

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

**U.S. House of Representatives
Committee on Financial Services
Subcommittee on Housing and Community Opportunity
Subcommittee on Financial Institutions and Consumer Credit
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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. Most recently, I have, along with Michael Staten who is also testifying here, edited the papers for two special issues of the *Journal of Real Estate Finance and Economics* on the topic of subprime lending. These issues, which are forthcoming, reflect the current thinking of economists on the topic. My remarks here will be based in large part on the most significant findings in these papers. However, much remains to be learned and I believe it is important to point that out also. I understand that you are particularly interested in the characteristics of services provided in this market and the households making use of subprime mortgage credit and I will try to address these issues in some detail.

Current definition and measurement of the market

A first task is definition of what is meant by prime versus subprime mortgage lending and methods that are used to measure the volume and characteristics of lending. For purposes of this discussion, subprime mortgages will be those first mortgages priced (exclusive of mortgage insurance) 125 or more basis points above the prevailing prime or "A" rate at the time of commitment or endorsement. Most mortgages are prime, and are priced at a relatively invariant rate plus a mortgage insurance premium that depends only on the downpayment rate.

We currently have no measure of the amount of subprime lending in the U.S.. Accordingly, one can dismiss many studies of subprime lending on account of their data deficiencies alone. The Home Mortgage Disclosure Act (HMDA) is the most common source of information on subprime lending. This legislation, initially intended to monitor behavior of larger depository institutions, has been extended to include reporting requirements for some mortgage bankers. As more reporters have been added, the number of lenders whose mortgage products are classified as subprime has grown. Thus HMDA data gives the false impression of explosive growth in subprime lending based on expansion of the sample frame. Extension of HMDA reporting to more, and particularly smaller, reporters is problematic from another perspective. Given that HMDA reports the year, census tract, mortgage amount, and mortgagee and that local property report the transaction year, property

address, price, mortgagee, and name of the owner, it is possible to identify the precise individual whose mortgage appears in HMDA data unless a lender is very active in a particular census tract. I have done this matching in my own research and found that I can identify up to 60% of mortgagors. Put another way, there is no privacy protection in HMDA data for those whose mortgagee was an very active lender in the area!

Other sources of information on subprime lending come from records of cooperating lenders, securitized mortgages, and similar selected samples. None of these pretend to be a census of subprime lending and all give a selected slice of the market.

I am not suggesting that HMDA data or selected samples from a subset of subprime lenders cannot be useful in economic research. We can test the application of economic models in such limited samples. However, these sources are not adequate to track the extent and character of subprime lending overall.

In conclusion, current data sets are a selected subsample of subprime lending. Projections from these data sets to the entire market, particularly growth rates of overall subprime lending, should not be taken seriously. Studies that have been done, both inside and outside government, on the presumption that HMDA or other data represented subprime lending should be dismissed. Second, someone should consider the privacy issues inherent in HMDA data, particularly when the sample is extended to cover smaller lenders. I suspect that members of Congress and the general public would not be happy to learn that it is possible to match their individual names with the information revealed in HMDA records!

Proposed definition and measurement of the market

I have no quarrel with the current definition of subprime lending as far as it goes. However, our discussions would advance if we were to disaggregate the subprime market further. Most of these definitional issues will arise naturally in subsequent points. One obvious issue is the separate treatment of manufactured housing from other subprime lending. Another division is low documentation or no documentation lending.

Measurement of the market will require a different approach. Fortunately property records contain information on mortgagees and mortgagors as well as transactions prices and property location. My own research has indicated that a significant percentage of the mortgagees are NOT HMDA reporters. Indeed, they appear to be either individuals or very small private lenders. As will be clear in subsequent discussion, I am both curious and suspicious of this segment of the mortgage market.

A random sample of mortgages endorsed in a given year taken from property records could then be matched with other records, particular credit history, using the name of the mortgagor. The records could then be depersonalized and location aggregated before they were used in any analysis. The data obtained in this process, would not only provide an unbiased sample of subprime lending, it would also enable one to disaggregate the lending by type and by characteristics of the borrower, including credit history.

In conclusion, I believe that it is possible to assemble a data set appropriate for analysis of trends

and developments in overall subprime lending as well as various submarkets using the new approach based on property records.

Many features of the subprime market indicate that it works well

Many features of the subprime mortgage market, insofar as we can observe them based on data limitations, appear in good agreement with simple models of an efficient credit market. First, the market provides a variety of products, including "no documentation" loans, to appeal to borrower preferences. Second, credit risk is priced in the subprime market. Borrowers with lower credit scores pay more for credit. If anything, the problem of inefficiencies and inequities due to failure to price credit risk occurs in the prime market where borrowers with credit scores (such as the standard FICO score) 100 points apart are charged the same price. Third, the separation of borrowers into prime and subprime loans appears to be based on risk categories. Fourth, delinquency and default rates are higher for subprime loans. Fifth, the subprime market appears to be competitive there are many lenders who appear to price aggressively. Sixth, it does not appear that subprime lenders earn extraordinary profits - indeed one study has found that profitability in subprime automobile lending is low and, if anything, inversely related to average interest rates charged.

In sum, there are many aspects of the subprime mortgage market that appear to be in close agreement with the model of an efficient perfectly competitive credit market that we all learned about in our freshman economics courses. Indeed, compared to the prime market where differences in credit risk measured by FICO score are not priced, pricing in the subprime market seems efficient. It may be that the subprime market is perceived to have problems because it is pricing credit risk efficiently while there is price discrimination in the prime market where applicants with FICO scores of 740 pay the same price as those with FICO scores of 640. This apparent price discrimination against low risk applicants in the prime market indicates a potential problem; it is not a sign of efficiency.

"Strange" features of the subprime market that are not a problem

Although economists have not had the perfect data to test hypotheses about subprime lending, they have noted that the subprime market has a number of features that appear strange at first but which can be understood with the application of economic theory. I will first review these unusual aspects and then give an intuitive explanation of their consistency with economic theory.

Casual observation indicates that the subprime mortgage market operates rather differently than the high-risk credit card market. True, subprime lenders charge higher interest rates than prime lenders as with credit cards. However, subprime lenders (at least those we can observe in current data sources) have higher rejection rates than prime lenders - just the opposite of what we find for credit cards. Pricing of mortgage credit between the prime and subprime markets involves a discrete jump rather than the relative smooth range of charges for credit cards. Subprime lenders tend to be distinct entities whereas consumer credit is often supplied to prime and subprime borrowers by the same firm. Finally, the prepayment behavior of subprime mortgages is far different than that of prime mortgages. Taken one at a time, these differences seem curious, but all together they appear

suspicious indeed.

These strange and distinctive features of subprime lending are actually consistent with economic theory. I provide an intuitive discussion here but the arguments can be demonstrated mathematically. Subprime lenders have underwriting costs that are much larger than application fees. This is a product of the high-risk population of applicants and the unwillingness of applicants to bear the risk of rejection by paying high application fees. Subprime lenders have higher rejection rates because low-risk applicants self-select into the prime market. This combination of high rejection rates and underwriting costs exceeding application fees means that the underwriting cost per endorsed mortgage is much higher for subprime lenders. This cost must be recovered by setting interest rates substantially above prime lenders whose cost advantages arise from self-selection of low-risk, easily underwritten applicants into the prime market. Thus the discrete jump between interest rates on prime and subprime mortgages is the result of what is termed in economics a "separating equilibrium" in which applicants self-select into the two market segments based on their risk characteristics. Because the market relies on this self-selection, it is organized so that there is a physical separation between the two types of lenders. Finally, prepayment rates on subprime mortgages tend to be more rapid and less sensitive to interest rate movements because subprime borrowers who improve their credit histories can then refinance into the prime market.

Why is the market for credit cards organized so differently? Credit card issuers have a separate instrument that they can use to control risk - the credit limit. They can provide credit to high risk borrowers with low underwriting cost by controlling losses through a credit limit. This is infeasible in mortgage lending where the minimum amount of funds requested is very large and a strategy of lending to applicants at a moderate to high loan-to-value ratio with minimal underwriting would be a disaster.

The previous discussion applies to much of the subprime market. However there is another segment, lending with little or no documentation, where high underwriting costs are not the issue. In this type of lending, self-selection is also very important and the differential between prime and subprime rates is based on the rise in credit risk due to the problem of adverse selection in the pool of those seeking to borrow without providing documentation.

In conclusion, there are good reasons to expect, based on economic theory, that the organization and supply of mortgage credit will be different than the market for other consumer credit. Differences are not necessarily an indicator of a problem. As is often the case, good economic modeling should be an integral part of any attempt to understand or regulate a credit market.

Concerns about the operation of the subprime market

I wish to raise two concerns about the operation of the subprime market that may be of interest to the Committee. As noted above, I dismiss many possible sources of concern as arising from a misunderstanding of the way in which an efficient mortgage market should operate. However, the two concerns presented here persist even after considering the points made above.

1. The "home equity trap" and demand for subprime mortgages. 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 and 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.

The strange preference for housing equity and 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 of 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 may not well be 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.

I do not know how much of the demand for subprime mortgages arises from households caught in the home equity trap. Note that these households are better off because there is a subprime market but this is a second-best solution. The first best result would be for them to hold less housing equity and more risk assets - stock and bond mutual funds - in their portfolio.

2. Deceptive lending practices and the subprime market. Survey evidence indicates that borrowers in the subprime market appear to have less education, shop less for mortgage credit, and be less aware of mortgage credit pricing alternatives than borrowers in the prime market. Of course, such survey results may arise because individuals with lower credit scores either know or care less about the way in which credit markets work.

Do we have evidence that substantial numbers of subprime borrowers could have qualified for prime mortgages at substantial savings? Unfortunately, such determination would require a thorough examination of the loan file. Rejection in the prime market is often for problems such as "unverifiable information" that are nearly impossible to quantify or evaluate without access to the original application and would not be a cause for rejection by a subprime lender.

The evidence of deceptive and perhaps even fraudulent lending practices appears, at this point, to be anecdotal and has not been the object of formal economic analysis or measurement. Accordingly, my comments on the issue should be regarded as speculative rather than scientific. The greatest potential for deceptive practices is in the portion of the subprime market that we are not observing in available data. The small, local, highly specialized lender who does not report its transactions to any source currently subject to statistical analysis surely has the most potential for engaging in deceptive lending practices. Loan officers who engage in deceptive practices and have the choice of working with firms that report their activity or those who do not report, surely prefer the latter. Also, firms whose loans are reported and available for statistical analysis, are more likely to question loan officers whose pricing is unusually high. Recall that, based on property records, there is a substantial amount of mortgage lending by non-reporters. Therefore loan officers should have the choice to affiliate with either type of lender.

If my suspicion regarding the concentration of deceptive lending practices in the small, non-reporting firms is correct, then there is a danger that regulation will have unintended consequences. To the extent that regulation raises costs for larger firms whose lending activities are more readily examined compared to the smaller firms where deceptive problems are concentrated, increase regulation may result in a rise in deceptive lending. Note that, because we do not currently monitor this component of the subprime sector, regulators may actually claim success in reducing subprime lending while deceptive lending rises.

In conclusion, part of the demand for subprime mortgages may arise because households hold too much housing equity in their portfolios without recognizing that a negative income shock may make it impossible to refinance in the prime market. This is NOT a problem of the subprime market. Rather it is a problem due to lack of mortgage innovation in the prime market and failure to educate the public regarding the benefits of diversification and liquidity. The population served by the subprime market may be particularly susceptible to deceptive lending practices. The potential for such tactics is largest in the currently unmonitored segment of subprime lending and regulations that raise costs and discourage larger, reputable subprime lenders could have the unintended consequence of allowing the market share of deceptive lenders to rise.

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

Anthony M. Yezer
Professor of Economics
George Washington University