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**DO WE NEED THE 30-YEAR FIXED-RATE MORTGAGE?**

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# Do We Need The 30-Year Fixed-Rate Mortgage?

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## Introduction

One of the central arguments in the ongoing discussion about the fate of Fannie Mae and Freddie Mac is the importance of the 30-year fixed-rate pre-payable mortgage (hereafter referred to as the FRM). David Min (2010) asserts that the FRM is an *essential* part of the U.S. housing finance system. Susan Woodard (2010) emphasizes the *special role* of the FRM and states that “Americans now seem to regard the availability of long-term fixed-rate mortgages as part of their civil rights.” Levitin and Wachter (2010) assert that the FRM is *critical* for sustainable homeownership. All three of these authors advocate continued government support of Fannie Mae and Freddie Mac in order to preserve the FRM.

The FRM clearly occupies a central role in the U.S. housing finance system. It has been the dominant instrument since the Great Depression and currently accounts for more than 90 percent of mortgage originations. The FRM is regarded as a consumer-friendly instrument, which is one reason why it enjoys enduring popularity. But the instrument can cause problems for both current and prospective borrowers. And part of its popularity is due to government support as well as past regulatory favoritism. The FRM is heavily subsidized through the securitization activities of Fannie Mae and Freddie Mac. These subsidies, which lower the relative cost of the instrument, are an important factor in its popularity. The FRM also imposes costs on the mortgage industry and on investors in mortgage securities—costs that are likely to rise as the economy recovers. Importantly, the FRM is a one-sided design. Consumers, particularly those who utilize the prepayment option, benefit while investors *and taxpayers* bear the cost.

Are the benefits of the FRM worth the costs? Would the FRM disappear if Fannie and Freddie were no longer financing it? Are there mortgage alternatives that balance the needs of consumers and investors without exposing the taxpayer to inordinate risk? This paper seeks to answer these questions. We start with a brief history of the FRM from its creation during the Depression to the current day, emphasizing the ongoing role of the government in enhancing its presence. We then discuss the benefits of the FRM to the consumer and the economy. Following we explain the costs of the

FRM to consumers, investors and taxpayers. We end with a depiction of a world in which the FRM is no longer supported by Fannie Mae and Freddie Mac.

### **The FRM: A Brief History**

Prior to the Depression the standard mortgage instrument was a shorter-term (5–10 year), fixed-rate non-amortizing loan that required borrowers to refinance or repay the loan at the end of its term. The FRM was in essence created by the Federal Housing Administration (FHA) in 1934.<sup>1</sup> The National Housing Act of 1934 authorized the FHA as a mutual insurance company providing mortgage insurance on specific types of mortgages. The FHA mortgage had the following features (Herzog 2009):

- They were fully amortizing mortgages with a (fixed) annual contract interest-rate of 5.5 percent.
- They required a minimum down-payment of 20 percent of the appraised value of the property.
- They had a maximum term of 20 years.
- They had a maximum mortgage amount of \$16,000.
- The mortgages were freely assumable.
- There was no prepayment penalty.<sup>2</sup>

The FRM has been supported by government policy since its introduction. FHA and later VA-insured mortgages were the dominant instruments until the 1960s. Rates were set administratively that made it difficult for non-insured loans to compete with government insured instruments.<sup>3</sup> Federally insured savings-and-loan institutions were restricted to offering only fixed rate mortgages until 1980.

The creation of Freddie Mac in 1970 was motivated in part to assist savings-and-loans in managing the interest rate risk inherent with the FRM. The development and growth of the secondary mortgage market was stimulated by accounting and tax policies in the 1980s that made it easier for savings-and-loans to sell underwater FRMs without immediately recognizing a loss.<sup>4</sup> The large-scale sale of FRMs increased liquidity in fixed rate mortgage securities leading to improved pricing.

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<sup>1</sup> Savings-and-loans offered amortizing mortgages through sinking fund and level payment arrangements. In 1930 such instruments accounted for approximately half of loans outstanding [Bodfish and Theobald 1940]. The average term of such loans was 11 years.

<sup>2</sup> However, a 1935 amendment to the National Housing Act of 1934 authorized a prepayment penalty equal to the lesser of (1) one percent of the original mortgage amount or (2) the amount of premium payments the borrower would have been required to pay if her FHA-insured mortgage had remained in-force through its maturity date.

<sup>3</sup> See Bodfish [1940] for references to savings and loan complaints about FHA pricing.

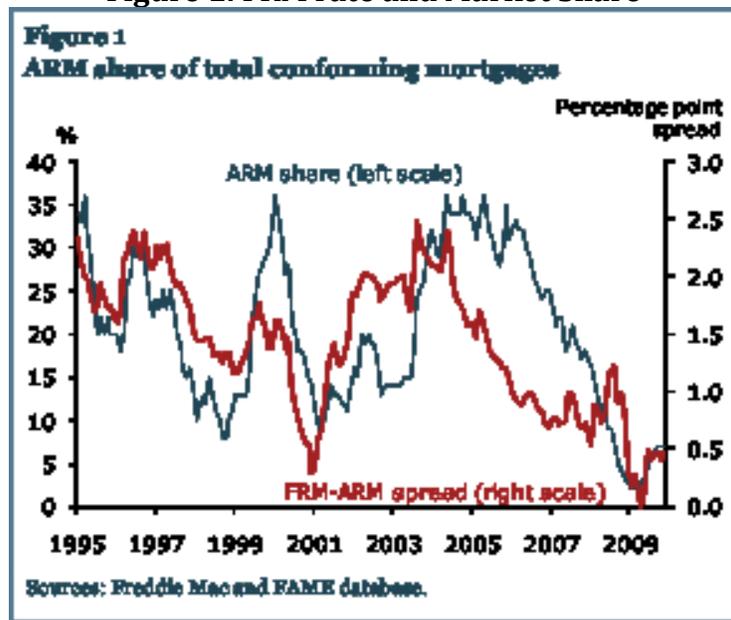
<sup>4</sup> Deferred loss accounting proved to be a poisoned chalice for many savings and loans. Not only did it lead them to sell their FRMs at the wrong time—when rates were high but falling—but also the 1989 FIRREA legislation eliminated it for regulatory capital purposes rendering many institutions insolvent.

The default risk and timely payment guarantees on mortgage securities provided by FHA/Ginnie Mae, Fannie Mae, and Freddie Mac lower the relative price of conforming fixed rate loans increasing the instrument's market share.<sup>5</sup>

The prepayment feature is another factor in the dominance of the FRM. FRMs contain an embedded option for borrowers to prepay their loans without penalty. Government policy promotes this feature. Many states ban prepayment penalties on FRMs, and Fannie Mae and Freddie Mac will not enforce a prepayment penalty on FRMs they purchase.<sup>6</sup>

As a result, the FRM has been the dominant instrument throughout the post-Depression time period. Adjustable rate mortgages (ARMs) were introduced in the 1960s and allowed by federal regulation in 1981. Since that time the market share of FRMs has fluctuated based on the level and direction of interest rates. ARMs have achieved a market share as high as 40 percent for some short periods of time but for the most part have had a market share of 20 percent or less (figure 1). While Fannie Mae, Freddie Mac, and the FHA have introduced ARM products, most of their efforts have been to develop and enhance their fixed-rate offerings. Today over 90 percent of mortgage originations are FRMs reflecting Federal Reserve efforts to keep rates low through monetary policy and quantitative easing and because Fannie Mae, Freddie Mac, and Ginnie Mae are the only funding sources for mortgage loans.

**Figure 1: FRM rate and Market Share**



Source: Krainer [2010]

<sup>5</sup> Vickery, [2007] analyzes the FRM/ARM market share as a function of the relative price of the instruments controlling for the term structure of interest rates and other time-series factors. He finds that a 20 basis point increase in the retail FRM interest rate is estimated to cause a 17 percentage point decline in the FRM market share.

<sup>6</sup> Interestingly many ARMs have prepayment penalties and Fannie and Freddie will enforce them.

The dominance of the FRM has now been enshrined in legislation through the “qualified mortgage” defined in the Dodd-Frank Financial Reform bill.<sup>7</sup> Lenders will get safe harbor from risk retention requirements for qualified residential mortgages (QRMs) as well as other regulatory benefits. So, it is likely that lender will choose the QRMs as their loans of choice and the non-QRMs will be relegated to the non-banking, non-GSE realms of private-market securitizations through private equity funds, REITs, and other vehicles.

### **Benefits of FRMs**

Government support is not the only reason for the dominance of the FRM. The instrument has several advantages for the consumer. First and foremost, it provides payment certainty and stability. This helps in consumer budgeting and also reduces the likelihood of default through payment shock in a volatile interest-rate environment.<sup>8</sup> It is also a simple instrument for borrowers to understand leading to proposals that all consumers be offered such an instrument at the time of application (Thaler 2009).

A key feature of the FRM is the ability of the borrower to prepay the loan without penalty.<sup>9</sup> This feature effectively converts the FRM into a downwardly adjustable rate mortgage. When market rates fall the borrower can refinance into a new loan at a lower rate. When market rates rise the borrower is protected through the long-term fixed-rate feature. The ability to refinance lowers mortgage payments and can stimulate consumer spending in a recession.

All mortgage instruments create interest-rate risk. The FRM shields borrowers from most interest-rate risk (as opposed to a short-term ARM for example). But the risk does not disappear—the lower the risk for the borrower the greater it is for the lender/investor. The risk rises with longer-term fixed-rate periods as well as through the prepayment option. Supporters of the instrument point out that it is easier for investors to manage interest-rate risk than consumers. It is true that investors have more tools at their disposal to manage interest rate risk. But borrowers rarely stay in the same home or keep the same mortgage for 15 to 30

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<sup>7</sup> A plain vanilla mortgage amortizes in 30 years or less, is fully documented and has a “reasonable rate and fees.” The FRM is a qualified mortgage as is a vanilla ARM. However the requirement that borrowers be qualified at the highest possible rate during the first 5 years of the term suggests that most qualified mortgages will be FRMs.

<sup>8</sup> ARMs have had a much worse default experience during the recession. In part this reflects the predominance of ARMs in the subprime market. It also reflects a selection bias whereby riskier and more speculative borrowers went into ARMs. See Barlevy and Fisher 2010 for an analysis of the latter.

<sup>9</sup> Prepayment is not costless however. There are significant transactions costs associated with refinance. Kiff (2009) compares Canadian and U.S. mortgage origination costs and finds that the US costs are 3 to 5 times higher for purchase loans and comparable for refinance (Canadian prepayment penalties are similar to the transactions costs of a U.S. transaction). Also frequent refinancing often results in equity stripping, increasing the probability of future default.

years (the average life of a loan is approximately 5 years) so one can reasonably ask why rates should be fixed for such long time periods (which increase the cost and risk of the instruments). Also, as discussed below, the taxpayer ultimately bears a significant portion of the risk.

Min argues that the FRM promotes financial and housing-market stability. A system dominated by ARMs or short-term fixed rates is more sensitive to interest-rate fluctuations than one dominated by the FRM and can contribute to boom-bust cycles in housing. Housing demand is more rapidly influenced by monetary policy with ARMs relative to FRMs. But the use of FRMs hardly eliminates housing cycles. The U.S. has experienced pronounced housing cycles in most decades since World War II including a massive housing boom and bust in the last decade. Min attributes that to the rapid growth in short duration mortgages. In large part the shortening average life of mortgages reflects widespread exercise of the FRM prepayment option, which is a fundamental component of the FRM.

### Costs of FRMs

The FRM is a uniquely one-sided design—protecting the borrower at the expense of the lender/investor. But such protection comes at a cost. Longer-term fixed-rate loans have higher rates than shorter-term fixed-rate loans in most interest-rate environments (table 1). Having a range of fixed-rate terms allows the borrower to trade off the degree of payment protection with affordability of the mortgage.

**Table 1: Mortgage Pricing**

Instrument	Pricing at 2/2/2011 with $-.375$ points
30-year FRM	4.75%
10-year FRM	3.375%
3:1 ARM	3.00%
5:1 ARM	3.25%
7:1 ARM	3.875%
10:1 ARM	4.5% (w/ $-.25$ points)

Source: MetLife Home Loans

Second, prepayable mortgages have higher rates than non-callable mortgages. In effect all borrowers are paying for the option to refinance regardless of whether they exercise it. This contrasts with the Canadian and European view of risk allocation. In this view the borrower receives a short to medium fixed rate loan without a free prepayment option. If the borrower wants to prepay for financial reasons (as opposed to moving house) they must pay a penalty equivalent to the cost to the investor/lender of reinvesting the proceeds at the new lower market rate. In those countries the cost of the option is individualized—borne by the individual exercising the option. In the U.S. the cost of the option is socialized with all borrowers paying a premium in their mortgage rates (on average around 50

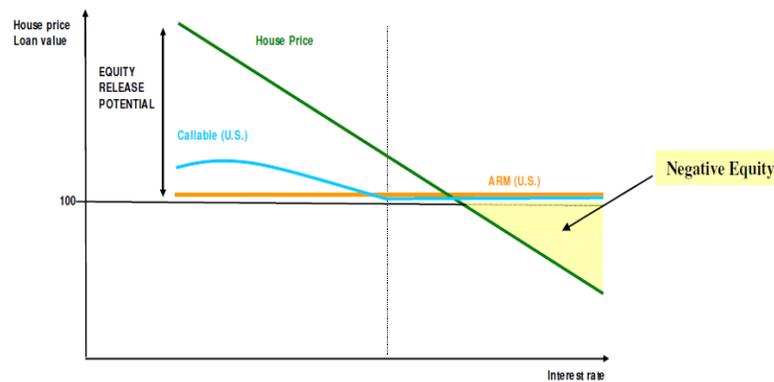
basis points but volatile, except for the moment). In effect it is a tax on all borrowers for the feature.

Third there is a distribution effect of non pre-payable mortgages. In effect borrowers who don't exercise the option are subsidizing those who do. The subsidy is most often paid by unsophisticated borrowers who are intimidated by the refinance process or credit impaired. The latter are those households most likely to benefit at the margin (i.e., by avoiding default) but least able to refinance.

The U.S. FRM creates a lock-in effect in a rising interest-rate environment, which can produce negative equity. When interest rates rise, the value of a house in most cases will fall. Likewise, the economic value of the mortgage falls. However the borrower is still responsible for repaying the loan at par value. The combination of falling house price and constant mortgage value can lead to or exacerbate negative equity (figure 2). In the current environment it is difficult for borrowers to refinance into lower rates because of negative equity. As a result they are unable to take advantage of historically low interest rates. Those with negative equity are also less likely to move to right-size their housing consumption or take advantage of job opportunities producing significant economic costs.

**Figure 2: House/Mortgage Value And Interest Rates**

**U.S. Mortgage Structures Can Create Negative Equity**

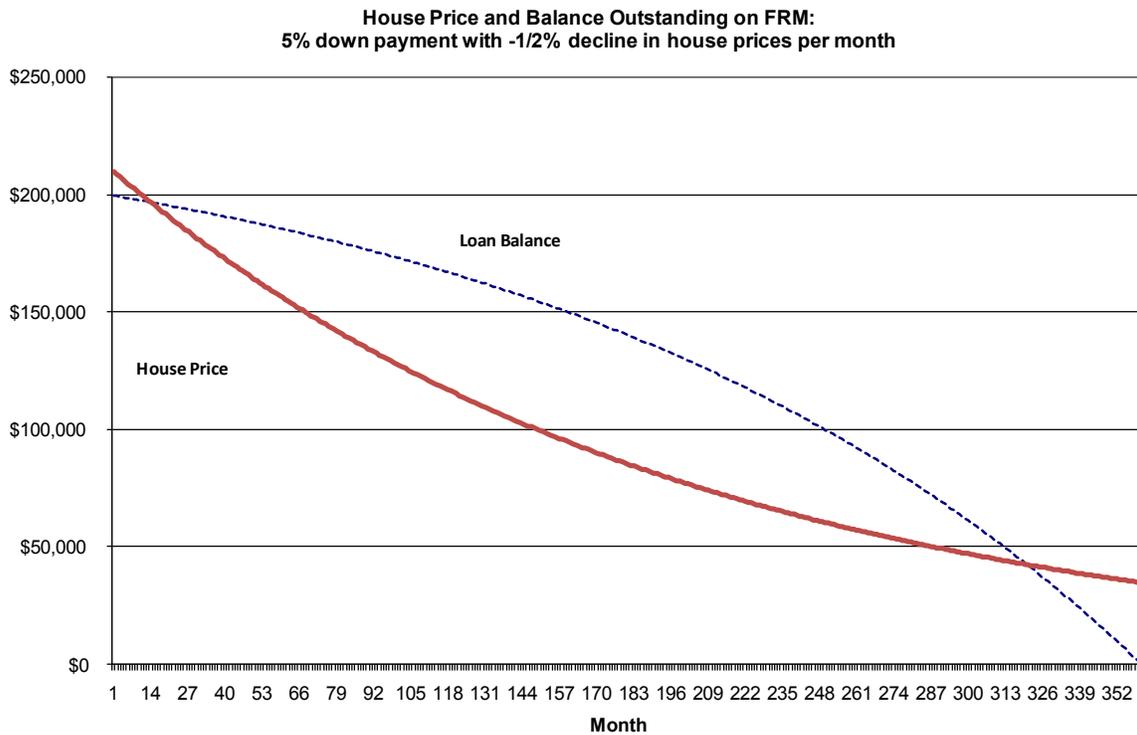


Source: Dübel 2005

The potential for negative equity with such a slow amortizing (but affordable!) mortgage product is daunting. See figure 3 for an example of a 30-year fixed-rate mortgage paydown with declining house prices of ½ percent per month. In this example, the borrower is in negative equity territory by month 11 (since house prices are falling faster than the loan is being paid down). The difference between the (dashed) loan-balance line and the (solid) house-price line illustrates how

severe the negative equity problem can get with a 30-year fixed-rate mortgage and declining house prices.

**Figure 3: House Prices and Mortgage Loan Balance on 30 year FRM**



Rising interest rates cause other problems for FRM borrowers and investors. If rates rise due to expected inflation, the use of FRMs creates affordability problems for borrowers. This was the case during the 1970s in the U.S. Un-hedged investors experience an economic loss on their holdings of FRM-backed securities when interest rates rise (they also do not benefit from a rate decline as noted above).<sup>10</sup> Rising interest rates also create an extension risk for investors. As rates rise, prepayments slow and the effective maturity of the securities increases.

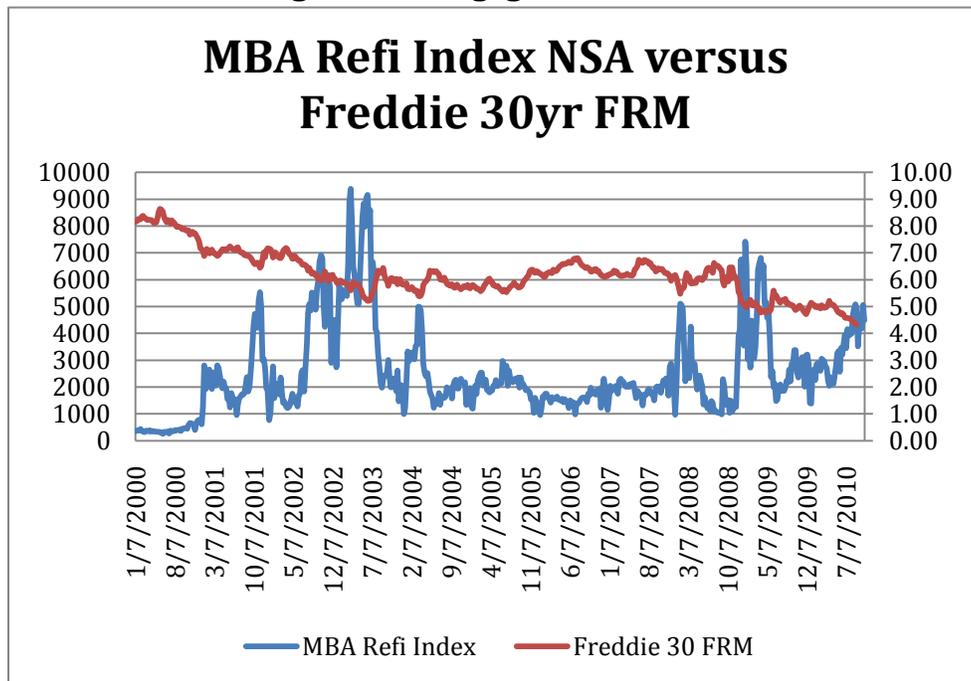
Volatile interest rates cause problems for both borrowers and lenders. Long-term fixed-rate instruments have greater sensitivity to interest rate change than shorter-term instruments. Volatility in pricing makes mortgage shopping more difficult. It is

<sup>10</sup> Hedging uncertain prepayment is both costly and risky. It leads to considerable speculation on the future direction of mortgage rates that has little social benefit. Hedging also increases systemic risk through counterparty exposure. The huge hedge positions of Fannie and Freddie were one reason why the government placed them in conservatorship in 2008.

difficult for borrower to shop for mortgages when their prices can vary significantly on a daily (or intraday) basis.<sup>11</sup>

Refinancing waves increase cost for mortgage originators and borrowers. As interest rates rise and fall, the volume of mortgage origination is subject to massive swings. Mortgage originators and servicers have significant costs associated with managing such volatility. For example origination volume rose from less than \$3 trillion in 2002 to nearly \$4 trillion in 2003 and fell to less than \$3 trillion in 2004 (figure 4). Thus the industry had to increase capacity by 33 percent in one year and reduce it by 25 percent the following year. Refinancing FRMs was the main reason for this volatility. Mortgage borrowers spend thousands of dollars in origination costs simply to lower the rate of their mortgage.<sup>12</sup>

**Figure 4: Mortgage Refi Volume**



The use of the FRM has created significant costs for taxpayers. Until 1981 federally insured depositories were prohibited from offering ARMs. Predictably when inflation and interest rates rose in the 1970s and early 1980s reliance on this instrument effectively killed off the industry. In 1982 approximately 80 percent of the savings-and-loan industry was bankrupt and insolvent due to the mismatch between FRM assets funded by short-term deposits. Fannie Mae was also rendered

<sup>11</sup> Shopping is also complicated by the US use of points to adjust pricing. Borrowers are confronted with an array of rate and point combinations that differ across lenders. Points were introduced in the 1970s when market rates rose above FHA rate ceilings—another effect of government regulation.

<sup>12</sup> Ely (2010) has suggested the “Ratchet Mortgage” in which the rate is automatically lowered without transaction cost.

insolvent through a similar mismatch. When a large number of thrifts eventually failed, the taxpayer picked up a significant tab to restructure the industry.<sup>13</sup>

Learning from the experience, banks and thrifts continued to originate 30-year FRMs but only if the loans could be sold to Fannie Mae, Freddie Mac, or insured by the FHA; in other words, banks and thrifts were not in the business of retaining the interest-rate risk that they created by originating the FRMs. But this risk does not go away—rather, investors absorb it. If investors were truly private-sector entities one would expect the risk to be appropriately priced and managed. However the GSEs hold a significant portion of the FRM inventory.<sup>14</sup> This means that when interest rates rise they may suffer large losses that will be borne by taxpayers.

The popularity of the FRM and its backing by the government produces another significant risk for the government. In order to finance the FRM and allocate the interest rate risk to investors, the government through FHA insurance and Fannie/Freddie guarantees absorbs the credit risk on the mortgages. Ironically it was credit risk that led to the failure of Fannie and Freddie in the financial crisis. While part of their losses can be attributed to speculative investments in subprime and Alt-A backed securities (mostly non-FRM mortgages), a majority of their losses are coming from defaults on FRMs.<sup>15</sup> The GSE losses are now projected to be \$220 to \$360 billion by the Federal Housing Finance Agency (2010). A portion of these losses can be attributed to the policy goal of ensuring the availability of the FRM through the government absorption of the credit risk.

### **The Myth of the FRM (the Tao of Min)**

David Min, of the Center for American Progress, has written “the 30-year fixed-rate mortgage remains the gold standard for mortgages throughout the world, offering superior stability for both homeowners and financial systems.” If this is true why is the U.S. one of only two countries in the world with this instrument? And why is the U.S. the country most afflicted with a housing bust? Given the catastrophic condition of Fannie Mae and Freddie Mac, it is clear that the 30-year fixed-rate mortgage is outright dangerous and not a gold standard. Perhaps his musing should be rewritten to say “the 30-year fixed-rate mortgage remains the fool’s gold standard for mortgages throughout the United States, offering superior stability for some homeowners and potential catastrophe for U.S. and global financial systems.”

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<sup>13</sup> Although the popular press tended to focus on excessively risk non-residential mortgage investments as the cause of failure of the savings and loans, the fact was that they were bankrupted by the asset-liability mismatch and tried to grow out of their earnings and capital problems through investment in high risk assets.

<sup>14</sup> The GSEs hold whole loans in their portfolio. They also repurchase securities they guarantee—in effect investing in the cash flow risk associated with funding callable mortgages with a blend of callable and non-callable debt of different maturities.

<sup>15</sup> FHFA projections of GSE losses found most of the losses are due to their purchased loans rather than securities. See FHFA 2010.

The FRM is a unique instrument by international standards. Only one other country, Denmark, has a long-term, fixed-rate, prepayable (without penalty) mortgage (table 2).<sup>16</sup> Several other countries have long-term fixed rates (e.g., France, Japan, Germany), but the typical terms are shorter and prepayment is subject to penalty. Shorter amortization periods benefit both borrower and lender due to faster equity build-up.

A more common fixed-rate instrument is the rollover, which is the dominant instrument in Canada and several European countries. The rate is typically fixed for up to five years and “rolls” into a new fixed rate at the end of the term. The new rate is negotiated with the lender and is set at market. These loans also have prepayment penalties during the fixed-rate term. Adjustable-rate loans are the dominant instrument in a number of countries including Australia, Spain, and the UK.

**Table 2: International Mortgage Products**

	<b>Variable rate</b>	<b>Short term fixed (1-5)</b>	<b>Medium term fixed (5-10)</b>	<b>Long term fixed (10+)</b>
Australia	92%	8%		
Canada	35%		55%	10%
Denmark		17%	40%	43%
France	33%			67%
Germany	16%	17%	38%	29%
Ireland	91%		9%	
Japan	38%	20%	20%	22%
Korea	92%		6%	2%
Netherlands		15%	66%	19%
Spain	91%	8%		1%
Switzerland	2%		98%	
UK	47%	53%		
US	5%			95%

Source: Lea [2010]

Many other countries had housing booms and busts during the last decade. Yet no country has had the severity of downturn as the U.S. Min attributes the U.S. housing cycle to a shortening of duration of mortgages over the past two decades. While many would place the blame on loosened underwriting, government stimulus for affordable housing and other causes, the fact remains that most of the reduction in average maturity was due to borrowers exercising the prepayment option in their FRM contracts. And much of the shortening was for ash out refinance to facilitate consumption at the expense of wealth accumulation.

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<sup>16</sup> The Danes add a unique twist to the instrument. The loan is backed by an individual mortgage bond. If rates rise the borrower can buy the bond at a discount and cancel the loan with the lender. This feature facilitates automatic de-leverage and reduces the likelihood of negative equity. See Lea (2010).

### Troubled Mortgages: Western Europe and 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
US All Loans	9.47%		4.58%	2009
US Prime	6.73%		3.31%	2009
US Subprime	25.26%		15.58%	2009

Source: Jaffee (2011)

The prepayment option is assumed to be free by Min. It is far from free as we have discussed earlier. In fact, only a certain number of borrowers will actually utilize the prepayment option although everyone has to pay for it. Fannie Mae and Freddie Mac will only purchase prepayable mortgages, even though non-prepayable mortgages may be in many borrower's best interest.

But the fundamental question remains: are the benefits of the FRM worth the costs? All borrowers pay a substantial tax—50 basis points or more—for this instrument. The taxpayer has absorbed substantial losses supporting first the savings and loans and now Fannie Mae and Freddie Mac in order to support this instrument. Do we want to subject taxpayers to the risk of another catastrophic meltdown to preserve this instrument? Are there alternatives that maintain some of the benefits of the FRMs while greatly reducing the costs?

If Fannie Mae and Freddie Mac were to go away, the FRM would not cease to exist. Private label securitization in the U.S. and covered bonds in Europe have funded this instrument in the past and are fully capable of funding it in the future. Investors are sophisticated enough to price both credit and interest rate risk. Only in the U.S. has this not been the case. And the reason is clear: if you (as a private investor) can get the government to absorb one of the key risks at a lower cost than you would charge—why not? The loss experience of Fannie and Freddie suggest that they were funding mortgages at below market (risk-adjusted) rates. Without Fannie and Freddie the instrument would still be offered but not at a subsidized rate. Hence there would be a smaller market share for the FRM, but it would not disappear as Min asserts. Nor would the only alternative be a short-term ARM.

## Conclusion

What would emerge as “standard” U.S.-mortgage instrument without the government support of the FRM? We think a rollover mortgage similar to that offered in Canada and several European countries is the likely candidate.<sup>17</sup> This instrument offers short- to medium-term payment stability to borrowers. Borrowers can manage interest-rate risk by adjusting the fixed-rate term upon renewal. Min’s assertion that borrowers would be unable to refinance is not borne out by modern international experience. Borrowers could hedge the interest rate risk by locking in a forward rate in advance of renewal. German lenders offer forward rates up to five years—certainly U.S. lenders with a deep derivative market could do the same. Alternatively, they can adjust the degree of risk by varying the length of the fixed-rate period.

A complete and robust housing-finance system should offer borrowers a menu of mortgage options—ranging from short-term ARMs for those borrowers who can handle payment change, to long-term FRMs for those borrowers who value payment stability. To assert that the FRM is the preferred alternative for most borrowers is naïve. Many borrowers have shorter-term time horizons and can handle some interest-rate risk. Min’s assertion that the switch to shorter duration instruments would lead to massive defaults if and when interest rates increase is not supported by international experience.

We also think the prohibition of prepayment penalties on fixed-rate mortgages is misguided. Borrowers should be given a choice—long-term versus-short term fixed rates, with and without prepayment penalties. The market will price the differences giving price breaks to those borrowers willing and able to handle interest-rate risk. Following Canadian and European tradition imposition of a prepayment penalty should be limited. It should not apply to borrowers moving house and should be limited in term (e.g., 5 years in Canada, Netherlands, 10 years in Germany).

The most important result of a shift away from the FRM is a reduction in taxpayer liability for mortgage risk. There is nothing so special about housing finance that necessitates the government absorbing the credit risk of the vast majority of the mortgage market or underwriting the interest-rate risk of the that market. Two episodes with massive taxpayer loss should convince us of that fact.

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<sup>17</sup> Canada supports its mortgage market through default insurance and cash flow guarantees comparable to FHA/Ginnie Mae in the US. The market share of government-backed mortgages is considerably less however with approximately 50 percent of mortgages backed by government insurance and 25 percent of mortgages backed by guarantees. European countries do not support their mortgage markets through insurance (with the exception of the Netherlands) or guarantees.

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