buyer mortgage share index (FBMSI) vs. NAR)



All index results, as well as further commentary on the housing market and past presentations, are available online (www.housingrisk.org/category/mortgage-risk).

[56] The methodology is described in detail in the NMRI methodology under section First-time Buyer Mortgage Share Indices.

Appendix 2

Eliminating the GSEs' High-Cost Area Loan Limits and Other Steps to Reduce the GSEs' Footprint: Implications for the Mortgage Market

Tobias Peter and Stephen Oliner

1. Introduction

Previous research has established that before the financial crisis mortgage rates on loans eligible for purchase by the government-sponsored enterprises (GSEs), Fannie Mae and Freddie Mac, were below those on other mortgages. Sherlund (2008) uses data from the Monthly Interest Rate Survey conducted by the Federal Housing Finance Board to measure the rate differential for 30-year fixed rate mortgages (FRMs), finding that mortgages rates for loans within conforming loan limits were between 13 and 24 basis points (bps) lower than jumbo mortgage rates from January 1993 to June 2007.[57] DeFusco and Paciorek (2017) find a similar spread of 18 bps for FRMs in California between 1997 and 2007. Finally, Fuster and Vickery (2013) estimate that the spread between jumbo FRMs packaged into Private-label Mortgage Backed Securities (PMBS) and conforming FRMs averaged 20 bps pre-crisis and about 90 bps when the PMBS market froze (August 2007 to April 2008).

Little work, however, has been done to examine this relationship *after* the financial crisis. We conduct such an analysis using extensive loan-level data on closed loans from CoreLogic covering 2001 to 2016. Using the CoreLogic data, we can identify not only whether the loan amount is above or below the applicable conforming loan limit, but also whether the loans below the applicable limit were actually purchased by the GSEs. Hence, we are able to estimate not only the conforming versus jumbo rate differential as in prior studies, but also to compare the rate differential between conforming loans actually purchased by the GSEs and private-market loans. We find that while GSE loans had rates below those on jumbo loans from 2001 through 2013, from 2014 to 2016 the rates on jumbo portfolio loans were 25 bps *below* those on GSE loans with the same risk characteristics. In addition, despite a low level of market activity and limited liquidity, mortgage rates in the jumbo PMBS market recently have been only slightly above those provided by the GSEs.[58]

If the high-cost area limits were eliminated, we expect portfolio lenders would absorb most of the additional volume at rates similar to, or perhaps below, those that would have been offered by the GSEs. Portfolio lenders are already active in this market, accounting for an estimated 42 percent of high-balance conforming loans.[59] Even if portfolio lenders required higher mortgage rates to boost their market presence, today's rate advantage of 25 bps for jumbo portfolio loans provides a buffer for rates to rise before exceeding

[57] Prior to 2008, the GSEs were limited to buying loans at or below a national conforming loan limit that applied to the continental United States (Alaska and Hawaii had limits that were 50 percent higher). In 2008 Congress authorized the use of high-cost area loan limits that applied to specific metro areas and were above the limits that applied elsewhere. In this paper, we use the term "conforming loan limit" to include both the general limit that applies nationally and the separate high-cost area limits. This usage follows the terminology employed by the Federal Housing Finance Agency (FHFA), the regulatory agency for the GSEs. Jumbo loans are those that exceed the applicable conforming limit. We use the term "high-balance conforming loans" when referring to loans in high-cost areas with amounts between the general conforming loan limit and the applicable high-cost area limit.

[58] Unless noted otherwise, the figures cited in the paper pertain to first-lien, 30-year fixed-rate home purchase loans used to finance one-unit, primary owner-occupied properties.

[59] This figure represents the private-sector share of all first-lien mortgages to purchase 1-4 unit primary owner-occupied properties based on Home Mortgage Disclosure Act (HMDA) data for 2015, the latest available year. Although the HMDA-based share pertains to the combination of portfolio and PMBS loans, the low volume of PMBS loans implies that the combined share is essentially that for portfolio lenders.

GSE rates. Portfolio lending for high-balance conforming loans and jumbo loans is heavily concentrated today in mortgages with loan-to-value ratios (LTVs) of 85 percent or less. Our analysis suggests that portfolio lenders would absorb most borrowers with LTVs of 85 percent or less without much difficulty.

This raises the question of the adjustments that would occur for the high-balance conforming loans with LTVs above 85 percent if the high-cost area limits were eliminated. Although portfolio lenders at present are largely shying away from these higher LTV loans, they could come to see this market as a growth opportunity without the GSEs as a competitor. Mortgage insurers would have an interest in encouraging this process by developing insurance programs tailored to the needs of portfolio lenders. Nonetheless, we do not expect the private sector to fill the GSEs' shoes for higher-leverage loans; plus, new private-sector products would take some time to develop. If the high-cost area limits were eliminated, borrowers with LTVs above 85 percent could respond in several ways. They could take out a smaller loan from a private lender — which would imply either making a larger downpayment, buying a less expensive house, or a combination of the two — or, if eligible, they could switch to a VA loan.[60] It is important to note that the affected borrowers generally would be high-income households. According to HMDA data, in 2015 the median gross annual income of borrowers taking out high-balance GSE loans was $150,000 – nearly three times the median income for U.S. households. Any reduced borrowing by these high-income households would have the salutary effect of lowering overall risk in the mortgage market, thus enhancing market stability.

The rest of this paper proceeds as follows. The next section describes the loan-level datasets used in the analysis. Section 3 describes how we estimate the differences in mortgage rates between the GSEs and private loans, while Section 4 presents the results of this exercise. Section 5 uses these results, along with information on the volume and risk characteristics of GSE and private-sector loans, to assess the effects of eliminating the current high-cost area loan limits. Section 6 offers similar comments for the subsequent stages of the proposal. Section 7 concludes.

2. Data

We use two different CoreLogic datasets. The first is CoreLogic's Loan Level Market Analytics (LLMA) dataset, which contains information on loan originations including the note rate, loan amount, occupancy status, loan term, interest rate type (fixed vs. adjustable), property location in the form of a five-digit zip code, whether the loan has private mortgage insurance, and key determinants of loan risk — the borrower's credit score, the LTV, and the debt-to-income ratio (DTI). Importantly, the LLMA dataset includes a "current investor code" that indicates whether the loan was acquired by the GSEs. This information allows us to identify loans that are below the applicable conforming loan limit, and thus eligible for GSE purchase, but that are retained by private-sector lenders. To account for the lag between origination and sale to the GSEs, we only use loans that were originated through December 2016.

The LLMA dataset is built from data provided by large, mostly bank-affiliated, loan servicers, and as such, has two main shortcomings. First, with the migration of mortgage lending from large banks to smaller nonbanks, the share of mortgage originations covered by the dataset has declined since 2010. This decline, however, is less pronounced for portfolio and GSE loans than for FHA or VA loans. Moreover, the reliance on servicer data for both portfolio and GSE loans reduces the risk that the decline in coverage will bias the results. The second shortcoming is incomplete information on loan characteristics, especially for DTIs in the early years

[60] To prevent FHA's market share from surging as the GSEs shrink, our proposal reduces FHA's high-cost area and national loan limits in tandem with reductions in the GSEs' limits. We do not propose any changes to the VA loan limits, as these loans have less default risk than FHA loans and they serve a targeted population with strong bipartisan support.

of the sample period. However, the amount of included information has increased over time, and in recent years, a large majority of loans have complete or nearly complete data on the primary risk characteristics used in this study.[61]

The second dataset is CoreLogic's Non-Agency Residential Mortgage-Backed Securities dataset, which contains information on the loans packaged into private label securities (PMBS). These data are much more complete as they consist of the loan-level information provided to rating agencies to obtain ratings on the proposed securities. These data cover nearly the entire PMBS market.[62] In addition, the reporting of loan risk factors is substantially more complete than for the LLMA data. With the exception of three years (2008-2010), when market volume was minimal, missing loan information on DTIs, LTVs, and credit scores is not a significant issue. This dataset contains loans through June 2016.

To create the dataset for our empirical work, we combine the LLMA and PMBS datasets and limit the combined dataset to first-lien, 30-year fixed-rate conventional mortgages originated to purchase one-unit, primary owner-occupied properties with reported zip codes and loan amounts. We omit the PMBS loans included in LLMA to avoid double counting when we merge the LLMA and PMBS datasets. We also exclude LLMA loans that cannot be identified as either acquired by the GSEs or held by private portfolio lenders.[63] We then assign the conforming loan limit applicable to each loan based on its origination date and zip code. Historical data on conforming loan limits come from the Federal Housing Finance Agency (FHFA) and Fannie Mae.[64]

The cleaned dataset consists of 16 million loans originated between January 2001 and December 2016 (June 2016 for PMBS loans). Of the 16 million loans, about 87 percent are GSE loans, 6 percent are portfolio loans, and 7 percent are PMBS loans. To estimate the interest rate differentials, we primarily use loans within +/-10 percent of the applicable conforming loan limit.

3. Empirical Design

To estimate the rate differential between GSE and private-sector loans, we follow the approach in DeFusco and Paciorek (2017) and Sherlund (2008) to estimate the jumbo-conforming spread. We estimate the mean rate differential between GSE loans and jumbo portfolio or jumbo PMBS loans with the following regression:

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[61] In the full cleaned dataset dating back to 2001 that we use for this paper, 35 percent of loans have information on LTV, DTI, and credit score, and 80 percent have information at least two of the three. Coverage has improved over time. From 2014 to 2016, 46 percent of loans have information on all three risk characteristics and 95 percent have information on at least two.

[62] See Mayer, Pence, and Sherlund (2009), p. 29, for a discussion of the PMBS data.

[63] We use LLMA loans with a current investor code of "GSE," "Portfolio," or "Unknown" after having dropped the PMBS loans in LLMA. Among the loans that remain, we drop the small number of LLMA loans with a current investor code of "GSE" when the loan amount exceeds the applicable conforming loan limit at the time of origination. Likewise, we assume all remaining LLMA loans above the applicable conforming loan limit but with a current investor code of "unknown" to be portfolio loans. Loans below the applicable conforming loan limit with a current investor code of "unknown" are excluded.

[64] FHFA publishes the general conforming loan limit and high-cost area loan limits on a county level from 2008 on (https://www.fhfa.gov/DataTools/Downloads/Pages/Conforming-Loan-Limits.aspx). For prior years, we use Fannie Mae's Historical Conventional Loan Limit Factsheet. (https://www.fanniemae.com/content/fact_sheet/historical-loan-limits.pdf).

$$(1)\quad Rate = b_1\, LoanType * Yr + \ LoanType * f(b_2 Pct, b_3 Pct^2, b_4 Pct^3) + b_5\, LTV + \\ + b_6\, credit\ score + b_7\, DTI + b_8\, State + b_9\, Prepay + \ b_{10}\, PMI + b_{11}\, Doc + e$$

where *Rate* is the mortgage's note rate, *LoanType* is a set of dummy variables for the type of loan (jumbo portfolio, jumbo PMBS, or GSE), *Yr* is a set of yearly dummy variables from 2001 to 2016, and *f* is a cubic polynomial function, estimated separately for each loan type, of the percent difference in loan amount from the applicable conforming loan limit (*Pct*) to account for any relationship between note rate and loan amount. *LTV*, credit score, and *DTI* are a set of dummy variables for each of these risk factors, *State* is a set of dummy variables for the 50 states and the District of Columbia, *Prepay* is a dummy variable for the presence of a prepayment penalty, *PMI* is a dummy for the presence of mortgage insurance, and *Doc* is a dummy for the loan's documentation type (full, low, or no-doc); all of these dummies include a category for missing values.[65]

The *State* dummy variables account for differences in mortgage rates across the states, while the *LTV*, *credit score*, *DTI*, *Prepay*, *PMI*, and *Doc* dummy variables all control for differences in loan characteristics that affect pricing. The coefficients of interest are those for *LoanType*Yr*, which provide the estimated rate differential for a given year between jumbo portfolio or jumbo PMBS loans and GSE loans.

Our baseline estimates of equation 1 use loans with amounts between 90 and 110 percent of the applicable conforming loan limit. To check the robustness of our results, we re-estimate equation 1 with alternative ranges for loan size and by including additional control variables.

We also estimate our counterpart to the standard jumbo-conforming spread in the literature. This spread pools portfolio and PMBS loans and, among conforming loans, does not distinguish between GSE loans and loans retained by private lenders. To estimate this spread, we add conforming portfolio and PMBS loans to the dataset used to estimate equation 1 and replace the *LoanType* dummy with a two-way jumbo dummy variable that indicates whether the loan amount is at or below the applicable conforming loan limit or is above the limit. In addition, we estimate a variant of the jumbo-conforming spread that replicates as closely as possible the data and regression equation used by DeFusco and Paciorek as a check on the consistency of our results with theirs.

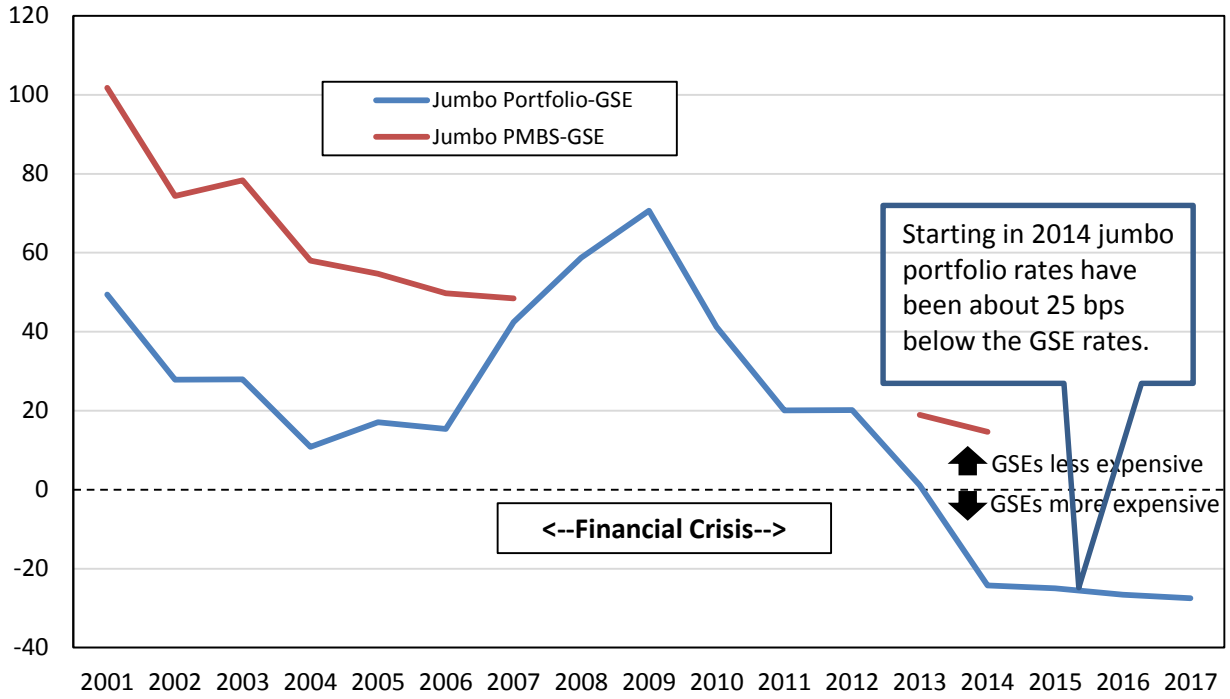
4. Results

To begin, we use equation 1 to estimate the rate spreads of prime interest for our analysis – those between either jumbo portfolio or jumbo PMBS loans and GSE loans. Chart 1 presents the results.[66] We find that the jumbo portfolio-GSE spread for loans around the conforming loan limit was positive (27 bps) for the years from 2001 to 2006. During the crisis years from 2007 to 2009, the differential rose to 62 bps and then dropped back to 22 bps from 2010 to 2013. Thus, for the entire period 2001-2013, jumbo portfolio loans had higher rates on average than GSE loans. Importantly, this pattern reversed over 2014-2016, with jumbo portfolio rates averaging 25 bps less than GSE rates.

[65] The dummy variables for the key risk factors are defined as follows: credit score buckets (300-579, 580-619, 620-639, 640-659, 660-689, 690-719, 720-769, ≥770, missing credit score), DTI buckets (1-33%, 34-38%, 39-43%, 44-50%, >50%, missing DTI), LTV buckets (1-60%, 61-70%, 71-75%, 76-80%, 81-85%, 86-90%, 91-95%, ≥96%, missing LTV)

[66] The full set of estimated coefficients for our baseline from equation 1 are posted on the web at https://www.housingrisk.org/spread-analysis/. All other regression results can be obtained from the authors by request.

Chart 1: Jumbo portfolio - GSE and jumbo PMBS - GSE spreads (in bps) for loans between 90 percent and 110 percent of the applicable conforming loan limit



Note 1: Jumbo Portfolio minus GSE and Jumbo PMBS minus GSE spreads (in bps) between 90% and 110% of conforming limit.
Note 2: Chart omits PMBS-GSE spreads for years with less than 200 jumbo PMBS loans.
Note 3: Data for 2017 are for January - September only.

For 2016 and the first 9 months of 2017, the rate advantage for jumbo portfolio loans was 27 bps. For jumbo PMBS loans, we also find that rates exceeded those on GSE loans before the financial crisis, with a wider gap than for portfolio loans. From 2008 to 2012, PMBS volume was too small to reliably estimate the annual spread. More recently, rates on jumbo PMBS loans have been a bit above those on GSE loans.

We performed several robustness checks on our results. To begin, we re-estimated equation 1 with a narrower range of loan amounts — from 99 percent of the applicable conforming loan limit to 110 percent of the limit — and then with all loans in the dataset. As shown in Table 1, moving to the narrower window has virtually no effect on the estimated spreads. When including all loans, the numerical estimates differ somewhat from our baseline, though the main story remains unchanged.[67] For the period from 2014 to 2016, both of the alternative windows show that jumbo portfolio rates are below GSE rates and jumbo PMBS rates are slightly above GSE rates.

[67] The differences are primarily due to pricing differentials for smaller loans. We believe the smaller portfolio loans are largely Community Reinvestment Act (CRA) loans, which banks are mandated to make or hold, and hence may not be priced in accord with other loans. These smaller loans are discussed in more detail below. Omitting loans with amounts below 50 percent of the applicable conforming loan limit produces spreads that are very close to the baseline results.

Table 1: Jumbo portfolio-GSE and jumbo PMBS-GSE spreads for alternative sets of loans

Period	Portfolio-GSE spread (bps)			PMBS-GSE spread (bps)		
	Baseline	99%-110%	All loans	Baseline	99%-110%	All loans
2001-2006	27*	27*	23*	72*	70*	40*
2007-2009[t]	62*	61*	70*	50*	49*	26*
2010-2013[t]	22*	22*	40*	24*	25*	13*
2014-2016[tt]	-25*	-26*	-15*	17*	16*	13*

Note: Table uses loans for all years, except as noted below. In each period, spreads and significance levels computed by averaging annual dummies in equation 1.

* denotes significance at the 1 percent level.

[t] 2007-2009 period only uses the PMBS spread estimate for 2007 due to low loan counts in 2008 and 2009. Similarly, 2010-2013 only uses the PMBS spread estimate for 2013 due to low loan counts in 2010-2012.

[tt] 2014-2016 period only uses the PMBS spread estimate for 2014 due to low loan counts in 2015 and 2016 from delays in reported securitization.

Table 2 below reports the results of further robustness checks on our baseline results. The first check limits the loans in the regression to those with full documentation, while the second check omits loans with missing data on the primary risk factors. The third check retains the baseline set of loans but adds a dummy variable to control for lender channel (retail, correspondent, and all other values including missing data). This dummy controls for the possibility that loans extended to retail customers or through correspondent bank relationships are less risky, and hence have lower rates, than other loans. The final check replaces the year dummies with monthly dummies. As shown in the table, although some of the spreads differ from the baseline values, none of these alternatives change our key results. In particular, for recent years we continue to find that rates on jumbo portfolio loans are about ¼ percentage point below those on GSE loans, while jumbo PMBS rates are a little above those for GSE loans.

Table 2: Jumbo Portfolio-GSE and jumbo PMBS-GSE spreads (in bps) for alternative sets of regressions

Period	Baseline		Full-doc loans		Loans with LTV, DTI, credit score		Add channel dummy		Monthly dummies	
	Portfolio-GSE	PMBS-GSE	Portfolio-GSE	PMBS-GSE	Portfolio-GSE	PMBS-GSE	Portfolio-GSE	PMBS-GSE	Portfolio-GSE	PMBS-GSE[t]
2001-2006	27*	72*	18*	52*	10*	70*	28*	70*	25*	67*
2007-2009[tt]	62*	50*	51*	37*	66*	66*	64*	48*	66*	51*
2010-2013[tt]	22*	24*	17*	15*	27*	19*	27*	28*	21*	na
2014-2016[ttt]	-25*	17*	-30*	6*	-25*	12*	-21*	20*	-28*	na

Note: Table uses loans for all years, except as noted below. In each period, spreads and significance levels computed by averaging annual dummies in equation 1.

* denotes significance at the 1 percent level.

[t] 2007-2009 period only uses the PMBS spread estimates for Jan.-Aug. 2007 due to low loan counts in other months. Spreads for 2010-2013 and 2014-2016 are not calculated due to low monthly loan counts.

[tt] 2007-2009 period only uses PMBS spread estimate for 2007 due to low loan counts in 2008 and 2009. Similarly, 2010-2013 only uses PMBS spread estimate for 2013 due to low loan counts in 2010-2012.

[ttt] 2014-2016 period only uses PMBS spread estimates for 2014 due to low loan counts in 2015 and 2016 from delays in reported securitization.

We also estimate equation 1 only using loans with amounts between 90 and 110 percent of the general loan limit for areas subject to that limit and then only using loans with amounts between 90 and 110 percent of the applicable high-cost loan limit for loans in high-cost areas (and only since 2008, when these limits were established). Table 3 below reports these additional results, both for all included loans regardless of their LTV and then for two LTV bins (≤ 85 percent and > 85 percent).[68] As shown in the columns labeled "All LTVs", the results are similar across areas subject to the general limit and high-cost areas. In both areas, the rates on jumbo portfolio loans over 2014-2016 were roughly ¼ percentage point below GSE rates, reversing the pattern in earlier years. The results for lower LTV loans are very similar to those for all loans. But, interestingly, in the recent period, portfolio lenders have not been pricing higher LTV jumbo loans as aggressively as lower LTV loans. During 2014-2016, portfolio lenders undercut the GSEs by 4 to 22 bps on their higher LTV jumbo loans, compared with a gap of 24 to 32 bps gap on lower LTV loans. This finding suggests that portfolio lenders are using pricing to nudge borrowers toward loans with less leverage.

Table 3: Jumbo portfolio-GSE spreads (in bps) for standard and high-cost area loan limits, by LTV

Period	General			High-cost		
	All LTVs	LTV ≤ 85%	LTV > 85%	All LTVs	LTV ≤ 85%	LTV > 85%
2001-2006	29*	24*	34*	na	na	na
2007-2009[t]	55*	48*	71*	49*	47*	na
2010-2013[tt]	20*	17*	11	6*	5*	na
2014-2016[ttt]	-20*	-24*	-4	-31*	-32*	-22*

Note: In each period, spreads and significance levels computed by averaging annual dummies in equation 1. Estimates for high-cost area limits are not available in 2001-2006 because the limits had not yet been established; also, estimates are not available for LTV > 85% loans through 2013 because of low loan counts.

* denotes significance at the 1 percent level. Other estimates are not significant at either the 1 percent or 5 percent level.

[t] Standard estimates for 2007-2009 period only use results for 2007 due to low loan counts in 2008-2009. High-cost area estimates for 2007-2009 only use results for 2008-2009 due to low loan counts in 2007.

[tt] All estimates for 2010-2013 period exclude 2010 due to low loan counts. Standard estimate for All LTVs and LTVs ≤ 85% also exclude 2011 and standard estimate for LTV > 85% excludes both 2011 and 2012.

[ttt] 2014-2016 high-cost area estimate for LTV > 85% loans only uses results for 2015-2016 due to low loan count in 2014.

We focus on the spreads between jumbo loans and GSE loans because of the policy question at hand: If the GSEs' high-cost area loan limits were eliminated (and the general limit were subsequently reduced), how would private lenders price the loans that the GSEs could no longer guarantee? We obtain the best guidance on this question by examining the recent rate spread between private-sector loans that the GSEs cannot guarantee – that is, jumbo loans – and GSE loans.

Although the jumbo-GSE spreads are of prime interest, our data can also shed light on rate differences between GSE loans and private loans below the applicable conforming loan limit. To do so, we re-estimate equation 1 after adding in conforming portfolio loans and conforming PMBS loans. The structure of the equation remains unchanged except for redefining *LoanType* as a set of dummy variables for five loan types rather than three (jumbo portfolio, jumbo PMBS, conforming portfolio, conforming PMBS, or GSE).

[68] These estimates are reported only for portfolio loans as the PMBS loan counts are insufficient to generate reliable results for recent years.

Table 4 shows the results. Over 2014-2016, rates on conforming portfolio loans were below those on GSE loans, with a rate gap (21 bps) that is very similar to the 25 bp gap for jumbo portfolio loans. Thus, for both jumbo and conforming loans, portfolio lenders have been undercutting the GSEs' rates in recent years. The results for earlier years, however, point up an interesting difference between conforming and jumbo portfolio loans. Except for crisis years of 2007-2009, rates on conforming portfolio loans consistently have been below GSE rates, while the lower rates for jumbo portfolio loans are a recent phenomenon. One possible explanation for the persistently lower conforming portfolio rates is that portfolio lenders undercut the GSE rates to attract assets for their own balance sheets that meet their return requirements. Another possibility is that lenders use information beyond the factors we observe to retain higher-quality mortgages than they sell to the GSEs. In either case, the recent spreads differ from the historical pattern for jumbo portfolio loans but not for conforming portfolio loans.

For conforming PMBS loans, rates before and during the financial crisis were higher than GSE rates, though the rate gap was narrower than for jumbo PMBS loans. In the latest period, however, conforming PMBS rates have dropped below GSE rates. The reason for this change is not clear, and we should stress that the result is based on a small sample of loans. Nonetheless, the estimated rate spreads for conforming and jumbo PMBS loans, taken together, highlight that in recent years the rates on PMBS loans have been in the neighborhood of GSE rates despite the limited liquidity in the PMBS market.

Table 4: Jumbo and conforming private-GSE spreads for loans between 90 percent and 110 percent of the applicable conforming loan limit

Period	Portfolio-GSE spread (bps)		PMBS-GSE spread (bps)	
	Jumbo	Conforming	Jumbo	Conforming
2001-2006[t]	27*	-27*	71*	50*
2007-2009[tt]	62*	20*	49*	21*
2010-2013[ttt]	22*	-4*	24*	na
2014-2016[tt]	-25*	-21*	17*	-30*

Note: Table uses loans for all years, except as noted below. In each period, spreads and significance levels computed by averaging annual dummies in the version of equation 1 that adds in conforming portfolio and PMBS loans.

* denotes significance at the 1 percent level.

[t] Spread estimate for conforming portfolio loans based on results for 2003-2006 due to low loan counts in 2001-2002.

[tt] Spread estimates for PMBS loans in 2007-2009 based on results for 2007 due to low loan counts in 2008-2009. Spread estimates for PMBS loans in 2014-2016 based on results for 2014 due to low loan counts in 2015-2016.

[ttt] Spread estimate for jumbo PMBS loans based on results for 2013 due to low loan counts in 2011-2013.

As part of our analysis of conforming loan rates, we examined the conforming portfolio-GSE spread across a range of loan amount buckets in 2016 (PMBS loans were not analyzed because of insufficient data). We found little variation in the conforming portfolio-GSE spread across different loan amounts, with the exception of loans with amounts of $100,000 to $200,000. For this set of loans, the spread spikes to negative

bps, indicating very low pricing by portfolio lenders. We believe these smaller loans are primarily CRA loans based on three characteristics that they share with CRA loans. The 2016 portfolio loans in our dataset with amounts of $100,000 to $200,000 have high LTVs (90 percent have LTVs above 95 percent), low credit scores (a median score of 669, a shade below FHA's median for purchase loans), and the virtual absence of private mortgage insurance (99.3 percent have no reported PMI compared to only 10 percent for GSE loans with LTVs above 95 percent).[69, 70]

We conclude this section by presenting estimates of the standard jumbo-conforming spread for 2001-2007, the years for which data overlap with DeFusco and Paciorek's sample period. This spread measures the rate difference between all jumbo loans taken together and all conforming loans, including those retained by portfolio lenders or securitized via PMBS. We find a spread (defined as the jumbo rate minus the conforming rate and estimated with loans between 90 and 110 percent of the applicable conforming loan limit) of 38 bps, with a 95 percent confidence band that is less than 2 bps wide.

Although this estimate is considerably larger than DeFusco and Paciorek's estimate of 18 bps, there are many differences between their study and ours regarding the scope of the data used and the form of the regressions equation. Perhaps most notably, their data are limited to metropolitan areas in California while we cover the entire country.[71] Among the differences in the regression equation, we control for the amount of loan documentation, while they do not; we use a more flexible method of controlling for the effects of LTV, DTI, and credit score; and we use separate fixed effects for state and year, while they include zip code by month fixed effects. When we adopt their regression equation and use our counterpart to their dataset, we estimate the jumbo-conforming spread to be 21 bps over 2001-2007, very similar to their estimate of 18 bps over 1997-2007.[72] Restricting our coverage to California MSAs accounts by itself for roughly half of the change from our baseline estimate, which suggests that the jumbo-conforming spread in California was systematically smaller than in the rest of the country.

To summarize our main results, we show that rates on jumbo loans (both portfolio jumbos and PMBS jumbos) exceeded GSE rates before the financial crisis. However, in recent years, rates on jumbo portfolio loans – which constitute the vast majority of all jumbo loans in today's market – have had rates about ¼ percentage point below GSE rates.

Increases in GSE guarantee fees to more appropriate levels help explain this shift.[73] Today, annual GSE guarantee fees are nearly 60 bps on new business, up from an average of 18-24 bps over 2000-2007 on outstanding loans.

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[69] The figure on PMI coverage for GSE loans comes from the NMRI data. All other figures cited in this paragraph are calculated from the CoreLogic dataset used in this paper.

[70] We also used our dataset to compare the GSE and portfolio loans with LTVs greater than 95 percent to FHA home purchase loans for FY2012, 2013, and 2014. The median loan amounts for all three sets of loans were relatively small ($146,000 for FHA, $156,000 for private portfolio, and $194,000 for the GSEs). We presume, as noted above, that the portfolio loans with high LTVs in this size range are predominantly CRA loans. Interestingly, the serious delinquency rate for these portfolio loans was only one-fifth of that for the FHA loans and was essentially the same as for the GSE loans (despite the GSE loans having a considerably higher median credit score). This finding suggests that the aggressive pricing of the presumed CRA loans has been combined with at least reasonably effective risk controls with the result being to limit the loss exposure of both portfolio lenders and borrowers.

[71] Two other significant data differences are that they include loans to purchase second homes and investment properties (we do not), and they include all loans regardless of size (our baseline regression is limited to loans within 10 percent of the conforming loan limit). In addition, their dataset begins in 1997 while ours starts in 2001.

[72] For this comparison, we augment our dataset to include conforming loans with a current investor code of "Unknown," as we do not need to distinguish GSE loans from private conforming loans. See footnote 7 for further discussion.

[73] See FHFA (2015), p. 10, for a history of such fees, which shows an approximate tripling of the fees that prevailed in 2000-2006.

4. Discussion of high-cost area loans and loan limits

Our results in the previous section indicate that portfolio lenders are aggressively pricing jumbo loans, especially those with LTVs of 85 percent or less. To assess how the mortgage market would adjust to an elimination of the GSEs' high-cost area loan limits, we also need to examine the volume of high-cost area lending being done by portfolio lenders and the risk characteristics of these loans.

Chart 2 below shows the 2016 volume of GSE and portfolio originations in high-cost areas of loans with amounts above the general conforming limit. For loans with low leverage (LTV ≤ 85 percent), portfolio lenders have a large market presence. In contrast, they are largely avoiding higher leverage (LTV > 85 percent) loans, with the GSEs dwarfing their activity in this market segment. Both panels of the chart show a bunching of GSE loans at the applicable high-cost area loan limit, which we discuss below.[74]

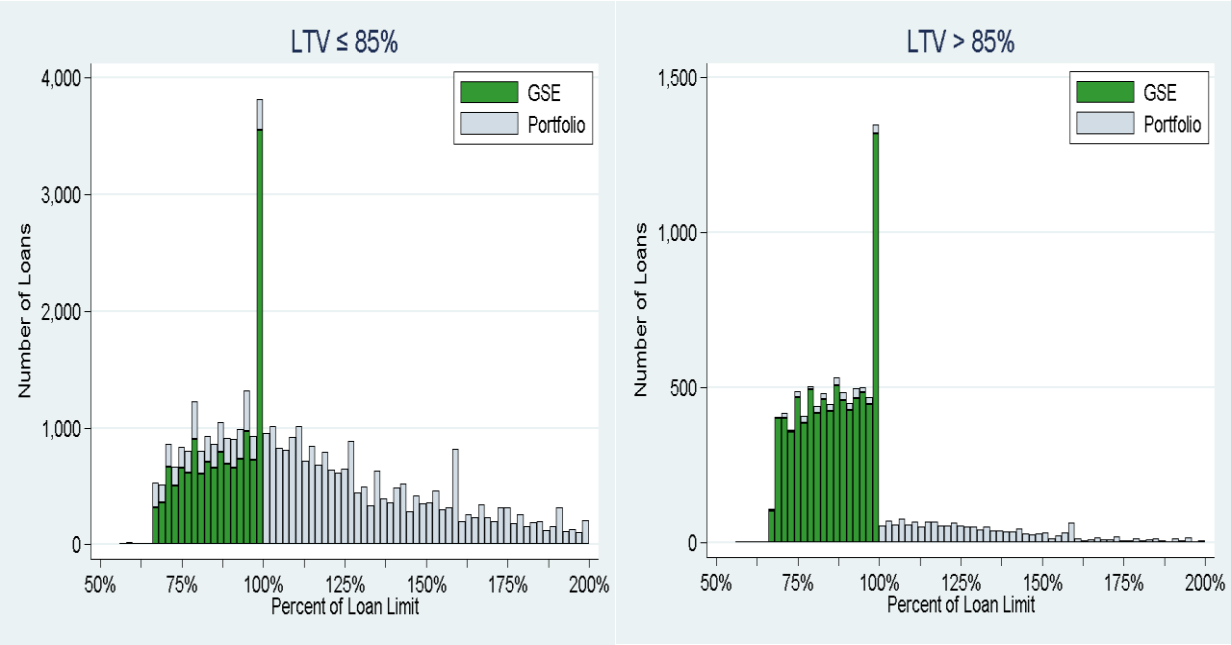
During the first stage of our proposal, which seeks to eliminate high-cost area loan limits, most of the extra volume would need to be absorbed by portfolio lenders. This is because activity in the PMBS market has been low for the past decade, currently amounting to about $10 billion per year.[75] That said, we have spoken with a number of participants in the PMBS market and all thought the market could start ramping up in a matter of months, say to an annual rate of $20-25 billion within a year. However, it would take a few years to achieve a more substantial increase — say to a rate of $100 to 200 billion per year — as this would require an expansion of the investor base (more on this in Section 6).[76]

[74] Note that Chart 2 understates to some extent the volume of both GSE and portfolio lenders at and below the applicable high-cost area limits. This undercount occurs because our dataset excludes conforming loans that cannot be identified as GSE or portfolio loans (that is, the loans with a missing value for the LLMA current investor variable). Thus, the true heights of the bars at and to the left of 100 percent of the loan limit are higher than is shown in the chart.

[75] See *Inside MBS & ABS*, p. 3, table titled "Non-Agency MBS Issuance by Type".

[76] We asked about (i) the cause for the current low level of PMBS activity and (ii) whether the PMBS industry would be in a position to ramp up issuance volume both in the short and longer term. All of the respondents indicated that PMBS volume is currently low because the supply of prime loans available for securitization is too small to induce the industry to spend much time or effort to figure out how to restart the market. There simply isn't enough money to be made today. To get things going, there needed to be a "forcing event" — like a reduction in the GSE loan limits — that would sharply increase the potential volume. As to the question about the ability to ramp up, the respondents indicated that such a forcing event would focus market participants on the issues — like standardized loan documentation — that would need to be addressed to provide the necessary level of comfort to potential investors.

Chart 2: Distribution of loans above $417,000 in high-cost areas in 2016, by LTV and investor type



We now discuss how portfolio lending likely would evolve if the high-cost limits were eliminated.

Lower-leverage borrowers (LTV ≤ 85 percent)

As noted above, we find substantial bunching of GSE borrowers at the applicable high-cost area loan limit. Given that portfolio lenders are offering lower mortgage rates than the GSEs, we would expect the bunching to occur on the other side of the loan limit if all borrowers were aware of and could obtain the attractive portfolio rates. If that were possible, borrowers at the loan limit could save money by taking out a portfolio loan $1 above the limit.

The bunching suggests that certain borrowers face constraints in today's market. First, borrowers may lack information or may not search intensively for the lowest rate, especially if they are steered to a particular lender by a realtor or someone else they trust. If that lender does not have an active jumbo loan program, some homebuyers may end up with a GSE guaranteed loan even though they could have found a lower rate had they had shopped around. Preliminary work by Aurel Hizmo of the Federal Reserve shows that this shopping behavior matters. Notably, borrowers with high-balance conforming loans shop less intensively for the best rates than do jumbo borrowers. This finding implies that some of the observed rate advantage for jumbo loans relative to high-balance GSE loans reflects shopping behavior rather than differences in available offer rates.[77] Given that the homebuying process requires significant time and effort, some borrowers may be satisfied to borrow the maximum amount with a GSE loan rather than to search for a better rate in the jumbo market. This

[77] Hizmo finds that jumbo borrowers, on average, lock in a rate that is 24 bps below the median offer rate, while borrowers with loan amounts between the general conforming limit and the high-cost area limit lock in a rate, on average, that is only 2 bps below the median offer rate. This difference implies that jumbo borrowers shop around more intensively than the borrowers with loan amounts between the general and high-cost area limits. If the median offer rates for jumbo and high-balance conforming loans were identical, the locked-in jumbo rate would be 22 bps below the locked-in rate on the high-balance conforming loan as a result of the shopping effect.

"constrained optimization" can help explain the bunching of GSE loans at the applicable high-cost area limit. Some borrowers could have found more attractive portfolio loans had they taken the time to look.

But another factor also is at work. Some GSE borrowers at the loan limit likely would not be able to replicate their GSE loan at a portfolio lender. This is especially the case for borrowers with high DTIs. The GSEs have a strong advantage over portfolio lenders for high DTI loans because of the Qualified Mortgage (QM) rules, which provide lenders with a legal safe harbor from borrower claims that the mortgage was improperly underwritten. A jumbo loan can only receive the QM designation if it has a DTI of 43 percent or less, while GSE loans (and all other government guaranteed loans) are exempt from the DTI limit.[78] In our dataset, almost 30 percent of the 2016 GSE loans at the applicable high-cost loan limit had a DTI above 43 percent, while only about 1 percent of the portfolio loans at or above the limit had DTIs in that range. Hence, in most situations, borrowers seeking a non-QM loan from a portfolio lender would have found slim pickings.

Although this example illustrates that some lower-leverage (LTV $\leq$ 85 percent) borrowers would have trouble replicating their high-balance GSE loans at portfolio lenders, most would have little difficulty doing so. There are two main reasons for this conclusion: First, as shown by the left panel of Chart 2 above, portfolio lenders in high-cost areas are already very active in the jumbo market for lower-leverage loans. There is every reason to believe they would add to their holdings of otherwise identical loans on the other side of the current high-cost area limits if the GSEs were removed from the scene. Second, most GSE borrowers with high-balance loans fall within portfolio lenders' risk profile. Chart 3 shows the overlap between GSE and portfolio borrowers with regard to credit scores and DTIs. Although portfolio lenders have a slightly higher mean credit score for high-cost area loans than do the GSEs (773 versus 756), only the relatively few GSE loans with scores below 680 would not fit into the current underwriting for portfolio lenders. The chart also shows that portfolio lenders have a strong appetite for loans with elevated DTIs as long the DTI does not breach the 43 percent limit. To mitigate the impact of the limit, we would suggest that portfolio loans be allowed to retain the QM designation despite a DTI above 43 percent when the loans are underwritten in conjunction with the residual income method.[79]

When this added demand is absorbed by portfolio lenders, it is unlikely that all of these lower-leverage borrowers would receive the preferential portfolio rate. However, the current GSE-portfolio rate differential of roughly ¼ percentage point offers ample room for portfolio lenders to raise rates while still remaining within the range of rates that the GSEs are charging today. Eventual competition from the PMBS market will act to keep rates from rising substantially further. Finally, if eliminating high-balance GSE loans encourages borrowers to shop around more intensely for lenders and rates, then rates might actually be lower for some borrowers than they are today.

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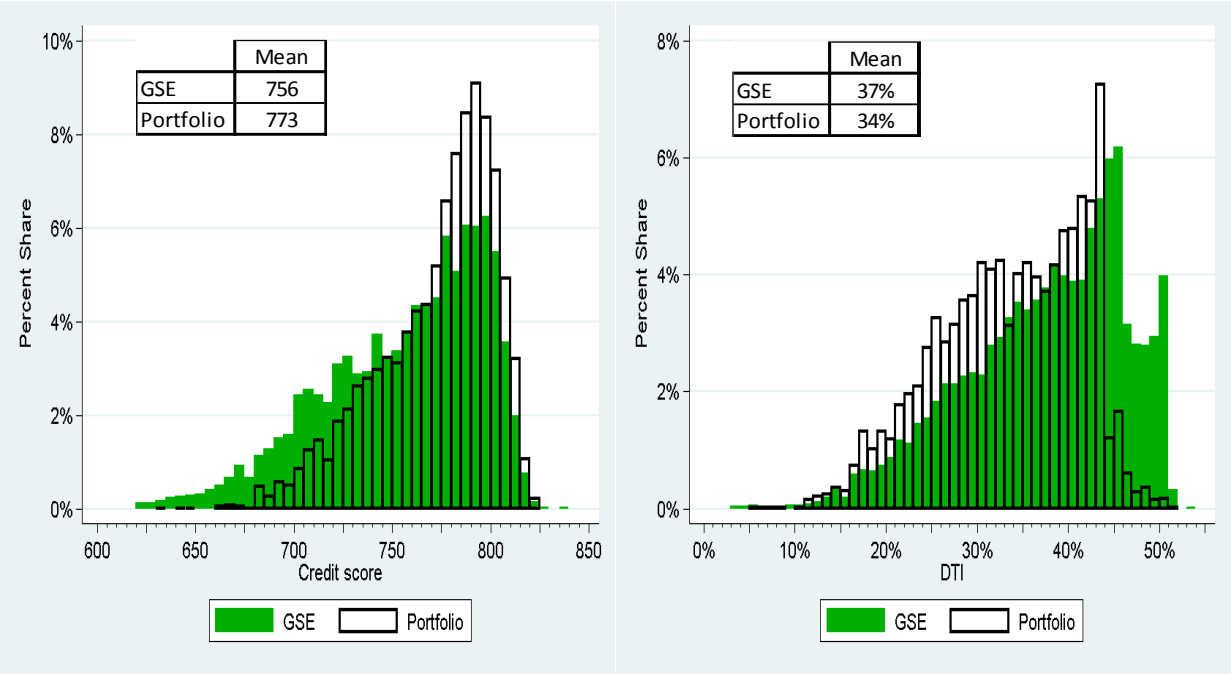
[78] Private-sector loans at or below the conforming loan limit, unlike jumbo loans, can receive the QM designation even with DTIs above 43 percent. As long as a loan is approved for purchase by one of the GSEs' underwriting systems, the loan can have a DTI above 43 percent regardless of whether it is actually sold to the GSEs.

[79] The residual income test has been used by the VA for many decades. Residual income is the amount of net income remaining (after deduction of debt and other obligatory monthly payments and monthly shelter expenses) to cover family living expenses such as food, health care, clothing, and gasoline. This residual amount is then evaluated using VA formulas to determine whether the borrower has sufficient residual income to live on.

Chart 3: Credit scores and DTIs for loans above $417,000 in high-cost areas with LTVs ≤ 85 percent in 2016, by investor type



Higher-leverage borrowers (LTV > 85 percent)

Similar to lower-leverage borrowers, there is bunching at the high-cost area loan limit for higher-leverage GSE borrowers. However, as shown in the right panel of Chart 2 above, this bunching is accompanied by a large drop-off in lending above the loan limit. This pattern suggests that many higher-leverage borrowers bunch at the applicable high-cost area limit because the portfolio market for such loans on attractive terms is thin.[80]

After eliminating high-cost areas, private lenders would likely absorb some loans at LTVs greater than 85 percent, as we noted in the introduction, but other borrowers would have to choose among other alternatives. They could (i) buy a less expensive house so that their intended downpayment reduces the LTV to 85 percent, (ii) increase their downpayment to achieve the same result, (iii) do a combination of the two, or (iv) obtain a loan insured by the VA (subject to meeting the underwriting qualifications).[81] HMDA data indicate that these adjustments would fall mainly on high-income households, as noted in the introduction.

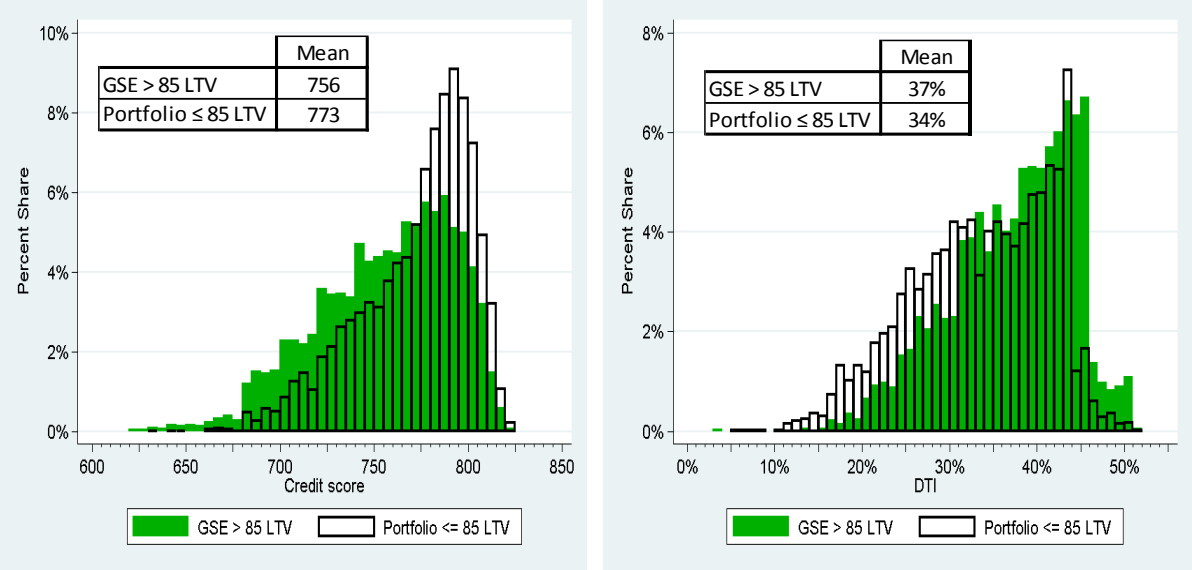
[80] A similar cliff in volume occurs among GSE loans at the general loan limit of $417,000, which indicates that pricing matters for the choice of loan amount. Fannie and Freddie's Loan Level Pricing Adjustments (LLPAs) stipulate a 25bps add-on for high-cost area loans.

[81] To reduce the LTV from 90 percent to 85 percent, a borrower at the maximum high-cost area loan limit of $625,500 in 2016 would need to increase the downpayment from 10 percent to 15 percent, an increase of roughly $35,000. The same decline in the LTV also could be achieved by reducing the price of the purchased home from about $735,000 to about $491,000, with no change in the downpayment. A combination of both actions likely would be a more attractive option than either one alone. A borrower could reduce the LTV from 90 to 85 percent by adding $20,000 to the downpayment and reducing the price of the purchased home to about $624,000.

High-balance GSE borrowers that reduce their LTVs to 85 percent generally would fall within the portfolio lenders' underwriting standards. Chart 4 below compares the 2016 credit score and DTI distributions in high-cost areas for high-balance GSE loans with LTVs greater than 85 percent to the analogous distributions for high-balance and jumbo portfolio loans with LTVs of 85 percent or less. Even though the GSE loans have a higher average credit score and a lower average DTI, the distributions overlap quite a bit. With the exception of the few borrowers with credit scores below 680, credit scores would not prevent these loans from being made by portfolio lenders. In addition, the share of GSE loans with DTIs above 43 percent is considerably smaller for these higher-leverage loans than it was for the lower-leverage GSE loans (compare the right panels of Charts 3 and 4). Thus, the number of high-balance GSE loans that would be difficult to obtain in the portfolio market with an LTV of 85 percent or less is relatively small.

Reducing LTVs to 85 percent or below would have benefits for individual borrowers and the housing market as a whole. For individual borrowers, it would greatly reduce the need for private mortgage insurance,[82] thus lowering monthly payments. With smaller loans, these borrowers' DTIs would be lower, which would leave them less likely to experience payment difficulties should their income decline. And with lower LTVs and DTIs, the housing market as a whole would be safer because the risk of default would be reduced.

Chart 4: Credit scores and DTIs for high-cost area GSE loans above $417,000 with LTVs > 85 percent and high-cost area portfolio loans above $417,000 with LTVs ≤ 85 percent in 2016



6. Market effects of subsequent stages of the proposal

After eliminating the high-cost area limits, the proposal would continue to reduce the GSEs' footprint over a period of several years by making other types of loans ineligible for GSE purchase and by reducing the general conforming loan limit. We briefly describe the implications of our study for these additional elements of the proposal.

[82] Private mortgage insurance is not required for loans with LTVs of 80 percent or less, and only 2 percent of high- cost area portfolio loans with LTVs of 81 to 85 percent had private mortgage insurance in 2016.

January 1, 2019: Eliminate GSE eligibility for second-home and investor loans.

Similar to primary home purchase loans, we find that portfolio loan rates were below GSE loan rates in 2016 for second-home or investor loans (a gap of 36 bps).[83] Since portfolio lenders are already very active in the second home/investor loan market – they account for about 40 percent of the number of loans in this market based on 2015 HMDA data – we expect portfolio lenders would absorb most of the volume ceded by the GSEs. Given that they are currently underpricing the GSEs for these loans, we would anticipate rates for such borrowers to remain close to what the GSEs would have charged, or perhaps to be lower than GSE rates would have been.

January 1, 2020: Eliminate GSE eligibility for cash-out refinances.

Cash-out refinances are not examined in this study. Such borrowers potentially could face higher rates than if the GSE had continued to operate in this market. However, any increase in rates would be limited by the ability of these borrowers to do a GSE-eligible rate-and-term refinance combined with a home equity loan or line of credit.

Annually on January 1, 2021, 2022, and 2023: reduce the GSE general conforming loan limit by 20 percent per year

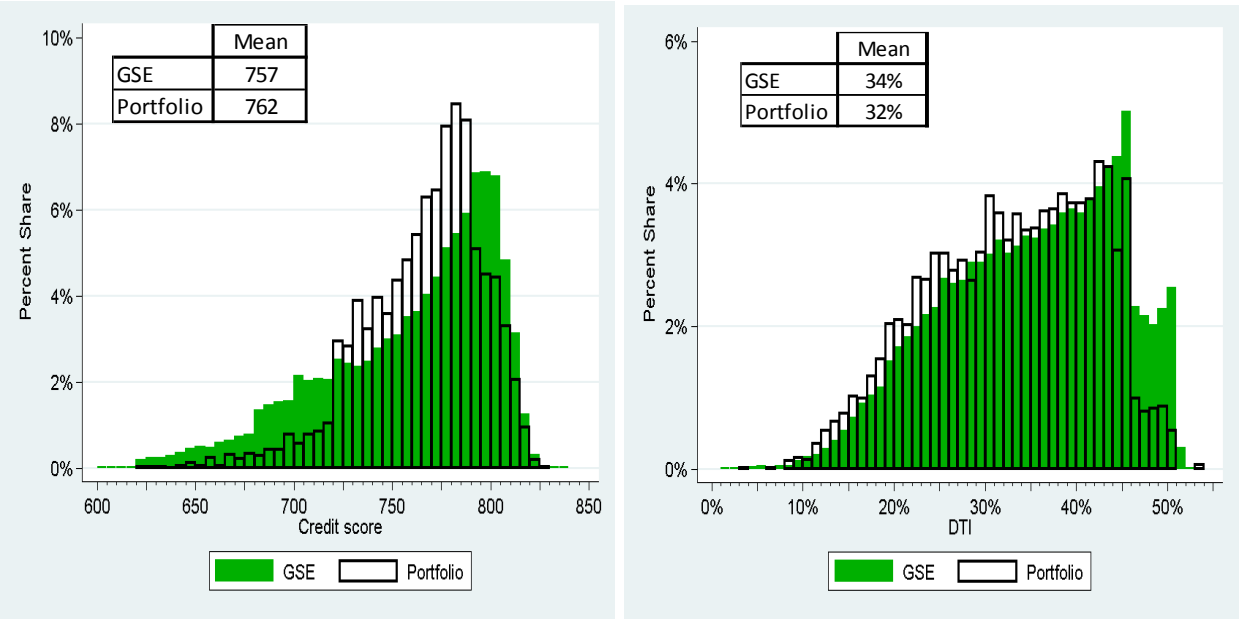
This series of changes would reduce the general limit by a bit less than 50 percent over three years. If these phased-in reductions were applied to the 2016 general conforming loan limit of $417,000, the limit at the end of 2023 would be $213,504.

To assess the potential effects of this part of the proposal, Chart 5 below compares the 2016 credit score and DTI distributions for GSE and portfolio loans that lie between $213,504 and $417,000 (the loans that would be affected by the proposed reduction in the general loan limit). The chart focuses on loans with LTVs at or below 85 percent because the portfolio loan market for higher LTV loans is thin, and we assume that the additional volume undertaken by portfolio lenders mainly would have LTVs at or below 85 percent. Similar to loans above $417,000 in high-cost areas (shown in Chart 3), there is a lot of overlap between the distributions for portfolio and GSE loans, indicating that most current GSE borrowers fit within the portfolio lenders' underwriting guidelines for credit scores and DTIs. That said, the share of portfolio loans with credit scores below 720 is lower than for the GSEs; the same is true for loans with the highest DTIs. Although loans with these characteristics are available in the portfolio market, and an expanded PMBS market could be an additional source of loan supply, the pricing for loans from these private sources could be less attractive than what the GSEs would have provided.

Between now and 2021, portfolio lenders could become substantially more willing to hold higher LTV loans. But, if not, most of the current GSE borrowers with such loans would need to reduce their LTV to 85 percent to find a plentiful supply of portfolio loans. In 2016, almost half of the GSE purchase loans with loan amounts between $213,504 and $417,000 had LTVs above 85 percent.[84] These borrowers would face some choices. They could make the adjustments needed to bring down their LTV, they could opt for a smaller GSE loan, or they could, if eligible, take out a VA loan.

[83] We obtain this spread by estimating equation 1 with all second home and investor loans in our dataset.
[84] This share is calculated from AEI's NMRI data.

Chart 5: Credit scores and DTIs for loans between $213,054 and $417,000 with LTVs ≤ 85 percent in 2016, by investor type



Reductions in the general conforming loan limit, as the final step to reduce the GSEs' footprint, cannot be expected to be absorbed in full by portfolio lenders. Instead, successful implementation hinges on the revival of the PMBS market. As noted above, our discussions with informed market observers indicate that PMBS volume has remained low in large part because the GSEs and portfolio lenders are absorbing the vast majority of low-risk loans, leaving little product for private securitization. If the GSEs' role in the mortgage market were reduced, the larger potential scale for the PMBS market would give securitizers and investors a strong incentive to return to this market.

Although the PMBS market remains a shadow of its former self, it has shown fledgling signs of revival since 2012. We expect the market would expand significantly in 2018, 2019, and 2020 as the initial phases of the proposal are implemented, resulting in a sizable PMBS market before the reductions in the general conforming loan limit kick in. As for the future pricing of PMBS loans, our results show that, despite the limited liquidity in the market, jumbo PMBS loans today are priced at only slightly higher rates than GSE loans, which provides a favorable starting point.[85] Timely monitoring of PMBS market volume and loan terms would allow policymakers to assess the development of this market before 2021.

7. Conclusion

The standard assumption is that the GSEs offer a pricing advantage over the private mortgage market. While this was true in the past when the GSEs were severely underpricing their guarantee fees, it no longer

[85] As shown in Table 1 above, the reasonably similar pricing today contrasts with the sizable estimated rate advantage for GSE loans vis a vis PMBS loans during 2001-2006 when the PMBS market was booming. Although we have attempted to control for differences in loan-level risk characteristics, the controls could be incomplete. An example of this issue is the largely missing information on loan channel for older PMBS loans. Given incomplete controls for risk, the positive PMBS-GSE spread for those years could reflect greater risk for the PMBS loans rather than an apples-to-apples pricing comparison. This issue has been essentially moot in recent years with the high overall quality of both PMBS and GSE loans, and probably would remain so given the likelihood that investors would return to the PMBS market in large numbers only if strict risk controls were in place.

holds in today's market, as portfolio lenders are undercutting GSE rates by about ¼ percentage point. Based on these findings, we anticipate that the elimination of the high-cost area loan limits would have no material effect on mortgage rates or access for a substantial majority of affected borrowers. That said, borrowers currently taking out mortgages with higher LTVs likely would find that portfolio lenders would have limited interest, at least initially, in markedly increasing their holdings of such high-cost area loans. These borrowers, who have high incomes on average, likely would need to reduce the leverage they use to buy homes. Despite the resulting short-term adjustments, the reduced leverage would enhance the stability of the housing market over the long run.

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Appendix 3

Private Mortgage Insurance Industry and Private Mortgage Insurance Eligibility Requirements

This appendix provides background about the Private Mortgage Insurance industry, the current Private Mortgage Insurance Eligibility Requirements (PMIERs) and our suggested enhancements to PMIERs.

First, how did Private Mortgage Insurance perform as a counter-party?

The widespread rescission of coverage by mortgage insurers in the financial crisis period and the wind down of three companies were responsible for a great deal of anger in the financial community. The PMI industry continues to claim that the rescissions were justified due to underlying fraud and notes that the claims of the wound down companies have almost entirely been or are being paid. Nevertheless, since the financial crisis there have been major reforms in how the PMI industry operates. These changes, as described below, strengthen the financial capabilities of the private mortgage insurance industry as a counter-party, make the claim payment process more transparent, and reduce substantially the likelihood of rescissions of coverage.

We believe the changes the PMI industry and the FHFA have initiated should address the concerns of many members of the financial industry who thought that they were badly treated. First, with the implementation of Private Mortgage Insurance Eligibility Requirements (PMIERs), mortgage insurers are now required to have assets backing their insurance coverage that are commensurate with the risks of the mortgages they have insured. Under this system, to which the PMI industry has agreed, the required assets (which, for this purpose, might be thought of as capital) increase as mortgage risk increases.

The core of the PMIERs is a loan-by-loan assessment of risk, taking into account a set of relevant risk factors, including LTV, credit score, loan purpose, total debt-to-income (DTI) ratio, loan term, tenure, and documentation. This loan-by-loan assessment forces insurers to hold additional assets if and when underwriting standards deteriorate, replacing what has historically been a static asset standard with a dynamic one that assures the risks of individual mortgages are taken into account in setting insurance rates. Under this system, PMIs are induced by the asset requirements to charge more for risky mortgages and these additional loan-level charges make risky mortgages more expensive, thus lowering the quantity (all else constant) and compensating insurers for accepting higher risk. In this way, PMIERs substantially avoids adverse selection and reduces the industry's counter-party risk and helps to maintains mortgage quality.

This approach was validated by the Federal Reserve which noted the substantial benefits of accurate credit pricing which "can help ameliorate the problem of 'adverse selection' that arises when lenders offer a single interest rate to potential borrowers with varying credit risks. It can also ameliorate the problem of cross-subsidization of borrowers that arises when lenders use an inaccurate risk-based pricing system. If credit scoring permits the introduction of a more accurate risk-based pricing system, so more borrowers will be charged prices that more closely reflect the credit risks they pose, the result is a system that is more fair and efficient."[86]

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[86] Board of Governors of the Federal Reserve System, 2007, *Report to the Congress on Credit Scoring and Its Effects on the Availability and Affordability of Credit*, "When the interest rate charged by a lender is appropriate for the average credit risk of a pool of prospective borrowers but is either too low or too high for some of the individual borrowers, the pool can suffer adverse selection, that is, a rise in the relative number of high-risk borrowers. High-risk borrowers—those for whom the correct *individual* interest rate would be higher than the *average* interest rate—will perceive the single-rate offer as a good deal and accept the terms, perhaps borrowing more than they would if charged a rate more consistent with their risk profile. In contrast, lower-risk borrowers—those for

Next, as to where the >80 percent LTV provision came from, it likely dates back to a time when the 80 percent LTV loan was the highest LTV commonly offered by private lenders (at the time thrifts and S&Ls), but its use in the GSE charters appears to be completely arbitrary. There is no data to support the idea that 80 percent LTV loans are materially better than 75 percent loans or worse than 85 percent loans in terms of credit risk.

For that reason, we suggest going to a point that does have support in the data--an expansion in the loss absorbing capacity under PMIERs to a CLTV >=65 percent, with coverage down to 60 percent. Despite their other qualities (such as FICO score and DTI), almost all mortgages with LTVs below 60 percent have such low levels of default that insurance is not necessary, but those with LTVs above 60 percent require some form of credit enhancement to be attractive to investors. Fitch research, and Fannie and Freddie loan level pricing adjustors (LLPAs) all recognize this principle.

Fitch Ratings, for example, requires that each loan in a PMBS pool have sufficient loss protection to experience a severe stress event such as a 35 percent price decline, thus focusing on the risks associated with loans with an LTV above about 60 percent (assuming a maximum LTV of 95 percent).[87]

Below is a Fannie Mae table showing the loan-level pricing adjustment (LLPA) fees that Fannie has been adding to the mortgages it acquires since 2008.These fees are in addition to its base guarantee fee and are intended to cover loan specific risks beyond the required PMI coverage. The GSEs use of LLPAs is a form of loan level mortgage insurance, where the GSEs are acting as self-insurers. While their charters do not require mortgage insurance at LTVs from 61 percent to 80 percent, LLPAs are tacit recognition of the loan level mortgage insurance on loans within this range; in this case the GSEs are self-insuring this risk. The table shows fees applied in varying amounts to virtually all loans with LTVs greater than 60 percent, but not to loans with LTVs below that level. The table also shows that as FICO scores rise, loan-level fees decline for loans with equivalent LTVs.

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whom the correct interest rate would be lower than the average interest rate—may be able to find credit on better terms from another lender and decline the terms offered. If credit at lower interest rates is not available to these lower-risk individuals, they may choose not to borrow or to borrow less than they would otherwise.

Credit rationing—not extending loans to individuals judged to pose higher credit risk—is a response to the result of adverse selection, which is an actual pool of loans with an average credit risk higher than appropriate for the interest rate charged. An alternative to credit rationing—raising the interest rate to reflect the average risk of the actual borrowers—is unlikely to help; indeed, it may worsen adverse selection, thereby further increasing the average level of risk of the remaining borrowers."

[87] Assume a $100,000 home purchase price with a 95 percent LTV loan, and PMI coverage of 37 percent (sufficient to cover down to 60 percent LTV). A 35 percent price drop (the drop under severe stress) would result in a home value of $65,000. This establishes the requirement for coverage of loans with LTVs above 60 percent (effectively becomes 65 percent since it is not cost effective for a borrower to pay for PMI to get a couple of percent increase in LTV). PMI on a 95 percent LTV loan would require 37 percent coverage to insure down to an LTV of 60 percent.

Table 1: All Eligible Mortgages – LLPA by Credit Score/LTV Ratio									
Representative Credit Score	LTV Range Applicable for all mortgages with terms greater than 15 years								
	≤ 60.00%	60.01 – 70.00%	70.01 – 75.00%	75.01 – 80.00%	80.01 – 85.00%	85.01 – 90.00%	90.01 – 95.00%	95.01 – 97.00%	SFC
≥ 740	0.000%	0.250%	0.250%	0.500%	0.250%	0.250%	0.250%	0.750%	N/A
720 – 739	0.000%	0.250%	0.500%	0.750%	0.500%	0.500%	0.500%	1.000%	N/A
700 – 719	0.000%	0.500%	1.000%	1.250%	1.000%	1.000%	1.000%	1.500%	N/A
680 – 699	0.000%	0.500%	1.250%	1.750%	1.500%	1.250%	1.250%	1.500%	N/A
660 – 679	0.000%	1.000%	2.250%	2.750%	2.750%	2.250%	2.250%	2.250%	N/A
640 – 659	0.500%	1.250%	2.750%	3.000%	3.250%	2.750%	2.750%	2.750%	N/A
620 – 639	0.500%	1.500%	3.000%	3.000%	3.250%	3.250%	3.250%	3.500%	N/A
< 620(1)	0.500%	1.500%	3.000%	3.000%	3.250%	3.250%	3.250%	3.750%	N/A

(1) A minimum required credit score of 620 generally applies to all mortgage loans delivered to Fannie Mae; refer to the *Selling Guide* and the *Eligibility Matrix* for additional detail.

Based on the above, our proposal suggests consolidating the two loan level mortgage insurance components into a single PMIERs structure. Our changes include:

(i) an expansion of the loss absorbing capacity by requiring all loans with a CLTV >=65 percent, with coverage down to 60 percent,[88]

(ii) the addition of a number of adjustment factors designed to better address the risks associated with total debt-to-income (DTI) ratios in excess of QM's 43 percent Ability to Repay (ATR) limitation

(iii) addition of counter-cyclical components to better address credit risks, and

(iv) an expansion beyond private mortgage insurance to include all GSE credit risk transfers (CRTs) and private credit enhancement methods used by non-portfolio investors such as PMBS. We suggest that PMIERs be renamed: Private Credit Risk Transfer Eligibility Requirements (PCRTERs). The dynamic provisions of PCRTERs have the potential for replacing much, if not all, of QM.

Our expanded PCRTERs, as further outlined in Appendix 2A, creates a level playing field where all third-party credit risk transfer entities play by the same rules in terms of risk absorbing capacity and its calculation. This will allow entities to compete based on marketing and operational efficiencies, the cost of capital, counter-party-risk, and market acceptance. The dynamic risk based asset determination under PCRTERs might replace the static risk retention provisions of the QRM risk retention regime.

The GSEs currently have a statutory tilt toward PMI. Our PCRTERs structure would establish the above mentioned level playing field in which will all types of credit risk transfers may compete for the business of private residential mortgage investors.

For example, private securitizations could continue to use other forms of credit enhancement already noted in our proposal to achieve an AAA rating for the MBS. However, the level of credit enhancement (its risk-absorbing capacity) would be determined by PCRTERs. In a traditional private securitization, the AAA-rated securities are credit enhanced largely by having a series of lower rated tranches in a securitized pool (say, BBB-rated). These lower rated tranches are subordinated to the higher rated (say, AAA-rated) tranches, which get paid first from cash flow. The size or thickness of the subordinated tranches provides the assurance that

[88] Risk absorbing capacity is the ability of a third-party credit risk transfer mechanism to absorb credit risk. It has two components: (i) the assets (or capital) available to pay for losses and (ii) any ongoing (future) stream of premiums available to pay for losses (usually valued with a haircut to allow for the third-party's administrative expenses and to account for counter-party risk).

investors in AAA-rated securities need; the riskier the pool, the larger the subordinated tranches have to be. As we have noted there are many ways to provide this risk absorbing capacity.

Appendix 3A

Expanded Private Credit Risk Transfer Eligibility Requirements (PCRTERs) to Replace Current Private Mortgage Insurance Eligibility Requirements (PMIERs)

As part of our proposal for gradually winding down Fannie Mae and Freddie Mac, we suggest expanding the current Private Mortgage Insurance Eligibility Requirements (PMIERs) to cover both Private Mortgage Insurers and PMBS issuers.

This expanded set of requirements, called Private Credit Risk Transfer Eligibility Requirements (PCRTERs) would be applicable to Fannie and Freddie single-family acquisitions, single-family PMBS, and any private loan when an originator/investor chooses to utilize Private Mortgage Insurance (PMI).

More specifically under PCRTERs we propose applying loan level asset requirements to include all first mortgage loans with CLTV>=65 percent and require coverage level down to a 60 percent CLTV.

Currently PMIERs requires PMIs to meet asset requirements determined based on loan characteristics. In general they apply to PMI-insured loans >80 percent LTV:

- Example 1: >760 credit score and 81-85 percent original LTV – asset level of 1.58 percent times risk-in-force[89]
- Example 2: <620 credit score and>95 percent original LTV – 29..07 percent times risk-in-force

Additionally PMIERs applies a number of asset requirement multipliers based on risk features, most of which are higher and a few of which are lower:

- Not full documentation: (3.00x)
- Investment property at origination: (1.75x)
- Total DTI ratio >50 percent: (1.75x)
- Mortgage payment not fully amortizing: (2.00x)
- Cash out refinance: (1.50x)
- Original mortgage tern <=20 years: (0.50x)
- Lender-paid MI with original LTV >90 percent: (1.10x)
- Lender-paid MI with original LTV <=90 percent: (1.35x)
- Loan seasoning:
    - 1-24 months: (1.00x)
    - 25-36 months: (0.88x)
    - 37-48 months: (0.81x)
    - 49-60 months: (0.78x)
    - More than 60 months: (0.73x)

Our PCRTERs proposal contemplates a number of changes to better address pro-cyclical tendencies.

[89] PMI coverage has a percentage coverage limit. The product of the loan balance (insurance in force) x the percentage coverage limit = risk in force.

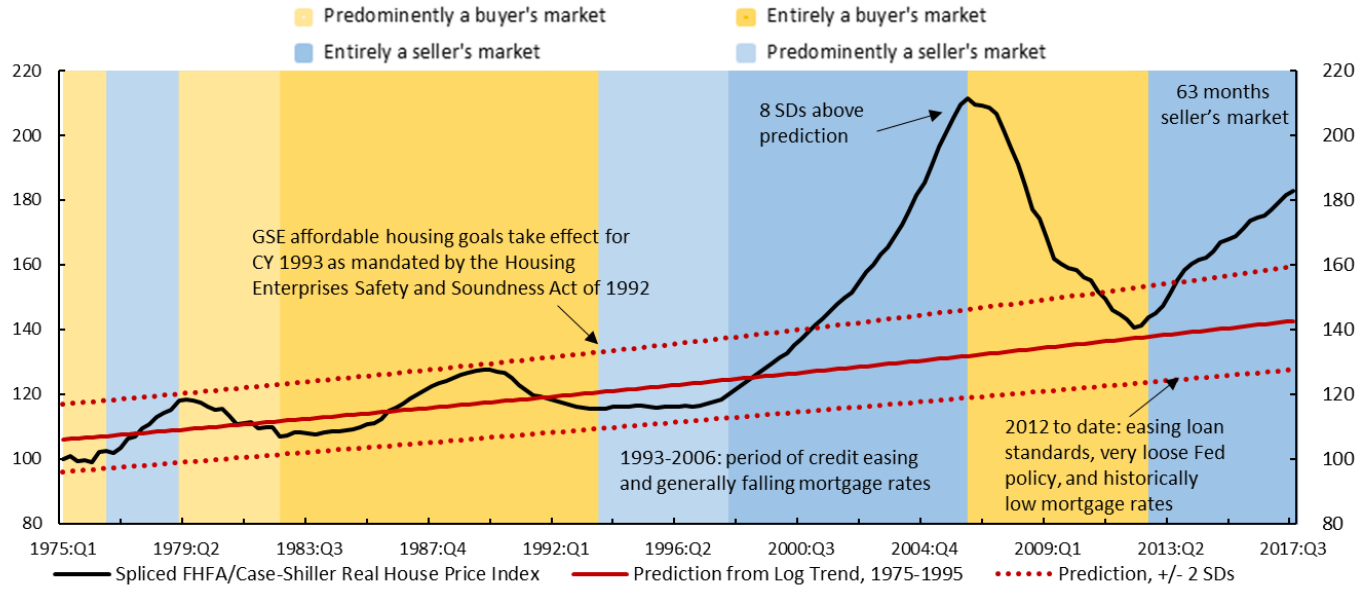
First, we suggest adding an additional factor relating to the total debt-to-income ratio (TDTI) calculation. This factor would be 1.30x for TDTI ratios >43 percent, but <51 percent. This additional factor addresses the gap between TDTIs of 43 percent (the QM limit) and TDTIs <51 percent (existing factor covers >=51 percent). This is appropriate as current Qualified Mortgage regulations routinely result in federal guarantee agencies exceeding 43 percent QM limit.

By combining this change with the optional use of the residual income test, this would address current pro-cyclical income leverage polices. In recognition of a substantial performance lift, apply 0.80x multiplier when residual income is used to qualify a borrower. This compensating factor will largely offset the application of the multiplier of 1.30x for a TDTI ratio >43 percent, but <51 percent noted above. Additionally, this could take the place of the GSE 43 percent DTI patch adopted by the CFPB.

Second, address market risk trends by tracking real home prices relative to long-term trends. This approach provides added explanatory power over and above the loan-level risk factors in the current PMIERs loan level asset tables.

Historically, there is a strong relationship between the level of supply and price movements. Increasing leverage combined with a constrained supply of homes (denominated a seller's market), is once again fueling a home price boom. Since the early 2012 trough, real home prices increased 28 percent. Contrary to prevailing view, post-crisis underwriting/regulatory changes promote rather than constrain a boom. This is largely due to excessive market share and high risk lending under the FHA program, largely unconstrained government agency debt-to-income ratios (income leverage) under the CFPB's QM rule, and the Fed's accommodative monetary policies. The current pattern is similar to initial years of the full-blown seller's market that began in 1998. If trend continues, the risk of serious house price correction over the next 2-6 years will become even larger, as historically price booms are followed by mean reversion (see next chart).

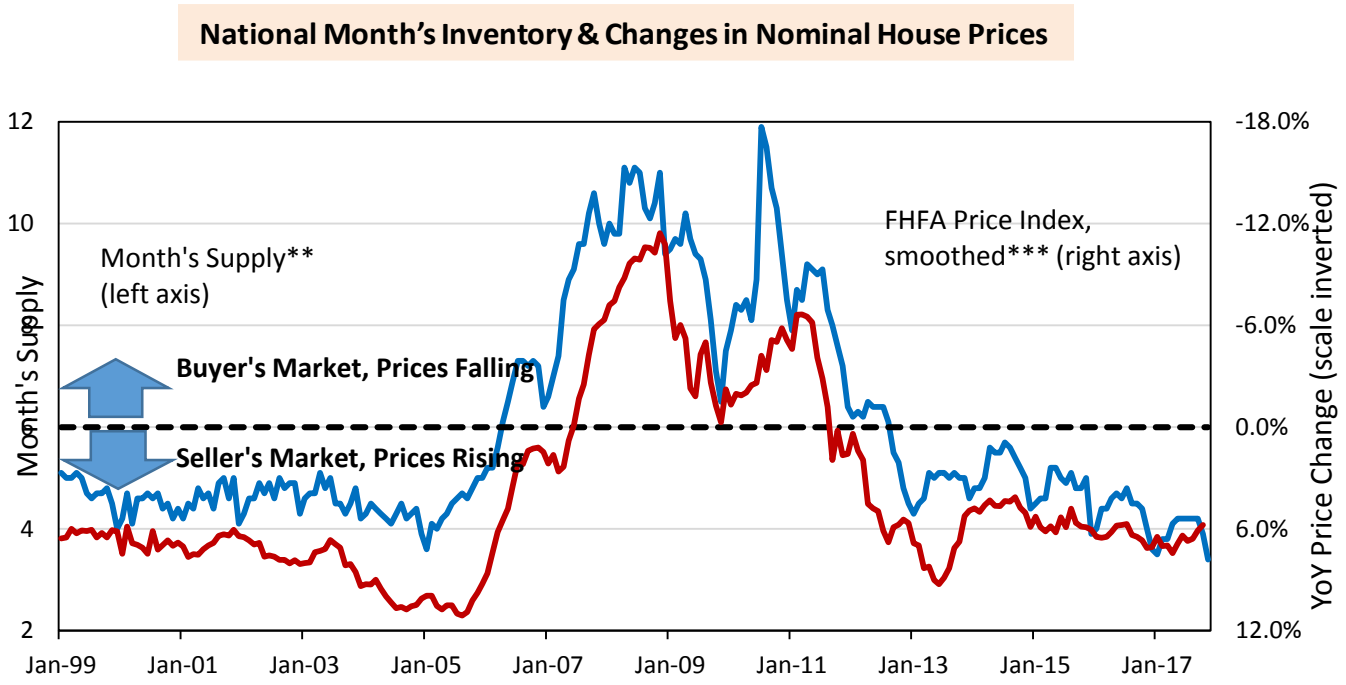
Spliced Quarterly Real House Price Index (1975:Q1 = 100) , through 2017:Q3*



* Calculated as FHFA's all-transaction house price index until 1987, then Case-Shiller U.S. National Home Price Index divided by BEA's price index for personal consumption expenditures.
Source: AEI Center on Housing Markets and Finance, www.HousingRisk.org, Prof. Malpezzi, S&P CoreLogic Case-Shiller Home Price Index, FHFA, BEA, Census Bureau, and the NAR.

Note: National Association of Realtors (NAR) defines a seller's market as inventory that is less than or equal to 6 months of sales. NAR data pertain to existing homes; not available before June 1982. Data from the Census Bureau for new home inventories used before June 1982.

This next chart demonstrates the strong relationship between the level of supply and price movements.



* The NAR defines a seller's market to exist when the inventory of existing homes for sale would be exhausted in six months or less at the current sales pace. Conversely, a buyer's market exists when the inventory of existing homes for sale exceeds six months at the current sales pace. (http://www.realtor.org/news-releases/2013/04/march-existing-home-sales-slip-due-to-limited-inventory-prices-maintain-uptrend).
** FHFA Monthly Purchase-Only Seasonally Adjusted house price index. The series is a 6 month trailing average.
Source: National Association of Realtors, FHFA

We suggest using the counter-cyclical methodology being developed by the National Association of Insurance Commissioners (NAIC) as an enhancement. The NAIC proposal assesses risk for the 9 U.S. Census divisions by measuring divisional home price trends based on current deviation from long term trend and uses the same risk multiplier approach as PMIERs:

- A rated division has <=10 percent current deviation: 0.50x factor
- B rated division has 11 percent-17 percent current deviation: 0.75x factor
- C rated division has 25 percent-34 percent current deviation: 1.00x factor
- D rated division has >34 percent current deviation: 1.50 x factor

Lastly, we suggest addressing underwriting risk by tracking changes in underwriting relative to long-term trends. This is important because increasing leverage is most risky when occurring in a seller's market. The suggested approach provides added explanatory power over and above the loan-level risk factors in the PMIERs loan level asset tables. Historically, there is a strong relationship between the growing levels of overall underwriting risk and default rates. For example, loosening underwriting accompanied by share shifts from generally lower risk purchase loans to generally higher risk cash out refinances can cause the share of low risk loans to decline substantially. The suggested counter-cyclical methodology is similar to approaches developed by independently by the NAIC Commissioners and the AEI Center on Housing Risk.

We start with a level of underwriting standards conducive to long-run market stability, namely standards that result in the preponderance of agency and private originated loans being low risk. Based on research by the AEI Center on Housing Risk this standard is met when low-risk loans with an average stress default risk of 3 percent comprise 55 percent of loan originations, medium-risk loans with an average stress default risk of 9 percent comprise 22.5 percent of loan originations, and high-risk loans with an average stress default risk of 18 percent comprise 22.5 percent of loan originations. This represents a composite national mortgage risk index of 8 percent.

Starting with the above "conducive to long-run market stability" standard, an underwriting risk multiplier that tracks changes in underwriting relative to this standard may be applied under PCRTERs:

- A—Conducive to long-run market stability: Combined Agency and Private National Mortgage Risk Score- 1.0x factor when score <= 8.0 percent (55 percent (preponderance) of loans low risk)
- B—Moderately unfavorable to long run market stability: Combined Agency and Private National Mortgage Risk Score: 1.2x factor when score >8.0 percent, but <=11.0 percent
- C—Strongly unfavorable to long run market stability: Combined Agency and Private National Mortgage Risk Score: 1.75x factor when score >11.0 percent, but <=14.0 percent
- D—Grossly unfavorable to long run market stability: Combined Agency and Private National Mortgage Risk Score: 2.0x factor when score >14.0 percent, but <=16.0 percent
- E—Dangerous to long run market stability: Combined Agency and Private National Mortgage Risk Score: 2.2x factor when score >16 percent

The current index for calendar year 2016 new originations stands at 10.4 percent, resulting in a B rating with a risk multiplier 1.2x. Based on current 2017 risk trends, it is likely calendar year 2017 new originations risk score may be expected to approach or exceed a risk score of 11.0 percent, an underwriting risk level of "C"—Strongly unfavorable to long run stability.

Appendix 4

Natural Experiments on Impact of Credit Easing on Affordability and Credit Availability

For decades a broad range of lobby groups in the mortgage industry (Housing Lobby) has argued that homebuyers, particularly low-income, need support from the government, especially when inventory is limited and house prices are rising. This notion is refuted by market events we call "natural experiments" as they have occurred over time.[90]

Government housing policy, as shaped by the Housing Lobby, is a classic case of rent-seeking.[91] Government housing support, by driving up prices, benefits members of lobby, rather than the intended beneficiaries—low-income home buyers.

Supporters of a major government role in the housing finance system often claim that changing this or that policy is risky and will dash the American dream of homeownership.

As early as 1951, housing economist Ernest Fisher, first chief economist for the FHA, conducted natural experiments, demonstrating that the liberalization of loan terms in a seller's market (defined as six months or less of unsold homes) easily becomes capitalized in higher home prices.[92] The primary forms of credit easing since the 1950s have been lower down payments, longer loan terms, and higher debt-to-income ratios. During this 70 year period, seller's markets have predominated over buyer's markets, with the result that Fisher predicted—home prices rising faster than incomes, especially for low-income borrowers.

This result should come as no surprise. Economics 101 teaches that adding more demand when supply is constrained will result in higher prices. The data confirm this. The chart below shows the relationship between prices and the level of inventory in the market. During a seller's market, prices tend to rise while they tend to fall during a buyer's market (see next chart).

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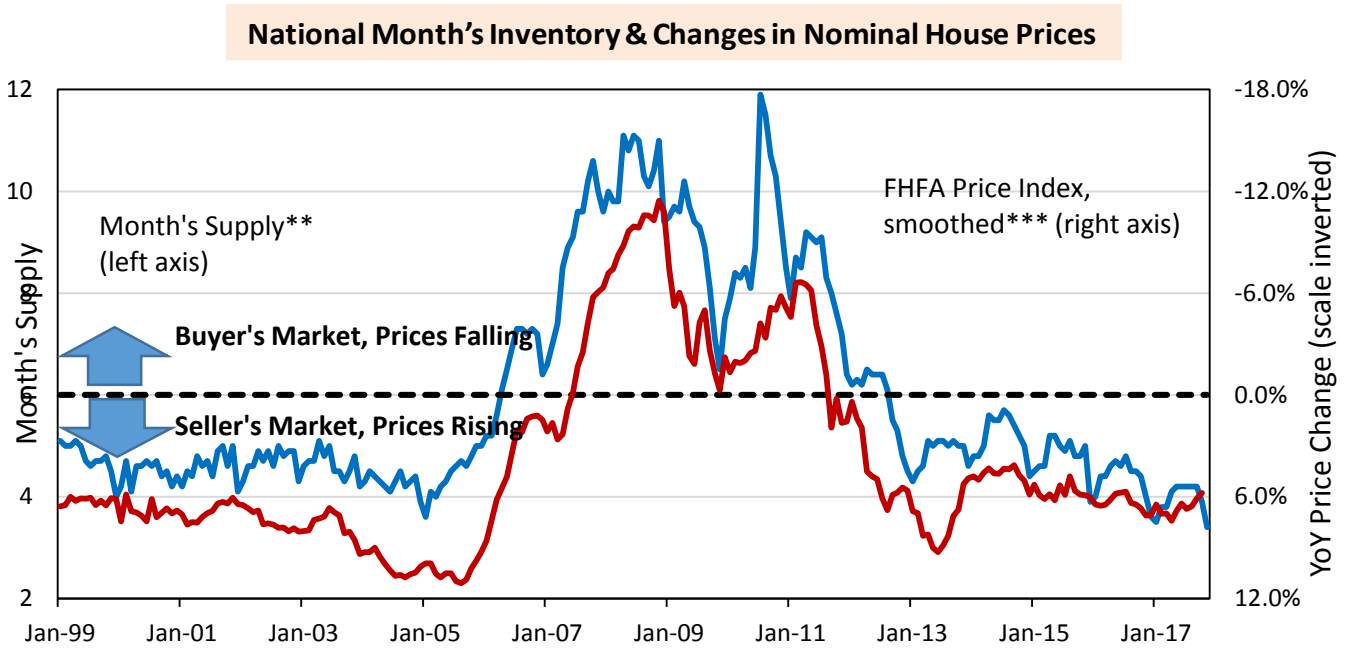
[90] A natural experiment is an empirical study in which individuals (or clusters of individuals) exposed to the experimental and control conditions are determined by nature or by other factors outside the control of the investigators, but the process governing the exposures arguably resembles random assignment. Wikipedia

[91] In economics and in public-choice theory, rent-seeking involves seeking to increase one's share of existing wealth without creating new wealth. Rent-seeking results in reduced economic efficiency through poor allocation of resources, reduced actual wealth creation, lost government revenue, increased income inequality,[1] and (potentially) national decline. Wikipedia

[92] Fisher, Financing Home Ownership, NBER, 1951, http://papers.nber.org/books/fish51-1

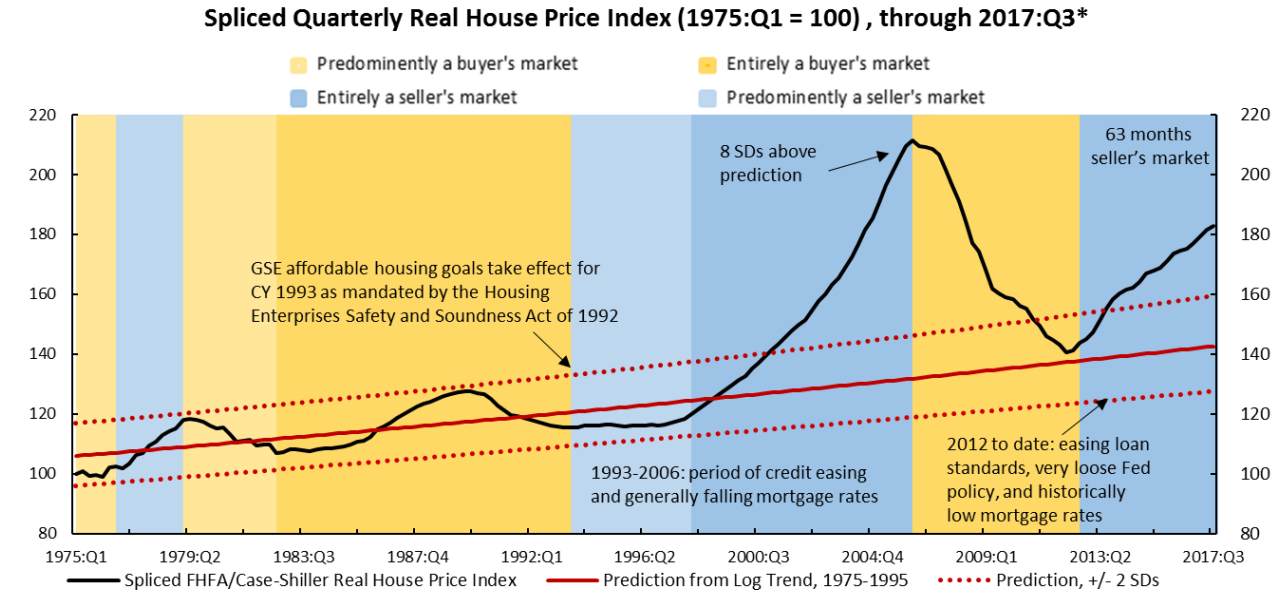


* The NAR defines a seller's market to exist when the inventory of existing homes for sale would be exhausted in six months or less at the current sales pace. Conversely, a buyer's market exists when the inventory of existing homes for sale exceeds six months at the current sales pace. (http://www.realtor.org/news-releases/2013/04/march-existing-home-sales-slip-due-to-limited-inventory-prices-maintain-uptrend).

** FHFA Monthly Purchase-Only Seasonally Adjusted house price index. The series is a 6 month trailing average.

Source: National Association of Realtors, FHFA

For many decades credit liberalization has been commonplace and extended periods of a seller's market have been common. The result has been as Fisher's studies predicted—home prices have risen faster than construction costs or inflation. This has been especially detrimental for low-income and first-time borrowers.



*Calculated as FHFA's all-transaction house price index until 1987, then Case-Shiller U.S. National Home Price Index divided by BEA's price index for personal consumption expenditures.

Note: National Association of Realtors (NAR) defines a seller's market as inventory that is less than or equal to 6 months of sales. NAR data pertain to existing homes; not available before June 1982. Data from the Census Bureau for new home inventories used before June 1982.

Today we are in the 55th month of seller's market, which has been combined with credit liberalization. The result, as seen in the immediately preceding chart, is that home prices are once again rising rapidly in real terms. The impact is particularly severe for first-time buyers.

The following natural experiments provide evidence that credit liberalization (be they mortgage insurance premium cuts, loan limit increases, or looser lending standards) leads to an increase in leverage and higher house prices, resulting in substantial rent-seeking rewards to the Housing Lobby broad range of lobby groups in the mortgage industry.

Natural Experiment 1: Reduction in FHA high cost area loan limits

On January 1, 2014 FHA single-family loan limits dropped in about 630 counties (excluding Guam and Puerto Rico), with the average reduction approximately $58,000 (sharpest decrease was $250,750 in Hawaii County, HI and smallest was $200 in a couple of lower cost counties). For counties deemed high cost areas, the loan ceiling decreased from $725,750 to $625,500. The advent of these changes spurred a broad range of lobby groups in the mortgage industry to voice their concern about the policy change and its impact. Headlines like these appeared: "Bad News for First-Time Homebuyers" and "Published FHA Loans Show Large Declines for 2014". More formally, these seven groups sent a letter to then-HUD Secretary Shaun Donovan on 12/12/2013:

- Asian Real Estate Association of America
- Leading Builders of America
- Mortgage Bankers Association
- National Association of Hispanic Real Estate Professionals
- National Association of Local Housing Finance Agencies
- National Association of Relators
- National Community Development Association
- United States Conference of Mayors

In it, they expressed concern that the American dream of homeownership could become unattainable under the new loan limits and opined about the possibility of it stalling recovery in the national economy.

The facts illustrate a different story. While there was an almost 8 percent drop in total counts of FHA purchase loans from 2013 to 2014 as measured by the National Mortgage Risk Index, HUD economist Kevin Park finds that conventional lending replaced FHA lending on a nearly one-to-one basis across this period.[93] Additionally, the National Mortgage Risk Index found that overall agency first-time buyer loan counts (FHA, Fannie, Freddie, VA, and Rural Housing) increased by 2 percent from 2013 to 2014, while agency repeat-buyer loan counts decreased by 1 percent.

Natural Experiment 2: FHA's premium cut

In January 2015, FHA cut the annual mortgage insurance premium it charges borrowers by 50bps. Its stated purpose was to support the housing recovery by spurring demand. As a natural experiment, we were able to show, using our data, that credit liberalization, when undertaken during a seller's market, drives up prices and does not create as much new demand as might be expected. The actual result was much less new demand than

[93] Kevin Park, Temporary Loan Limits as a Natural Experiment in FHA Insurance, https://www.huduser.gov/portal/sites/default/files/pdf/WhitePaper-FHA-Loan-Limits.pdf

FHA predicted. Plus, there were unintended effects. Constant-quality prices for FHA-financed homes rose by around 3% as the premium cut boosted demand in a seller's market. Thus, half of the intended benefit for first-time buyers ended up in the pockets of home sellers, and closer to 80 percent on a life-of-loan, present value basis. Also, conventional borrowers competing with FHA borrowers in the same markets faced these higher prices and responded by reducing the quality of the homes they purchased. The cut, as it turned out, failed to accomplish its stated objective and had several adverse unintended consequences.[94]

Natural Experiment 3: Effect of high cost area limits of differing magnitudes relative to the standard conforming limit

There is a literature on the interaction of loan limits and house prices—research particularly pertinent to our proposal to reduce agency loan limits. The most pertinent papers come from Adelino et al. and Kung (2014).[95,96] Both find that providing higher conforming loan limits resulted in an increase house prices but disagree on the magnitude of the increase. Particularly pertinent are Kung findings that the effect of higher loan limit was an increase in home prices in San Francisco and Los Angeles, which experienced large raises in conforming loan limits, while there is no effect in Seattle, where the increase in the loan limit was relatively small, and Chicago, where the loan limit did not change. The increases in home prices found in Natural Experiment 2 and this one are clearly not a benefit to home buyers, yet the Housing Lobby benefits from the higher prices/loan amounts through higher real estate commissions, higher origination and servicing fees, and higher guaranty fees.

Natural Experiment 4: Increase in the 2017 Conforming Loan Limit

On January 1, 2017, higher loan limits took effect for GSE, FHA, and VA borrowers. The conforming loan limit increased overnight from $417,000 to $424,100. The loan limit for high-cost areas increased similarly. The data from the National Mortgage Risk Index (NMRI) show the percent of borrowers that borrowed at the loan limit. While there was significant borrowing at $417,000 throughout year 2016, very little borrowing occurred between $417,000 and $424,100. Starting with January 2017, however, the borrowing behavior changed. Relatively few borrowers now borrowed at $417,000, while an offsetting amount of borrowers now borrowed at the new conforming higher loan limit of $424,100. For higher-cost areas, the same phenomenon could be observed. Unlike Kung, here the increase in loan limits (either regular or high cost area) was across the board. While no reason was given by FHFA when it announced the increase, presumably the purpose of the high-cost limits is to promote home buying in these areas. Yet the data do not indicate any increase in demand. Rather they show borrowers using the change as an opportunity to borrow more tax-payer guaranteed mortgage money and the Housing Lobby once again benefiting from the higher balances through higher real estate commissions, higher origination and servicing fees, and higher guaranty fees,

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[94] For details see: Morris Davis, Stephen Oliner, Tobias Peter, and Edward Pinto, Credit Liberalization in a Seller's Market – FHA's 2015 Mortgage Insurance Premium Cut, https://www.housingrisk.org/credit-liberalization-in-a-sellers-market/

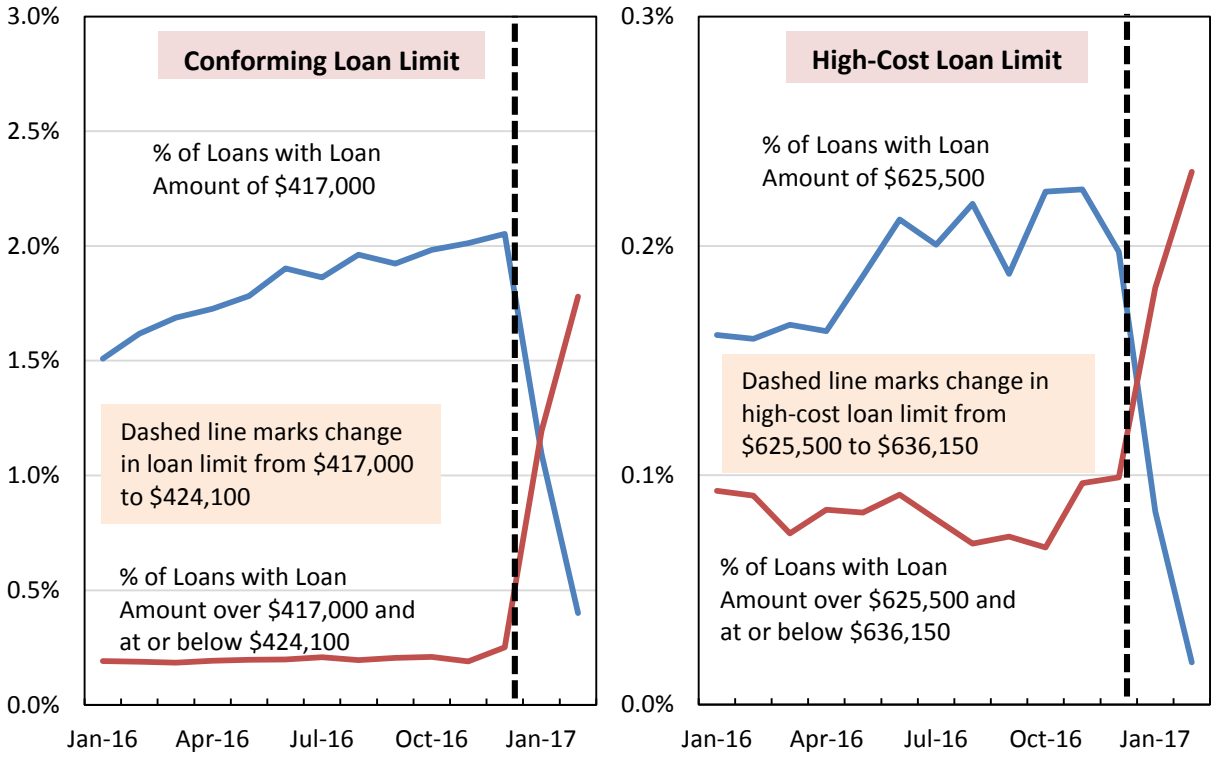
[95] Manuel Adelino, Antoinette Schoar, and Felipe Severino, Credit Supply and House Prices: Evidence from Mortgage Market Segmentation http://www.nber.org/papers/w17832

[96] Edward Kung, The Effect of Credit Availability on House Prices: Evidence from the Economic Stimulus Act of 2008, https://4ce05836-a-62cb3a1a-s-sites.googlegroups.com/site/edwardkung/k_cll_2014nov.pdf?attachauth=ANoY7cr9GI9PyLqmQ_b6w-QAtXAyW_zIEtrFlsST9MNvRhNQM6XoM4KXxrxco2f6IpdYRXSaBMR4o3_oDQHvsxwXgfP-MRTHw1jg_yRjWPLTthDmtkLEjImJVGF0DARaEhM3UgCnJ8OkOV7BMvE_dFLg_b0pr044V_pFKUDjRjDAKdtnu6psiFqRT-pKfnM0TXpoXFAryxG3woEzEsLWVJPaynbMlbeEQQ%3D%3D&attredirects=0

This suggests that rather than serving a public policy, the housing finance system is gamed as a way to ensure maximum borrowing, which also may have increased leverage. As borrowers increased their borrowing in response to higher conforming loan limits, it appears that the median LTVs for borrowers at the maximum increased by almost 2 percentage points, roughly in line with the 2 percent increase in the loan limit. DTIs for the same borrowers increased by around 1 percentage point, likely reflecting the increase in borrower buying power since loans now qualifying under the new conforming loan limit of $424,100 no longer had to pay a 0.25 percent upfront Loan Level Pricing Adjustment (LLPA) fee for taking out a high-cost loan. This fee reduction is equivalent to a 0.05 percent reduction in interest rate, or a 0.7 percent increase in buying power.[97] Eliminating the high-cost are limits and reducing conventional loan limits would eliminate much of this gaming.

Borrowing at the Conforming Loan Limit, Purchase Loans

Current policy is driving the flow of money into the system. Leverage is increasing (as we'll show later) and FHFA and HUD raised the conforming loan limit in January from $417,000 to $424,100.* Borrowers in non-high cost areas immediately borrowed at the new maximum. The same holds for high cost areas.



*The VA also raised its maximum guaranty amount in line with FHFA and HUD.
Note: Data for February 2017 are partial.
Source: AEI Center on Housing Markets and Finance, www.HousingRisk.org.

Natural Experiment 5: Distribution tendencies around various high-cost area limits

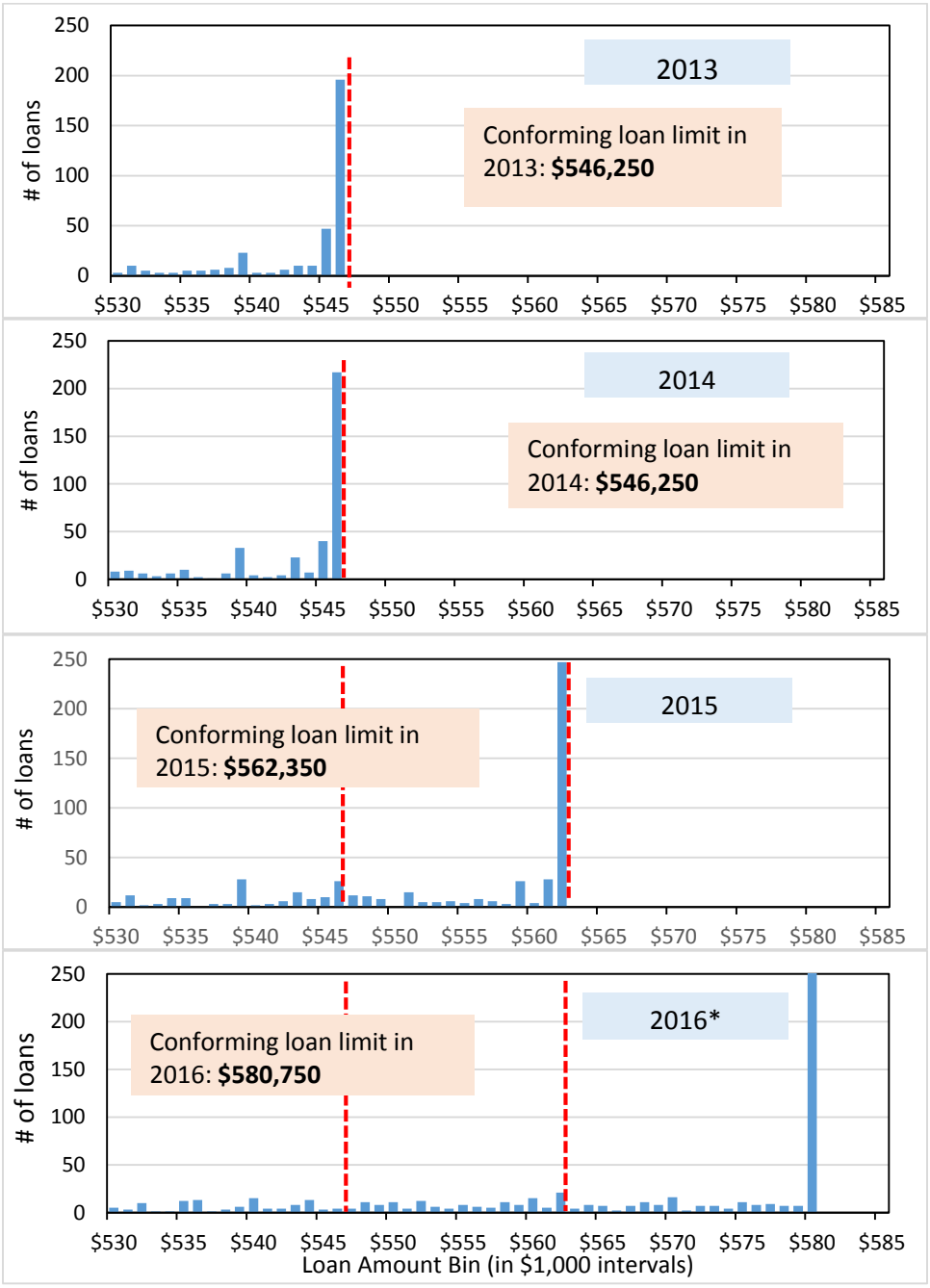
[97] The data from this analysis come from the National Mortgage Risk Index.

The purpose of the high-cost limits is to promote home buying in these areas. We found that they higher limits did little to spur demand. We know this because, using Freddie Mac National Mortgage Risk data, we analyzed the distribution of loans around high-cost loan limits in a number of counties that experienced rising loan limits over last couple years. In this analysis, we found clear bunching at the high-cost loan limit (the loan counts at the limit were many multiples of the counts found just slightly below the loan limit.) Absent any rise in the loan limit, the distribution of loans around the loan limit changed little, but after a rise in the conforming loan limit, the bunching shifted out immediately to the new, higher loan limit, while the bunching at the previous, lower loan limit immediately disappeared. (For example, see charts for San Diego below.) This suggests that the main effect of the high cost area limits is to induce borrowers will take out the maximum loan amount they can get to either increase the amount of their purchase price or to reduce their downpayment, or both. In either case, the benefits to homeownership are minimal; what occurs is an increase in home prices. Because the shift that occurs is instantaneous, the system is likely gamed by borrowers/realtors/loan officers and acts as a subsidy to upper-income borrowers. This conclusion is reinforced by further research that found that about one-third of GSE high cost area loans have LTVs in excess of 80 percent vs. only 17 percent of private loans in the same high cost areas, suggesting that buyers stretched for more debt to buy more expensive homes.

Raising the Conforming Loan Limit – A Prediction

Raising the conforming loan limit during a seller's market will drive up borrowing and therefore likely increase house prices. A case in point is San Diego, CA.

San Diego, CA, MSA: Freddie Loan Distribution, Various Years



* Through November 2016. Data point for $580,000 bin in 2016 is 315 loans.
Note: Data are for 1-unit properties only.
Source: AEI Center on Housing Markets and Finance, www.HousingRisk.org.

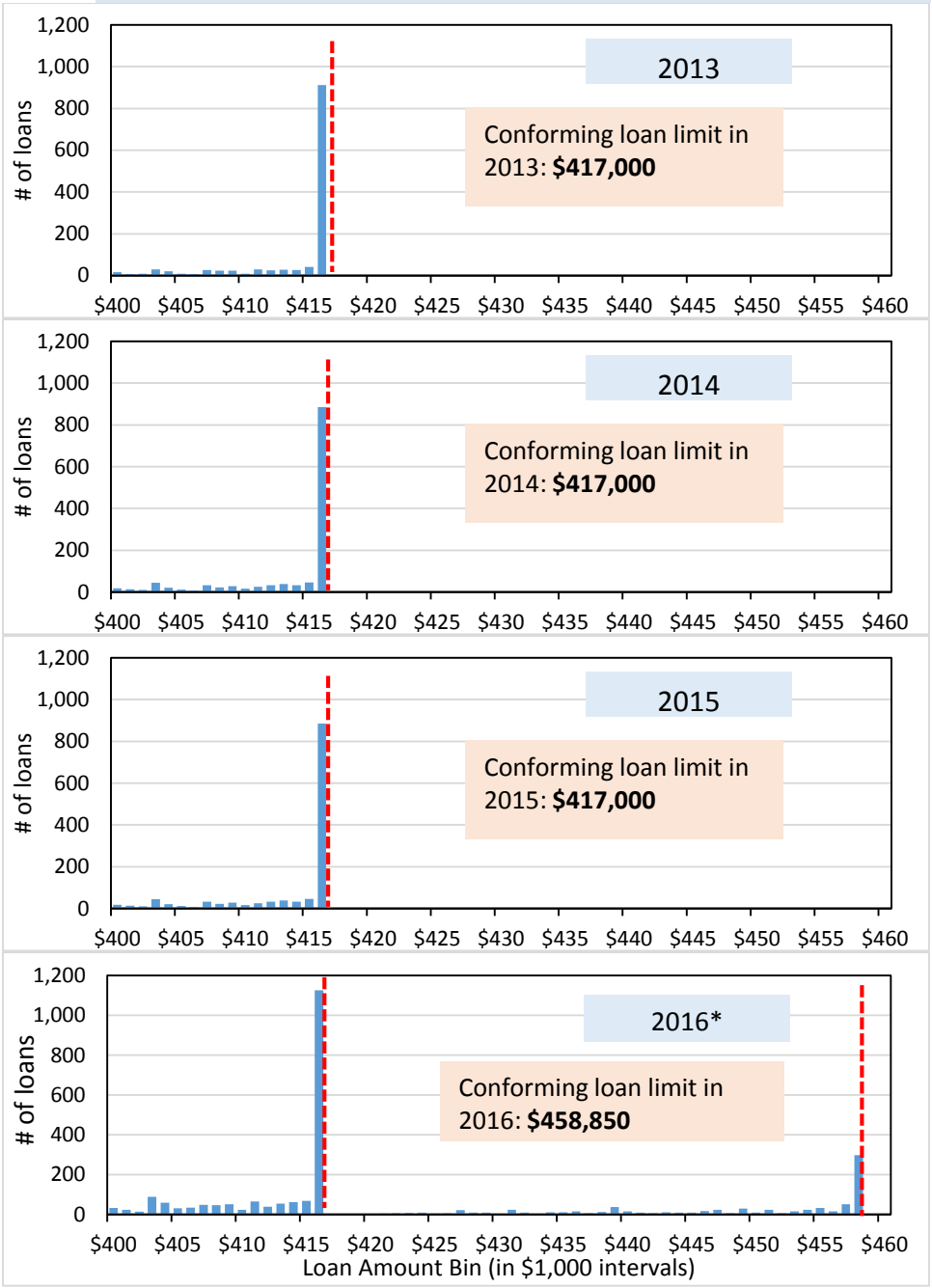
Natural Experiment 6: Bunching at loan limit across various counties with widely different loan limits

We found that the level of bunching at the loan limit differed by the level of the high-cost loan limit relative to the conforming loan limit. Once again we found borrowers acting given the incentives and constraints in the market. When the high-cost area loan limit is relatively close to the conforming loan limit, the bunching at the high-cost loan limit was smaller and there was significant bunching at the conforming loan limit. When the high-cost area loan limit is far away from the conforming loan limit, then the bunching at the high-cost loan limit was larger and there was little bunching at the conforming loan limit (compare charts for San Diego, CA, on previous page and charts for Adams County, CO on next page). This makes sense. The GSE's Loan Level Pricing Adjustments (LLPAs) charge borrowers a 0.25 percent upfront fee for taking out a high-cost loan. However, the marginal cost of this high-cost loan adjustment depends on the total loan amount and so it encourages borrowers to borrow at the maximum loan amount only if they can spread the cost over many loan dollars. However, if people had to borrow the maximum amount to afford homeownership, then there should be no differences in the extent of bunching at the various high-cost loan limits across counties. Yet, because there are differences, this suggests that borrowers do not necessarily require the extra borrowing room afforded to them from higher conforming loan limits. This is again confirmed by our research that found that about one-third of GSE high cost area loans have LTVs in excess of 80 percent vs. only 17 percent of private loans in the same high cost areas.

Raising the Conforming Loan Limit – A Look at Marginal Costs

While driving up borrowing in San Diego, CA, raising the conforming loan limit had a minimal effect in Adams County, CO. Here, the LLPA adjustment of an additional 0.25% upfront fee for taking out a high-cost loan discouraged borrowers from doing so because the marginal cost of the extra spending dollars was too high.

Adams County, CO: Freddie Loan Distribution, Various Years



* Through November 2016.
Note: Data are for 1-unit properties only.
Source: AEI Center on Housing Markets and Finance, www.HousingRisk.org.

Natural Experiment 7: What is the result when agency program loan limits are reduced?

The most relevant paper is from HUD economist Kevin Park, who investigated the implications of reductions in FHA's loan limits on demand. From October 2011 to December 2013 FHA limits were above the GSE limits in certain high-cost counties. In January 2014, these higher FHA limits were either reduced to the GSE limits or lowered even further. The results indicate that "FHA could lower loan limits without harming the overall mortgage market. Conventional lending replaced FHA-insured lending in that market segment nearly one-for-one and the overall volume of affected loan originations did not change significantly."[98]

[98] Kevin Park, Temporary Loan Limits as a Natural Experiment in FHA Insurance, https://www.huduser.gov/portal/sites/default/files/pdf/WhitePaper-FHA-Loan-Limits.pdf

Appendix 5

Reducing the Treasury's Borrowing Costs by Eliminating Agency Mortgage-Backed Securities

Peter J. Wallison and Stephen Oliner
March 13, 2017

Executive summary

Since Fannie Mae and Freddie Mac entered the FHFA conservatorship in September 2008, their mortgage-backed securities (MBS) have been effectively guaranteed by the U.S. government, putting them on an equal footing with Treasury securities. In other words, Fannie and Freddie securities compete with – and thus raise the yield on – Treasury securities. This phenomenon was assumed to be true for years, even before Fannie and Freddie MBS came under the control of the U.S. government, but the Fed's acquisitions of their MBS through its quantitative easing (QE) program provided a new and more accurate way to measure the possible effect on Treasury rates if Fannie and Freddie MBS were removed from the market.

The question addressed in this memo, accordingly, is whether – and to what extent – interest rates on Treasury securities would decline if Fannie and Freddie were eliminated over a period of five years.

We use the Fed's QE purchases as a way to estimate this rate effect. Under QE, the Fed expanded its holdings of long-term Treasury and agency securities by more than $3½ trillion, reducing the supply available to the public. The consensus in the economic literature is that the QE programs reduced long-term Treasury rates by a substantial amount.

As discussed below, based on this analysis, we estimate that if Fannie and Freddie MBS were eliminated, so that they no longer competed with Treasury securities, the average interest rate on Treasury debt could decline by 20 to 33 basis points. Given the amount of outstanding Treasury debt held by the public, a rate decline of this size would lower the Treasury's borrowing costs by about $17 to $29 billion annually. We believe these estimates are defensible. However, the available economic research does not provide all the information needed for the calculations, so the actual effect on Treasury borrowing costs could be larger or smaller than the range we have provided.[99]

Analysis

A number of studies have estimated the effects of central bank asset-purchase programs on long-term Treasury rates. In summarizing the literature, John Williams, the President of the Federal Reserve Bank of San

[99] For simplicity, we assume that Fannie and Freddie MBS would disappear immediately. If we assume, more realistically, a five-year wind-down – without changing any other part of the calculation – there would be two offsetting effects that would leave the estimate about unchanged. On the one hand, federal debt will surely grow between now and 2022, so any given interest-rate effect would apply to a larger stock of debt. On the other hand, the aggregate reduction in Treasury interest rates would be smaller than that calculated in this analysis, as the Fannie and Freddie MBS to be eliminated would represent a smaller share of the growing federal debt. The entire agency market includes MBS guaranteed by Ginnie Mae in addition to MBS guaranteed by Fannie and Freddie. Although our focus is on eliminating Fannie and Freddie MBS, if one were to consider eliminating Ginnie MBS as well, the effects on Treasury rates and borrowing costs would be about 25 percent larger than the effects for Fannie and Freddie alone.

Francisco, noted that the estimates span a fairly wide range, which leaves considerable uncertainty about the magnitude of the effects [see Williams (2014)]. Using the central tendency of these estimates, Williams judged that a $600 billion purchase program – the size of QE2 – would reduce the 10-year Treasury rate by 15 to 25 basis points. We use this central tendency range in the analysis below.

According to the Fed's *Financial Accounts of the United States*, nearly $6.5 trillion of agency MBS was outstanding as of year-end 2016.[100] This estimate includes MBS guaranteed not only by Fannie and Freddie but also by Ginnie Mae. Separate data from Ginnie Mae show that the outstanding balance of Ginnie-guaranteed MBS as of year-end 2016 was about $1.8 trillion,[101] implying that about $4.7 trillion of Fannie and Freddie MBS was outstanding on that date. Our analysis is based on eliminating the $4.7 trillion of Fannie/Freddie MBS.

Since the stock of Fannie/Freddie MBS is roughly eight times larger than the $600 billion QE2 program, one might consider simply scaling up the 15 to 25 basis point range discussed above by a factor of eight, leading to the conclusion that eliminating all Fannie/Freddie MBS would lower the 10-year Treasury rate by roughly 120 to 200 basis points. Given that the 10-year rate recently has been in the neighborhood of 2¼ to 2½ percent, eliminating Fannie/Freddie MBS would bring the 10-year Treasury to 1¼ percent or less.

For several reasons, however, this straight application of the central-tendency range from the QE literature overstates how much Treasury rates could be expected to decline if agency MBS were eliminated:

- *The effect of Fed signaling*. The Fed's QE programs not only reduced the amount of Treasury or agency securities that the public must hold, they also signaled the Fed's intent to use policy aggressively to support the economy. This signaling effect led market participants to expect that the Fed would keep the Fed funds rate lower in the future than if the QE program had not been announced. The effect lowered long-term rates quite apart from the "portfolio-balance effect" of the QE purchases per se. Only this latter effect is relevant for assessing how much Treasury rates would drop if government-backed MBS were to disappear. Existing research suggests that both factors likely were at work, but there is no consensus on their relative importance. One state-of-the-art study [Bauer and Rudebusch (2014)] estimated that the signaling effect from the QE programs accounted for 40 to 50 percent of the estimated decline in long-term Treasury rates, though the confidence band around this result is wide. For the purpose of this analysis, we use the 50 percent figure and cut the estimated QE effects in half to account for the influence of Fed signaling.

- *The effect of Treasuries with longer or shorter terms than ten years*. The estimated QE effects in the literature generally apply to 10-year Treasury securities. However, the rate effects would be smaller for short-term Treasuries because their rates are largely determined by the expected path for the federal funds rate. Indeed, Li and Wei (2013) estimate that the effects of the Fed's MBS purchases on Treasury rates for securities with one year or less to maturity has been only one-tenth as large as the effect for the 10-year note. Li and Wei also produce estimates for several maturities between one year and ten years; the estimated rate effects climb steadily as the maturity rises toward ten years. To our knowledge, there are no estimates of the QE rate effects for Treasury securities of longer maturities than ten years; in the absence of information to calibrate the estimates, we simply applied the ten-year effect to all longer-term securities.

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[100] This figure is the sum of line 29 in table L.125 and line 6 in table L.126. See Federal Reserve Board, *Financial Accounts of the United States*, March 9, 2017, http://www.federalreserve.gov/releases/z1/Current/z1.pdf.

[101] See https://www.ginniemae.gov/data_and_reports/reporting/Monthly%20UPB%20Reports/Jan17_UPB.pdf.

To calculate the average rate effect for the entire stock of outstanding Treasuries, the table below shows the current distribution of marketable Treasury securities across maturity buckets, along with the estimated size of the rate effect in each bucket relative to that for the 10-year security. Using the numbers in the table, we weighted the bucket-specific rate effects by the share of Treasury debt in each bucket. This calculation generates a rate effect for the entire stock of debt that is only 47 percent of that for the 10-year security. The markdown is substantial – and appropriate – because so much Treasury debt has very short maturities. This analysis implies that the portfolio-balance QE effect on the 10-year rate should be cut roughly in half when applied to the entire maturity spectrum of Treasury debt. Note that this adjustment is independent of the adjustment in the earlier bullet to remove the Fed signaling effect from the results. Taken together, the two adjustments cut the rule-of-thumb rate effect by a factor of four (½*½).

	Remaining maturity, in years							
	0-1	1-3	3-5	5-7	7-9	9-11	11-15	15-30
Share of outstanding Treasury debt (percent)	25.8	23.8	17.9	10.8	5.7	3.1	1.1	11.7
Rate effect relative to 10-year effect (percent)	10	30	50	70	90	100	100	100

Sources. The maturity distribution of outstanding Treasury debt is from U.S. Treasury Department (2017). The rate effects are from Li and Wei (2013), table 3, for maturities between 0-1 year and 9-11 years. The rate effects for longer maturities are assumed to be the same as for the 9-11 year bucket.

- *The effect of replacement by a private market*. If the GSEs were to be eliminated over five years as posited in this memo, their role in the housing finance market would gradually be assumed – at least in part – by a revitalized private-label MBS market. An important question, then, is the degree to which investors would view the private-label MBS as a substitute for agency MBS. If the two types of securities were viewed as perfect substitutes, the elimination of agency MBS would have no effect on Treasury rates because investors would migrate entirely to the new private-label market and there would be no new demand for Treasuries. We believe this scenario significantly overstates the degree of substitutability because the private-label MBS would not carry a federal guarantee, but instead would be more like high-grade corporate debt.

  Data from the Fed's *Financial Accounts* on the holders of agency securities provide some guidance regarding how many of the current holders of agency MBS would opt for the safety (but low yields) of Treasuries. As shown in table L.211 of the *Accounts*, depository institutions (banks, thrifts, and credit unions), money market funds, state and local governments, and public pension funds together held $3.47 trillion of agency securities as of year-end 2016. These investors would likely migrate to Treasuries for the most part, either because of favorable capital treatment (in the case of depositories), liquidity needs, a disinclination to invest in private MBS for political reasons, or legal prohibitions against investing in such securities.

  Other important holders of agency securities, in contrast, likely would shift mainly to private MBS to pick up the extra yield. These investors include private pension funds, insurance companies, mutual funds, and real estate investment trusts, which together held $1.47 trillion as of year-end 2016. Given the relative size of the holdings in these two groups, a rough estimate would be that ⅔ of the current investment in agency MBS (3.47/(1.47+3.47)) would end up in Treasuries and about ⅓ in private MBS.[102]

[102] This calculation excludes the holdings of households, nonfinancial corporations, broker-dealers, and foreign investors, for whom the direction of migration is less clear-cut; implicitly, we assume the same overall migration pattern as for the other holders. The

Taken together, the three adjustments just described would cut the estimated QE effects for 10-year Treasury rates by a factor of six (½*½*⅔). If we apply this markdown to the QE effects in the literature, eliminating all Fannie/Freddie MBS would lower the average interest rate on Treasury debt about 20 to 33 basis points (one-sixth of the 120 to 200 basis point range mentioned above).

To estimate the implied impact on the Treasury's interest cost in dollars, the 20 to 33 basis point decline from eliminating Fannie/Freddie MBS needs to be applied to an appropriate estimate of Treasury debt outstanding. Importantly, the QE effects used as a starting point for the analysis pertain mainly to the QE1 and QE2 programs that were in operation during 2009, 2010, and the first half of 2011. Hence, the estimated QE effects reflect Fed purchases relative to the stock of Treasury debt existing at that time. If the Fed were to initiate programs today of the same size as QE1 and QE2, the interest rate effects would be smaller than those found by the QE studies because the Fed's purchases would be smaller as a share of the now-larger Treasury market. The upshot is that the 20 to 33 basis point interest-rate effect is consistent with the stock of Treasury debt that existed when the programs were ongoing. Taking June 2010 as a rough midpoint for the operation of these programs, the stock of Treasury debt held by the public on that date was $8.6 trillion [see U.S. Treasury Department (2010)]. Reducing the average interest rate on this debt by 20 to 33 basis points would lower the Treasury's annual interest expense by $17 to $29 billion.

We believe these ranges represent reasonable and defensible estimates. While the inherent uncertainty in various parts of the calculation means that the actual effect on the Treasury's borrowing costs could be higher or lower, it is clear the annual cost saving to the Treasury would be substantial.

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calculation also abstracts from the Fed's holdings of MBS and long-term Treasury securities. The Fed likely will gradually shrink its balance sheet over coming years as it normalizes the stance of monetary policy. This run-off will raise Treasury and mortgage rates, in a reversal of the initial portfolio-balance effect that pushed down rates when the Fed announced and then followed through on its QE purchases. The rate effects that we discuss in this memo should be viewed as occurring against a backdrop of rising Treasury and mortgage rates.

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Appendix 6

Private Sector Absorption during First Two Years of Our Proposal

Given the projected volume made available to the private sector in the first 2 years of our plan, (1) what is the private sector's expected response to the reduction in GSE limits, (2) in what proportion do we see portfolio and PMBS investors taking up this volume, and (3) how we can measure market impact in a timely manner?

First, as noted in our proposal, we expect the private sector to take up $87 billion of new high cost area business per year in both 2019 and 2020 and $77 billion of new NOO and SOO business in 2020, for a total of $251 billion in new business over the two year period. In 2016 the flow of new private portfolio lending totaled $546 billion. The new volume would represent a flow increase of about 16 percent for 2019 and 30 percent for 2020. In addition, a portion of this new volume would be taken up by increased PMBS issuances and participation by other investors.

A flow change resulting from a reduction in GSE loan limits has occurred at least once previously. This was when the "permanent" loan limits for high cost areas established by HERA went into effect October 1, 2011 for loans purchased in 2011 and whose mortgage note date is on or after October 1, 2011. Since it replaced temporary GSE high cost limits, the result was that the high cost area loan limit maximum dropped from $729,750 to $625,500. There is no evidence or industry reports that this caused any market disruption. As noted by Redwood Trust: "The loan limit was reduced from $729,750 to $625,500 in October of 2011, and private capital has filled the space. Those borrowers are getting loans at very competitive rates, even if most of the loans are not entering the PLS market."

Relative to portfolio investors, the $251 billion in new business over the two year period represents about a 23 percent increase in the previously noted two year private flow of $1.1 trillion and about 3 percent of the $7.6 trillion the private sector has invested in single-family mortgage assets (both whole loans and private and agency MBS). We would expect private whole loan mortgage rates to increase somewhat in response to this additional supply, however not to a level above the current GSE rates. This somewhat higher rate should lead depositories to reduce their currently high level of reserves held at the Fed or, in response to the reduction of supply of GSE agency MBS switch from these securities to whole loans or PMBS.

Turning to PMBS issuances, we have spoken with a number of representatives of the PMBS market and asked about (i) the cause for the current low level of PLS activity and (ii) whether the PMBS industry would be in a position to ramp up issuance volume both in the short and longer term. As to this first point, all indicated that the supply of prime loans available for securitization is too small to induce the industry to spend much time or effort to figure out how to restart the market. There simply isn't enough money to be made today. To get things going, there needed to be a "forcing event" -- like a reduction in the GSE loan limits -- that would sharply increase the potential volume. As to second point regarding the ability to ramp up, such a forcing event would focus market participants on the issues -- like standardized loan documentation -- that would need to be addressed to provide the necessary level of comfort to potential investors. All thought the market could start ramping up in a matter of months. However, it would take some time to ramp up to substantial levels as this will require an expansion of the investor base, which can only happen over time.

Second, of the 2016 private flow of $546 billion, depositories accounted for about 98 percent and PMBS about 2 percent. Therefore, one would expect that the lion's share of the newly available business would go to depositories. However even a small share capture by PMBS issuers would represent a substantial dollar increase

in PMBS volume. If PMBS issuers gained $9 billion (or 10 percent) of the $87 billion in new private business projected for 2019, and if they gained $24 billion (or 15 percent) of the $164 billion in new private business projected for 2020, this would represent a 90 percent increase of annual PMBS volume in 2019 over 2017 (from $10 billion to $19 billion) and a 2.4 times increase of annual PMBS volume in 20209 over 2017 (from $10 billion to $24 billion).

Third, the market impact of our proposal can be assessed in a timely manner, and we offer to provide any assistance to the various departments involved.

Mortgage rates for both GSE-eligible loans and other loans can be obtained on a same-day basis by "web scraping" the rates offered by major lenders. These offer rates are posted for loans with varying loan-to-value ratios and for borrowers with varying credit scores, thus providing a granular, real-time picture of changes in pricing.

Measuring changes in lending volume and loan characteristics would not be quite as fast because of the lags with which local authorities record mortgage loans and the lags with which the GSEs purchase and securitize mortgages. Nonetheless, the lags are not long. Within three months of origination, the GSEs release nearly complete loan-level information about the mortgages they have pooled into agency MBS. Staff at AEI compile these data every month to produce the National Mortgage Risk Index. Comprehensive data on originations for the entire mortgage market are published in the AEI/First American National Housing Market Index (NHMI) less than a month after the end of each quarter. Importantly, the NHMI has sufficient geographic detail to identify effects in high-cost areas of the country. Thus, the impact of our proposal could be monitored with a high degree of accuracy in fully real time for mortgage rates and with relatively short lags for market volume and loan characteristics.

Appendix 7

Likely Evolution of Private Housing Finance Sector from Today to 2023

Here we have calculated the amount of investment and risk capital currently available and the likely private housing finance market evolution under our proposal if the GSEs' conforming loan limits are reduced starting in 2019 and progressing to 2024. We also describe the likely path of private sector consumer loan interest rates over time.

First, in considering future private investment capital availability, must start with an assessment of current investors in single-family mortgage assets (SF Assets).

Investors in SF Assets fall into two general categories: rate and credit buyers. Rate buyers, such as the Fed and foreign central banks, choose among the various government guaranteed securities offering a risk free rate. Credit buyers choose among SF Assets where the level of credit risk is reflected in the rate—whole loans being the most common form.

Today, private rate and credit investors have $7.6 trillion invested in SF Assets, representing about 72 percent of the $10.5 trillion in such outstanding assets. A substantial portion of this private capital plays a dual role in the current U.S. housing finance system. First, as traditional credit (whole loan portfolio) investors, which today totals $3.7 trillion, of which $3 trillion is held in depository portfolios and most of the balance is held by PMBS issuers ($523 billion). Second, as a rate investor in an estimated $3.9 trillion of single-family MBS, consisting mainly of GSE and Ginnie securities, along with a small amount of PMBS. Here again depositories are the substantial investors, accounting for $1.7 trillion of the total, with lesser amounts held by, mutual funds $705 billion), insurance companies ($247 billion), and private pension funds ($100 billion).

Given that depositories have over $4.7 trillion invested in both credit and rate SF Assets, they are a hybrid investor--investing in rate assets for liquidity and capital purposes or switching between agency MBS and whole loans based on return and credit risk.

In terms of the future, if the flow and stock of GSEs' MBS is reduced as we propose, we would initially envision the private sector (largely depositories) accommodating this freed up volume through two means: (i) substituting credit assets (whole loans) for its existing investments in rate (government-guaranteed) assets or (ii) expanding its current stock of credit (whole loans). We estimate this additional volume at $87 billion in 2018 (a modest increase of about 1 percent on the $7.6 trillion of private single family mortgage assets. Longer term through 2023, if one were to assume zero substitution of rate assets with credit assets, the GSEs' outstanding liabilities would decrease from $5 trillion to $3.1 trillion, the private sector would have expanded its current $7.6 trillion stock of single-family mortgage assets by $1.9 trillion, an increase of 25 percent, or by about 4.5 percent per year. But zero substitution is extremely unlikely given the willingness of most private investors to be opportunistic when it comes to choosing between credit and rate assets.

One could expand this analysis to include credit investors in assets other than SF Assets. For example, $10 trillion of corporate bonds from US issuers were outstanding at year-end 2016. So the new supply of prime mortgages would be inserted as alternative investments into a very large market of US corporate bonds. The largest holders of these bonds are foreign investors ($3.5 trillion), life insurance companies ($2.6 trillion), and mutual funds ($1.8 trillion).

Next, we turn to Private risk capital availability today and in the future. Today, the private mortgage insurance (PMI) industry, is backed by $18.9 billion in PMIERs assets, and has insured $904 billion in outstanding mortgages (approximately $230 billion of risk–in–force based on a loan coverage ratio of about 25 percent). Further, the PMI industry has advised us that, while it cannot commit to a specific increase in assets, if there were additional market demand, the industry has assets and the ability to raise additional capital to meet such a demand.

We also noted that there are a number of other credit risk transfer vehicles currently in the market. These have substantial additional capacity to invest the necessary risk capital. In the last year, for example, other credit risk transfer entities transferred $13 billion of risk on $423 billion of loans, with diversified insurance and reinsurance firms involved in the transfer of more than $4 billion on $101 billion of loans. This business has ramped up over just the past few years and there is no reason that growth cannot continue.

Now let's look at sum total of the private capital backing the $7.6 trillion of investment in SF Assets.

- $120 billion: whole loan investments by depositories (4 percent capital x $3 trillion)
- $18 billion: agency MBS investments by depositories (1 percent capital x $1.8 trillion)
- $231 billion: whole loan investments by issuers, REITs, and other miscellaneous investors (33 percent (est.) x $700 billion)
- $2.1 trillion: insurance companies, private pension funds, money market mutual funds, mutual funds, REITs, and other miscellaneous investors (100 percent (est.) x $2.1 trillion)

All told this amounts to over $2.5 trillion in private risk capital backing $7.6 trillion of private investment capital in single-family mortgage assets. Again assuming no substitution of rate assets with credit assets, adding $1.3 trillion in credit assets from 2018 to 2023 would require an additional $60 to $200 billion in private risk capital, depending on the investor type. [103] This amounts to an increase of 2.5 percent - 8 percent in today's level of private risk capital backing single-family mortgage assets.

Next, we see private sector growth progressing such that most new volume initially is being absorbed by whole loan investments and then shifting to where a material role is being played by PMBS.

As the GSEs' outstanding stock of MBS declines under our proposal, some of the current $3.9 trillion in private investment capacity will switch from GSE MBS to treasuries and Ginnie MBS thereby resulting in no increase in private stock. Another portion will switch from GSE MBS to private whole loans and PMBS. We believe this portion will be sizable, attracted by the naturally higher yields to the investor on whole loans and, later on, to competitive PMBS yields.

Primer on yields:

- **Whole loans:** Here the investor, largely depositories, earn the entire consumer interest rate (yield) on the loan, say 4.20 percent, and funds loans with a mix of deposits and other liabilities. This earns the portfolio investor a spread that compensates for risk, expenses, hedging, and return on equity.
- **GSE MBS:** Here one starts with, say, a 4.375 percent loan rate to the consumer. The servicer keeps 25bps and the GSE keeps about 60bps, yielding a pass through to the investor of about 3.50 percent.

[103] Our assumption is that most of this private capital will be provided by depositories, PMBS issuers, and to a lesser extent REITs, insurance companies, and pension funds.

- **PMBS:** Here one starts with say a 4.375 percent loan rate to the consumer, about the same as the GSE high cost area consumer rate and over about 20bps higher than the whole loan consumer rate. The servicer keeps 25bps and the securitizer builds in 7-9 percent in risk absorbing capital, yielding a pass through rate to the investor of about 3.50-3.75 percent.

The following simplified example outlines the choices a depository portfolio investor has between originating and holding whole loans or selling them to a GSE and investing in the same or other agency MBS:

- Portfolio whole loans are not guaranteed, generally have a 50 percent risk-based capital requirement of 4 percent (50 percent x 8 percent), are much less liquid, but have a 70bps higher yield, about half of which is used to provide a return on the additional 2.4 percent of capital
- The GSE MBS are guaranteed, generally have a 20 percent risk-based capital requirement of 1.6 percent (20 percent x 8 percent), and are highly liquid

Since 2013, consumer rates on whole loans held by depositories have been about 15bps below those on GSE acquired loans:

- Depository whole loan investments were 28 percent+/- and 29 percent of all outstanding home mortgages in 2013 and 2016 respectively
- The GSE's stock of mortgage assets has been about 50 percent+/- of all outstanding home mortgages over 2013-2016
- Depositories' share of agency and GSE-backed securities was 25 percent and 26.5 percent in 2012 and in 2016 respectively

These data indicate a state of relative equilibrium at the comparative level of current consumer mortgage rates for portfolio and agency executions. This helps explain why depositories invest about equally in whole loans and agency and GSE-backed securities.

A similar exercise outlines the choice a depository portfolio investor has between buying a GSE MBS versus a PMBS:

- Here again, the GSE MBS are government guaranteed, generally have a 20 percent risk-based capital requirement of 1.6 percent (20 percent x 8 percent), and are highly liquid
- "AAA" and "AA" PMBS have a similar or slightly higher pass-through rate as the GSE MBS, have a high credit rating (but are not government guaranteed), which generally results in a 20 percent risk-based capital requirement of 1.6 percent (20 percent x 8 percent), however PMBS today are not as nearly liquid as agency MBS

These simplified examples help explain why PMBS have had a difficult time restarting after the crisis--they are not as attractive to depositories (and other investors) as GSE MBS and can't compete for high balance home mortgages with whole loan portfolio investors. To demonstrate just how competitive a situation this is: the average loan balance for recent PMBS is $753,000 vs. $653,000 for private whole loans.[104]

[104] CoreLogic

These examples also help explain why a reduction in the GSEs' dominance will initially benefit portfolio lenders, rather than PMBS issuers.

Now assuming our proposal where the GSEs are no longer able to acquire high cost area, non-owner occupied (NOO), and secondary owner occupied (SOO) loans. We expect the GSEs will initially recapture about 12 percent of the high cost loans (but with lower loan balances, lower leverage, and less deductible interest). Most of the rest will go to the private sector. Also as noted, the NOO and SOO loans are not subject to recapture or capture by an agency, so 100 percent go to the private sector. As has been noted, this is expected to add a total of $251 billion in the flow of new private business over 2018-2019.

Finally, we see private sector consumer loan interest rates only needing to go up modestly over time to accommodate the extra volume and result in a material shift to PMBS. Most of this increase will bring parity between portfolio and GSE consumer rates.

Changing the earlier hypothetical, now assume (i) portfolio lenders raise their consumer rates from 4.20 percent to 4.375 percent (the current GSE consumer rate), (ii) the GSEs raise their guarantee fees by 28bps, yielding a consumer rate of 4.65 percent, up from 4.375 percent, reflective of the 28bps increase in guarantee fee our proposal contemplates, and (iii) PMBS has the same 4.375 percent consumer loan rate as before. Under this scenario, the higher yield to portfolio lenders will result in a willingness to make net additions to their stock of loans (and convert some investments from GSE MBS to whole loans). The PMBS issuers are now roughly competitive with the portfolio lenders, allowing the market for PMBS issuances to expand.

Appendix 8

Proposal to Keep the FHA's Share from Expanding and Targeting Its Mission so as to Return to Its Historical Level

Unchecked, any reduction in the dominance of the GSEs would cause the FHA's market share to increase. Our suggestions for keeping FHA's share at today's current level, or even reducing it to below this level include:

1. As the GSEs' high cost area and regular loan limits are reduced, parallel reductions should be made to the FHA's high cost and regular loan limits.
2. Implement an Ability-to-Repay (total debt-to-income ratio or DTI) standard to the FHA that limits DTI to <43 percent, unless residual income test used, in which case DTI limit is 50 percent
3. Limit the maximum seller concession to 3 percent
4. Eliminate cash out refinances

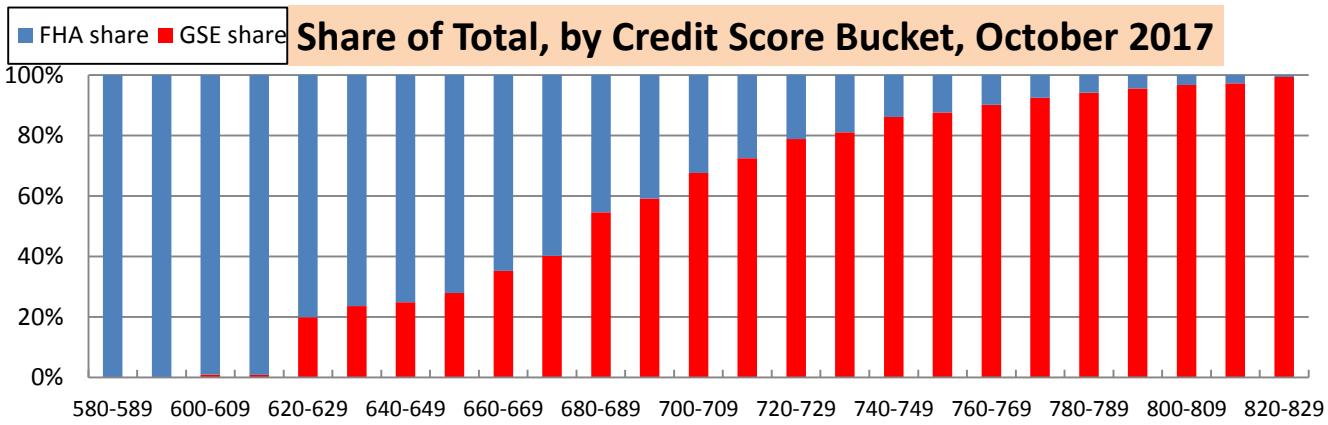
Appendix 8A recommends a number of changes which would increase FHA's loan sustainability and wealth-building for low-income households.

1. Institute a consumer disclosure regarding an FHA loan's likelihood to default under stress conditions.
2. Ensure that FHA's underwriting standards do not result in higher concentrations of delinquencies and claims in LMI neighborhoods or promote higher real home prices during extended periods of a seller's market
3. Address appraisal and appraiser shortcomings
4. Implement capital plan targets for monitoring the capital ratio of the Mutual Mortgage Insurance Fund under boom conditions:
5. FHA should adopt pricing and underwriting changes to encourage loan terms of twenty-years or less.
6. Revert to historical techniques used to incorporate mortgagee risk sharing in the FHA's foreclosure and claims paying process

Longer term, we suggest an alternative which would make reliable wealth building, not debtorship, the central focus of the Federal government's low-income homeownership policy, while providing these benefits directly to such home buyers rather than siphoned off by the rent-seeking members of the Housing Lobby.

There are two reasons that our plan would cause the FHA's market share to increase: (i) the GSEs and the FHA currently compete over a significant portion of their respective markets and (ii) any reduction in the GSEs' high cost area and conforming loan limits will shift substantial volume to the FHA unless there is a commensurate reduction in FHA's high cost area and general loan limits.

The first point is demonstrated by the chart below, which shows the overlap by FICO distribution between the FHA and the GSEs. While FHA accounts for 84 percent of scores below 660, and the GSEs account for 89 percent above 740, there is substantial competition in the scores between these two points.



In this zone of substantial competition, which agency gets the loan depends on relative pricing execution and the levels of their respective loan limits. Today, the FHA's high-cost loan limits are as high as or slightly higher than the GSEs' high-cost conforming one-unit property loan limits of $636,150 (some exceptions in Alaska and Hawaii apply). The FHA national low-cost area mortgage limits for one-unit properties is set at $275,665. (Higher limits apply for multi-unit properties). If our proposal is adopted and FHA's loan limits are not reduced, by 2023 all counties in the US would have higher FHA limits than those of GSEs. The difference would range from $62,151 in low-cost areas to $422,646 in most high-cost areas. As a result, FHA will be able to "poach" many of the mortgages that would be above the GSEs' limits, as shown in the table below. The result would be a 30 percent FHA share of all purchase loans, well above its historical share of 10-15 percent.[105]

Impact of proposed GSE changes on FHA's share of all home purchase loans[106]		
Share	% in units	% in $
Today	22%	18%
After GSE changes, with no FHA changes	29%	27%

Our suggestions for keeping FHA's share at today's current level, or even reducing it to below this level include the items below. These changes will also increase targeting of low-income households and improve loan sustainability and wealth-building, as discussed in below. Appendix 7A contains several additional suggestions, but do not have quantifiable market share impacts:

1. As the GSEs' high cost area and regular loan limits are reduced, parallel reductions should be made to the FHA's high cost and regular loan limits.
2. Implement an Ability-to-Repay (total debt-to-income ratio or DTI) standard to the FHA that limits DTI on 30-year loans to <43 percent, unless residual income test used, in which case DTI limit is 50 percent[107]

[105] Treasury White Paper, 2011, https://www.treasury.gov/initiatives/Pages/housing.aspx.
[106] Source: National Housing Market Index
[107] May be done by rule. The residual income test has been used by the VA for many decades. Residual income is the amount of net income remaining (after deduction of debts and obligations and monthly shelter expenses) to cover family living expenses such as food, health care, clothing, and gasoline. This residual amount is then evaluated using VA formulas to determine whether the borrower has sufficient residual income to live on. Included in H.R.2767 - Protecting American Taxpayers and Homeowners (PATH) Act of 2013, see Sec. 267.

3. Limit the maximum seller concession on 30-year loans to 3 percent, thereby eliminating a category of high risk loans[108],[109]
4. Eliminate cash out refinances. In 2016, 9 percent of FHA's total volume by count and by dollar volume were cash out refinances. While reducing FHA's refinance loan share, this does not affect its purchase loan share

The chart below summarizes the estimated impact of the above compensating changes on FHA's share of all home purchase loans:[110]

Impact of proposed changes on FHA's share of all home purchase loans		
FHA share:	*% in units*	*% in $*
Currently	22%	18%
In 2023 after the GSE changes with no FHA changes	29%	27%
In 2023 after compensating change 1: make similar FHA loan limit reductions	13%	6%
In 2023 after compensating change 2: application of ability to repay changes	11%	5%
In 2023 after compensating change 3: reduce of seller concession percentage	10%	5%

To better understand how the above suggestions would increase targeting of low-income households and improve loan sustainability and wealth-building, the following additional background on the income distribution of FHA's home purchase borrowers and FHA's loan default propensity is necessary.

In 2016, purchase transactions accounted for almost two-thirds (62 percent) of FHA's loan activity, and first-time buyers accounted for 82 percent of FHA's purchase loan activity.

The chart below shows FHA home purchase volume today by loan size and percent low-income income (below 80 percent of area median income), segmented by our proposed GSE loan limit reductions.[111] While 56 percent of FHA purchase loans with a balance less than $213,504 go to low-income homebuyers, only about 16 percent of FHA purchase loans in excess of $213,504 go to low-income borrowers. Implementing the changes we suggest would refocus the FHA on its core mission—helping low-income buyers purchase their first home.

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[108] May be done by rule. Seller concessions are dollar amounts provided at closing by the seller to buyer as a concession to sell home. In reality, all or most of the concession is added onto the selling price, thereby inflating its value, A rule change to implement this was proposed by then FHA Commissioner David Stevens, but was never promulgated. This proposed rulemaking indicated that about 1/3 of loans had $0 concession, about 1/3 has >0 percent and <3 percent, and 1/3 had >3 percent up to a general maximum of 6 percent. www.federalregister.gov/articles/2010/07/15/2010-17326/federalhousing-administration-risk-management-initiatives-reduction-of-seller-concessions-and-new#p-31 Reduction to 3 percent included in H.R.2767 - Protecting American Taxpayers and Homeowners (PATH) Act of 2013, See Sec. 263

[109] Ibid. Federal Housing. The reduction in maximum seller concession from 6 percent to 3 percent would help protect FHA borrowers from substantially increased default levels. Loans with >3 percent concessions have:

- 60% greater propensity to default than a loan with a 0 percent concession
- 45% greater propensity to default than a loan >0 percent and <=3 percent concession

[110] Estimates are based on data from the National Mortgage Risk Index (NMRI), AEI-First American National Housing Market Index (NHMI), the Home Mortgage Disclosure Act 2015 (HMDA), and CoreLogic's Loan Level Market Analytics database (LLMA).

[111] Loan size data from National Mortgage Risk Index (2016) and borrower income from HMDA (2015)

FHA home purchase borrowers[112]		
Loan size ($	% by units/% by $	Median Income/% low-income (<80% of AMI)
All	100%/100%	$59,000/43%
<$213,505	65%/46%	$49,000/56%
Between $213,505 and $266,580	16%/20%	$75,000/22%
Between $266,880 and $333,600	10%/15%	$87,000/14%
Between $333,600 and $417,000	5%/9%	$98,000/9%
above $417,000	4%/10%	$127,000/2%
All loans above $213,504	35%/54%	$86,000/16%

Compounding the FHA's mission creep in terms of borrower income, is its propensity to use excessive risk-layering (combining a 30-year loan term with one or more of these characteristics: high LTV, low credit score, and high debt-to income ratio). The FHA's average risk score in the AEI Mortgage Risk Index for 2016 was 24.2 percent (scores of 12 percent or higher are high risk loans).[113] As a result, 87 percent and 88 percent, respectively, of its 2016 home purchase loans and first time buyer loans were rated high (subprime) risk.

Adding to the FHA's misaligned mission, its high risk loans are generally concentrated in lower-income neighborhoods. For example, Riverside-San Bernardino (R-SB) MSA has the lowest area median income of the five largest MSAs in California.[114] Zillow found R-SB to be the most volatile metro area in terms of home prices in the most home price volatile state in the U.S. Of the 5 largest California and the 25 largest U.S. metro areas, R-SB has had the highest percentage of homes financed with FHA loans--during 2016:Q4, the FHA accounted for 46 percent of all private and agency home purchase lending (by count). These loans also had higher risk scores than the other 4 MSAs. The FHA has never had such a high market share of high risk mortgages in areas with extremely volatile home prices. In large measure, this is due to FHA's high loan limits, which were raised as a result of the housing crisis. Prior to the crisis the FHA's regular limits were less than half the GSEs' conforming limits.

The combination of FHA's high market share and dangerous risk layering poses a distinct threat to FHA borrowers, low-income neighborhoods with high concentrations of FHA insured loans, and the taxpayer.

FHA's lending standards were not always high risk. For its first 25 years, loan risk was much lower, with an average loan term of 21 years (today it is 29.5 years), an average LTV of 81 percent (today it is 96 percent), and average housing debt ratio of 16 percent (today it is 28 percent). Its claim rate during its first 25 years was near zero. And the homeownership rate in the early 1960s was the same as today. From 1975 to 2013, FHA had an average claim rate of 12.80 percent.[115]

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[112] See footnote 7

[113] The National Mortgage Risk Index (NMRI) is a stress test, similar to a car crash safety rating or hurricane rating for buildings. It covers an estimated 99 percent of government-guaranteed mortgages for home purchases. Each month, mortgages originated over that period are subjected to a stress test similar to the 2007 financial crisis. The index value shows the share of mortgages that would be expected to default were a similar stress event to arise in the near future.

[114] Los Angeles, San Francisco, Riverside-San Bernardino, San Diego, and Sacramento.

[115] Author's calculations. Excludes FHA-to-FHA refinances.

Finally, we suggest making reliable wealth building, not debtorship, the central focus of the Federal government's homeownership policy by implementing our Low-Income, First-Time Homebuyer (LIFT Home) tax credit program. Upfront assistance provided directly to low-income first time home buyers would be a much more effective than the today's opaque system built around rent-seeking.

Over 10 years, LIFT Home would place 4 million first-time home buyers on the path to wealth building combined with a fifty percent reduction in default risk

- Develop draft legislation for a permanent LIFT Home tax credit program
  - Future first-time buyers with incomes below 80 percent of the metro area median income would have the option to forego the interest deduction (which, due to the standard deduction, they generally do not utilize) and instead receive a one-time refundable tax credit to fund up to four discount points when used to buy down the loan's interest rate for at least 5 years and an additional 4 discount points when participating in a defined contribution retirement plan.
  - The credit would be available only for loans with an initial term of 20 years or less.
  - LIFT Home would be expected to put 400,000 first-time buyers annually on the path to wealth building[116]
  - In addition to wealth building, a secondary goal would be to elicit a supply response. Therefore consideration should be given to setting a 3-year sunset unless an additional 200,000 new homes are built per year
  - Cost is estimated at $4 billion/year (400,000 x $10,000 average credit)
  - An estimated 120,000 low-income rental units would be expected to be freed up annually as low-income renters purchase homes
  - Fund with either savings accruing from other parts of our proposal or identify and repurpose HUD funds
  - The result would be sustainable lending combined with reliable wealth building, a combination our housing policy has been missing for over 50 years

[116] Author's calculations based on analysis of HMDA and NMRI data.

Appendix 8A

Additional suggestions to further the goals of (i) improving the sustainability of FHA insured loans and (ii) increasing the targeting of FHA loans to low-income borrowers. These do not have quantifiable market share impacts

- Institute a consumer disclosure regarding an FHA loan's likelihood to default under stress conditions.[117]
- Ensure that FHA's underwriting standards do not:[118]
  - Result in higher concentrations of delinquencies and claims in low- and moderate-income neighborhoods.
  - Promote higher real home prices during extended periods of a seller's market.
- Address appraisal and appraiser shortcomings:[119]
  - As the FHA identified in the 1930s, "[s]peculative elements cannot be considered as enhancing the security of residential loans. On the contrary, such elements enhance the risk of loss to mortgagees and guarantors who permit them to creep into the valuations of properties upon which they make loans."
  - Today's property appraisal merely provides an opinion of a property's most likely selling price. It does not seek to identify speculative elements.
  - To address this shortcoming, property valuations and appraisals should include for the subject property and the subject property's metropolitan area and market area (including by price tier) review and consideration of the following:
    - A robust and transparent opinion of a property's most likely market price that is based on a systematic analysis of generally available information
    - An analysis of trends in and nearness to key elements of utility such as employment, shopping, transportation, other infrastructure and amenities, along with zoning, density restrictions, and tax burden that impact utility and therefore intrinsic value and market price
    - An analysis of market conditions over a substantial period of time and an assessment of whether a substantial differential between a property's intrinsic value and market price is substantiated by a change in utility
    - While this approach is being developed, FHA mortgagees should be required to utilize the Veteran Administration's appraisal/appraiser approach in place of FHA's current approach
- Implement capital plan targets for monitoring the capital ratio of the Mutual Mortgage Insurance Fund under boom conditions:[120]
  - Achieve a minimum of 6 percent capital within 2-years of the FHFA's real Home Price Index (HPI) being more than 20 percentage points above the level achieved at a market-cycle bottom
  - A minimum of 8 percent capital within 2-years of the FHFA's real HPI being more than 40 percentage points above the level achieved at a market-cycle bottom
  - Submit both quarterly actuarial report updates and quarterly reports to Congress on financial condition using private GAAP and progress on meeting the above capital plan
- FHA should adopt pricing and underwriting changes to encourage loan terms of twenty-years or less.[121]

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[117] May be implemented by HUD secretary. Included in H.R.2767 - Protecting American Taxpayers and Homeowners (PATH) Act of 2013, See Sec. 236

[118] May be implemented by HUD secretary

[119] May be implemented by HUD secretary

[120] May be implemented by HUD secretary

[121] May be implemented by HUD secretary

- Revert to historical techniques used to incorporate mortgagee risk sharing in the FHA's foreclosure and claims paying process[122]
  - FHA issuers receive 44 basis points (bps) in servicing (same as for the VA where, unlike the FHA, issuers have risk sharing).
  - This servicing fee is 19 bps higher than for servicing conventional loans.
  - For the VA this pays for substantial risk sharing between the VA and the servicer/ issuer because the VA requires its servicers (and Ginnie its issuers) to bear the credit risk beyond that by the VA's 25 percent guarantee.
  - In the FHA's early decades, foreclosure and claims paying policies imposed effective risk sharing on mortgagees, even though the FHA provided 100 percent insurance coverage.
    - Examples include (i) payment of a claim in below market rate debentures, (ii) debentures were not redeemable for cash for a number of years, and (iii) certain claim-related costs were not certifiable for reimbursement
  - This same mechanism can be used to create risk sharing between the FHA and the servicer or issuer
  - Alternatively, see H.R.2767 - Protecting American Taxpayers and Homeowners (PATH) Act of 2013, Sec. 233 which provided for risk-sharing between the FHA and mortgagees[123]
  - Ginnie Mae would manage the resulting counterparty risk as it does today with VA issuers

[122] May be implemented by HUD secretary
[123] Likely requires legislation

Appendix 9

While the VA will capture a modest increase in share as the GSEs' dominance declines, we suggest leaving the VA's loan parameters alone. The information below is provided as back ground in support of this conclusion.

The VA is an important part of US loan volume. In 2016, the VA has a 9.3 percent share by count and a 9.6 percent share by dollars of the entire home purchase loan market, which is up from 8.0 percent and 8.3 percent respectively in 2013.

VA loans have substantially lower default risk under stress than FHA loans, due in large measure to the VA's unique use of residual income and several other features that have smaller effects.[124] Accordingly, in computing loan level risk for VA loans using the AEI National Mortgage Risk Index (NMRI), a 60 percent risk factor is applied, meaning that all other risk factors being equal, VA loans are 60 percent the risk of say an equivalent FHA, Freddie, Fannie, or Rural Housing loan.

To put GSE risk in perspective, VA purchase loans had an NMRI (stress default) rating for 2016 originations of 11.5 percent compared to FHA's @24.2 percent, the GSEs @6.4 percent, and Rural Housing @18.9 percent. The composite NMRI for all 5 agencies was 12.3 percent.[125]

As the GSEs' dominance is reduced step by step until our proposal, a portion of these loans will be captured by the VA. Our research indicates the recapture rate might be about a sixth of the rate of capture by the FHA. This is largely due the fact that a VA borrowers must be a veteran, active duty, or National Guard or reserve member with six years of service, or a spouse of a veteran who died or was disabled during service.

As a result, from January 2018 to the end of 2023, we expect VA's share of all purchase loans might be expected to increase from today's 9.3 percent to 10.8 percent by count and from 9.6 percent to 11.1 percent by dollar volume. These increases will be largely due to the reduction in GSE loan limits and to a much lesser extent, the elimination of the GSEs' ability to acquire cash-out refinance loans. The recapture rate for investor and second home loans is zero since the VA does not finance investor or second homes.

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[124] The residual income test has been used by the VA for many decades. Residual income is the amount of net income remaining (after deduction of debts and obligations and monthly shelter expenses) to cover family living expenses such as food, health care, clothing, and gasoline. This residual amount is then evaluated using VA formulas to determine whether the borrower has sufficient residual income to live on. Another factor that contributes to the VA's low loan default propensity is its unique risk sharing with its servicers. In general a claim on the VA guaranty is limited to 25 percent of the loan amount. This compares to 100 percent on FHA loans.

[125] While the stress default risk of a VA loans is 60 percent of that of an equivalent GSE (or FHA loan), VA loans, on average, are not equal in risk characteristics to GSE loans. On average VA loans have higher LTVs, lower credit scores, and higher debt ratios.