Testimony of Richard K. Green
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Thank you Chairman Shelby and Senator Sarbanes for giving me the opportunity to be here. My name is Richard Green. I am Oliver T. Carr Jr. Chair in Real Estate and Finance and Professor of Finance at the George Washington University here in Washington, D.C. I am currently teaching a course there in pricing fixed-income, mortgage-backed investments. Previously, I was Visiting Professor of Real Estate at the Wharton School of the University of Pennsylvania, and Professor of Real Estate at the University of Wisconsin-Madison. I also worked for about one and one-half years at Freddie Mac in 2002 and 2003.

Let me place my cards on the table: I think GSEs have been good for the country in general, and for its housing market in particular. I also think we need to retain these specialized housing finance institutions unless we are prepared to face a very different kind of mortgage market in the future. I say this fully aware of the fact that both Fannie Mae and Freddie Mac have engaged in unconscionable activity. I will never forget the dismay I felt on the day that I read the Baker-Botts report on that firm's investigation of Freddie Mac's accounting practice. The firms must be regulated better going forward—and I will suggest some ways for doing so toward the end of my testimony.

But I also remember well the pride my grandmother took in investing in Mortgage Backed Securities when she retired: she was happy that she could invest in a safe instrument that earned a good return while helping people own their own homes. I also know from my brief time at Freddie Mac that the company manages interest rate risk exceptionally well. I am currently doing a project with my co-panelist Professor Wachter that has reconfirmed to me that our country has built a housing finance system that is unique and the most consumer-friendly in the world. I am not so sure that it would remain so unique in the absence of government-sponsored enterprises.

My focus in these remarks will not be on the amount by which Fannie and Freddie lower mortgage rates—for a variety of reasons, I think the rate-lowering aspect of the GSEs is among the less important things they do. Rather, my focus will be on three areas: consumer choice, liquidity, and macroeconomic stability. Let us discuss each in turn.

Consumer Choice

Three researchers—Michael Lea, Bertrand Renauld, Hans-Jochum Duebel, and Professor Sanders[1] of this panel—have produced studies or presentations over the past few years detailing the characteristics of mortgages available to borrowers around the world. Some countries have long-term mortgages. Some have fixed rate mortgages for up to ten years. Some have freely pre-payable mortgages. Some have first mortgages that allow for down-payments of less than 20 percent. But so far as I can tell, the only country in the world that has all that characteristics listed above—that offers long-term, fixed-payment, self-amortizing, pre-payable[2] low down-payment mortgages--is the

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[1] See Davidson, Sanders, Wolff and Ching , European Residential Mortgages, in *Securitization: Structuring and Investment Analysis*, John Wiley and Sons (2003).

[2] More specifically, prepayable at par.

United States. Yet we take this instrument for granted, though it is in all its features a relatively recent phenomenon even for the US.[3]

Before discussing why the US is alone in having such mortgages, it is worth spending a little time thinking about why such mortgages are good for consumers and, as a result, for the broader macro-economy. Consumers, or more specifically, owner-occupants, have two major assets: their house, and their human capital. They also generally have one large liability: their mortgage. Unless the mortgage is the right kind of instrument, this creates a balance sheet matching problem for households. The American mortgage is the right kind of instrument.

Fixed-Rate Mortgages and Rising Interest Rates

Fixed-rate mortgages immunize households against much of the impact of rising interest rates. To use the vocabulary of finance, houses are assets with long duration—in English, this just means that they generate returns over a long period of time. Assets with long duration are very sensitive to interest rates—when rates rise, they tend to fall in value. And so it is with housing—it is no coincidence that the recent low level of mortgage rates has coincided with an unusually high increase in house prices.[4] At the

[3] Before the Great Depression, mortgages in the US were short-term, floating-rate, non-amortizing instruments that typically required downpayments of 50 percent.

[4] See Jonathan MacCarthy and Richard Peach, “Are Home Prices the Next Bubble, Federal Reserve Bank of New York *Economic Policy Review* (2004).

same time, when rates rose sharply in the late 1970s and early 1980s, real (inflation-adjusted) house prices fell.[5]

Households who finance their housing with fixed rate debt are however somewhat immunized from the impact of rising interest rates on the housing market. This is because households with low fixed-rate mortgages gain an important benefit as market interest rates rise—the ability to continue to pay a low rate of interest. This means that the market value of their debt falls, and the effective value of their equity is largely protected. Among other things, this reduces the probability of mortgage default.

Now consider households that finance their mortgages with floating rate debt—that is, adjustable-rate mortgages. Interest rates rise, real house prices fall, and the effective value of outstanding debt stays constant. This is a recipe for house prices to fall below loan values. At the same time, because interest rates rise, households face payment shocks that they might or might not be able to absorb (increases in interest rates in no way guarantee an increase in the labor income used to pay mortgages). This combination of higher payments and lower effective equity means that the incentive to default of mortgages rise markedly. It also means that households will see their after-house-payment disposable income swing, perhaps dramatically. The household with an adjustable rate mortgage is something like a savings and loan from the 1970s—an economic institution with long assets and short liabilities.

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[5] See Federal Reserve Bank of San Francisco *Economic Letter*, House Price Dynamics and the Business Cycle (2002).

Fixed-Rate Mortgages and Falling Interest Rates

Now let us consider what happens when interest rates fall. First, we should note that interest rates tend to fall in periods of recession—that is, periods when the probability of unemployment rises. As the unemployment rate rises, the expected length of stay in a job decreases. As such, the duration of an important asset shortens. Under these circumstances, it is important for households to have the ability—the option—to shorten the duration of their liabilities.

The ability to prepay a mortgage does exactly that. Households in the United States can prepay their mortgage at any time they like at the par (face) value of the mortgages. If a person loses a job in one city, she is not constrained from moving to another by penalties or lock-out clauses on her mortgage. This is not true, for example, in Canada, Australia, Belgium, Finland, France, Germany, the Netherlands and Sweden, all of which commonly have some form of prepayment penalty. Thus the United States labor market has a fluidity that it would lack in the absence of its mortgage.

Private Label Market

Some argue that while the GSEs were necessary for the development of America's unique mortgage, they are no longer necessary—that the "private label" mortgage backed security market is now sufficiently mature to handle the needs of American borrowers. It is possible that this is true, but I am skeptical for two reasons: the nature of the private label security, and the characteristics of the loans we observe in the jumbo market[6].

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[6] That is, the market not funded by Fannie Mae and Freddie Mac.

Private label MBS are different from GSE MBS in a very important respect—the private issues are "tranched" for credit.[7] When Fannie Mae and Freddie Mac securitize mortgages, they place all of the cash flows from those mortgages into a security and stamp a guarantee on them. I have no doubt that the reason they can do this is because of perceived ties to the government. As such, all cash flows, regardless of when they are due, or the borrower they come from, are equal. This allows the pooling of risk.

This is also where the benefit of giving a lower rate (even if it is slightly lower) to the high quality borrower is important. The strongest credit risk borrowers are willing to participate in the mortgage pool, because they get a slightly better deal when they get their funding via the GSE market. This strengthens the pool, and thus makes it possible for Fannie and Freddie to take a chance on slightly higher risk borrowers.

For private label deals, however, cash flows are generally divided into two large pieces: a AAA rated piece, and a subordinated B piece, which itself can be subdivided into smaller pieces. The AAA rated securities have claims on the mortgages' first cash flows, and consequently carry very little risk and attractive to investors. These securities trade in a very liquid market (although the bid-ask spread on these securities is higher than for GSE MBS, suggesting less liquidity). The B piece, however, is more problematic. While the ability to structure and rate the B piece has improved across time, it is still fair to say that investor appetite for it is not as strong as it is for the AAA tranch. But a complete reliance on private label issues begs the question: would investors be willing to absorb four times the amount of subordinated securities that they now do in order to keep the supply of mortgage credit constant?

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[7] Fannie Mae and Freddie Mac MBS are sometimes tranched for interest rate risk, but not for credit risk.

As to the characteristics of a market that relies on non-agency mortgages, we have a good natural experiment in California. In most markets in California, median house prices are above the conforming loan limit for Fannie Mae and Freddie Mac; these markets must therefore rely on the Jumbo market. Professor Wachter's work has shown that in California, mortgages are more likely to carry adjustable rates, and are far less likely to have loan-to-value ratios in excess of 90 percent. It is possible that this is because, as a group, borrowers in the jumbo market prefer adjustable rate mortgages and higher down-payments. But I suspect there is a supply effect as well.

Because GSEs may not fund non-conforming loans, such loans are funded by depositories or private label MBS. Under this circumstance, the ARM has a funding advantage, because deposits are backed by the full faith and credit of the United States, while the private MBS are funded in private capital markets. Therefore, it is possible that households in the jumbo market relatively prefer ARMs at least in part because they are relatively less costly than in the conforming market.[8]

As for the fact that jumbo loans generally have higher down payments, this could well be a function of security structure. Mortgages with LTVs in excess of 90 percent have much high default probabilities than others; as a result, it is probably difficult to structure a large volume of B-pieces to support them.

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[8] This is a proposition that is worth testing empirically; however, it is not straightforward because ARM contracts contain such a wide variety of terms about indexes, margins and caps.

Liquidity

I have already noted that, based on standard measures, GSE securities are more liquid than private label issues. Liquidity (the ability to sell something quickly without a discount) is sometimes a difficult thing to appreciate—unlike a particular mortgage rate or downpayment, one can only appreciate liquidity in its absence.

I think we have two types of evidence about GSE liquidity: evidence arising from the financial crisis of 1998, and evidence arising from looking at housing markets (such as those found in rural areas) that have little trading volume—and are therefore not liquid.

The 1998 story is the most dramatic one—in the wake of the Russian Debt and Long Term Capital Management crises, spreads widened dramatically for many investments, and some capital markets (such as conduits for commercial mortgages) nearly shut down. On the other hand, the residential mortgage market just barreled along, with Fannie and Freddie absorbing a disproportionately large share of mortgage purchases. While this is a good story, the fact is that it is based on one data point, so I do not think that anyone should be comfortable about saying anything definitive about this event.

More compelling is the recent work of Ambrose and Buttimer[9], which shows that in rural areas, conforming loans are tied into capital markets far better

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[9] See Brent Ambrose and Richard Buttimer, GSE Impact on Rural Mortgage Markets, *Regional Science and Urban Economics*, forthcoming (2005).

than non-conforming loans. This is surely a consequence of the GSE charters, which demand that the institutions provided mortgage capital in all times in all places. Private label issuers are under so such obligation.

Areas with few house sales contain "informational risk." GSEs can offset mortgages having this risk with the informational richness that comes from mortgages from places with many sales. The GSE funding advantage gives those households living in high sale volume places an incentive to participate implicitly in pools with those living in low volume places.

Senator Shelby, in your state there are 15 counties that are 100 percent rural, and all but 4 have larger rural population shares than the country as a whole. It is as a whole about twice as rural as the nation. I am not sure that Alabama would be as well served by the tender mercies of the purely private market as it is by the GSE market.

Macroeconomic Stability

The American mortgage has also been a stabilizing influence in the US economy. The most recent IMF World Economic Outlook features an analysis investigating the relationship between the preponderance of fix-rate debt in the mortgage market and the stability of the housing market. Its finding: countries that rely more on fixed-rate debt have more stable housing markets. This is important to macroeconomic stability. I did work in the late 1990s (which has been followed by others) that shows that housing investment leads the business cycle in the US, while non-housing investment does not. Thus a more stable housing market will create a more stable business cycle. The relative mildness of the recent recession can be attributed at least in part to the fact that the housing market remained strong throughout.

James Wilcox of the University of California-Berkeley has pointed out that housing activity has become much smoother with the development of the mortgage securities market: the attachment of the mortgage market to the capital markets has eliminated the existence of credit crunches. While again it is true that a mortgage securities market would continue in the absence of Fannie Mae and Freddie Mac, it is also true that there may be periods when the placement of B-pieces becomes difficult, thus stifling the free-flow of funds in the market.

Our recent experience with the refinance market also shows how the ability to prepay mortgages at par helps attenuate the business cycle. As the country fell into recession, and long term interest rates fell, households were able to finance their mortgages at lower rates, tap into home equity, and consolidate credit card debt. All this helped produced a temporary boost in consumption that helped maked the recession shorter and shallower (from an income perspective) that past post-World War II recessions.

Reforms

While I obviously think it would be a mistake to privatize the mortgage market, there is no doubt that the GSEs recently behaved badly, especially with respect to accounting. There is also no denying that Freddie Mac has not led the market for affordable housing—indeed it has trailed it. For these reasons, I think Congress needs to consider two types of reforms.

The first reform is with respect to financial reporting. Going forward, it is important for the GSEs to know that the incorrect application of FASB rules will carry serious consequences. Specifically, should the GSEs fail to produce timely financial information to investors, they should be forbidden from paying dividends, buying or issuing stock, and issuing new net debt until they are again current.

The second reform is with respect to both GSE debt-loads and the provision of affordable housing. Critics of the GSEs maintain they carry "too-much debt." This suggests that they are not paying enough for the amount of risk they are bearing. There are three ways to deal with this. First, the riskiness of GSE debt would be reduced if they were forced to carry more tier-one capital. Tier-one capital, however, is a blunt instrument, as it is substantially more expensive than debt. Moreover, Basel II suggests that the minimum level of Tier-One capital that Fannie and Freddie carry is more than adequate.

There are two alternatives. First would be to require the GSEs to carry more subordinated debt. Such debt carries no ambiguity, and as such reflects the market price of the marginal cost of capital to the GSEs. Second would be to impose a fee on the new issuance of debt to the GSEs. One would want to make sure that it raised the cost of capital sufficient to mitigate excessive risk taking on the part of GSEs, while not raising it so much to remove the incentive for low risk borrowers and information rich areas to participate in mortgage pools. But such a fee would get Fannie and Freddie closer to paying the true risk-adjusted cost of their debt. It would also produce revenue that could be used to help low-income households with housing, either by an expansion of Section 8 vouchers (my personal preference) or through downpayment assistance for low-income homebuyers.

Finally, it is worth noting the importance of some of the disclosures that are already required of the GSEs—in particular, the monthly duration gap and PMVS disclosers. The portfolio stress tests the GSEs are required to undergo are also crucial to their proper regulation—the more transparent these complicated tests could be, the better.

Conclusion

I would like again to thank the Banking Committee for giving me the opportunity to testify today. Just to recap: while the GSEs certainly warrant reform, I believe the institutional structure we have here in the United States has led to the most consumer-friendly mortgage in the world. I am not sure that such a mortgage would survive the dismantling of the structure.

With reform, the key is to get the incentives right, while maintaining the consumer choice available today. This means reducing moral hazard as much as possible, both in terms of reporting and market-risk management, while assuring a continuous supply of mortgage capital at all times to all places. Threading this needle will be a challenge for both Congress and the GSEs' ultimate regulator.