

Reforming the U.S. Mortgage Market Through Private Market Incentives

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Abstract

The first part of the paper evaluates the achievements of the government sponsored enterprises (GSEs, Fannie Mae and Freddie Mac) in mitigating mortgage market failures in comparison with the taxpayer costs they have created. Assembled data show the GSEs playing a major role in expanding the subprime crisis, thus confirming other evidence that GSE costs far exceed their realized and possible future benefits. The second part of the paper evaluates a mortgage market reform proposal to abolish the GSEs and substitute private market incentives for mortgage originators, securitizers, and investors, while retaining the FHA and HUD programs in support of lower-income and first-time homebuyers. Evidence that stable housing and mortgage activity can be sustained with minimal governmental intervention is provided from assembled data showing the success of European housing and mortgage markets.

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1. Introduction

For almost 40 years, Fannie Mae and Freddie Mac dominated the U.S. mortgage market based on their status as government sponsored enterprises (GSEs).¹ At their 2003 peak, before the explosive growth in subprime mortgages, the two GSEs owned or guaranteed mortgages and mortgage-backed securities (MBS) representing over 50% of the country's single-family home mortgages, while issuing debt and MBS guarantee obligations totaling \$3.8 trillion; see OFHEO (2007). By 2008, however, the U.S. mortgage and housing markets had crashed, and the two GSEs survived only as the result of a government bailout and conservatorship. The taxpayer costs of the GSE bailout are now considered likely to exceed \$200 billion.

Although the subprime crash has been devastating for the GSEs, their dominance of the U.S. mortgage market has actually expanded: during 2009 more than 70 percent of mortgage market activity was carried out through the GSEs and another 25 percent was guaranteed through the FHA and VA government programs; see Inside Mortgage Finance (2010). This expanded government role reflects the intense use of the GSEs and FHA/GNMA as policy instruments to revive the mortgage market.² Some commentators even suggest that a private market for U.S.

¹ The Federal National Mortgage Association (now generally called Fannie Mae) was formed as a government agency in 1938. It took on its present form as a government sponsored enterprise in 1968. The Federal Home Loan Mortgage Corporation (now generally called Freddie Mac) was created in 1970. The Federal Home Loan Banks are also government sponsored enterprises, but in this paper GSE refers only to Fannie Mae and Freddie Mac

² The Federal Housing Administration (FHA) and Government National Mortgage Association (GNMA) reside within the Department of Housing and Urban Development (HUD) and provide direct support for the mortgage market. There are also many indirect policies, the quantitatively most important of which is the federal tax deductibility of household mortgage interest payments. See Jaffee and Quigley (2007, 2009) for surveys of the full range of government programs in support of the U.S. housing and mortgage markets.

mortgages is no longer possible. The more accurate description, however, is that most private mortgage market activity has been crowded out by the now heavily subsidized government programs.

The goal of this paper is to look beyond the current crisis and to analyze proposals for the long-term reform of the U.S. mortgage market. The analysis is carried out in two main stages. Section 2 compares the GSE achievements in mitigating mortgage market failures with the taxpayer costs they have created. Assembled data show the GSEs playing a major role in expanding the subprime crisis, thus confirming other evidence that GSE costs far exceed their realized and possible future benefits.

Section 3 evaluates a mortgage market reform proposal to abolish the GSEs and substitute private market incentives for mortgage originators, securitizers, and investors, while retaining the FHA and HUD programs in support of lower-income and first-time homebuyers. The analysis develops the case that private incentives and institutions are sufficient to create a functional and efficient mortgage market, with no need for taxpayer subsidies or bailouts. Evidence that stable housing and mortgage activity can be sustained with minimal governmental intervention is provided from assembled data showing the success of European housing and mortgage markets.

Section 4 discusses alternative proposals and provides the conclusions.

2. GSE Costs and Benefits

2.A GSE Costs

On September 7, 2008, it was suddenly announced that Fannie Mae and Freddie Mac had been placed under a government conservatorship. The proximate cause was the inability of the GSEs to rollover maturing debt. This was no minor issue: as a result of their highly leveraged balance sheets and mismatch between cash inflows and cash outflows, \$800 billion in GSE debt would mature within the year and a large part would have to be rolled over. Even more fundamentally, the GSEs were about to suffer major credit losses. The U.S. Treasury, the Federal Reserve, and the Federal Housing Finance Agency (FHFA, the federal regulator of the two GSEs) undertook four major actions that together constituted the GSE bailout:

- 1) The U.S. Treasury began a sequence of capital infusions, with the cumulative and combined amount at the end of 2010 Q2 of \$148 billion. Were it not for these infusions, the GSEs would have had negative net worth.
- 2) The FHFA has suspended the capital requirements normally imposed on the firms. Otherwise, the two GSEs would have required a minimum additional capital amount of \$62 billion as of 2010 Q2.³
- 3) The U.S. Treasury and the Federal Reserve have combined to purchase GSE debt and MBS in an aggregate amount of \$1.49 Trillion as of the end of Q1, 2010. This represents over 26% of the total MBS and debt obligations of the two GSEs as of this date.
- 4) The U.S. Treasury has made an “effective” guarantee on all GSE debt and MBS that remain with private investors; see Federal House Finance Agency (2010a).

³ This is computed as 2.5% of the on-balance-sheet assets for each firm and as 0.45% of the net outstanding mortgage backed securities for each firm. These ratios are the “minimum” requirements for the two GSEs. In addition, the firms are normally subject to a stress test that could create a still higher capital requirement.

The final costs of the GSE bailout are projected to range between \$221 billion and \$363 billion; see Federal Housing Finance Agency (2010b). The GSE bailout costs thus far exceed the total subprime crisis bailout costs created by the U.S. banks, AIG, and General Motors combined.

The fundamental cause of the GSE failure is the large losses realized on their extensive acquisitions of high-risk mortgages. Based on GSE data availability, the term “high-risk” mortgages refers in this paper to residential mortgages with any of the following characteristics:

- FICO score less than 620,
- original loan to value ratio > 90%,
- an interest only mortgage,
- an investor mortgage, and/or
- a condo/coop mortgage.

Data on GSE high-risk mortgage positions was first disclosed by Fannie Mae in 2007 and by Freddie Mac in 2008. Previous GSE disclosures indicated only their holdings in “Subprime” and “Alt-A” mortgages, but due to the narrow definitions used for these terms, the earlier disclosures substantially understated the full extent of the GSE credit-risk exposure. To see the problem explicitly, Table 1 shows data from the Q3 2009 Credit Supplements and 10Q reports of the two GSEs. Lines (1) and (2) in Parts A and B of the table show the GSEs’ stated holdings of Subprime and Alt-A mortgages. These were MBS that had been so-designated in the prospectus. Line 3 in Parts A and B shows the high risk mortgage holdings other than Subprime and Alt-A after correction for double accounting of positions with multiple high-risk characteristics. The “Other High Risk” component in lines 3 is substantially greater than the recognized Subprime and Alt-A components, and failure to disclose it would substantially understate the full amount of credit risk being held by the GSEs.

| Table 1: GSE High-Risk and Total Mortgage Positions | | |
|--|------------|-------------|
| \$ Billions of Single-Family Mortgages as of 9/30/2009 | | |
| A. Guaranty Book/Credit Portfolio | | |
| | Fannie Mae | Freddie Mac |
| (1) Subprime | 8 | 0 |
| (2) Alt-A | 259 | 156 |
| (3) Other High-Risk | 591 | 407 |
| Total High-Risk | 857 | 563 |
| Total Guaranty Book | 2796 | 1896 |
| High-Risk/Guaranty Book | 31% | 30% |
| B. Mortgage Investment Portfolio | | |
| | Fannie Mae | Freddie Mac |
| (1) Subprime | 22 | 64 |
| (2) Alt-A | 25 | 22 |
| (3) Other High-Risk | 0 | 18 |
| Total High-Risk | 47 | 104 |
| Total Investment Portfolio | 766 | 784 |
| High-Risk/Investment Portfolio | 6% | 13% |
| Source: 10Q and Credit Supplements, 2009 Q3, Fannie Mae and Freddie Mac | | |
| Guaranty Book + Portfolio | | |
| Total High-Risk | 904 | 667 |
| Total Guaranty Book + Portfolio | 3562 | 2680 |
| High-Risk/Total | 25% | 25% |

With the term “high-risk” now defined, Table 2 shows that the flows of GSE high-risk mortgage acquisitions were steadily rising from 2005 to 2007. The first five rows of the tables 2.A and 2.B show the GSE portfolio allocations made to the various forms of high-risk mortgages. The total of these allocations—shown in the lines 6 of Table 2—includes double accounting, since some mortgages had more than one of these high-risk features. Fannie Mae (2009) indicates that 21% of the high-risk mortgages had more than one of these characteristics. Line 7 of Tables 2.A and 2.B apply this 21 percent factor to net out double accounting, with the result that high risk mortgage acquisitions are shown to represent 43% or 44% of the total mortgage acquisitions by the GSEs in 2007.

| Table 2: Fannie Mae and Freddie Credit Profile, by Book Year and Type | | | | | |
|---|---|--------------|--------------|--------------|--------------------|
| High Risk Acquisitions as Percent of Total Acquisitions and \$ Billions ⁽¹⁾ | | | | | |
| Row | 2.A Fannie Mae | 2007 | 2006 | 2005 | Before 2005 |
| (1) | LTV > 90% | 16% | 10% | 8% | 7% |
| (2) | FICO < 620 | 6% | 6% | 4% | 4% |
| (3) | Interest Only | 15% | 15% | 10% | 2% |
| (4) | Investor | 7% | 7% | 6% | 5% |
| (5) | Condo/Coop | 10% | 11% | 10% | 7% |
| (6) | Gross Total % | 54% | 49% | 38% | 25% |
| (7) | High Risk Net % ⁽²⁾ | 43% | 39% | 30% | 20% |
| (8) | High Risk \$ Billions ⁽³⁾ | \$321 | \$232 | \$185 | |
| | 2.B Freddie Mac | 2007 | 2006 | 2005 | Before 2005 |
| (1) | LTV > 90% | 14% | 7% | 5% | 7% |
| (2) | FICO < 620 | 6% | 5% | 4% | 4% |
| (3) | Interest Only | 19% | 18% | 9% | 1% |
| (4) | Investor | 6% | 5% | 3% | 3% |
| (5) | Condo/Coop | 11% | 11% | 9% | 6% |
| (6) | Gross Total | 56% | 46% | 30% | 21% |
| (7) | High Risk Net % ⁽²⁾ | 44% | 36% | 24% | 17% |
| (8) | High Risk \$ Billions ⁽³⁾ | \$256 | \$182 | \$138 | |
| | 2.C GSEs & Market | 2007 | 2006 | 2005 | |
| (9) | GSE Total High Risk \$ Billions | \$576 | \$415 | \$323 | |
| (10) | Total Market High Risk \$ Billions ⁽⁴⁾ | \$976 | \$1,441 | \$1,349 | |
| (11) | GSE % of Total Market High Risk | 59% | 29% | 24% | |
| Notes: | | | | | |
| (1) Fannie Mae 2007/2006 data are from the Fannie Mae 2009 Year-End Credit Supplement. Fannie Mae 2005 and earlier data are from the 2008 Fannie Mae Year-End Credit Supplement. Freddie Mac data for all years are from the 2008 Freddie Mac Year-End Credit Supplement. | | | | | |
| (2) The high-risk net % equals 89% of the high-risk gross %. This adjusts for the 21% overlap of loans with 2 or more of the listed characteristics. This adjustment is based on data from the June 2009 Fannie Mae Credit Supplement. | | | | | |
| (3) High Risk \$ Billions is the total dollar amount of high risk mortgage acquired by the GSEs in the respective years. It is computed by multiplying the high risk net % by the total mortgage acquisitions of each firm in each year. The volume information is from the Monthly Volume Reports of the two GSEs. | | | | | |
| (4) The total market value of high risk mortgage flows is derived from data developed in Pinto (2009) and Pinto (2010). Table 1 of Pinto (2010) provides annual flows of Subprime and Alt-A mortgages, but the Alt-A flows are not adjusted to include non-securitized Alt-A loans. Pinto (2009), however, provides a comparable adjustment factor of 1.20 for the outstanding stock of Alt-A mortgages as of June 30, 2008. I have applied the same factor of 1.20 to generate the total Alt-A component of the total market flow. Inside Mortgage Finance (IMF) provides alternative estimates of Subprime and Alt-A mortgage flows. The IMF estimates are lower than those from Pinto because the IMF records only the securitized Subprime and Alt-A flows. Using the IMF estimates would make the GSE share of the high-risk originations appear to be even larger than shown in this table. | | | | | |

Section C of Table 2 shows the total high-risk GSEs originations and computes the GSE share of the total market for high-risk mortgage originations from 2005 to 2007. Line 11 of the table shows that the GSEs acquired 59% of the total high-risk mortgage originations in 2007, compared with shares of 29% and 24% in 2006 and 2005 respectively. That the GSEs dominated the market for high-risk mortgages in 2007 is, of course, just the opposite of what would be expected of government sponsored enterprises with a public mission to stabilize the mortgage market. In fact, the GSEs piled on to an already highly overheated market, thus creating terrible consequences for themselves, the overall housing and mortgage markets, and the economy.

A natural question is why did the GSEs expand so aggressively into high-risk mortgages during 2007, a time at which the extremes of the housing bubble were already apparent to well-informed investors such as the GSEs. There are three prime explanations:

- i) Profits and Risk Tolerance. Subprime mortgages offered above average interest rates, and the GSEs felt they could evaluate and tolerate the above-average risk. Investors in GSE debt and MBS paid little attention to the risk-taking since they felt protected by the implicit guarantee.
- ii) Market share. As the subprime mortgage boom expanded, the GSE market share based on prime mortgages steadily declined. For example, in 2006, the GSE share of all new mortgage originations had declined to 27%, far down from its 2003 peak of 50%, and the GSE stock prices were falling based on this news. It is thus not surprising that the GSE management acted to regain its traditional market share by aggressively acquiring high-risk mortgages.
- iii) Housing goals. The GSEs operate under housing goals set by HUD for loans made to lower-income borrowers, and the high-risk mortgages could help satisfy these goals.

It is likely all three factors contributed to the GSE expansion into high-risk mortgages during 2007, although Jaffee (2010) provides evidence that the housing goals were significantly less

important/significant in creating an incentive for GSE high-risk mortgage acquisitions.

The key point is that the risk-taking behavior of the GSEs was fully predictable based on the incentives they faced. As a result of the implicit guarantee on their obligations, the GSEs had long understood they could issue almost unlimited amounts of debt and guaranteed mortgage backed securities at interest rates that exceeded comparable Treasury debt by small spreads. In this situation, enterprise profits and management bonuses are maximized by expanding both the volume and degree of risk-taking as long as the upside returns were expected to be positive.

The implications were documented in the academic and regulatory literatures prior to the subprime mortgage boom. For example, Jaffee (2003) documented the risk-taking behavior of the GSEs in failing to hedge fully their exposure to interest rate risk. As it happened, interest rates remained relatively stable, and this risk never created an actual crisis. Jaffee (2003, p. 16), however, warned that a GSE bailout would occur if the enterprises could not roll over their debt:

“...short-term debt rollover risk arises because F&F must reissue large amount of short-term debt annually in conjunction with their interest rate swaps. Table 2 shows that F&F must roll over more than 40% of their bond positions each year. The risk occurs if financial markets become severely disrupted, even for a reason unrelated to F&F, and investors refused to purchase any new F&F debt. In this case, F&F would be unable to pay the principal on their maturing short-term debt, creating a major financial crisis or bailout.”

(underlining added)

It was not long before the subprime mortgage boom created conditions—apparent profit opportunities and loss of market share—that induced the GSEs to increase dramatically their exposure to credit risk. Unlike their interest-rate strategy, this speculation ended in disaster for GSE shareholders, mortgage borrowers, and taxpayers alike.

A second line of regulatory and academic research quantified the inherent risks of the GSE strategy. One technique estimated the value of the implicit guarantee in terms of the reduced cost of GSE debt. This was implemented in Congressional Budget Office (CBO, 2005) where the annual value of the GSE subsidy was estimated to be \$23 billion, and by Passmore (2005) who estimated the present value of the stream of future annual subsidies to range between \$122 billion and \$182 billion. CBO (2008) updated their earlier estimate to \$25 billion and noted there was a 5% chance the cost could reach \$100 billion. Using an alternative option-based approach, Lucas and McDonald (2006) estimated a present value of only \$7.9 billion, while noting that the loss could reach \$122 billion, albeit with a small probability.

With the actual losses now expected to exceed \$200 billion, it appears these studies underestimated the actual risk because they failed to incorporate the dramatic increase in GSE risk-taking that occurred during the subprime mortgage boom. The bottom line is clear: Government sponsored enterprises—with the joint requirements to satisfy a public mission and to maximize shareholder value—sooner or later will take on inordinate risks, knowing that the enterprise keeps the gains while taxpayers pay the losses.

2.B GSE Benefits

While the GSEs have clearly imposed immense costs on U.S. taxpayers, it is a fair question whether they may have also provided substantial benefits to mortgage borrowers and thereby the U.S. economy. The GSEs were created with a particular mission, and it is therefore appropriate to consider whether, in responding to this mission, they provided important solutions to existing mortgage market failures.⁴ The government charters of the two GSEs explicitly define their mission to:

⁴ Jaffee (2009) provides a more general discussion of how well the GSEs have solved mortgage market failures.

- “promote access to mortgage credit throughout the Nation...”
- “provide stability in the secondary market for residential mortgages”
- “provide ongoing assistance to the secondary market for residential mortgages...by increasing the liquidity of mortgages and improving the distribution of investment capital”
- “(include) activities relating to mortgages on housing for low- and moderate-income families...(and) central cities, rural areas, and underserved areas...”

GAO (2009) in a recent evaluation of the GSEs, along with other commentators, judges them to have fulfilled their mission by innovating access and liquidity for the primary and secondary mortgage markets. The history of U.S. MBS development, however, contradicts this conclusion, as can be seen in this time-line of major MBS innovations:⁵

- 1968: First modern MBS created by GNMA within HUD to securitize FHA/VA mortgages;
- 1970s: GSEs expand MBS market, convincing investors of implicit government guarantee⁶;
- 1980s: Salomon Bros. innovates structured finance to securitize non-guaranteed mortgages⁷;
- 1990s: Structured finance expands to wide range of ABS: auto loan, credit cards, CMBS;
- 2000s: Subprime lending becomes the most recent application of MBS/ABS methods.

We see immediately that credit for the modern innovation of single-class MBS belongs to the government itself with the creation of the GNMA MBS, and credit for the innovation of multi-class MBS belongs to the private sector with the development of structured MBS. In fact, the

⁵ US mortgage securitization probably actually began soon after the founding of the Republic. Following the war of 1812, the US federal government was desperate for revenue and extended loans to homesteaders for property on the Western frontiers. Without the resources to make and hold these loans, the government probably pooled and sold these loans to investors. By the 1920s, securitization was already a well accepted format for selling loans to investors. These mortgage-backed securities failed during the real estate crisis of the 1930s, and it was decades before U.S. securitization was reactivated in 1968 as described in the text.

⁶ The GSEs could point to their \$2.25 billion line of credit at the US Treasury as backing for their guarantee, a significant factor only in the early years when their scale of operations was relatively small. It also helped the GSE case that the US government never firmly and officially rejected the notion of an implicit guarantee.

⁷ The colorful development of private-label MBS under Lewis Ranieri at Solomon Brothers is wonderfully chronicled in Liars Porker by Lewis (1990).

GSEs have always been followers, not innovators, in the MBS market. The success of the GSEs in establishing the market for their own MBS depended entirely on the perception, later the reality, that capital investors would face no credit risk as a result of a U.S. Treasury backstop. Absent this government guarantee, the single-class GSE MBS are inferior to private-label MBS.

GSE proponents also often argue that the GSEs reduced securitization costs and mortgage interest rates. Here too, the reality is that the GSEs provide no benefit other than the implicit guarantee.⁸ A case in point is the TBA forward market for GSE and GNMA MBS. While this market arguably expands the liquidity of the traded MBS, the benefit depends completely on the market's perception that the guarantees—explicit for GNMA and implicit for the GSE MBS—make credit risk irrelevant to the pricing and trading of the securities. It is equally noteworthy that the markets for asset-backed securitization, for the securitization of credit card, auto, commercial mortgage, and many other loan classes, expanded rapidly starting in the early 1990s without any contribution from the GSEs. Indeed, as with the original GNMA MBS, the GSEs only benefitted from the innovation, creating their own structured finance offerings once the market demand for such securities expanded as a result of the private market innovation.⁹

The GSEs also claim credit for using their on-balance-sheet mortgage portfolios to stabilize U.S. mortgage markets. As pointed out in GAO (2009), there is little evidence that the retained portfolios have provided any such benefits. Indeed, as shown in the previous section, the GSEs used these portfolios to purchase subprime mortgage MBS, thus reinforcing the housing bubble and ultimately magnifying the market collapse, just the opposite of a stabilizing influence.

⁸ There is also the question how much of the subsidy is passed through by the GSEs to benefit the borrowers. A standard answer has been that 25 basis points were passed through, representing perhaps one-half of the total subsidy. A recent study by Ambrose, LaCour-Little, and Sanders (2004) suggests, however, that the benefit to borrowers from GSE conforming loans is much smaller after carrying out an appropriate risk-adjustment.

⁹ See Downing, Jaffee, and Wallace (2009) for a discussion of how the GSEs profited by restructuring their simple passthrough MBS into more complex multi-tranche securitizations.

Mortgage market support for lower income borrowers is the last of the GSE missions. HUD first set quantitative “housing goals” in 1992. While the GSEs generally met their HUD housing goals, most academic studies find that the GSEs were ineffective in providing any substantive help to the lower income borrowers; see for example Ambrose and Thibodeau (2004), An and Bostic (2006), and Bostic and Gabriel (2006). The academic studies find that the primary activity of the GSEs was actually to cherry pick the best borrowers who satisfied the housing goal criteria. Since these borrowers would have likely received a mortgage loan in any case, either from private lenders or other government programs, the net social benefit was small at best.¹⁰ It also appears that the GSEs played no substantial role in warding off the predatory lending that occurred during the subprime boom.¹¹

One final possible GSE contribution is the software they created to evaluate mortgage credit risk, called *Loan Prospector* by Freddie Mac and *Desktop Originator and Underwriter* by Fannie Mae. However, the primary innovation in this area--the FICO score developed by the Fair Issac company to predict mortgage default--predates the GSE software. Indeed, the FICO score remains a major input into the GSE software packages. The development of the GSE software also relied on the databases the firms acquired as a result of their GSE status. Absent their GSE status, their software would have no obvious advantage compared to similar offerings from private mortgage market providers. Indeed, private loan evaluation software has been created independently and successfully for other loan markets, including commercial mortgages.

¹⁰ Jaffee (2010), in testimony before the Financial Crisis Inquiry Commission, also points to Federal Reserve studies showing that both the GSE housing goals and requirements under the Community Reinvestment Act have not resulted in lenders making large quantities of poor quality loans. In particular, if the loans satisfying the housing goal criteria were not of particularly low quality, this implies that the housing goals were not a primary factor creating the large GSE losses on their high-risk mortgage acquisitions.

¹¹ It is not always recognized that the Federal Reserve, using its powers under the Truth in Lending Act (TILA) and the Home Ownership and Equity Protection Act (HOEPA) has set new requirements that should rule out predatory lending in the future; see Federal Reserve (2008).

3. A Proposal to Reform the U.S. Mortgage Market Without GSEs

The preceding analysis indicates a significant gain will be derived from abolishing the GSEs. In the following, I assume this action is taken.¹² The question is then how to reorganize the U.S. mortgage markets without GSEs. Given that the Dodd-Frank financial reform act took no basic action with regard to the GSEs, this remains a critical question. The proposal evaluated in this section is to reorganize the U.S. mortgage markets with private market incentives and institutions substituting for the GSEs. Success will require the private markets to create stable and accessible mortgage credit for U.S. borrowers and without taxpayer cost. Data showing the feasibility of stable and accessible mortgage markets without significant government intervention is provided in this section using data from European housing and mortgage markets.

It is useful to note at the outset that the proposal can be implemented with just two actions:

1) An orderly transition from the current GSE dominated market to a private market can be achieved by reducing the conforming loan limit—the maximum loan the GSEs may acquire—by a fixed amount each year until the limit reaches zero and the GSEs disappear.¹³ If the conforming loan limit were reduced by \$100,000 per year, it will reach zero in approximately 7 years. This is also the average duration of a U.S. mortgage, so the GSEs' on-balance sheet portfolios should be running off at the same time. Steadily reducing the conforming limit has two further advantages: (i) the GSE subsidy is removed first from the largest mortgages, thus maintaining the GSE benefit as long as possible for lower-income borrowers; (ii) private market lenders/ investors will know the GSE domain is shrinking, and should be ready to take over.

¹² Fannie Mae and Freddie Mac would not be the first government sponsored enterprises to lose their GSE status. Sallie Mae, the GSE supporting the student loan market, was successfully privatized in 1996; see Lea (2006).

¹³ An alternative or additional tool is to raise the guarantee fees charged by the GSEs on securitized mortgages until the GSEs price themselves out of the market; see Glaeser and Jaffee (2006), Glaeser (2010), and Jaffee (2010). Reducing the conforming loan size, however, has the important advantages that it is simple and readily verifiable.

2) The existing FHA, VA, and HUD programs supporting lower-income remain active under this proposal. The programs will thus provide a safety net were the private market system to fail to satisfy borrower needs as the GSEs retrench. These programs would also be available were a future financial crisis to require new, temporary, government support of the mortgage market.

3.A The Success of Western European Mortgage and Housing Markets

While the above proposal has the virtue of simplicity, the immediate question is whether a private market will provide the mortgage origination and investment services required by the main borrowers in a large and dynamic housing market? Fortunately, there is strong evidence that the mortgage markets of Western Europe have operated for decades with limited government intervention and with housing and mortgage market outcomes that equal or exceed those of the U.S. in virtually all respects.

Table 3 compares the U.S. and Western European mortgage markets for a range of quantitative attributes from 1998 to 2008 based on a comprehensive data base available from the European Mortgage Federation (2008). Column 1 shows the 2008 ratio of home mortgages outstanding to each country's annual GDP, a standard measure of the depth of a country's mortgage market. The U.S. ratio is 83.6% which puts it 4th within this group of 17 developed economies. A strong U.S. result is not surprising given the large mortgage subsidies provided through the GSEs and other channels. It is noteworthy, however, that both Denmark and the Netherlands achieved even higher ratios without substantial government intervention in their mortgage markets. Iceland is a special case, since it used significant financial inflows to support a housing and mortgage boom, only to face an equally severe crash when the flows reversed.¹⁴

¹⁴ Warnock and Warnock (2008) and Renaud (2009) note that significant depth for a country's mortgage market requires a sound legal and accounting infrastructure. All the countries in Table 3 have such an infrastructure, but creating it is of fundamental importance if developing countries are also to create significant mortgage markets.

| Table 3: The Performance of European Mortgage Markets in Comparison with the US ⁽¹⁾ | | | | | | |
|---|--------------------------|----------------------------|-------------------------------|---|--|---|
| Statistical Measures Computed with annual data by country for the years 1998 to 2008 | | | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Mortgage To GDP Ratio | Rate of Owner Occupancy | Coefficient of Covariation | Standard Deviation of House Price | Mortgage Interest Rate Average Level | Mortgage Interest Rate Average Spread ⁽²⁾ |
| | 2008 | 2008 | Housing Starts | Inflation | | |
| Western Europe | | | | | | |
| Austria | 25.3% | 57.0% | 8.3% | 2.6% | 5.12% | 0.66% |
| Belgium | 39.8% | 78.0% | 16.3% | 4.0% | 5.87% | 1.37% |
| Denmark | 95.3% | 54.0% | 40.8% | 6.1% | 5.96% | 1.41% |
| Finland | 47.5% | 59.0% | 11.0% | 3.4% | 4.50% | 0.05% |
| France | 35.9% | 57.4% | 16.4% | 5.5% | 4.93% | 0.53% |
| Germany | 46.1% | 43.2% | 30.1% | 0.8% | 5.27% | 0.97% |
| Iceland | 129.0% | 82.5% | 56.3% | 9.8% | 5.01% | 0.64% |
| Ireland | 80.0% | 74.5% | 35.8% | 11.5% | 4.69% | 0.22% |
| Italy | 19.8% | 80.0% | 47.0% | 3.1% | 5.25% | 0.64% |
| Luxembourg | 43.5% | 75.0% | 19.2% | 4.3% | 4.33% | -0.16% |
| Netherlands | 99.1% | 57.0% | 10.2% | 5.5% | 5.17% | 0.77% |
| Norway | 55.7% | 77.0% | 21.1% | 5.0% | 6.54% | 1.61% |
| Portugal | 63.3% | 76.0% | 31.5% | 5.4% | 5.15% | 0.61% |
| Spain | 62.0% | 84.5% | 32.5% | 2.5% | 4.38% | -0.09% |
| Sweden | 60.6% | 52.0% | 53.9% | 5.1% | 4.05% | -0.49% |
| UK | 80.5% | 59.0% | 10.5% | 5.0% | 5.32% | 0.42% |
| Euro. Average | 61.5% | 66.6% | 27.6% | 5.0% | 5.10% | 0.57% |
| US | 83.6% | 67.8% | 24.9% | 5.5% | 6.57% | 1.82% |
| US Rank | 4th of 17 | 9th of 17 | 9th of 17 | 4th of 17 | 1st of 17 | 1st of 17 |
| Notes: | | | | | | |
| (1) Unless noted otherwise, the data are all from European Mortgage Federation (2008), an annual fact book that contains comprehensive mortgage and housing market data for the years 1998 to 2008 for the 16 Western European countries and the United States. | | | | | | |
| (2) The mortgage interest rate spread equals the mortgage interest rate (column 5) relative to the government bond rate of each country derived from the International Financial Statistics of the International Monetary Fund. | | | | | | |

Column 2 shows the 2008 owner occupancy rate, with the U.S. at its near-peak boom value of 67.8 percent. The conventional wisdom is that large U.S. government support of the mortgage market was necessary to achieve this high rate of homeownership. It is thus highly revealing that the U.S. is just at the median—9th out of 17 developed countries—in terms of its owner occupancy rate. Furthermore, the lower owner occupancy rates in Germany and other countries seem more the result of cultural preferences than government inaction. A full analysis of the determinants of owner occupancy rates across countries should also control for the age distribution of the population, since younger households, and possibly the oldest households, may have lower ownership rates in all countries. Chirui and Jappelli (2003) provide a start in this direction, showing that lower downpayment rates are a significant factor encouraging owner occupancy after controlling for the population age structure in a sample of 14 OCED countries. The U.S., of course, has benefitted from very low downpayment rates, a fact that reinforces the conclusion that U.S. government interventions have been ineffective in raising the U.S. home ownership rate above the median of the 17 countries.

Column 3 measures the volatility of housing construction activity from 1998 to 2008 based on the coefficient of variation of housing starts. Here too, the U.S. is at the median, suggesting that the government interventions in the U.S. mortgage market have provided no significant benefits in terms of reducing housing cycles relative to the Western European countries.

Column 4 measures the volatility of house price changes based on the standard deviation of the annual house price appreciation from 1998 through 2008. Here the U.S. stands 4th, meaning the country has faced a relatively high rate of house price volatility. The leaders are Iceland and Ireland, certainly not a desirable cohort in terms of housing market stability.

Column 5 shows that the U.S. has the highest average mortgage interest rate from 1998 to 2008 among all the countries, and exceeds the Western European average by almost 150 basis points. To be sure, overall interest rate levels vary across countries. Therefore, as a further test, column 6 shows the average spread between the mortgage rate and the government bond rate for each country. The U.S. spread is still the highest value and exceeds the Western European average by 125 basis points. Of course, mortgage contracts and related costs and subsidies also vary significantly across countries, and these factors could explain the lower mortgage rates in the Western European countries. Neuteboom (2004), however, has computed the *net interest rate*—the nominal interest rate adjusted for contractual, cost, and subsidy factors—for a range of European countries. Austria, Ireland, and Spain are the only countries for which the net interest rate is significantly higher than the nominal rate—about 100 basis points in each country. And even allowing for such adjustments, the U.S. mortgage rate and mortgage rate spread still exceed all European countries by a large margin.

Mortgage defaults are a remaining attribute to consider. Table 4 tabulates recent data on mortgages in arrears, or impaired, or in foreclosure for a number of Western European countries as well as the United States. The most dramatic difference between Western Europe and the U.S. is in the foreclosure rate. The U.S. foreclosure rate at year-end 2009 is 4.58% for all mortgages and 3.31% for prime mortgages (not to mention 15.58% for subprime loans. In contrast, Spain and the U.K. are two of the most distressed countries, but their foreclosure rates are .24 and 19 respectively. Ireland is the other Western European country with currently serious housing distress as shown by its high rate of mortgage arrears in Table 4. Ginsberg and Turner (2010), however, report that actual foreclosure rates in Ireland also remain very low. The clear conclusion is that European mortgage defaults are benign compared with the United States.

| | ≥ 3 Month Arrears % | Impaired or Doubtful % | Foreclosures | Year |
|----------------|------------------------|---------------------------|--------------|------|
| Belgium | 0.46% | | | 2009 |
| Denmark | 0.53% | | | 2009 |
| France | | 0.93% | | 2008 |
| Ireland | 3.32% | | | 2009 |
| Italy | | 3.00% | | 2008 |
| Portugal | 1.17% | | | 2009 |
| Spain | | 3.04% | 0.24% | 2009 |
| Sweden | | 1.00% | | 2009 |
| UK | 2.44% | | 0.19% | 2009 |
| U.S. All Loans | 9.47% | | 4.58% | 2009 |
| U.S. Prime | 6.73% | | 3.31% | 2009 |
| U.S. Subprime | 25.26% | | 15.58% | 2009 |

Source: European Mortgage Federation (2010) and Mortgage Bankers Association for U.S. Data.

| | |
|-------------|--------|
| Austria | 11.9% |
| Belgium | N.A. |
| Denmark | 164.5% |
| Finland | N.A. |
| France | 8.6% |
| Germany | 13.2% |
| Iceland | 2.3% |
| Ireland | 15.5% |
| Italy | 2.0% |
| Luxembourg | 0.9% |
| Netherlands | 3.5% |
| Norway | 13.5% |
| Portugal | 14.5% |
| Spain | 46.5% |
| Sweden | 63.5% |
| UK | 12.8% |

Source: European Mortgage Federation (2008).

The overall conclusion has to be that Western European mortgage and housing markets have outperformed the U.S. markets over the full range of available factors. Although data are not provided here, a similar conclusion would hold for the Australian and Canadian mortgage markets. The next section considers the factors that created the superior performance in Europe.

3.B The Unique Features of Western European Mortgage Markets¹⁵

What feature of European mortgages or mortgage markets have created this outstanding performance? This section considers a range of possible answers: Government intervention, MBS versus covered bond systems, and mortgage contract terms and conditions.

Government Intervention¹⁶

Given the multi-dimensional structure of government interventions in housing and mortgage markets, no single metric can compare among the European countries or the European countries with the United States. It is possible, however, to distinguish at least 3 separate channels for government intervention and to attempt comparisons one channel at time. The channels are:

- 1) Government support for low-income rental housing and for low-income mortgage borrowers;
- 2) Direct purchases/guarantees of middle-market mortgages by government sponsored entities;
- 3) Indirect government support of middle-market housing and mortgages.

For the first channel, it appears that the U.S. and the Western European countries both carry out a wide range of programs to support the housing and mortgage needs of lower-income households. Since the U.S. mortgage reform proposal under consideration here continues the

¹⁵ Few studies have provided quantified and institutional comparisons of mortgage systems among the developed countries of the world. Boleat (1985) provides an early and unique, book-length description of housing finance systems in developed and developing countries around the world. Diamond and Lea (1992) dedicate a full issue of the Journal of Housing Research to country studies and a unique statistical comparison of the efficiency of alternative mortgage market systems. The consulting firm Mercer Oliver Wyman has participated in two studies of the European mortgage markets, Mercer Oliver Wyman (2003, 2005). Most recently, Andre (2010) provides an overview of OECD housing and mortgage markets.

¹⁶ Mercer Oliver Wyman (2003 and 2005) provide good overviews of European government interventions—including subsidies, taxation, and regulation-- for the mortgage markets.

existing FHA and HUD programs that support lower income families, it is not necessary to carry out the complex task of a comparative benefit/cost analysis of support programs by country.

For the second channel, no European country approaches the quantitative intervention of the U.S. GSEs in the U.S. mortgage market. The absence of major government sponsored enterprises in Europe is consistent with the dominant and successful role whereby bank portfolio lending has generally and adequately satisfied the market demand. European mortgage lending is primarily funded by bank deposits, although some countries also rely significantly on covered bonds collateralized by their residential mortgages. Table 5 shows the ratios of covered bonds to residential mortgages outstanding for the same set of Western European countries covered in Table 2. Covered bond use varies widely among the countries and without any discernible effect on housing and mortgage market performance. It is also noteworthy that the data in Table 5 overstates the extent to which European covered bonds are used to fund mortgages, since covered bonds are also used to fund local government loans in these countries.

It is important to recognize that mortgage-backed securitization in the U.S. and covered bonds in Europe carry out the same financial function of linking bank lenders with the capital market investors who are the ultimate source of mortgage market funding. The two financing channels do differ in that MBS investors can only look to the mortgage collateral to protect against credit losses, whereas covered bond investors receive a bank guarantee as well as mortgage collateral. On the other hand, covered bonds are issued as a single-class obligation, whereas MBS use their multi-class structured format to allocate the first-loss credit risk to the most knowledgeable and risk tolerant investors. The conclusion is that a covered bond system is most effective with relatively safe underlying mortgages, whereas securitization is most valuable when the mortgages contain significant credit risk. It is interesting in this regard that Mercer

Oliver Wyman (2005) shows the yield spreads on covered bonds relative to risk-free governments ranged between 10 and 20 basis points in 2003. This is roughly the same as the spread that was observed on the GSE debt that funded their on balance-sheet mortgage portfolios at the same time. In this sense, the GSE agency debt was just a form of covered bonds, albeit in reality the underlying mortgages proved to be highly risky.

As a summary of the comparative role of government sponsored enterprises in Europe and the U.S. it is useful to consider the conclusion of Coles and Hardt (2000, p. 778):

“There is no national or European government agency to help lender funds their loans. Mortgage loans have to be funded on the basis of the financial strength of banks or the intrinsic quality of the securities. EU Law (Article 87 and 88 of the EC treaty) outlaws state aid in the form of guarantees as there may be an element of competitive distortion.

The third possible channel for government intervention in mortgage markets concerns indirect government support of middle-market housing and borrowers. Countries vary widely in the extent of such support with the U.S. appearing to be above average if not at the top of the list. The most significant and visible program is the deductibility of mortgage interest for the personal income tax. The U.S. appears to allow the most complete deductions, while the U.K.—as a primary example—does not allow this deduction at all. Another tax benefit is the deductibility of state property taxes from the U.S. federal income tax.

The overall conclusion has to be that the U.S. has supported the country’s housing and mortgage markets to a far greater extent than any European country. The strong performance of the European housing and mortgage markets without significant government intervention is thus all the more remarkable. The next section considers what is responsible for the European success in housing and mortgage market performance.

3.C The Secret of Western European Mortgage Market Success: Safe Mortgages

Mortgage contract features are the one remaining topic for comparison between European and U.S. mortgage markets. The U.S. is renowned for offering a wide menu of mortgage choice. It turns out, however, that European countries also offer a wide range of mortgage contracts, albeit with more variation occurs across countries than within each country. This section discusses three key mortgage attributes that have differentiated U.S. and Western European mortgages, and have differentiated the mortgage among the European countries:

- Fixed-rate versus adjustable rate mortgages;
- Government regulation prohibiting prepayment penalties;
- Government regulations prohibiting or restricting lender recourse to the borrower's assets as well as the property in case of default;

Fixed Rate versus Adjustable Rate Mortgages

European countries historically specialized in either fixed-rate mortgages (FRMs) or adjustable rate mortgages (ARMS). For example, the U.K. has long emphasized ARMs, whereas Denmark used primarily FRMs. The trend throughout Europe, however, is to offer a greater menu of contract options, and it appears that both ARMs and FRMs are now available in most countries. With regard to the U.S., a common view is that the GSEs are critical for the provision of FRMs in the United States. In this regard, it is worth noting that the U.S. ARM share has reached 35% during at least 3 separate episodes over the last 15 year; see Krainer (2010). Furthermore, the general access to FRMs in Europe, and the dominance of FRMs in several European countries, demonstrates that GSEs are not at all essential for FRM contracts.

Government Regulations Prohibiting Prepayment Penalties

Some U.S. states restrict the ability of residential mortgage lenders to impose prepayment penalties on their mortgage contracts. In addition, the GSEs have always resisted acquiring

mortgages with prepayment penalties, since it is more efficient to securitize a pool of mortgages when all the mortgages in the pool have the same prepayment penalty structure; and no penalty is the simplest standard to apply. This contrasts with the U.S. market for commercial mortgages, where prepayment penalties in the form of yield maintenance or defeasance are standard. European residential mortgage contracts also regularly require significant prepayment penalties, very much like the penalties required on U.S. commercial mortgages; see Mercer Oliver Wyman (2005). It appears the absence of prepayment penalties on standard U.S. FRMs adds approximately 50 basis points to the mortgage interest rate. Given the success achieved by the private European mortgage markets, a benefit of expanding the private mortgage markets in the U.S would be to provide U.S. mortgage borrowers with the expanded opportunity to choose contracts with prepayment penalties, if desired, to achieve a substantially lower contract rate.

Recourse and Limited Mortgage Defaults

Recourse and limited mortgage defaults are the most fundamental and important distinction between U.S. and Western European mortgage contracts. In the U.S., legal access to recourse varies across the states, and even in states where it is allowed, it is rarely applied; see Ghent and Kudlyak (2009). The lack of recourse application arises because a bank must satisfy severe U.S. consumer protections before it can obtain a recourse judgment, and consumers always have the option to apply for a relatively easy bankruptcy. The result is that recourse is not an important safeguard for U.S. mortgage investors. In Europe, in contrast, recourse is standard and enforcement is firm on most European mortgage contracts.¹⁷ The result in Europe is that lenders, borrowers, and the government act on their mutual interest to create safe mortgages.

¹⁷ EMF (2007) provides a detailed summary on mortgage collateral rules and recourse across all of the Western European countries.

4. Alternative Proposals and Conclusions

Given the obvious need to reform the U.S. mortgage markets, it is remarkable how few specific proposals are available. The best documented alternative is Hancock and Passmore (2010), just released as a Federal Reserve working paper. It proposes that the government become the ultimate insurer, guaranteeing the payment of interest and principal on a range of mortgage-backed and asset-backed securities. Similar proposals for government MBS insurance have been provided in presentations by Davidson (2010) and the Center for American Progress (2010). I will refer to these proposals jointly as the “insurance proposal” while the detailed comments apply to the Hancock and Passmore paper.

The insurance proposal has the primary goal of recreating the GSE MBS channel, and does so by substituting a government insurance program for the GSE guarantee. The proposal dominates any plan that would recreate the GSEs, since the government would at least control the guarantee, and the GSE on balance-sheet portfolios would no longer exist. The cost, however, is that the U.S. government becomes responsible for providing insurance for all U.S. conforming mortgages as well as a wide range of ABS.

Not surprisingly, the devil is in the details. Although Hancock and Passmore describe their plan as “catastrophe insurance,” the capital that would take the first-loss position in front of the government is not prescribed. Instead, the specification is that:

“...so long as the loan-to-value ratio associated with the underlying collateral was very low and unlikely to become greater than one except under catastrophic circumstances. The low level of the loan-to-value ratio could be created in a variety of ways, including borrower down-payments, private forms of insurance (such as private mortgage insurance for mortgages) and credit enhancements.”

Alas, these are the same requirements that were supposed to be imposed on the GSEs.

The government's success in providing insurance is mixed at best, and all the worse whenever risk-based pricing is required; see Jaffee and Russell (2009). For example, the National Flood Insurance Program was supposed to have "actuarially based premiums," but the political reality was an approximately 40% subsidy rate because many of the worst risks found a way to be "grandfathered". This went unrecognized until Katrina, which then required a transfer of more than \$20 billion from U.S. taxpayers to bailout the insurance fund. Similar issues have arisen in Florida's state wind-damage fund and in California's earthquake authority. The problem is that risk-based pricing is always subject to fierce political pressure, either to reduce the premiums on the riskiest policies or to reset standards so that the low and high risks are not distinguished. Invariably, the taxpayers end up holding an uncompensated pool of high risks.

The United States has already tried government mortgage insurance through the GSEs and U.S. taxpayers have been badly damaged. Given the remarkable success of the generally private Western European mortgage markets, it would appear private market incentives and institutions are the best strategy for reforming the U.S. mortgage markets.

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