Chairman Garrett, Ranking Member Waters, and distinguished members of the Subcommittee, thank you for inviting me to testify today. I have been asked to offer opinions on “Transparency, Transition and Taxpayer Protection: More Steps to End the GSE Bailout.”

Fannie Mae and Freddie Mac, the government sponsored enterprises (GSEs) in conservatorship, are the dominant players (along with the Federal Housing Administration) in the residential mortgage market, with a market share of more than 90 percent in terms of purchasing and insuring mortgage losses. Given that Fannie and Freddie have effectively crowded the private sector out of the secondary mortgage market, can the private sector offer a less costly alternative to Fannie and Freddie that requires less government involvement in the housing and mortgage markets? The answer is yes.

I have reviewed seven proposals to facilitate a transition from such a dominant role in the mortgage market and limit taxpayer losses. These proposals constitute pieces of the puzzle in trying to deal with Fannie Mae and Freddie Mac in terms of market capture that was accomplished with a government guarantee (whether explicit or implicit).

Currently, taxpayers have provided over $160 billion in “draws” to Fannie Mae and Freddie Mac. One proposal caps the taxpayer loss at $200 billion; this represents a major step towards the curtailment of further taxpayer bailouts of Fannie and Freddie.

A second proposal will require Fannie Mae and Freddie Mac to sell or dispose of assets that are not critical to their missions. This would prevent Fannie and Freddie from accumulating an investment portfolio as well as a retained portfolio. Allowing Fannie and Freddie to purchase nonmortgage investments would be counterproductive to the securitization mission since they would be operating as a financial investor rather than a simple securitizer of mortgage loans.

A third proposal will apply the Freedom of Information Act to Fannie Mae and Freddie Mac while in conservatorship or receivership. One of the problems with Fannie and Freddie was their opaqueness. It was very difficult to understand how risky Fannie and Freddie were until it was too late (and we still do not know the extent of their risk exposure). I would strengthen this transparency proposal to any iteration of Fannie and Freddie, should they survive and return from conservatorship.
A fourth proposal is to terminate the Housing Trust Fund and the requirement that Fannie Mae and Freddie Mac make annual allocations for said Fund. I concur that Fannie and Freddie should have the Housing Trust Fund contribution eliminated since we already have the FHA. I would like to see a full debate on how much as a society we want to contribute to affordable housing goals.

There are three other proposals that are helpful to unwinding Fannie and Freddie and limiting taxpayer exposure to losses. But I would like to take the opportunity to look at the bigger picture in terms of Fannie Mae and Freddie Mac. That is, do we really need them?

DO WE NEED FANNIE MAE AND FREDDIE MAC?

There is nothing unique, per se, about Fannie and Freddie that the private sector could not provide. Fannie/Freddie and the private sector have loan-underwriting models, both can purchase loans and create mortgage-backed securities (MBS), and both can offer mortgage insurance. The one attribute that Fannie and Freddie have that the private sector does not is an explicit guarantee from the federal government.

Is this federal government guarantee necessary to entice investors to purchase MBS? I would say no. The original “gold standard” mortgage of Fannie and Freddie was the conforming loan with 20 percent or greater down payment and good borrower credit. The default rates on these mortgages have always been very low (typically less than 5 percent for 30-year fixed-rate mortgages), as has the loss per default. The private sector can handle that segment of the market through private insurance markets and portfolio lending and will continue to attract interest from the global investment community. The “gold standard” conforming-mortgage market does not need a federal government guarantee. If the private sector can replicate Fannie and Freddie’s only unique “virtue”—a federal government guarantee—then there is no justification for keeping Fannie and Freddie around either in conservatorship or in their pre-conservatorship forms. Fannie and Freddie will not be missed, nor will their absence make a difference to the housing market or the economy, particularly if taxpayers are no longer on the hook for further losses.

GOALS OF GSE REFORM—LESS GOVERNMENT, MORE PRIVATE SECTOR¹

The goal of GSE reform is to withdraw the government from the mortgage market and let the private sector take over mortgage lending and securitization. But if GSE reform is going to phase out Fannie and Freddie, it needs to identify what the mortgage-lending landscape would look like without their presence.

The Obama administration has proposed gradually shrinking the housing GSEs (Fannie, Freddie, and the FHA) to a significantly smaller market share, reflecting the administration’s goal of transitioning away from federally backed mortgage financing.² But the housing-reform debate needs to begin with a sober assessment of where the funding of home loans is today. Ninety percent or more of new residential loan originations go into either FHA/Ginnie Mae-, Fannie Mae-, or Freddie Mac-subsidized risk buckets. There is minimal portfolio lending, and private securitizations are nonexistent. Even though the overall mortgage-loan market continues to shrink because of inability of households to qualify for a mortgage, the balance sheets of Fannie and Freddie are growing rapidly, especially with loans held for the portfolio. The largest banks are still selling almost all of the mortgages they originate; at the same time, the banks can purchase the same paper back in the residential mortgage-backed securities (RMBS) market to hold in

portfolios in order to reduce capital requirements. Getting rid of favorable capital treatment for GSEs for banks would stop the capital arbitrage that exists, encouraging banks to hold RMBS.

The first task of housing-finance reform is to find investors who, at some price, would be willing to take the first-loss positions in mortgage loans, held either on balance sheet or in the private RMBS that would replace Fannie and Freddie MBS. If the reformed mortgage markets are able to attract new capital without any change in the funding of the mortgage markets, the size of the mortgage markets will remain the same. However, if some investors are hesitant to hold anything but Fannie and Freddie MBS (because of the guarantee), the mortgage markets will shrink in size. Smaller mortgage markets would be detrimental to the economy, but funding would not evaporate. It would simply be a matter of at what price investors would supply funds to the mortgage market.

It is clear that the GSEs (along with the FHA and Ginnie Mae) have effectively crowded out the private sector from the residential-mortgage market, capturing over 90 percent market share. Having the government control that large of a segment of the mortgage market is inefficient, and the GSEs are entrenched. Trying to disentangle Fannie and Freddie from the economy will take some work (such as reforming bank capital regulatory rules that prefer the holding of Fannie and Freddie debt), but disentangling Fannie and Freddie is possible, and would eventually eliminate losses to taxpayers.

THE WORLD AFTER FANNIE AND FREDDIE: GOALS FOR HOUSING-MARKET REFORM

The United States is the only major country in the world with GSEs like Fannie Mae and Freddie Mac. Government support of the mortgage market is quite limited in most countries. Only Canada and Japan have a government MBS guarantor, and only Canada and the Netherlands have an FHA equivalent. No other country has experienced the same degree of mortgage-market turmoil as the United States, and many have comparable or higher homeownership rates.

• The 30-Year Fixed-Rate Mortgage

The United States is the only major country in the world with long-term, fixed-rate mortgages as the dominant mortgage product (see Figure 1). Even countries such as Germany and Denmark that have traditionally had a high percentage of fixed-rate mortgages have a broader distribution of mortgage products, including long-term, short-term, fixed-rate, and adjustable-rate mortgages. Government backing of securities backed by these mortgages is a major reason for their dominance.

The United States is also unusual in banning or restricting prepayment penalties on fixed-rate mortgages. Most countries allow prepayment penalties to compensate lenders for loss, and interest rates in those countries do not include a significant premium for prepayments, which makes other financing vehicles, such as covered bonds, more common. Even worse, all home buyers in the United States must pay for the option to refinance their 30-year fixed-rate mortgages penalty-free even if they do not want to exercise the option; hence, the 30-year fixed-rate mortgage is socialized with everyone paying an interest-rate

---

3 Mortgage loans require a four percent capital requirement whereas Fannie Mae and Freddie Mac securities require only a 1.6 percent capital requirement.


5 Approximately half of the states have prohibitions on prepayment penalties on fixed-rate mortgages. Perhaps more importantly, Fannie and Freddie have stated that they would not honor prepayment penalties on any fixed-rate mortgages they purchase. See Michael Lea and Anthony B. Sanders, “Do We Need the 30-Year Fixed-Rate Mortgage? “ Working Paper No. 11-15, Mercatus Center at George Mason University, March 2011, http://mercatus.org/sites/default/files/publication/Do%20We%20Need%2030yr%20FRM.Sanders.3.14.11.pdf.
premium for the option. In Europe, only borrowers who exercise this option pay the cost. U.S. consumers should also be allowed to choose full refinancing, no refinancing, or restricted refinancing of their mortgages.

Finally, the 30-year fixed-rate mortgage exposes lenders and investors to interest-rate risk (along with default risk). Other countries have a greater mix of variable-rate, short-term fixed-rate, and medium-term fixed-rate mortgages, which provides their economies (and taxpayers) with less interest-rate exposure. If the United States had a greater variety of mortgages, it would have a more robust housing-finance system. Consumers and regulators should allow mortgage innovation and not simply ban mortgage designs that they find “unfriendly.”

- Chasing Homeownership

Since 1998, Fannie and Freddie, along with the Department of Housing and Urban Development (HUD), made concerted efforts to increase homeownership rates in the United States. But after the government pumped trillions into the mortgage market through the GSEs (see Figure 1), the homeownership rate is back to around 66 percent (see Figure 2). The government’s pursuit of an unsustainable homeownership goal created enormous pain and suffering, all for the sake of increasing homeownership from 66 percent to just over 69 percent.

If we eliminated Fannie and Freddie, would homeownership rates fall further than they already have? As Figure 2 shows, homeownership rates bounced between 63 and 66 percent before GSE funding began to accelerate in 1998. Hence, without Fannie and Freddie in the market, homeownership rates would likely return to the 63–64 percent range. However, if the housing market begins to recover and home prices start to rise again, homeownership rates could actually increase again to around 66 percent.

Our national housing policies pushed too many households into homeownership. Congress and the administration should start unwinding the subsidies to homeownership, starting with Fannie Mae and Freddie Mac.

WHAT DOES THE U.S. MORTGAGE MARKET NEED TO REDUCE ITS DEPENDENCE ON GOVERNMENT?

Three approaches could get the private mortgage market back on its feet in a sustainable fashion: (1) covered bonds, (2) a private-label MBS market, and (3) greater lender holding of whole mortgage loans.

- Covered Bonds

The Danish and German covered-bond systems have a certain appeal for the U.S. mortgage market. In the German Pfandbrief model, covered bonds are securities issued by a bank and backed by a dedicated group of mortgage loans known as a “cover pool.” If the issuing bank becomes insolvent, the assets in

---

8 Pfandbrief is the trademark name for the German covered bond. In the Pfandbrief model a pool of qualifying mortgages backs the securities. The Danish system uses a 1:1 correspondence between an individual mortgage and a covered bond.
the cover pool are separated from the issuer’s other assets solely for the covered bondholders’ benefit. In the Danish system, there is a one-to-one correspondence between a mortgage loan and a mortgage bond (the “balance principle”). Under both systems, strict underwriting and loan eligibility standards attempt to minimize loan defaults (just as the Fannie or Freddie conforming loan with a 20 percent or greater down payment was intended to do). Asset eligibility for the cover pool and the process in the event of issuer insolvency are determined by laws specific to each country. Because the credit risk remains on the issuer’s balance sheet, the covered-bond system properly aligns incentives.

A critical feature of the Pfandbrief and other European covered-bond systems is strict asset and liability matching guidelines that allow funding of mortgages with standardized bonds to govern them. There is no interest-rate risk in the Danish system due to the balance principle that requires strict loan-to-bond matching. One selling point of the German Pfandbrief market is that there has never been a default in over 200 years, and no Danish mortgage bank has defaulted on a covered bond.

- Reviving the Private-Label Mortgage-Backed Securities Market

The private-label mortgage-backed securities (PMBS) market should revive once Fannie and Freddie are not competing with the private sector. The “implied” guarantee for Fannie and Freddie gives them a funding advantage over the private sector, causing them to crowd out the private sector. A number of research papers have found that before Fannie and Freddie were placed in conservatorship, they could have borrowed at rates lower than comparably rated banks.

Once the government removes the implied guarantee from Fannie and Freddie, the private-label MBS market should be able to compete with Fannie and Freddie by offering high down-payment prime mortgages. Any proposal requiring government guarantees or credit wraps will allow for continued government control and will not resolve the inefficiencies and misallocations caused by government intervention. The private-label MBS market should be allowed to purchase and securitize risky loans as long as bailouts are not allowed.

---

9 The FDIC is concerned about covered bonds and overcollateralization (OC). The solution to the FDIC’s concern is to limit OC. Tight asset-liability matching leads to the lowest OC requirements and aligns sovereign deposit guarantors with legislated covered bonds.


11 There have been covered-bond issuer failures due to interest-rate risk in Germany. The resolution has been a merger with a solvent bank and subsequent tightening of asset and liability matching requirements.

12 “Structured Finance in Focus: A Short Guide to Covered Bonds,” Structured Finance in Focus, Moody’s Investor Services, May 2010. This selling point is a little misleading since Germany has had several episodes of hyperinflation. So while there has not been a default, per se, hyperinflation has caused the payment stream to become virtually worthless at times.

13 UniCredit, op. cit. This lack of default is not to be confused with banks failing. Recently, Denmark has experienced several bank failures.

14 Note that the private-label commercial mortgage-backed securities (CMBS) market has revived itself without any government guarantee (implicit or explicit).

15 The continued uncertainty about the accounting and regulatory treatment of private-label securities is also a barrier to a revival of the market. Issues surrounding true sale, risk retention, and reporting need to be resolved before the market can expand.

• Increasing Portfolio Lending for Banks

Banks will need to increase portfolio lending (where they originate the loan and keep it in their portfolio) in order to supplement covered bonds and securitization. A problem, however, with portfolio lending is the concentration of real-estate assets on bank balance sheets and a declining proportion of deposits. Thus, a significant portion of mortgages will have to be funded in the capital markets with a mixture of (on-balance-sheet) covered bonds and securitization rather than relying on substantial growth in bank portfolio lending.

• A Privatization Model for Fannie and Freddie

Even without government support, Fannie and Freddie have clear franchise value.\(^\text{17}\) Once privatized, through the revocation of their charters and the removal of their Treasury ties, Fannie Mae and Freddie Mac would operate more like non-depository banks or financial institutions.\(^\text{18}\) The operative question is whether the private sector would fund such a model. Maintaining the conduit operations of Fannie and Freddie would facilitate a standardized MBS market that could serve small to mid-size lenders. With a clean privatization, the large banks may decide to issue their own securities.

The government could break up Fannie and Freddie into pieces (underwriting platform, securitization operations, research, etc.) and sell those pieces over a five-year period. Keeping the GSEs in place under alternative forms of ownership would leave the door open to their resurgence in the future.

• What about Affordable Housing?

Congress needs to have a serious discussion about how much affordable housing the United States wants and what the cost of affordable housing should be. Because homeownership is risky and very expensive, it is simply not appropriate for all households. The many households that entered the homeownership market when they would have been better off renting have demonstrated this principle. Affordable-housing mandates should be moved from Fannie and Freddie to HUD. Through various programs in both the homeownership and rental markets, HUD and the FHA already support affordable-housing initiatives and could continue to do so.

THE NECESSARY STEPS TO WEANING THE ECONOMY OFF OF FANNIE AND FREDDIE

The first step to weaning the economy off of Fannie and Freddie is to set a five-year “sunset” period during which they cease to exist as government-chartered institutions and transition to the private sector. This transition should be defined by the following steps.

1. Reduce Conforming Loan Limits

Fannie Mae’s conforming loan limit rose from $207,000 in 1996 to $417,000 in 2006 at the peak of the housing bubble. This increase represents a doubling of the conforming loan limit in a little over 10 years. By 2008, the conforming loan limit had risen to $729,750 in high-cost areas.\(^\text{19}\)

---

\(^\text{17}\) Their franchise value lies in their business operations, including systems and business relationships with lenders and investors, an incomparable database for analyzing risk, and master servicing. While these characteristics can be replicated to a degree in the private market, it would be a while before a private entity could achieve similar scale and economies. This situation does beg the question about market dominance that may need to be addressed by regulation.

\(^\text{18}\) An assumption behind this approach is that private firms operate more efficiently and expose the taxpayer to less risk.

Higher conforming loan limits (coupled with Fannie and Freddie’s guarantee) crowded out the private market, particularly when Fannie and Freddie were capturing the lower-risk mortgage loans and leaving the private markets to insure and securitize the higher-risk mortgage loans.

In order to crowd out Fannie and Freddie in favor of private markets, the conforming loan limits should be lowered over time. Given a five-year sunset period for Fannie and Freddie, it would be tempting to simply reduce the conforming loan rates by 20 percent per year. While this approach has a certain appeal,\(^{20}\) it may also cause turbulence in the housing market if lending ceases. To avoid further rapid declines in home prices that could cause serious damage to the banking industry, the conforming loan limit should be a function of home-price changes. Furthermore, the loan limit should be regionalized to even out the effect of declines in the conforming loan limits.

The first year could be limited to a 10 percent decline in conforming loan limits. At the end of one year, housing prices and the recovery of the private market should be reviewed. If housing prices remain stable and the private sector has begun lending, then another 10 percent decline should be scheduled for the next year, and so on. But it should be made clear that, even though the conforming loan rate would return to 50 percent of its current level at the end of the fifth year, Fannie and Freddie would no longer be purchasing or insuring mortgages.

2. Cease the Purchasing of Nonprime, Affordable-Housing Goal Mortgages

During the five-year sunset period, Fannie and Freddie should limit any loan purchases to prime mortgages with sufficient down payments, which has been 20 percent of purchase price or with private mortgage insurance covering the exposure greater than 80 percent loan-to-value. They should not be allowed to purchase nonprime and low-down-payment mortgages (or any other mortgage related to affordable-housing goals).

Eliminating affordable-housing goals for Fannie and Freddie is vital to avoiding the purchase of increasingly risky loans. As HUD already sponsors affordable-housing programs, there is no need for Fannie and Freddie to sponsor redundant programs.

3. Freeze and Unwind Retained Portfolios

Fannie and Freddie’s current retained portfolios should be frozen in terms of new additions and be allowed to unwind and sell off. The retained portfolios should be sold to the Federal Reserve. The Fed can finance this purchase by selling some of its Treasury and MBS holdings and retaining the difference between agency debenture rates and Treasury borrowing costs. Under the Fed’s supervision, the portfolios can run off; the Fed may also decide to sell the more liquid loans to investors. This process may take longer than the five-year sunset period because of liquidity reasons.

4. Eliminate Nonmortgage Investments

During the five-year sunset period, Fannie and Freddie should not be allowed to invest in nonmortgage investments; they should function as purchasers and securitizers only. This would prevent Fannie and Freddie from accumulating an investment portfolio as well as a retained portfolio. Allowing Fannie and Freddie to purchase nonmortgage investments would be counterproductive to the securitization mission since they would be operating as a financial investor rather than a simple securitizer.

\(^{20}\) Making the phase out of the conforming loan limits clear would force the private sector to brace for a world without Fannie and Freddie. Alternatively, taking the loan limits down to late-1980s levels ($175,000) and then selling them off in the private sector would prevent an overly rapid removal of the guarantee effects.
PREDICTED CHANGES FOR LENDERS AND CONSUMERS WITHOUT FANNIE AND FREDDIE

What would happen to the U.S. mortgage market with only the FHA, covered bonds, and private-label MBS? Quantifying the impact of eliminating Fannie and Freddie is difficult, as the United States has not had a period without GSEs since the 1930s. But here is an educated guess of what the residential-mortgage market would look like.

1. New mortgage rates would probably be higher, in the range of 50–100 basis points (or ½ percent to 1 percent additional interest rate) in the short term. As a result, home prices would fall slightly or take longer to recover. In the longer term, the rate would be 40–100 basis points higher than current rates.21

2. More short-term fixed and variable-rate mortgages, to the extent that regulations allow them, would exist. In particular, there would be more rollover mortgages, where the borrower’s rate changes to the market rate after a fixed period.22

3. If mortgage rates increased, homeownership rates would be marginally lower, because of higher interest rates.

4. Higher down payments would produce safer mortgages for lenders, investors and mortgage insurers.

For lenders, there are two possible outcomes. The first outcome, which seems unlikely, is that the mortgage markets could shrink because investors are unwilling to fund mortgages. The second and more likely outcome is that banks and other entities expand to fill the gap left by Fannie and Freddie’s exit.

Without the government guarantee, mortgage rates will rise in order to attract new capital.23 Today, there are huge accumulations of capital waiting to reenter the market. The primary obstacle to capital entry is the lack of clarity regarding the government’s role in mortgage guarantees and regulation. Once government clarifies its role, private capital will be forthcoming. Over time, alternate capital (such as sovereign wealth funds, foreign central bank holdings, and mutual funds) will enter the market to augment large U.S. funds. Banks are likely to hold more mortgages on balance sheet, funded by a combination of deposits and covered bonds. Correctly structured, private-label MBS with large down payments and good credit scores would alleviate some of investors’ concerns, but there is a chance that mortgage rates would still have to increase to cover the expected guarantee benefits.

Current mortgage rates for conforming loans are influenced by the economics of the GSEs.24 The GSEs charged 15–20 basis points for their credit guarantee. This was a result of a capital requirement of only 45 basis points for sold mortgages and expected losses and operating costs in the neighborhood of single-

21Our estimates are similar to those of Andrew Davidson and Eknath Belbase, “Imagine No GSEs: The Potential Impact of Dismantling Fannie and Freddie,” Pipeline, no. 94 (February 2011). However, they think that rates could even be higher.
22Rollover mortgages are common in Canada. They are similar to the 30-year fixed-rate mortgage, but are fixed only for a limited time, such as five years with a longer amortization period. At the end of every five years, the loan rate is renegotiated.
23It is likely that mortgage rates will rise even if GSE status is continued if significantly higher capital requirements are imposed.
24Supra note 21.
digit basis points. Private guarantors are likely to require significantly more capital. Equity capital is likely to be more in the range of 4–10 percent. This capital might require somewhat lower returns than the 25 percent return on equity the GSEs were able to obtain, but is not likely to be much below 15 percent on the first 5 percent of capital. This requirement creates a minimum capital charge of 75 basis points, plus any amounts required to cover expected losses and operating costs. These “advantages” of the GSEs relative to private funding must be weighed against the fact that they operated at noncompetitive and extremely low levels of capital that are not sustainable.

Given that we are at extremely low levels for the 30-year fixed-rate mortgage (see figure 3), we will eventually be seeing higher mortgage rates for a variety of reasons. We should be aware that housing net of inflation has either been neutral or performed badly over the long-run (see figure 4), so policies that actively entice households into homeownership should be reconsidered.

**SUMMARY**

Fannie Mae and Freddie Mac should be phased out over a five-year period. Covered bonds (like those used in Denmark and Germany) and an improved private-label MBS market should take their place, along with an increase in lender-portfolio lending. Without Fannie and Freddie, there may be a small drop in homeownership rates as well as a small increase in mortgage interest rates. In other words, not much will change in a world without Fannie Mae and Freddie Mac, other than saving taxpayers hundreds of billions of dollars in the future.

---

25 It is clear from Fannie and Freddie’s losses that they greatly underpriced their guarantee, leading to massive taxpayer losses.
REFERENCES


Andrew Davidson and Eknath Belbase. What would happen to the US mortgage market with only FHA and PLS (no Fannie/Freddie)?, 2011.


Moodys Global Credit Research, Structured Finance in Focus: A Short Guide to Covered Bonds, May 2010


Unicredit Global Credit Research, Danish Covered Bonds – A Primer, August 2008
### TABLE 1: International Mortgage Product Mix: Comparison of Different Countries and Their Mortgage Products

<table>
<thead>
<tr>
<th>Country</th>
<th>Variable rate</th>
<th>Short-term fixed rate</th>
<th>Medium-term fixed rate</th>
<th>Long-term fixed rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>92%</td>
<td>8%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Canada</td>
<td>35%</td>
<td>0%</td>
<td>55%</td>
<td>10%</td>
</tr>
<tr>
<td>Denmark</td>
<td>17%</td>
<td>40%</td>
<td>43%</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>33%</td>
<td>0%</td>
<td>0%</td>
<td>67%</td>
</tr>
<tr>
<td>Germany</td>
<td>16%</td>
<td>17%</td>
<td>38%</td>
<td>29%</td>
</tr>
<tr>
<td>Ireland</td>
<td>91%</td>
<td>0%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>38%</td>
<td>20%</td>
<td>20%</td>
<td>22%</td>
</tr>
<tr>
<td>Korea</td>
<td>92%</td>
<td>0%</td>
<td>6%</td>
<td>2%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>0%</td>
<td>15%</td>
<td>66%</td>
<td>19%</td>
</tr>
<tr>
<td>Spain</td>
<td>91%</td>
<td>8%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>2%</td>
<td>0%</td>
<td>98%</td>
<td>0%</td>
</tr>
<tr>
<td>U.K.</td>
<td>47%</td>
<td>53%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>U.S.</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>95%</td>
</tr>
</tbody>
</table>

FIGURE 1: GSE/FHLB DEBT SINCE 1990

Case Shiller Index vs. GSE/FHLB Debt
Trillions $, Quarterly Data, 1990.Q1-2009.Q4 for Debt

Source: Federal Reserve System, Flow of Funds, S&P
FIGURE 2: HOMEOWNERSHIP RATE IN THE UNITED STATES

FIGURE 3: INTEREST RATES FOR 30-YEAR FIXED-RATE MORTGAGES

30-Year Conventional Mortgage Rate (MORTG)
Source: Board of Governors of the Federal Reserve System

Shaded areas indicate US recessions.
2011 research.stlouisfed.org
FIGURE 4: HOUSE PRICES ADJUSTED BY INFLATION: CPI, Alternative CPI and Gold.