# Written Testimony By Anthony M. Yezer Professor of Economics George Washington University

# U.S. House of Representatives Committee on Oversight and Government Reform

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Mr. Chairman and members of the Committee, thank you for this opportunity to discuss what economic research has been able to determine about the role and function of the market for subprime mortgage credit. I have done research on high-risk lending for over 25 years, beginning with my work as for the Federal Trade Commission as an external consulting evaluating the economic effects of the Credit Practices Rule. Along with Michael Staten I edited the papers for two special issues of the *Journal of Real Estate Finance and Economics* on the topic of subprime lending. My remarks here will be based on these papers and on subsequent research done at George Washington University as well as recent important work done elsewhere much of which is currently in working paper form and awaits publication in refereed journals. Much of this research was produced by economists at various Federal Reserve Banks.

My comments are particularly directed on the reasons for the rise and sudden decline of the subprime mortgage market and the relation of those events to recent issues of corporate performance. I have some suggestions for changes that might prevent a recurrence of the events of the past few years that I hope will be considered insofar as they imply some changes in government policy. You should understand that my expertise does not extend to compensation of corporate officers in the area of commercial banking and finance.

#### .I. There is an advanced academic literature on subprime mortgage lending

Economic analysis of mortgage markets in general is quite advanced and involves rather advanced mathematical and statistical models. There has been less work on subprime mortgages but recent advances have been made that give an excellent picture of the nature of the market and the risks involved.

I-1. Because of the complex nature of mortgage markets, it is important to know the literature on how they function before considering regulations or policy interventions because *changes in these markets can easily cause unintended consequences that are very damaging to borrowers. I suggest the following label – "WARNING: Subprime markets should not be regulated or evaluated without first consulting a professional economist".* 

# II. Definition(s) and measurement of the subprime market

A first task is definition of what is meant by prime versus subprime mortgage lending and measurement of the volume and characteristics of lending. It appears that the academic literature has decided to define subprime lending in terms of the characteristics of the borrower – specifically a FICO score below 620 with at least case of a seriously delinquent payment in the past 12 months. Subprime

mortgage lending relies heavily on low-cost statistical credit scoring and features different loan pricing based on the estimated risk of the borrower. This contrasts with the prime mortgage market where underwriting is more elaborate and costly and all borrowers face similar loan costs save for the need for mortgage insurance in cases of high loan/value ratios.

Because this definition of subprime lending is based on borrower credit score and history, we have no precise measure of the amount of subprime lending in the U.S., However, estimates of subprime lending appear to be getting more precise and recently, tests of alternative measures have produced comparable estimates. Accordingly many researchers believe that subprime lending increased from less than 5% of mortgages in 1995 to more than 15% of mortgages in 2005. Note that, initially, subprime mortgages were generally used to refinance residences and more recently became a significant part of the new purchase market.

These measures of the fraction of newly endorsed mortgages that are subprime are estimates and are also subject to the following cautionary points:

- II-1. Property transfer records indicate that many mortgages are what I call "brand X" mortgages. These are mortgages that are either taken back by sellers or made by very small scale mortgage lenders. Because these loans are not registered with HMDA or sole into national mortgage pools, we know virtually nothing about their characteristics. I personally suspect that most predatory lending falls into this brand X mortgage market. Indeed, one positive function of subprime lending is that it may have reduced the size of the brand X market but I know of no research on this topic. An effort to understand brand X lending and its relation to subprime and predatory lending problems is long overdue.
- II-2. The flow of new mortgages does not reflect the stock of outstanding mortgages because subprime mortgages prepay far faster than prime mortgages. Indeed, one motivation for subprime borrowing is to establish a credit history or repayment that allows refinancing to lower cost prime credit. Thus, if subprime mortgages start out as 20% of new mortgages, after 2 years, subprime mortgages will be far less than 20% of outstanding mortgages due to faster prepayment.
- *II-3.* Subprime mortgage pools are subject to adverse selection over time. The best credit risks prepay leaving the pool of outstanding mortgages with an unusually high fraction of the worst risks. Also there is evidence that subprime borrowers linger in default and have more spells of serious delinquency before foreclosure.

#### III. There is a sound economic rational for having a subprime mortgage market

The rise of subprime lending fills an obvious need that can be demonstrated using sound economic theory. Differences between subprime lending and prime lending that may appear curious to those unacquainted with economic models can be understood and even predicted as necessary characteristics of subprime lending. For example, the fact that subprime lending has much lower cost and simpler underwriting procedures and yet has higher rejection rates than prime lending may appear curious or even suspicious and yet these differences have been shown to be theoretically necessary for the subprime market to function.<sup>1</sup>

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<sup>&</sup>lt;sup>1</sup> See the theoretical model developed in Joseph Nichols, Anthony Pennington-Cross and Anthony Yezer, "Borrower Self-Selection, Underwriting Costs, and Subprime Mortgage Credit Supply," *Journal of Real Estate Finance and Economics*, (2004).

#### IV. The economic rational for subprime refinancing is stronger than for new purchase

The economic rational for the existence and expansion of subprime lending over the 1994-2005 period is stronger for refinancing than for new purchase lending. Subprime refinancing served an important role by allowing households to escape from the "home equity trap" which caused many forced sales in the past. Households in the U.S. hold a substantial portion of their wealth in the form of home equity. Indeed, the proportion of home equity appears so large that understanding this behavior has been a significant preoccupation in recent economic research. For example, the median home-owning household in the U.S with head under 50 years of age holds zero percent of its portfolio in common stocks, and virtually all of its portfolio in home equity and government-guaranteed assets. Quite frankly, to many economists this appears to be an obvious misallocation of resources and contradicts what we teach our students in class.

Since the 1930's, the prime mortgage market has been dominated by the long term (first 15 and then 30) year fixed-rate, self-amortizing, mortgage. This one-size-fits all approach to mortgage credit supply along with the substantial cost of refinancing has made accumulation of housing equity an automatic feature of household budgeting. While there has been dramatic innovation elsewhere in financial markets, attempts to change mortgage characteristics have been conspicuously unsuccessful - although things may be changing. The current mortgage instrument has the property that prepayment which raises home equity, changes the date of maturity but not the monthly payment or the requirement for prompt payment to avoid delinquency and technical default.

This strange preference for housing equity and the self-amortizing mortgage, taken together give rise to what I call the "home equity trap." Households who experience what economists call a negative income shock - lose your job, health, or spouse - and whose wealth consists of government-guaranteed assets and home equity will find themselves caught in a home equity trap. Their first adjustment to the income shock will be a combination of spending the government-guaranteed assets and raising consumer credit obligations. Given high transactions costs or cash-out refinancing and the penalty for missing a mortgage payment, they view housing equity as illiquid. However, when they have exhausted liquid assets, they find that lack or income and rising consumer credit make it impossible to do a cash-out refinancing in the prime mortgage market. Accordingly they must turn to subprime lenders for refinancing or sell their homes to raise cash. This is the basis of the home equity trap.

Homeowners act as if home equity is equivalent to stocks, bonds, and other risk assets as a store of value. In fact it is not equivalent because cash out refinancing in the prime market is usually not possible when the funds are most desperately needed. I would be remiss if I did not also note that, from the point of risk diversification, home equity is inferior to other risk assets.

*IV-1*. The existence of the subprime refinance market gives households caught in the home equity trap an alternative to selling their home to obtain liquid assets when problems strike. Note that this benefit tends to be most valuable to low and moderate income households and those whose credit is marginal.

#### V. The effects of regulations on the subprime market tend to be misunderstood

There seems to be confusion regarding the effects of regulations on subprime lending. Understanding the effects of regulation requires careful economic analysis.

V-1. For example, it is possible to demonstrate both theoretically and empirically that

restricting prepayment penalties on subprime mortgages tends to raise the price of credit, and reduce access to credit to those borrowers who have lower income and have the worst credit problems.<sup>2</sup>

# VI. Until recently, the behavior of subprime mortgages was quite predictable indicating that subprime borrowers were well informed

It is always difficult to evaluate a new asset class. Substantial attention was paid to the prepayment and default loss characteristics of subprime mortgages and they appeared to be well understood through 2004. Consider Figure 1 below, which shows the pattern of termination of a cohort of subprime mortgages that were endorsed between June and December, 2002. Termination takes the form of prepayment or default (foreclosure, deed in lieu transactions, short sales, etc). Regulated loans are made in states that restrict prepayment penalties and they prepay faster than loans in states with no restrictions. Note how well behaved and smooth the functions are. Also note that half of the mortgages terminate (generally through prepayment) within 18 months of endorsement. As mentioned above this rapid termination rate of great importance in understanding data on subprime performance. Cumulative default losses on these subprime cohorts are significantly above those of prime loans but overall they are not large compared to recent measured rates of default loss which will be discussed below.

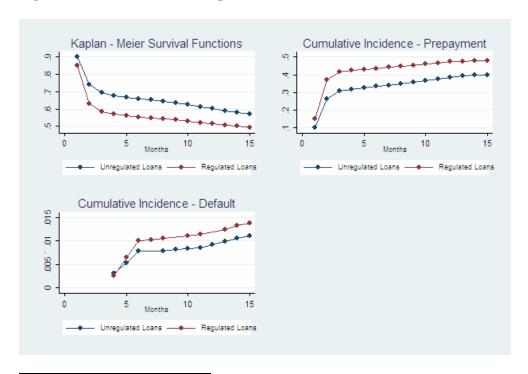


Figure 1: Termination of Subprime Loans Endorsed June-December 2002<sup>3</sup>

<sup>&</sup>lt;sup>2</sup> See, for example, Jevgenijs Steinbuks, "Essays on Regulation and Imperfections in Credit Markets" Ph.D. Dissertation, George Washington University, December, 2007.

<sup>&</sup>lt;sup>3</sup> Figure 1 is taken from Jevgenijs Steinbuks, "Credit Regulation and the Termination of Subprime Mortgages," George Washington University Working Paper, (May, 2007). These results are common in the literature that is referenced below.

An excellent recent paper by Pennington-Cross and Ho estimates a model of prepayment and default for hybrid arms and fixed rate subprime loans.<sup>4</sup> They examine differences in the pattern of prepayment and default over time for the hybrids that adjust and produce a "payment shock" after two years versus the fixed rate loans with no shock. Again the statistical inference is complex and requires joint estimation of prepayment and default. The results are that the payment shock after two years produces a spike in prepayment of the hybrid arms but not a spike in defaults. This indicates that borrowers are well aware of the provisions of their mortgages and exploit the lower rates on the hybrid arms by refinancing when they reprice. Note that this formal statistical evidence is in sharp contrast to assertions that borrowers will be caught unaware by payment shock and massive foreclosures will result from use of this loan product.

- *VI-1*. Subprime lending losses were higher than prime but, through 2004, appeared to be quite predictable and small enough to justify lending at the higher rates of subprime loans. In view of this performance, it is not surprising that subprime lending expanded.
- *VI-2.* Prepayment and default equations estimated for subprime borrowers using the 2/28 arm a spike in prepayment at 24 months and no spike default which **indicates that the borrowers were using these 2/28 arms intelligently and refutes claims of misinformation and the existence of a payment shock effect.**

## VII. Government policies encouraged the expansion of subpirme lending

Between 1995 and 2005, homeownership rates in the U.S. rose from about 64% to almost 70%. It is not clear how much of this increase was due to subprime lending which raised homeownership first by allowing homeowners to use cash out refinancing to stay in homes rather than having to sell and second by facilitating home purchase for households with poorly documented income and low credit scores. Further research on this question is needed but innovations in mortgage lending, particularly subprime lending, appear to be a leading reason for the rise in homeownership and the progress toward this politically important policy goal.<sup>5</sup>

VII-1. Government regulators encouraged lenders and the GSEs to expand lending to "underserved" borrowers and census tracts. The rise in subprime lending was the banking sectors answer to this government request. Congress had a major role in promoting the rise in subprime lending. As someone who teaches money and banking, I found it difficult to explain to my students why the textbook said that bank examiners checked institutions for safety and soundness and at the same time examiners were giving low CRA ratings to depositories who failed to make enough loans to the underserved – evidently a group who, as it has turned out, are neither safe nor sound. In the future, I suggest that depository institutions not be encouraged to take additional risk by their regulators. The standard textbook view that regulation and examination should promote safety and soundness appears, in retrospect, to be the best policy.

<sup>&</sup>lt;sup>4</sup> Anthony Pennington-Cross and Giang Ho, "The Termination of Subprime Hybrid and Fixed Rate Mortgages," (2007).

<sup>&</sup>lt;sup>5</sup> For examples of studies that conclude mortgage innovation was central in the rise in homeownership see Carlos Garriga, William Gavin, and Con Schlagenhoff, "Recent Trends in Homeownership," *Federal Reserve Bank of St. Louis Review*, (Sept/Oct, 2006) 397-411 and Raphael Bostic, Paul Calem, and Susan Wachter, "Hitting the Wall: Credit as an Impediment to Homeownership," in *Building Assets, Building Credit: Creating Wealth in Low Income Communities*, (Brookings Institution). 2005.

- VII-2. There is a literature which suggests that both the Basel I and Basel II risk weights used to set capital requirements for depositories did not treat mortgages in general and subprime mortgages in particular correctly. In part, this is a new asset problem and, apparently, it was assumed that default loss on subprime mortgages was largely idiosyncratic i.e. not correlated with the business cycle. That assessment is presumably being revisited.<sup>6</sup>
- **VII-3.** Monetary policy from 2002 to 2005 departed significantly from the Taylor rule that had guided the great moderation of business cycles. This along with statements from the Chairman of the Federal Reserve advocating the ARM as an attractive instrument for homeowners helped to spur increases in demand for mortgage credit and housing prices that, in retrospect, could not be sustained.<sup>7</sup>
- VII-4. It appears to be a bit unfair to criticize the management of mortgage lenders now for actions which they took to promote homeownership given that government asked for increased lending to the underserved in order to raise homeownership rates and Basel I & II capital standards reinforced the changes in lending practices.

#### VIII. Putting the problem in perspective: comparing prime, subprime and FHA performance

Given that there is a government mortgage insurance program which operates in parallel with conventional prime and subprime mortgage lending, it is useful to compare the performance of the three. Here I rely on the *National Delinquency Survey* of the Mortgage Bankers Association. The most recent data available to me, presented in Table 1, is for the quarter ended September 30, 2007.

Table 1

Mortgage Type	Percent Past Due	Percent Foreclosures Started Inventory		Seriously Delinquent	Number
All Prime Conventional	3.12	0.37	0.79	1.31	35,224,689
Prime Conventional ARMs	5.14	1.02	2.04	3.12	6,346,076
Prime Conventional FRMs	2.54	0.22	0.48	0.83	27,599,715
All Subprime	16.31	3.12	6.89	11.38	5,990,253
Subprime ARMs	18.81	4.72	10.38	15.63	2,858,267
Subprime FRMs	12.36	1.38	3.12	6.61	2,751,751
All FHA	12.92	0.95	2.22	5.54	3,089,370
FHA ARMs	15.32	1.48	3.30	7.43	180,593
FHA FRMs	12.24	0.78	2.02	5.08	2,786,317

Clearly delinquency and foreclosure problems are much lower for prime conventional loans than for

<sup>&</sup>lt;sup>6</sup> Studies suggesting capital standards encouraged mortgage lending include: Paul Calem and James Follain, "Regulatory Capital Arbitrage and the Potential Competitive Impact of Basel II in the Market for Residential Mortgages," *Journal of Real Estate Finance and Economics*, (August 2007) 197-219, and Paul Calem and Michael Lacour-Little, "Risk-Based Capital Requirements for Mortgage Loans," *Journal of Banking and Finance*, (March, 2004), 647-672.

<sup>&</sup>lt;sup>7</sup> For a discussion of these issues, see John B. Taylor, "Housing and Monetary Policy," Working Paper 13682, NBER, December 2007.

subprime or FHA loans. Repayment problems on FHA-insured loans are far closer to those of subprime loans than they are to prime conventional. Consider further that these statistics are based on the percentage of outstanding loans in difficulty. But, earlier sections noted that, from a given cohort of subprime loans, prepayment is far higher than usual for mortgages – more than twice as fast. Furthermore, prepayment of subprime loans is often prompted by improved credit history – i.e. refinancing into lower cost prime mortgages which takes the best risks out of the pool.<sup>8</sup>

VIII-1. Therefore, simple comparison of overall delinquency and foreclosure rates in the outstanding stock of subprime, prime, and FHA mortgages is a misleading indicator of their relative credit risk because the subprime stock is seriously depleted by prepayment of the best risks. Correction for this sample selection effect would move the performance of subprime mortgages very close to the government's FHA program. In view of this, it is inappropriate to concentrate only on subprime lending as source of default and foreclosure problems in housing market today. There will be more on this in the policy suggestions below.

#### `IX. Why has there been such a quick rise in mortgage delinquency and foreclosure?

Again, relying on the survey from the Mortgage Bankers' Association, I find that subprime mortgages past due and starting foreclosure rose from 10.78% and 1.32% in the first quarter of 1998 to the numbers reported in Table 1 and similarly FHA-insured mortgages past due and starting foreclosure were only 8.36% and 0.31% respectively at that time. Certainly fraudulent behavior by applicants, and loan officers appears to have played a role in these increases as well as the increasing share of subprime lending for new purchase and investor loans. However, an excellent study by the staff of the Federal Reserve Bank of Boston, has demonstrated that the major factor influencing default on subprime loans is the change in house prices. This paper notes an important difficulty in understanding the contribution of subprime lending to foreclosure. Because households with prime mortgages who are having payment difficulties, often refinance into subprime mortgages, this has the effect of lowering prime defaults and raising subprime foreclosures. For example, the authors find that 44% of all foreclosures in Massachusetts were subprime mortgages, only 30% of foreclosures were on borrowers who started with a subprime mortgages. The other 14% were original prime borrowers who refinanced into subprime before eventually defaulting. Thus 70% of foreclosures were on properties initially purchased with prime mortgaes. Furthermore the authors find that, over the entire sample period analyzed, the cumulative probability of foreclosure on a home purchased originally with a subprime mortgage is 18% compared to 3% for a prime mortgage. However, these probabilities are very sensitive to house price appreciation over the period. Negative appreciation rates increase foreclosure sharply.

IX-1. While other factors may have some influence, the rise in subprime foreclosure is largely the result of flat or falling house prices. In this sense, it appears that subprime lending has risk characteristics not unlike disaster insurance. Losses are moderate in "normal" housing markets (prices increasing with inflation) but very large when house prices turn down. Unfortunately, just as we may have estimates of the general frequency of disasters and housing market downturns, forecasting the timing of these events still eludes meteorologists

<sup>&</sup>lt;sup>8</sup> This point has been made by many authors, and is a standard caution given by the MBA in reporting data on delinquency and foreclosure rates.

<sup>&</sup>lt;sup>9</sup> The discussion in this paragraph is largely based on Kristopher Gerardi, Adam H. Shapiro, and Paul S. Willen, "Subprime Outcomes: Risky Mortgages, Homeownership Experiences, and Foreclosures," Federal Reserve Bank of Boston, Working Paper No. 07-15 (December 2007)

## and economists.<sup>10</sup>

- IX-2. Statistical evidence suggests that subprime foreclosures are caused by falling house prices but that subprime foreclosures do not cause falling house prices.<sup>11</sup>
- IX-3. There is evidence that increasing subprime lending was, by itself, responsible for price increases in credit constrained (underserved) areas. This rise in prices was sufficient to lower default rates for a time but when subprime lending slowed dramatically, the process reversed.<sup>12</sup>

## X. In retrospect, average subprime lending rates have been too low, not too high

Given the lack of profitability of subprime lenders, it appears that, on average, mortgages have been priced too low rather than too high given the level of credit risk. This does not mean that there were not cases in which prices were too high, simply that these cases were apparently more than matched by transactions on which price was below average cost. This is consistent with evidence from high-risk automobile lending where profitability of firms appears to be lower for those in the highest risk and highest price segment of the market. One reason for the low returns to subprime mortgage lenders may have been the pressure (see VII above) of regulators to expand high risk lending.

## XI. There is evidence that subprime lenders securitized the "worst performing" loans

Recent evidence indicates that subprime lenders securitized the worst performing loans and traded their own collateralized mortgage obligations (CMOs) based on information not available to others. One important innovation of the subprime market was the ability of investors to use individual loan-level detailed data from Loan Performance (LP) to forecast the likely prepayment and default performance of the loans packaged in a CMO. The initial lender, of course, retained some information in the loan file that was not in LP data and sometimes retained the servicing on the loans, which provided very timely information on payments received. The payment updates in LP data were monthly (I believe).

Two papers have independently tested the proposition that the LP data available to the pubic were able to predict performance as well as the initial lenders. Both of these papers conclude that the securitization and trading decisions of subprime lenders were based on superior information than that in LP. While there was no guarantee that this would not be the case, it appears that market participants were not aware that their own trading based on LP data was less well informed than that of the initial

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<sup>&</sup>lt;sup>10</sup> Actually forecasts of housing price movements might be "self refuting" because, if they were believed by investors, prices would never be bid up in the first place. This is a general problem in forecasting business cycles that does not encumber the meteorologist.

<sup>&</sup>lt;sup>11</sup> See Gerardi, Shapiro, and Willen, ibid.

<sup>&</sup>lt;sup>12</sup> This point is suggested in the Boston Fed paper but demonstrated explicitly in Atif Mian and Amir Sufi, "The Consequences of Mortgage Credit Expansion: Evidence from the 2007 Mortgage Default Crisis," University of Chicago, Graduate School of Business, (December 2007)

Benjamin Keys, Tanmoy Mukherjee, Amit Seru, and Vikrant Vig, "Did Securitization Lead to Lax Screening? Evidence from Subprime Loans 2001-2006?" Working Paper, University of Michigan, (January 2008) and Stephen Drucker, and Christopher Mayer, "Inside Information and Market Making in Secondary Mortgage Markets," Working Paper, Columbia University Business School (January 2008).

lender. It may well be that part of the sudden drop in the market value of CMOs securities was based on the realization that models using LP did not contain all the information available to other traders. If this was the case, then the lenders who traded on additional information produced an externality for the rest of the market. I believe that the arguments made in this paragraph are plausible and consistent with recent research but more work on the issue of trading with asymmetric information and its effects on pricing of CMOs is needed.

# Suggested Changes Under the Umbrella of "Government Operations"

I have some suggestions for changes in government operations that could improve the performance of mortgage markets in the U.S. A modest list of these is provided below. I have made most of these points for many years.

#### A. Financial literacy and disclosure are not keys to the problem of mortgage choice

There is a major effort underway to produce a new and improved HUD-1 form and to change required disclosure under Truth in Lending. At the same time survey results demonstrate a general lack of financial literacy in the public and there are efforts to remedy that. <sup>14</sup> In my view much of this well-meaning effort is misplaced. Americans lack mathematical literacy. In view of that, achievement of financial literacy is problematic. Indeed, returns to remedying mathematical illiteracy would likely produce far higher social returns.

The mortgage instrument is far too complex for borrowers to understand in general if they are not mathematically literate. I have seen results of experiments with alternative disclosure forms and, while some can improve choice over current disclosures, the overall performance of a significant proportion of the population tested is dismal. <sup>15</sup>

A-1. Accordingly I have concluded that attempts to solve bad mortgage choice with education and disclosure, without the changes proposed under "B" below, is a fool's errand.

#### B. Product standards will help consumers make price comparisons

The problem with pricing mortgage products is the lack of standardized products to serve as the basis for comparison. Consumers buy complex products which they do not fully understand every day but, because these products are standardized, they are able to make reasonable cost comparisons.

**B-1.** I propose that the industry along with the regulators promulgate a small number of standardized mortgage products. For example, the Waxman Mortgage (WM) could be a 30 year, level payment, self-amortizing, fixed rate instrument. Any firm offering a WM would agree to disclose pricing on a standard form which included the interest rate, 30-year APR and 5-year APR for a zero point, zero fee mortgage with no prepayment penalties, credit life insurance, etc. Then incremental pricing for WM with one, or more points would be disclosed, and alternatives with fees would also be disclosed in incremental values of points. **The applicant would then be able to directly compare** 

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<sup>&</sup>lt;sup>14</sup> See, for example, Annamaria Lusardi, "Financial Literacy: An Essential Tool for Informed Consumer Choice," Working Paper Presented at the Joint Center for Housing Studies Conference, revised (February 2008).

<sup>&</sup>lt;sup>15</sup> I could also add to this my experience in teaching economics for over 30 years.

the WM price quotations from one lender with another and make an informed choice regarding both the lowest price and combination of rate, points, fees, and prepayment provisions. The WM could serve prime and subprime borrowers, with subprime borrowers quoted higher rates, etc. Again, if a borrower was classified as Alt-A by one lender and A by another, this would appear in the pricing. Another mortgage type would be selected for ARMs of different types, and hopefully for other alternatives that will arise in the future.

- B-2. Instruction, particularly web-based, should be devised to train borrowers in pricing of WM products as well as choice between the WM and other supported standardized mortgage products. A pricing schedule for WM product for A, Alt-A, and various subprime borrowers could also be made available to the public through media outlets.
- B-3. Lenders complying with the above system and offering WM products should be given some type of distinctive certification appropriately named.
- B-4. FHA insurance should be based on these stylized mortgage products and steps to curtail the high delinquency and foreclosure rates on FHA mortgages should be taken.

### C. Bank regulators should concentrate on safety and soundness

Banks should not be encouraged to take additional risk. Given the current state of world capital markets it appears that finding funds for risky lending is not a problem. This has the virtue of allowing those of us who teach money and banking to return to our old lecture notes.

#### D. Innovative mortgage products are needed

The current range of mortgage products offered in the U.S. is limited and not particularly consistent with the recommendations of economists. In particular, we encourage household to hold too much housing equity in their portfolios and too few risky financial assets.

D-1. In designing mortgage types under proposal "B" above, attention should be paid to recommendations of professional economists that provide for flexible and even negative amortization and other features that time and space do not permit me to elaborate.

#### E. Current efforts at loan modification and forbearance need to be communicated

In the third quarter of 2007, there were 54,000 loan modifications and 183,000 repayment plans put into effect. <sup>16</sup> Many distressed borrowers fail to take advantage of these programs. Some effort at government-industry cooperation to raise awareness and improve outreach would benefit the general population.

Thank you again for allowing me the opportunity to present these thoughts.

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<sup>&</sup>lt;sup>16</sup> See the discussion in Jay Brinkmann, "An examination of mortgage foreclosures, modifications, repayment plans and other loss mitigation activities I the third quarter of 2007," Mortgage Bankers Association working paper (January 2008).