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An Analysis of FHA's Single-Family Insurance Program

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FOREWORD

The Administration, Congress, and members of the housing industry are once again considering the future of HUD's Federal Housing Administration (FHA) single-family mortgage insurance program. Among the issues under discussion: Does FHA currently complement the conventional home mortgage market or does it compete with it? Is FHA needed, given recent conventional-market affordability initiatives? If needed, should FHA be restructured to perform more efficiently? HUD has proposed the restructuring of FHA as a Government-owned corporation under the direction of the Secretary of Housing and Urban Development.

An Analysis of FHA's Single-Family Insurance Program provides a factual and analytical context for public policy discussions of these issues. The report profiles FHA loans alongside those made by conventional lenders. In addition, it addresses several significant issues: the importance of FHA in serving low-income borrowers and underserved areas; the low incidence of overlap between FHA and conventional-market lending; and the impact of recent conventional-market affordability programs on FHA's market share and their potential for replacing FHA.

As the report shows, FHA's single-family program serves higher risk borrowers who would go unserved by conventional lenders. During its 61 years, FHA has been able to expand homeownership opportunities and to keep them well above the levels the conventional market would have supported. In addition, it has improved housing market stability by cushioning the effects of higher interest rates and economic downturns. And FHA has accomplished all this at no cost to taxpayers. FHA's single-family program is truly one of the Federal Government's greatest success stories.

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EXECUTIVE SUMMARY

The Administration, Congress, and members of the housing industry are once again considering the future of HUD's Federal Housing Administration (FHA) single-family mortgage insurance program. Among the issues under discussion are whether FHA should be restructured to perform more efficiently, whether FHA should be limited to partial insurance (that is, coverage of less than the full balance of a loan), whether FHA should be privatized, and whether FHA is needed at all given recent conventional market affordability initiatives. HUD itself has proposed restructuring FHA as a Government-owned corporation under the direction of the Secretary of HUD.

This paper seeks to establish a factual and analytical context for the policy discussions on these issues. The paper provides profile comparisons of FHA loans with those made by conventional lenders. In addition, the paper addresses a number of underlying questions, which must be answered before one can responsibly determine in what ways, if any, FHA should be changed. These questions are reviewed in the introductory section and include the importance of FHA in serving low-income borrowers and underserved areas, the potential for overlap between FHA and conventional market lending, the impact of recent affordability programs on FHA's market share and their potential for replacing FHA, the degree to which FHA may be subject to adverse selection, and the ability of conventional lenders with private insurers to serve FHA borrowers. Specific findings are highlighted at the beginning of each major section.

Main Conclusions

This paper highlights FHA's mission and its unique contribution to the mortgage market: households served with FHA insurance are typically underserved by the conventional market. FHA serves disproportionate fractions of lower income households, Blacks and Hispanics, first-time homebuyers, borrowers making low down payments, and households living in underserved neighborhoods when compared with private mortgage insurers (PMIs), the government sponsored enterprises (GSEs -- Fannie Mae and Freddie Mac), and conventional lenders. Substantial evidence exists in both the academic literature and the data presented in this paper that FHA's basic, full-insurance program serves higher risk borrowers who

would otherwise go unserved by conventional lenders using private mortgage insurance.[1]

FHA has also been able to expand and keep homeownership well beyond what the conventional system with private mortgage insurance would support. In addition, it has improved housing market stability by cushioning the effects of higher interest rates and economic downturns. FHA has been able to do this because its Federal guaranty confers a cost advantage that when coupled with its higher premiums permits it to serve high risk homebuyers at no cost to taxpayers.

Policy Implications

Policy makers should be cautious about making major changes to FHA's single-family credit enhancement. Legislation to replace FHA's full-insurance coverage with partial or limited insurance or to remove the full faith and credit backing of the United States' government should consider the impact on the types of households FHA has historically served. If enacted, these legislative proposals would require the private sector to accept credit risks on FHA's core borrowers that it has been unwilling or unable to bear in the past.

In addition, there have been recent proposals to supplement FHA's full-insurance credit enhancement with private sector risk sharing involving the GSEs and the PMIs. Risk sharing may be difficult to craft with sufficient incentives for the private sector to bear even shared credit risks for the core borrowers that FHA has historically served. Such ventures may not be successful in expanding credit opportunities. FHA policy makers should not enter into risk sharing ventures without first establishing the rationale and feasibility of such ventures.

Specific Findings:

- o Market Role. The range of service provided by FHA extends beyond that available from PMIs enabling it to accommodate higher risk borrowers. FHA allows higher loan-to-value ratios (LTVs) and payment-to-income ratios than PMIs. Unlike the PMIs, FHA also allows many borrower-paid closing costs to be financed.

- o Private Initiatives. The conventional market has recently increased service to low-income borrowers; however, because of credit risk, these efforts are not

[1] The comparisons in the paper are based on 1993 data. Section 4 discusses the economic environment of 1993 and its possible effects on loan profiles of FHA and the conventional market.

likely to reach the core set of borrowers that FHA serves.

- FHA Advantages. FHA is able to serve its higher risk clientele without taxpayer subsidies because it charges higher premiums and realizes a cost advantage with its Federal guaranty. The freedom from having to earn a risk-adjusted profit is FHA's principal cost advantage over the PMIs in serving riskier borrowers. When this cost advantage is coupled with FHA's higher premiums, the resulting revenue can support a higher level of losses and riskier borrowers than PMIs could underwrite at each and every LTV ratio.

- Overlap. No objective evidence has been offered in support of overlap between FHA and PMI. In fact, it is difficult to imagine much overlap between FHA and PMIs. For example, in 1993, over 60 percent of all FHA home purchase loans had LTVs above 95 percent. PMIs have only begun to insure loans above 95 percent of value. For loans with LTVs of 95 percent and under, FHA charges its borrowers a higher premium than private insurers charge. These borrowers would utilize PMI if they could.

- Addressing Overlap. Indeed, if there were much overlap, better marketing by PMIs and conventional lenders would seem to address the problem because nothing currently prevents the conventional market from serving as many potential FHA borrowers as it can.

- Privatization. The combined insurance premiums and GSE guaranty fees necessary to accommodate and integrate FHA's risk profile into the conventional market would be substantially higher than the combination of FHA's current premiums and the Ginnie Mae fee. A substantial portion of the loans now insured by FHA would not be made at all. The ones that were made would have much higher fees and less desirable terms.

- Homeownership Rates. Any move to limit or to privatize FHA would simply reduce homeownership among middle-class Americans, moving the nation back toward lower homeownership rates, with no accompanying gain in budget savings.

- Stabilizing Effect. Privatization or elimination of FHA would also remove its stabilizing effect from housing markets when interest rates rise or the local economy falters.

- Income Limit. The introduction of an income limit explicitly to target lower income people would have a

similar effect of removing FHA's cushioning effect (automatic stabilizer) from the market. What is considered adequate income for home purchase at a given interest rate can quickly become inadequate when interest rates rise. If access to FHA were restricted by an income limit, the number of homebuyers who could benefit from FHA would be substantially reduced when interest rates rise. This is precisely the time when FHA is most needed to maintain effective demand and stabilize housing markets.

- Loan Limits. FHA's loan limits constrain homebuyers to below median-priced homes. These limits discourage higher income households, who can in good times qualify for lower-cost private insurance to purchase higher-priced homes. Thus, an income limit is in many respects redundant.

- Adverse Selection. Adverse selection is a process by which the amount of risk assumed by a mortgage insurer increases as the cost of the insurance increases. Adverse selection is not a current problem for FHA. Despite shifts toward higher LTVs and lower borrower incomes, there is no convincing evidence that FHA is insuring higher risk loans since, and because of, its large 1991 premium increase. The observed LTV shift is more appropriately explained by the decline in interest rates, which enabled more marginal borrowers to buy homes, and which enabled low risk borrowers to refinance existing FHA loans conventionally. The decline in FHA borrowers' incomes likely reflects the lower income threshold needed to qualify for a mortgage with the lower rates.

- Future Adverse Selection. Some say that private affordability initiatives will result in greater levels of adverse selection of FHA in the future, ultimately causing FHA's insolvency. These arguments are not convincing. FHA can manage adverse selection in the long-term by actuarially fair product pricing once the statutory minimum capital target is met, and by improvements in operating efficiency.

AN ANALYSIS OF FHA's SINGLE-FAMILY INSURANCE PROGRAM

I. INTRODUCTION

The appropriate role for FHA's single-family insurance program is once again being debated by policy makers and industry representatives. Discussion of FHA's future has taken on three themes -- restructuring the organization so that it can perform more efficiently, determining how FHA can best complement the affordability initiatives of the conventional market, and the potential for privatizing FHA.

FHA had previously operated as a government corporation from its inception in 1934 until 1968 when it was folded into HUD. HUD recently stated its intentions to change what is now perceived to be a very inefficient FHA into a new government corporation. The new FHA would be structured to operate more like a business than as the subdepartment of a government agency, being free from bureaucratic and budget rules that currently limit its ability to perform in a cost-effective and timely manner. Throughout 1994, HUD held public forums across the country to gain a better sense of the barriers that interfere with FHA's intended role in local housing markets. This process led HUD to work on a new corporate charter for FHA. This was the basis for the Administration's recent legislative proposals regarding the FHA.

The second recurring theme in current discussions of FHA relates to whether FHA is still needed for linking higher-risk, cash-constrained households to mortgage credit. Some are arguing that FHA's traditional service to the market -- using a mutual insurance system to serve cash-constrained households who are themselves too risky or live in areas too risky for conventional lenders and private insurers -- is being supplanted by new efforts of other market participants. In response to pressure from their regulators to improve CRA performance, banks and thrifts have increased efforts to reach underserved markets over the past three years. Similarly, private mortgage insurers and the GSEs (Fannie Mae and Freddie Mac) have increased the flexibility of their underwriting standards and encouraged lenders to reach out to historically underserved populations. In its release of 1993 HMDA data, the Federal Reserve Board concluded that these affordability initiatives were beginning to show results (FFIEC, 1994). Thus, some have questioned whether the people and neighborhoods that FHA has served might now be served equally well by the conventional sector or, at the least, whether these new conventional sector initiatives might remove from FHA the customer base which has provided the cross-subsidies for higher-risk borrowers.

In fact, FHA's role in the mortgage market may be at a another historical turning point similar to the early 1970s. At that time, the combination of the new GSEs and private mortgage insurers changed the focus of FHA from being a builder of the suburbs to assisting first-time homebuyers. Now, the strengthening of CRA has made the conventional market serious about assisting first-time homeowners. Thus, an important policy question is whether FHA should be directed even more toward assisting groups that have historically been closed out of the homeownership market.

The third theme now receiving attention relates to the feasibility and desirability of privatizing FHA, an issue that has been studied numerous times since the late 1970s. Noting its overlap with the private market and the present potential for costs to taxpayers, some are arguing that FHA should be privatized. This, of course, raises questions about the kind of service FHA could provide as a private, profit-making entity and whether its traditional borrowers could continue to be fully served without publicly-supported insurance products.

Organization of Paper. This paper seeks to inform policy discussions on these issues by describing FHA's role in the mortgage market and by examining several key issues regarding FHA's future. The descriptive analysis, which is presented throughout, compares FHA activity with that of other market participants and identifies the different socioeconomic characteristics of the borrowers and neighborhoods now served by FHA. In Sections II and IV-V, we summarize available information from several data bases, many of which have only recently become available, to draw a map of FHA service. Section II discusses FHA's overall role in the mortgage market and its changing market share since 1980. Section IV compares FHA and conventional lending in 1993 using national data drawn from HMDA, FHA, the GSEs, and the American Housing Survey. Next, Section V examines the important role that FHA plays in serving minorities and their neighborhoods.[1] While there is some repetition in this descriptive analysis, the goal is to provide as comprehensive a picture of who FHA serves as is possible with existing data sources.

This descriptive analysis is enhanced in Section III by findings from the academic literature about the role played by FHA in the mortgage market. FHA's success, relative to the private market, in reaching underserved, credit-constrained borrowers and neighborhoods is the focus of both this literature review and the descriptive sections.

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[1] A separate paper is being prepared which analyzes individual city data, which are useful for showing how FHA's role depends on the characteristics of the local housing market.

The remaining sections of the paper focus on several issues that must be addressed before determining whether or not FHA should be changed in any substantial way. Section VI provides analysis of the "overlap" between FHA, and private lenders, private mortgage insurers, and the GSEs. The charge that FHA's business "overlaps" private market activities has been the organizing theme of past attempts to restrict FHA to certain segments of the market. Sections VII and VIII analyze two questions concerning FHA's ability to survive in a fast-changing mortgage finance system: whether recent changes in the private market will make FHA obsolete, and whether FHA has been experiencing adverse selection due to its high insurance premiums. Section X concludes by synthesizing findings from the previous sections and directly addressing the privatization issue. It examines whether FHA could survive as a private corporation and to what extent the private market could replace FHA's service to less creditworthy borrowers without substantial increases in borrower costs and/or reductions in homeownership opportunities. The last section draws from the earlier sections to bring into focus FHA's unique role in the mortgage market. Specifically, it clarifies what would be lost if FHA were to be further limited or privatized.

II. FHA'S MARKET SHARE

This section presents a picture of FHA's role in the mortgage market today based on 1993 HMDA data, and over time, as seen through changes in its share of insured mortgages and total mortgage originations since 1980. It also briefly discusses issues related to the actuarial soundness of the FHA insurance program.

Main Findings

The main finding of this section is that FHA plays an important role in the mortgage market and that it is an active and self-sustaining government business. However, problems with market share and the possibility of adverse selection since the implementation of higher insurance premiums in 1991 have raised some concerns. Specific findings include the following:

- FHA business in metropolitan areas is almost evenly concentrated between central cities and suburbs. According to 1993 HMDA data, 46 percent of FHA-insured loans were for properties located in central cities and 54 percent were for properties located in the suburbs.

- However, FHA's metropolitan area business is more concentrated in central cities than is conventional business. Approximately 38 percent of conventional loans were for central city properties and 62 percent were for suburban properties.

- FHA retains significant market shares in both central cities and the suburbs. It accounted for 28 percent of the conforming mortgage market (that is, FHA loans plus conforming conventional loans) in central cities and for 21 percent of that market in the suburbs in 1993. Considering only loans eligible for FHA insurance, FHA accounted for 35 percent of the FHA-eligible market in central cities and for 28 percent of that market in the suburbs.

- FHA-insured lending in metropolitan areas exhibits rather distinct regional patterns. Almost two-thirds of FHA home purchase activity was concentrated in the Southern and Western States, compared to one-half of conventional lending activity.

- FHA's share of the insured mortgage market has shown rather wide annual variations since 1980, fluctuating with both national and regional economic conditions. Its share of insured mortgages (excluding VA-guaranteed and FmHA loans) increased between the early and late 1980s

from about 35-40 percent to above 60 percent. FHA's share then fell to about 45 percent in 1992 and 1993 but then rose to 51 percent in 1994.

- FHA's share of the total mortgage market has declined since the implementation of higher insurance premiums and more restrictive borrower equity requirements in 1991. FHA's share may have also declined because low interest rates during 1992 and 1993 made it easier for borrowers to meet conventional payment-to-income ratios and qualify for larger conventional mortgages.

- Independent studies indicate that the FHA insurance program is operating on an actuarially sound basis. However, recent increases in FHA's percentage of low equity loans, which have higher claim rates than other loans, have raised concerns about the possibility of adverse selection and a deterioration in the insurance fund. This issue will be examined in Section VIII of the paper.

Subsection A reports HMDA data on the size of FHA relative to other lender groups in the mortgage market. Subsection B focuses on changes in FHA share of the insured market since 1980, and subsection C reports on the financial status of FHA's Mutual Mortgage Insurance Fund.

A. 1993 Market Shares As Measured by HMDA Data

Home Mortgage Disclosure Act (HMDA) data is the most comprehensive source of information on mortgage lending flows available today.[1] HMDA covers mortgages on single-family

[1] HMDA was enacted in 1975 in response to Congressional concerns that depository institutions (mainly banks and thrifts and their subsidiaries) were not adequately serving low-income and minority neighborhoods. HMDA required these institutions to report annually their mortgage lending by census tract location; with this information, the public could assess whether banks and thrifts were adequately serving their communities. HMDA reporting was expanded in 1990 to provide information on the disposition of loan applications (approved and accepted, approved but not accepted by the borrower, denied, withdrawn, or not completed), to include activity of large independent mortgage companies, and to provide information on the race and income of individual loan applicants. These data were needed to assist in the detection of lending discrimination. Prior to 1993, only lenders that had at least $10 million in assets were required to submit HMDA data. In 1993, any lender that made more than 100 home purchase loans were required to report under HMDA. Canner and Gabriel (1992) and Canner and Passmore (1994) discuss the

properties with one-to-four units. It provides data on mortgage applications, originations, and the accept/reject decision for all depository lenders and their subsidiaries and for all mortgage companies with at least 100 or more home purchase loans in the preceding year.

Table 2.1 gives an overview of FHA's 1993 lending activity compared with the rest of the mortgage market. According to HMDA reports, FHA received 769,300 home purchase applications and 702,400 refinance applications during 1993, accounting for 17.1 percent of total home purchase applications and 10.6 percent of total refinance applications. In addition to FHA and conventional lenders, the other major player in the mortgage market is the Veteran's Administration (VA), which accounted for 7.1 percent of home purchase applications and 3.7 percent of refinance applications in 1993.[2]

Table 2.1 provides similar data for mortgage originations. Refinance activity dominated most sectors of the mortgage market during 1993. Lenders reported 6.1 million refinance originations and 3.2 million home purchase originations, for a record total volume of 9.3 billion mortgage originations. FHA, on the other hand, insured similar numbers of refinance and home purchase loans in 1993 -- 572,700 refinance loans and 570,100 purchase loans. FHA insured 9.4 percent of refinance mortgages originated by HMDA lenders and 18.0 percent of home purchase mortgages.[3] FHA's higher share of the home purchase market reflects, of course, its focus on first-time homebuyers. The ability of existing homeowners that have built up equity to refinance out of the FHA program into the conventional market also reduces FHA refinance shares. More will be said on this later.

Standard Table Format. Tables 2.2 and 2.3 show geographic distributions of home purchase and refinance loans within metropolitan areas. Because the same layout will be followed in Section IV, where data on the types of borrowers and areas FHA serves is presented, we begin here with a reader's guide to

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scope and coverage of HMDA data, including its major gaps.

[2]9,400 applications for Farmers Home Administration (FmHA) loans representing less than 0.1 percent of total applications are included in the VA data.

[3]Mortgage bankers, including both independent mortgage companies and mortgage companies affiliated with banks and thrift institutions, originated most FHA loans in 1993. For instance, they originated 81 percent of FHA home purchase loans while commercial banks originated 8 percent and savings institutions originated 11 percent.

Table 2.1: Applications and Mortgage Originations by Purpose and Type of Loan, 1993

	Home Purchase		Refinance		Total	
Applications	Number (1000s)	%	Number (1000s)	%	Number (1000s)	%
FHA	769.3	17.1%	702.4	9.2%	1,471.7	12.1%
VA/FmHA	319.4	7.1%	285.5	3.7%	604.9	5.0%
Conventional	3,403.7	75.8%	6,653.8	87.0%	1,057.5	82.9%
Total	4,492.4	100.0%	7,641.7	100.0%	12,134.1	100.0%
Originations						
FHA	572.7	18.0%	570.1	9.4%	1,142.8	12.4%
VA/FmHA	238.7	7.5%	244.2	4.0%	482.9	5.2%
Conventional	2,366.5	74.5%	5,257.9	86.6%	7,624.4	82.4%
Total	3,177.9	100.0%	6,072.2	100.0%	9,250.1	100.0%

SOURCE: 1993 HMDA data for mortgages on single-family, one-to-four unit properties (including both owner-occupied and non-owner-occupied properties).

NOTE: In this table, conventional loans refer to the entire conventional loan market; both loans less than the GSE (Fannie Mae and Freddie Mac) conforming loan loan limit ($203,150) and jumbo loans above the conforming limit. An insignificant number of Farmers Home Administration (FmHA) loans are include in the Veterans Administration (VA)/FmHA data. VA, FmHA, and jumbo loans are excluded in the remaining tables, as are loans for non-owner-occupied properties and loans without geocode identifiers.

TABLE 2.2: Home Purchase Mortgages in Metropolitan Areas by Location and Type of Loan, 1993

	Central Cities	Suburbs	Metropolitan Areas
Number of Loans (1,000s)			
FHA	226.7	261.9	488.6
Conforming Conventional	598.4	997.6	1,596.0
FHA-Eligible	414.1	661.9	1,076.0
Not-Eligible	184.3	335.8	520.0
Distribution of Business			
FHA	46%	54%	100%
Conforming Conventional	38%	62%	100%
FHA-Eligible	39%	61%	100%
Not-Eligible	35%	65%	100%
Market Shares			
FHA	28%(35%)	21%(28%)	23%(31%)
Conforming Conventional	73%	79%	77%
FHA-Eligible	50%	52%	52%
Not-Eligible	22%	27%	25%
	100%	100%	100%

SOURCE: 1993 HMDA data for metropolitan areas.

NOTE: "Conforming Conventional" loans include loans below $203,150, which is the loan limit for the two GSEs, Fannie Mae and Freddie Mac. "FHA-Eligible" loans are those conventional loans below the FHA maximum amount for each metropolitan area. "Not-Eligible" loans are conventional loans above the FHA loan limit, but below the conforming loan limit.

Values in parentheses are FHA share of eligible market, which is the sum of FHA loans and conventional FHA-eligible loans.

TABLE 2.3: Refinance Mortgages in Metropolitan Areas by Location and Type of Loan, 1993

	Central Cities	Suburbs	Metropolitan Areas
Number of Loans (1,000s)			
FHA	202.0	258.7	460.7
Conforming Conventional	1,321.0	2,565.4	3,886.4
FHA-Eligible	1,010.4	1,952.4	2,962.8
Not-Eligible	310.6	613.0	923.6
Distribution of Business			
FHA	44%	56%	100%
Conforming Conventional	34%	66%	100%
FHA-Eligible	34%	66%	100%
Not-Eligible	34%	66%	100%
Market Shares			
FHA	13%(17%)	9%(12%)	11%(13%)
Conforming Conventional	87%	91%	89%
FHA-Eligible	66%	69%	68%
Not-Eligible	21%	22%	21%
	100%	100%	100%

SOURCE: 1993 HMDA data for metropolitan areas.

NOTE: "Conforming Conventional" loans include loans below $203,150, which is the loan limit for the two GSEs, Fannie Mae and Freddie Mac. "FHA-Eligible" loans are those conventional loans below the FHA maximum amount for each metropolitan area. "Not-Eligible" loans are conventional loans above the FHA loan limit, but below the conforming loan limit.

Values in parentheses are FHA share of eligible market, which is the sum of FHA loans and conventional FHA-eligible loans.

understanding how the HMDA data in Table 2.1 are adjusted and how the information will be presented in the remaining tables.

Adjustments to HMDA Data. First, about nine percent of the loans reported under HMDA were loans to non-owner occupants; these loans were dropped so the analysis could focus on single-family owner-occupied households. Second, 13 percent of the remaining loans were dropped because they did not contain any geographic information identifying the census tract or metropolitan statistical area (MSA) where the mortgaged property was located. The loans without geographic identifiers are either loans made by a lender who is making a loan in a metropolitan area where the lender does not have an office or loans made in non-metropolitan areas.[4] The HMDA sample in the remainder of the paper will be limited to loans on properties identified to be in metropolitan areas.

Third, Veterans Administration and Farmers Home Administration loans have also been dropped from the HMDA data set in order to focus more directly on the question at issue -- that is, FHA's performance versus the conventional portions of the market.[5]

Fourth, conventional loans have been defined to include only "conforming" conventional loans under $203,150, which were loans eligible for purchase by Fannie Mae and Freddie Mac in 1993. Essentially, this excludes so-called "jumbo" loans going to high-

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[4]Only lenders located in MSAs are required to report under HMDA. Furthermore, a lender must provide the geographic identity of a mortgage application only if the lender has a home or branch office in the MSA where the loan is located. Therefore, a lender is not required to report the geographic identity of mortgage applications from nonmetropolitan areas or from "outside" MSAs. The loan data in this paper, unless otherwise noted, are applications where the geographic identity of the loan is provided.

[5]The VA guarantees loans as an entitlement benefit for eligible veterans of the armed services and therefore does not represent an insurance alternative for most mortgage borrowers. The Farmers Home Administration services primarily very-low-income households in rural areas, which explains why it accounts for less than one-tenth of a percent of loans in metropolitan areas.

income households.[6] The **"conforming market"** will refer to FHA loans plus conforming conventional loans.

FHA-eligible Market. The conforming conventional market is often divided into "FHA-eligible" and "other" loans. "FHA-eligible" conventional loans are conventional loans that fall within the FHA maximum loan limit for each metropolitan area. These maximum loan limits are normally equal to 95 percent of each area's median house price; however, an area's FHA loan limit could be neither lower than $67,750, nor greater than $151,250 in 1993.[7] "FHA-eligible" conventional loans are therefore from the lower end of the conforming conventional market that is most directly competitive with FHA. The remaining loans in the "other" category represent the higher end of the conforming conventional market from which FHA is legislatively excluded. "FHA-eligible" conventional loans represented 70 percent of all conforming conventional loans.[8] The **"eligible market"** will refer to FHA loans plus FHA-eligible conventional loans and, as noted above, the **"conforming market"** will refer to FHA loans plus conforming conventional loans.

Both the "FHA-eligible" and "other" conventional loan-size categories have been divided into their "GSE" and "non-GSE" components. "GSE" loans are those purchased by either Fannie Mae or Freddie Mac. "Non-GSE" loans are mainly those originated by

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[6]To summarize, the following four deletions were made from the total number (9,250,100) of single-family mortgage originations on 1-4 unit properties reported in Table 1: (1) 878,700 mortgages for non-owner occupied properties; (2) 1,075,300 mortgages without geographic identifiers; (3) 468,300 VA mortgages; and (4) 396,100 jumbo mortgages. This leaves 6,431,700 mortgages with a loan amount less than $203,150 -- 949,300 were FHA-insured mortgages and 5,482,400 were conforming conventional mortgages. Note that the number (468,300) of VA mortgages dropped in step (3) is less than the number (482,900) reported in Table 1; this is because 14,600 VA mortgages were dropped as part of steps (1) and (2).

[7] The floor has remained at $67,500 since 1979 while the maximum has been raised periodically by Congress since the late 1980s. Starting in 1995, both the floor and the maximum will be adjusted annually for house price changes.

[8]FHA-eligible conventional loans were 4,038,800 of the 5,482,400 conforming conventional loans derived in the previous footnote.

portfolio lenders such as commercial banks and savings and loan institutions.[9]

Central City and Suburban Lending. Tables 2.2 and 2.3 report for both central cities and suburban areas the total number of loans as well as two types of percentage distributions that will be used frequently in this paper: the "distribution of business" and the "market share". The difference between these two concepts can best be explained by considering the figures for FHA home purchase loans in Table 2.2. The **"distribution of business"** data show that FHA's home purchase business is slightly more concentrated in the suburbs than in the central cities -- suburbs accounted for 54 percent of FHA's 1993 purchase loans while central cities accounted for 46 percent. These percentages, however, are difficult to interpret without similar data for either the overall mortgage market or specific sub-markets of interest. For instance, FHA's central city percentage of 46 percent is significantly higher than the central city share of 38 percent for conforming conventional loans. This shows that FHA's business is more concentrated in central cities than is conventional business, which should not be surprising given the fact that most middle-income and higher-income residential development that conventional lenders typically finance has taken place in suburban areas. In addition, FHA's maximum loan amounts have limited its market share in many high-price suburban markets.[10]

Having a higher concentration of its business in central cities than conventional lenders does not by itself mean that FHA is playing a major role in the central city mortgage market. **"Market share"** figures in Table 2.2 are needed to gauge the importance of FHA's business to the overall central city market. There we see that FHA's central city loans accounted for 28 percent of all loans to central cities, FHA-eligible conventional loans accounted for another 50 percent, and other conventional loans for the remaining 22 percent.[11] Thus, the "market share" data suggest that FHA is playing a significant role in funding central city

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[9] Credit unions are a minor holder of conventional mortgages. In 1993, they originated 1.3 percent of conventional purchase loans and 2.8 percent of conventional refinance loans.

[10] For a similar analysis of FHA lending to central cities, see Gabriel and Canner (1992), page 9.

[11] Limiting the analysis to the smaller, FHA-eligible market in central cities increases FHA's market share to 35 percent.

residents. In suburban areas, on the other hand, FHA's share of the eligible market is somewhat lower at 21 percent.[12]

Regional Location. Table 2.4 shows the distribution of FHA and conventional loans by geographic region. FHA loans are most heavily concentrated in the South and West, where two-thirds of its 1993 home purchase loans were originated. By contrast, slightly more than half of conforming conventional loans were from these regions and slightly less than half of FHA-eligible conventional loans. FHA has very little of its business in the New England states, in large part due to the high house prices in this region, which severely restricts the portion of the market FHA can serve.

B. Recent Trends in FHA Insurance

Figures 1-3 provide three perspectives on the magnitude of FHA activity and how FHA's share of the market has changed over time.[13] Figure 1 shows the total **number of mortgages** FHA insured over the past 10 years, with refinance mortgages broken out separately. In terms of mortgage insurance contracts written, 1993 and 1994 were strong years for FHA. In both years, FHA insured over one million insurance contracts. Refinancings were important in both years, but FHA insured 686,487 home purchase mortgages in 1994, the third highest number in its entire FHA's history.

Figure 2 shows the **total dollar volume** of FHA-insured originations as a percentage of the combined dollar volume of originations from all sources, including uninsured conventional, VA, and FmHA loans.[14] In each year since 1980, FHA has insured

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[12]Market share data are not reported in Tables 2.2 and 2.3 for the "GSE" and "non-GSE" parts of the conventional market. This is because HMDA while accurately reporting total conventional purchases under-reports the GSE share. Analysis by Freddie Mac economists suggest that 1993 HMDA data account for about four-fifths of Freddie Mac's 1993 purchases, an improvement over the two-thirds of Freddie Mac's purchases accounted for by 1992 HMDA, but still a measurable difference. Both HUD and Freddie Mac analyses suggest that the "distribution of business" data from HMDA accurately reflects the makeup of GSE activity in 1993, and that data will often be reported in Section IV.

[13]Unlike the HMDA data, the data reported in this section include all FHA activity in both metropolitan and nonmetropolitan areas.

[14] FHA's percentage shares in this graph are lower than reported in Figure 3 for FHA's share of insured loans for two reasons: (1) the inclusion of uninsured and VA-insured loans in the total, and (2) the use of dollar volumes (which are on average larger for conventional loans) for the comparison.

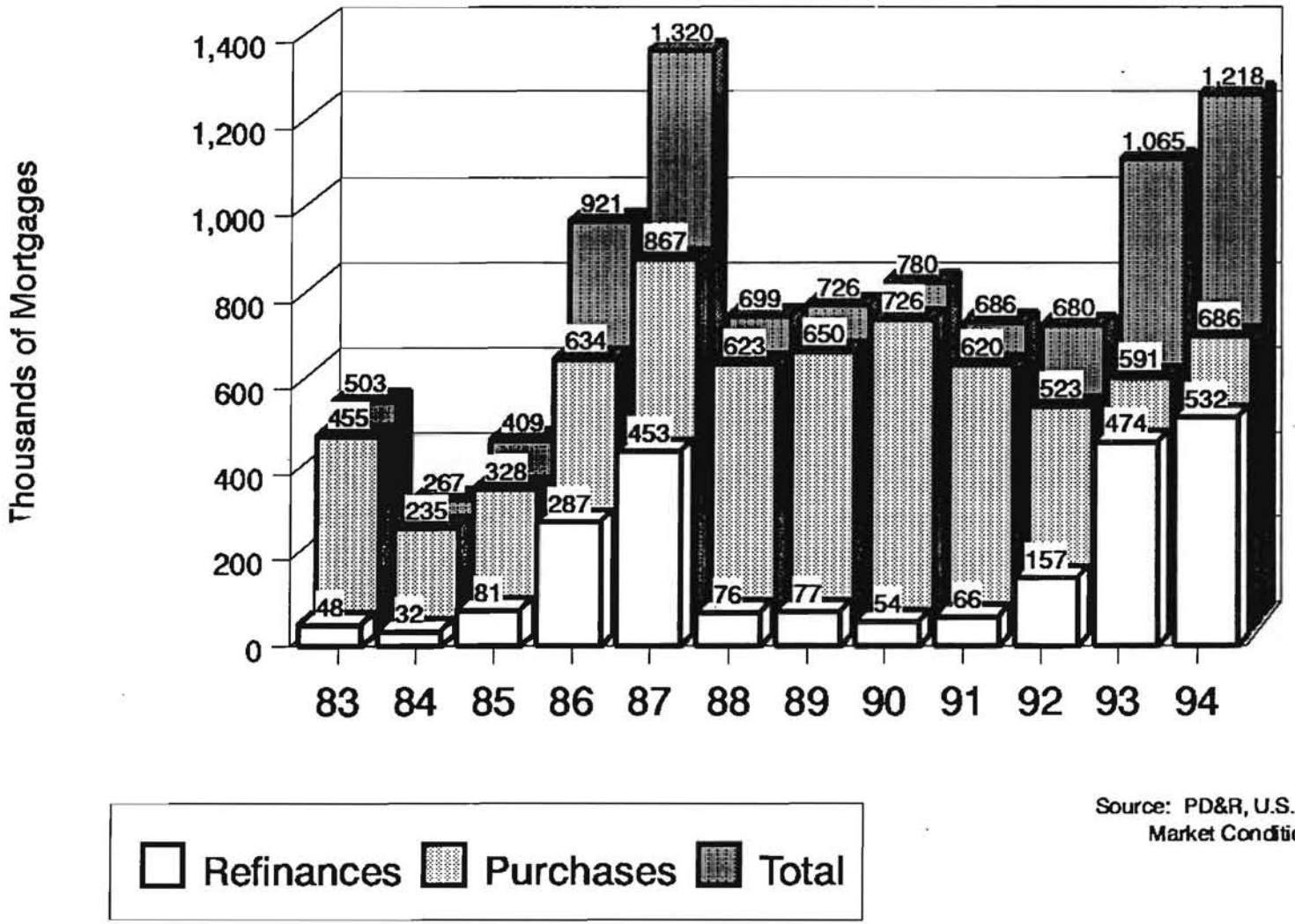
TABLE 2.4: Home Purchase Mortgages in Metropolitan Areas by Region and Type of Market, 1993

Region	FHA		Conforming Conventional		FHA-Eligible Conventional			
					Total		GSE	Non-GSE
	Number	%	Number	%	Number	%	%	%
New England	12,442	2.5%	82,424	5.2%	66,248	6.2%	6.5%	5.8%
Middle Atlantic	39,713	8.1%	223,917	14.0%	165,557	15.4%	16.0%	14.8%
East North Central	72,219	14.8%	344,348	21.6%	247,151	23.0%	23.4%	2.5%
West North Central	44,392	9.1%	110,793	6.9%	66,387	6.2%	5.9%	6.4%
South Atlantic	104,055	21.3%	297,166	18.6%	197,397	18.3%	16.0%	20.6%
East South Central	29,475	6.0%	74,573	4.7%	51,758	4.8%	3.4%	6.1%
West South Central	60,784	12.4%	137,701	8.6%	86,709	8.1%	8.5%	7.7%
Mountain	57,425	11.8%	106,683	6.7%	64,666	6.0%	7.4%	4.7%
Pacific	68,139	13.9%	218,434	13.7%	130,135	12.1%	12.9%	11.3%
National Metro	488,644	100.0%	1,596,039	100.0%	1,076,008	100.0%	100.0%	100.0%

SOURCE: 1993 HMDA home purchase mortgage data in metropolitan areas.

NOTE: Conforming loans include loans below $203,150, which was the 1993 loan limit for the two GSEs, Fannie Mae and Freddie Mac. The "Eligible Market" includes both FHA and conventional loans below the FHA maximum amount for each metropolitan area.

Figure 1
FHA Endorsements by Type



Source: PD&R, U.S. Housing Market Conditions

Figure 2
FHA Market Share – Percent of Total
1-4 Family Mortgage Origination Dollars

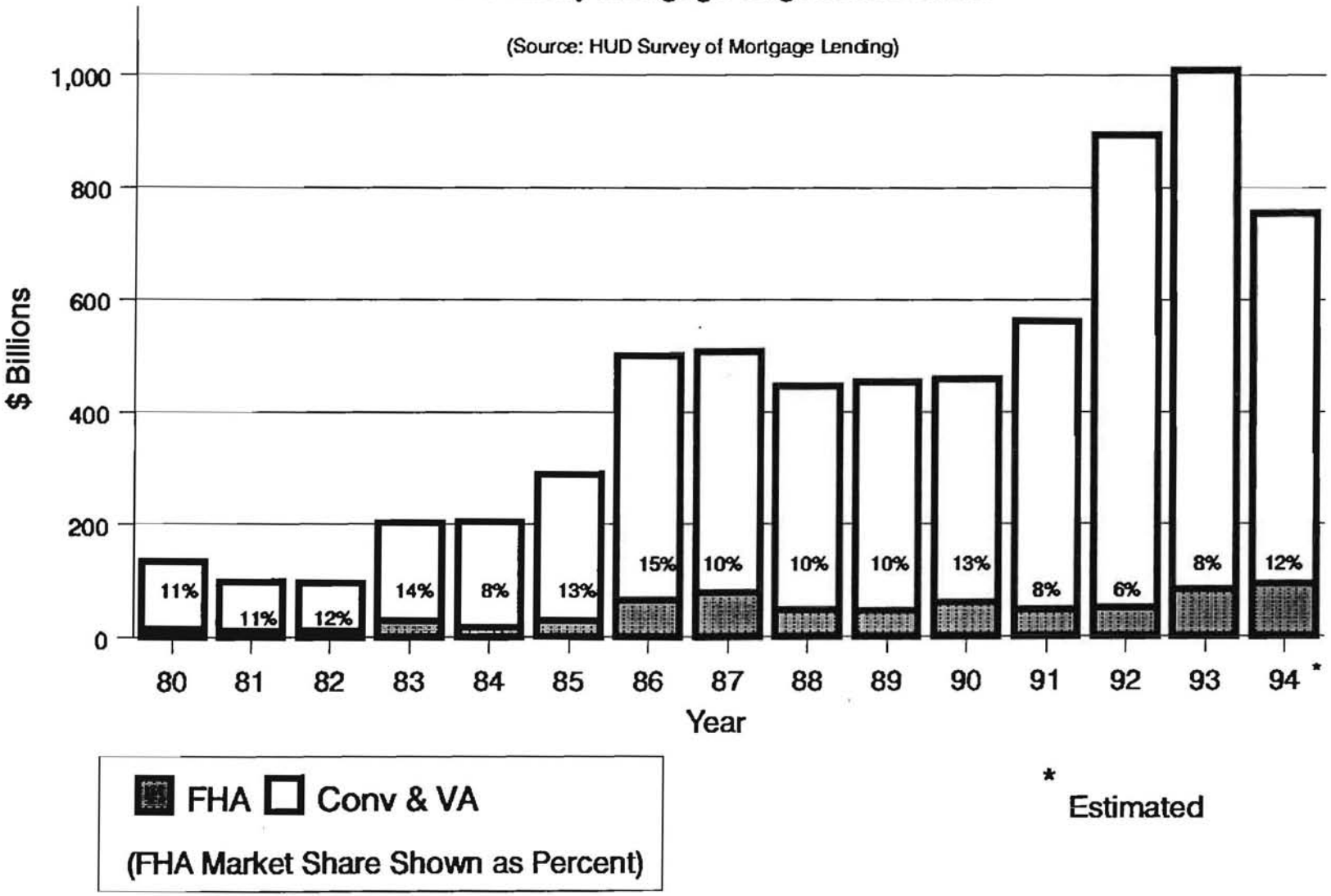
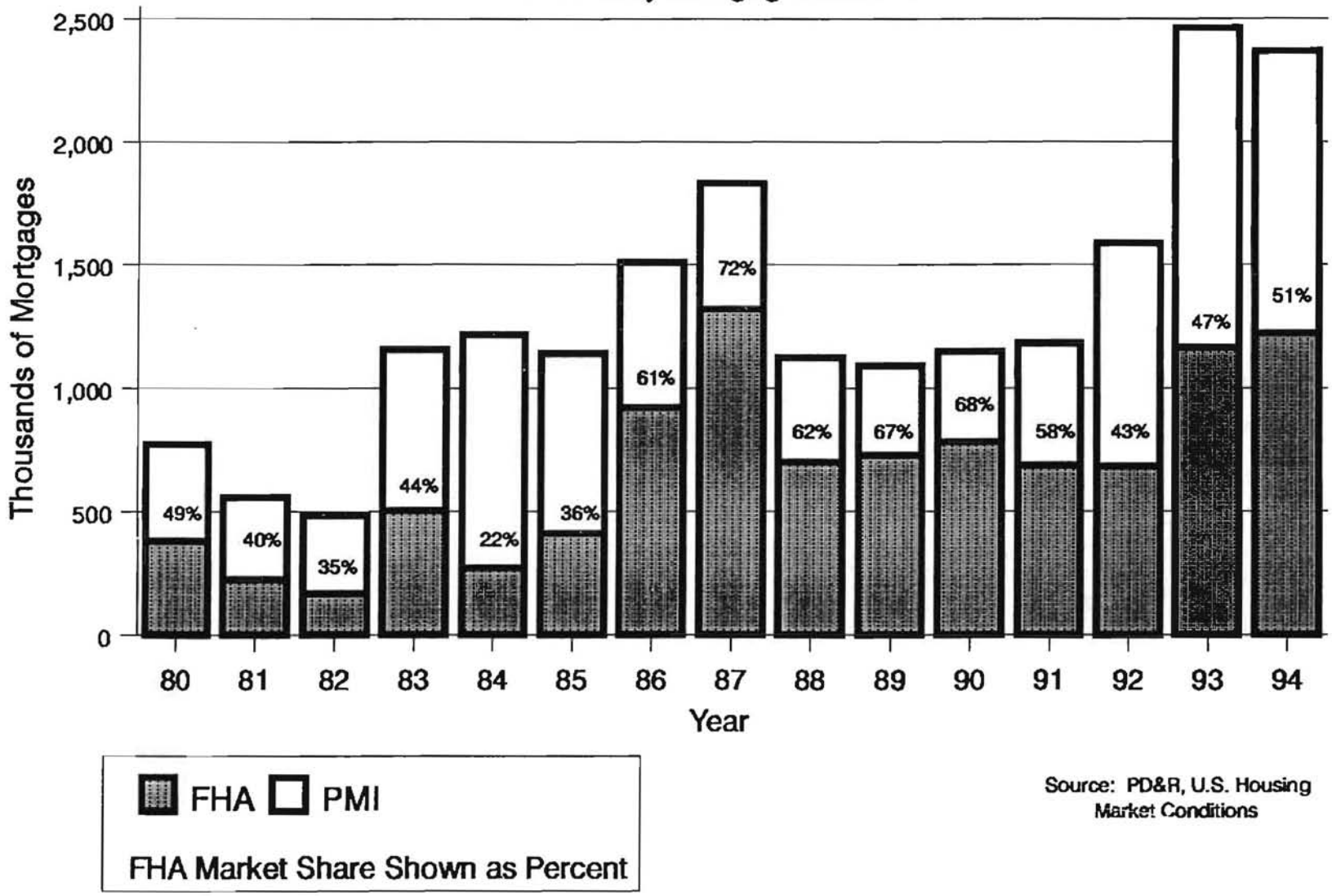


Figure 3
FHA-PMI Comparison
1-4 Family Mortgages Insured



Source: PD&R, U.S. Housing Market Conditions

between 6 and 15 percent of the dollar volume of all mortgages originated in the U.S. Lenders will generally not require mortgage insurance if borrowers have sufficient equity in the property to protect their interests. Therefore, the ratio of FHA-insured mortgages to all insured mortgages provides a better sense of FHA's market share.

Figure 3 expresses the number of FHA-insured mortgages as a percentage of the combined annual loan volumes of the two major providers of **mortgage insurance**: FHA and private mortgage insurers (PMIs). Mortgages guaranteed by the VA are again excluded from these comparisons because it serves a specialized market.

Three points stand out from Figure 3. First, FHA's share of insured business increased in the latter 1980s. FHA held a 60-65 percent market share between 1986 and 1991, compared with a 35-40 percent share between 1980 and 1985. Second, both FHA's volume and its share of the insured market increased over prior-year levels during the refinancing waves of 1986-87 and 1993. This most likely reflects FHA's larger base of insurance-in-force available to refinance in 1986, as well as borrower preferences for fixed-rate mortgages during periods of low interest rates. Most of FHA's underwriting involves fixed-rate mortgages as opposed to adjustable rate mortgages for which private mortgage insurers (PMIs) historically claim a higher market share than FHA.[15] In addition, many homeowners who refinance have built enough equity to drop private mortgage insurance on their conventional loans. FHA's streamline refinance option makes it easy for borrowers who cannot drop insurance to obtain a new insured loan when refinancing. FHA's increase in market share in the 1986-87 period was also due in part to the weak financial condition of private mortgage insurers following their heavy financial losses in the mid-1980s.

The third point to be made from Figure 3 is that FHA's market share declined after the financial reforms in 1991. These reforms were intended to restore the financial strength of FHA's Mutual Mortgage Insurance Fund. The Fund had suffered losses in the latter 1980s due to high levels of default in the oil and energy belt, which reduced the Fund's capital reserves. To increase FHA's capital reserves, premium charges were substantially raised; and, to lower insurance claim costs, requirements for borrower equity were increased. Immediately after implementation of these measures, FHA lost market share to conventional market lenders using private mortgage insurance. Its share of the insured market fell to 43 percent in 1992. FHA's six percent share of total

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[15]As the interest rate spread between FRMs and ARMs increased between 1991 and 1993, borrowers increasingly turned to FHA ARMs. In 1993, FHA insured 127,100 ARMs representing about 15 percent of its business. See Section IV.C for a discussion of FHA ARMs.

mortgage origination dollars in 1992 was its lowest share since HUD began tracking these market trends (see Figure 2).

New FHA business rebounded in 1993, but mainly due to the refinancing boom. Home purchases with FHA loans increased by 13 percent in 1993 after declining by 16 percent between 1991 and 1992. In 1994, FHA purchase loans increased again by 16 percent. However, by the fourth quarter of the year, high interest rates had slowed FHA's monthly volume of purchase loans to 1993 levels.

There are many possible reasons for the post-1991 shift in market share toward conventional loans and private mortgage insurance. Some may be due to FHA's policies, and others not. The possible policy reasons for the shift are FHA's high post-1991 premiums relative to PMI premiums, the complexity of FHA's origination processing, and the cash refunds paid to former FHA borrowers who refinanced conventionally.[16] The possible reasons for the post-1991 shift which are not related to FHA's policies are a reduction in the importance of FHA's income-qualification advantage due to the decline in interest rates and competition from affordable housing efforts in the private sector. Low interest rates reduce FHA's income qualifying advantage because they reduce borrowers' debt service payments, which makes it easier for borrowers with given incomes to qualify for conventional loans.

C. Actuarial Soundness

Most FHA single-family insurance is underwritten for the Mutual Mortgage Insurance (MMI) Fund. Since 1934 when FHA was established, the MMI Fund has operated on a self-sustaining basis -- that is, premium collections have been sufficient to cover insurance losses and operating expenses. In the late 1980s, there was growing evidence that FHA's most recent business was not actuarially sound and reserves had become insufficient for covering anticipated future losses. In 1990, Congress amended the FHA statute to raise the premium and increase the equity requirement as discussed earlier. At the same time, the Congress set a capital reserve target for the year 2000 of two percent of insurance in force. The most recent independent audit of the MMI Fund estimated that the Fund will have a capital reserve of 3.4 percent in 2000, more than one and one-half times the target rate (see Price Waterhouse, 1994a).

Despite the high level of single-family underwriting and the financial soundness of the MMI Fund, problems may still exist with FHA's single-family insurance program. When FHA mortgage insurance premiums were raised in 1991, the proportion of its new business consisting of the riskier, high loan-to-value ratio loans increased

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[16] See Szymanoski et al. (1993) for further discussion of these issues.

measurably. In 1991, 56 percent of the loans FHA insured had loan-to-value ratios over 95 percent; by 1994, that proportion had risen to 61 percent even with the decrease in FHA premiums early in the year.[17] During the same period, new FHA business with loan-to-value ratios below 90 percent had dropped from 21 to 16 percent. Section VIII will discuss several possible reasons for the increased concentration of low equity loans in FHA's portfolio and the extent to which adverse selection has been associated with FHA's recent decline in market share.

[17] This estimate excludes those refinancings for which a new appraisal was not available.

III. WHO FHA SERVES -- LITERATURE REVIEW

The recent academic literature on FHA and its role in the mortgage market can be divided into three groups. The first includes several articles written in the late 1970s and early 1980s examining the targeting of FHA to inner city neighborhoods that were supposedly "redlined" by conventional lenders. The second group of studies relies on the theory of "credit rationing" to examine the extent to which less more risky, credit-constrained borrowers either seek or are encouraged to seek FHA loans. Then the third group of studies uses newly expanded HMDA data that include borrower characteristics to examine the types of borrowers likely to choose an FHA versus a conventional loan, and to study the racial and income characteristics of neighborhoods receiving FHA loans. Several of these studies compare the performance of FHA and conventional lenders in addressing the needs of borrowers and neighborhoods labeled as underserved by the mortgage market.

The three subsections below review some of the more important studies from the academic literature.[1] Although the studies reviewed in the first two subsections were based on data from the 1970s and early 1980s, they still offer important insights into the segment of the mortgage market that FHA has traditionally served.

Main Findings

The two main findings from the above cited academic literature are that FHA serves more risky borrowers than the conventional sector and that minorities (blacks and Hispanics) rely heavily on FHA for financing. Specific findings include:

- Studies have argued that the cost associated with mortgage default causes conventional lenders to ration mortgage credit. Because FHA insurance protects lenders from most default costs, lenders encourage credit-constrained borrowers to seek FHA loans.[2]

- Borrower choices between FHA and conventional loans have been analyzed using data sources such as the American

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[1] Of course, the studies reviewed in this section do not exhaust the recent literature on FHA. There has been a wealth of research on the default behavior of FHA borrowers; see Neal (1989) and Stegman and Quercia (1992) for a review of these studies.

[2]The term "credit-constrained" is used in the literature to denote borrowers that would normally be turned down by conventional lenders; that is, they appear less creditworthy and more risky than the typical conventional borrower.

Housing Survey, Survey of Consumer Finance, and HMDA. Practically all studies have found that FHA serves more risky borrowers and neighborhoods -- for example, younger and lower-income borrowers with limited assets, and neighborhoods characterized by slower house price appreciation and lower average incomes and house values.

- Most studies comparing FHA and conventional financing were motivated by concerns about racial bias in the provision of mortgage credit, particularly on the part of conventional lenders. Empirical studies find that FHA disproportionately serves black and Hispanic households, and that it has a strong presence in neighborhoods with a high racial composition and in neighborhoods undergoing racial change.

- Most researchers conclude that FHA serves an important role in the mortgage market compensating for the failure of conventional lenders to serve minorities and more risky borrowers.

A. Early Neighborhood Studies

Using data from the 1970s, several studies found that moderate-income, racially-mixed neighborhoods received a greater number of FHA loans than conventional loans.[3] The study by Duncan MacRae, Margery Austin Turner, and Anthony Yezer (1981) best illustrates the methodology and findings of the early neighborhood studies. These authors argue that FHA's underwriting and qualification standards, its uniform price (that is, its insurance premium), and its maximum loan limits suggest that FHA can be expected to provide its highest level of service to moderate-income households in racially mixed urban neighborhoods, rather than to extremely low-income households in the inner cities or high-income households in the outer suburbs.[4] MacRae, Turner, and Yezer estimate their model of FHA's share of mortgage activity in a cross-section of neighborhoods (census tracts) in six large

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[3] See Fullerton and MacRae (1978), Ostas, Reed, and Hutchinson (1979), and MacRae, Turner and Yezer (1981).

[4] According to MacRae, et al., extremely low-income households are not served by FHA either because they are too risky to pass the underwriting standards or because they choose to remain renters. High-income households are not drawn to FHA either because they want to buy expensive homes much above their area's FHA loan ceiling or because most qualify for cheaper conventional loans.

metropolitan areas.[5] They confirmed their hypothesis that FHA's role is greatest among moderate-income households in racially-mixed neighborhoods. They also found that FHA loans to blacks reached their peak in neighborhoods that are considerably more affluent than the neighborhoods in which white activity levels are highest. That is, conventional lenders were outbidding FHA for white borrowers at much lower levels of neighborhood income than they were among black homebuyers. MacRae, Turner, and Yezer conclude,

> the FHA mortgage insurance program appears to be filling a need created, in part, by the failure of conventional lenders to serve black households in moderate income neighborhoods as completely as they serve white households in similar neighborhoods. (page 56)

B. Credit Rationing Studies

B.1 Theory and Model.

Several studies comparing the characteristics of FHA and conventional borrowers have been based on the theory of credit rationing developed by Dwight Jaffe and Russell Thomas (1976) and by Andrew Weiss and Joseph Stiglitz (1981). These authors argue that lender concerns about credit risk cause them to ration credit rather than to charge higher interest rates. Lenders fear that raising interest rates will expose them to adverse selection -- that is, higher rates will attract risky borrowers and drive away good borrowers. Thus, higher interest rates do not lead to greater returns. The result is a system of relatively uniform interest rates combined with various nonprice rationing techniques (underwriting and collateral requirements) that limit default risk. These binding credit constraints may reflect uncertainty about borrower abilities to repay loans or uncertainty about the collateral value behind the loan (e.g., location in a declining neighborhood). They may take many forms, from outright rejections to higher downpayment requirements.

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[5] The determinants of FHA activity in their model include, for example, neighborhood median income, the proportion of neighborhood population that is black, the proportion of heads of households who have not completed high school (a proxy for neighborhood socioeconomic status), and the proportion of all housing units lacking plumbing (a proxy for quality of the housing stock). In their study of Philadelphia, Fullerton and MacRae (1978) found that FHA served two types of neighborhoods -- whites in white, middle-class neighborhoods scattered throughout the metropolitan area and blacks in black-white border neighborhoods.

FHA insurance offers lenders greater protection from default risk and has traditionally allowed for more flexible underwriting standards than have conventional loans. Thus, less qualified households who would likely be turned down by conventional lenders and insurers may seek out or be encouraged to apply for more costly FHA loans. The "credit rationing" studies test for this effect by using micro (individual borrower) data in a choice model based on the following generalized equation:

(1) Choice of FHA or Conv. Loan = f(individual and neighborhood default characteristics, borrower race, neighborhood racial composition)

The hypothesis being tested in the credit rationing model is that FHA loans will exhibit greater default related characteristics (e.g., lower income borrowers, located in declining neighborhoods) than will conventional loans. Estimating such a model is useful for addressing the issue of who FHA serves because the default characteristics that distinguish FHA loans from conventional loans can be identified using available econometric techniques. Early choice models were typically estimated using ordinary least squares or logit techniques applied to a micro data base such as the American Housing Survey or HMDA, and included both FHA and conventional borrowers.

The studies reviewed here were not typically motivated by the issue of who FHA serves. Rather, they were motivated by concerns about discrimination and redlining in conventional mortgage lending; that is, they wanted to find out if minority households and minority neighborhoods were less (more) likely to obtain conventional (FHA) loans even after controlling for the loan's default risk. Therefore, the studies included borrower race and neighborhood composition as additional explanatory variables. The main finding from these studies was that race was a significant determinant of FHA financing. However, limited data on important borrower default characteristics made it difficult for the authors to reach strong conclusions about discrimination and redlining in the conventional market.[6] Borrowers' credit history and wealth are the most important missing data elements in the studies we reviewed here. The likely correlation of these variables with race suggests that one should not necessarily attribute the higher use of FHA loans among blacks to racial steering and discrimination.

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[6]See Rachlis and Yezer (1994) and Yezer, Philips, and Trost (1995) for criticisms of the single-equation models and statistical tests for discrimination used in the studies reviewed in this section.

B.2 Empirical Studies

A study by Glenn Canner, Stuart Gabriel, and Michael Woolley (1991) provides a good example of the credit rationing approach. These authors evaluate the likelihood of obtaining a conventional versus an FHA loan as a function of various borrower and neighborhood characteristics that reflect default risk.[7] As in equation (1), they added borrower race and neighborhood racial composition to their model to test for any racial effect on mortgage lending. Estimating their model with data from the 1983 Survey of Consumer Finance, they find that young and lower-income borrowers living in lower-income census tracts were more likely to choose FHA, as were borrowers with a high predicted probability of being delinquent on their mortgage payments; the delinquency predictor variable was obtained from a separate regression analysis. Canner, Gabriel, and Woolley conclude that, consistent with models of credit rationing, their results provide evidence that conventional lenders ration credit on the basis of perceived default risk: more creditworthy borrowers obtain conventional loans and less creditworthy borrowers obtain FHA loans.

With respect to the racial variables, Canner et al find that minority borrowers are more likely to obtain an FHA loan, even after controlling for borrower and neighborhood default risk. The racial composition of the neighborhood, on the other hand, did not have much influence on the choice between conventional and FHA loans. The authors mention several possible explanations for the significant minority borrower effect including preferences for FHA on the part of different racial and ethnic groups, steering by real estate agents, market specialization by mortgage bankers, and lender bias.

Other studies have also found that FHA financing mitigates the effects of credit rationing. From their analysis of 1981 American Housing Survey data, Rosenthal, Duca, and Gabriel (1991) found that nonprice credit terms have a binding effect on the demand for owner-occupied housing and that FHA-insured financing offsets at least some of these effects. According to Duca and Rosenthal (1991), the credit rationing model suggests that the FHA share of the market should rise during periods of aggregate (i.e., national)

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[7] Canner, Gabriel, and Woolley sought to improve on an earlier study by Gabriel and Rosenthal (1991) that did not account for the influence of neighborhood location on the choice between conventional and FHA financing. Gabriel and Rosenthal found that households who used FHA would tend to be credit constrained in the conventional market. They also found that minority households were significantly less likely to obtain conventional loans than were whites, even after controlling for default risk.

default risk, as conventional lenders tighten their underwriting standards. They analyze FHA's share of the mortgage market between 1973 and 1985 and find that FHA's share increases with the spread between yields on corporate bonds rated A and AAA, which was their proxy for aggregate default risk and tighter credit standards.[8] Duca and Rosenthal conclude that FHA financing accommodates at least a portion of credit-constrained households in the mortgage market.

William Shear and Anthony Yezer (1985) estimate a model similar to equation (1). They use 1974-77 American Housing Survey data for seven metropolitan areas. Following credit rationing theory, Shear and Yezer expect FHA to service the more risky borrowers. But they also hypothesize that the mortgage finance market is segmented into a discriminating part (conventional) and a nondiscriminating part (FHA). Their empirical results indicate that FHA disproportionately serves lower valued houses (due to FHA's mortgage limits) and lower-income and younger households -- all segments of the market that could be perceived as more default-prone by conventional lenders. Shear and Yezer found no evidence of redlining of central city locations but they did find that black borrowers were much more likely to take out FHA loans, particularly in housing markets where FHA had a large market share. Because they interpret this finding as consistent with the hypothesis of discriminatory treatment of black borrowers by conventional lenders, they conclude that FHA's role as a nondiscriminatory sector should be considered in policy debates about its future.[9]

C. Recent Studies of Mortgage Choice Based on HMDA Data

Expansion in the coverage of HMDA data has led to several recent studies of the determinants of the choice of an FHA or a conventional loan. This section reviews those studies that analyze HMDA data on mortgage applications and originations; a later section will discuss issues related to HMDA data on mortgage rejections.

ICF Report. A HUD-sponsored study by ICF Incorporated (1994), entitled "The Role of FHA in the Provision of Credit to Minorities", is the most comprehensive analysis of the role of FHA

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[8]The spread between less risky AAA bonds and more risky single-A bonds widens when there is a higher probability of corporations defaulting on their bonds.

[9] Shear and Yezer (1983) found no evidence of a differential race effect in an earlier study based on the 1977 national sample -- rather than metropolitan area sample -- of the American Housing Survey. Rachlis and Yezer (1993) argue that single-equation models such as those estimated by Shear and Yezer can not statistically test for discrimination in mortgage markets.

in the mortgage market to date. ICF used 1990 HMDA data to estimate a loan application model for each of the ten metropolitan areas included in its sample.[10] ICF found the following non-racial characteristics to be associated with an applicant's choice of FHA: high mortgage payment-to-income ratio, a purchase rather a refinance mortgage, low borrower income, low neighborhood property values, and high neighborhood rent-to-value ratios.[11] Thus, its findings are consistent with credit rationing studies that suggest more default-prone and risky borrowers choose FHA.

ICF's primary focus, however, was on the effect of race on the probability that a borrower would choose FHA. ICF found that borrowers in neighborhoods undergoing racial transition were more likely to choose an FHA loan. In addition, black borrowers were significantly more likely than otherwise similar white borrowers to apply for an FHA loan in each of the ten sample metropolitan areas; the same pattern held for Hispanic borrowers, although the magnitude of the effect was smaller.[12] ICF estimated that race alone accounted for about one-half of the difference between FHA and conventional participation rates for black and Hispanic borrowers. ICF concluded that its results may reflect racial steering on the part of lenders since the racial differences persist even after controlling for non-racial factors believed to affect the probability of default. However, ICF recognized that race may be picking up the effects of important default variables not included in the HMDA data base such as the applicant's credit history, assets and requested loan-to-value ratio. Since blacks and Hispanics have fewer assets than whites, even after controlling for income, they may be drawn to FHA because of its low downpayment requirements.

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[10]ICF also estimated a loan acceptance model and a default model for FHA loans. The loan acceptance model will be discussed in Section V. The default model was estimated for FHA loans originated between 1987 and 1992; high loan-to-values, low household income and assets, and neighborhood default rate (as a proxy for neighborhood characteristics) were associated with high FHA defaults. After controlling for borrower, property, and neighborhood characteristics, ICF's regression analysis suggested there was little to no systematic relationship between race, borrower or neighborhood, and FHA defaults. Their results suggests that the considerably higher default rates observed for black and Hispanic borrowers are mainly due to factors other than race.

[11]A high rent-to-value ratio suggests low expectations of capital gains in a neighborhood.

[12]In contrast, Asian borrowers were less likely to use FHA than are otherwise similar white applicants.

Other HMDA Studies. Andrew Holmes and Paul Horvitz (1994) used 1990 and 1991 HMDA data to address the issue of racially induced redlining in the city of Houston. Their analyses also examined the role of government insurance in the Houston mortgage market.[13] Because lenders face less risk in granting FHA-insured loans, Holmes and Horvitz note that these loans will account for a large portion of any loans made to high-risk neighborhoods. Thus, their model uses measures of neighborhood default risk to explain variations in the use of FHA loans (relative to number of owner occupants in a census tract). Census tract characteristics associated with high levels of FHA loans included low house value, slow house price growth, high rate of mortgage default, high percentage of young residents, and several racial variables such as increases in minority composition between 1980 and 1990. Generally, Holmes and Horvitz find that attributes that increase the risk of making a loan in a certain area will tend to increase the number of FHA loans granted and decrease of the number of conventional loans granted.

In another HUD-sponsored study, Zeynep Onder (1994) uses 1990 and 1991 HMDA data on home purchase mortgage applications and originations to examine the kinds of individuals and neighborhoods that FHA is serving. Onder is concerned that previous studies have not adequately disentangled individual household determinants of FHA activity from neighborhood determinants.[14] Estimating a model similar to equation (1) at the individual borrower level, Onder reports the following findings: (1) Blacks have a 10 percent higher probability than whites of applying for and getting an FHA loan, after controlling for individual and neighborhood factors;[15]

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[13]Holmes and Horvitz included VA loans with FHA loans. With respect to redlining by conventional lenders, Holmes and Horvitz found that disparities in the flow of mortgage credit across Houston's neighborhoods could be explained by economic measures of the demand for mortgages and risk variables that would be rationally considered by nondiscriminatory lenders. After controlling for the risk and demand variables, they found no evidence that racial composition or changes in racial composition by census tracts affects the flow of mortgage credit.

[14]Onder also notes that previous studies of FHA, such as the "credit rationing" studies reviewed above, are based on very small samples of national data or are limited to a few metropolitan areas. It should be noted that Onder refers to "FHA" loans throughout his paper, but her estimations combine FHA loans with VA loans.

[15]Onder recognizes that the lack of data from HMDA on important risk variables suggest that her results should be interpreted with caution. For instance, the large effect that she obtains for race could be due to its correlation with omitted

(2) More risky borrowers, as proxied by the loan-to-income ratio, have a higher probability of applying and getting FHA loans; and (3) Within both central cities and suburban areas, FHA activity increases with the minority composition of a neighborhood and decreases with the neighborhood's median income and median property value. Onder concludes,

> The evidence from HMDA data does indicate that the FHA serves mainly blacks and it does play an important role in low-income neighborhoods. The results suggest that if the FHA's mortgage insurance programs cease, these groups will be affected most. (page 21)

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variables such as wealth and credit history.

IV. WHO FHA SERVES -- AGGREGATE ANALYSIS

This section offers a rather detailed descriptive analysis comparing the types of borrowers and neighborhoods receiving FHA and conventional loans as well as the different financial characteristics of these loans (e.g., loan-to-value, product type). As discussed in the previous section, the key determinants of FHA originations relate to perceived default risk and racial status of the borrower and his or her neighborhood. This section presents information on these determinants of FHA financing, drawing from several data sources such as HMDA, FHA, the GSEs, and the American Housing Survey. The information applies to home purchase loans in metropolitan areas unless stated otherwise.

Main Findings

The main conclusion is that households served by the FHA insurance program are much more apt or likely to be "credit constrained" than households served by the conventional market.[1] Consistent with findings from the academic literature, we find that FHA provides an important service at the lower end of the mortgage market. We also find that FHA is an important component of the mortgage origination market for higher-income households in need of low downpayment mortgages. Specific findings include the following:

- FHA stands out as an insurer of low downpayment mortgages and mortgages for first-time homebuyers. In 1993, 87 percent of FHA home purchase loans in metropolitan areas had a loan-to-value (LTV) ratio over 90 percent and 67 percent were for first-time homebuyers; in contrast, only 20 percent of GSE home purchase mortgages had an LTV ratio over 90 percent and only 31 percent were for first-time homebuyers.

- The following groups account for a much larger percentage of FHA business than they do of conventional market business: lower income households, blacks and Hispanics,

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[1]Following the credit-rationing literature reviewed in the previous section, **"credit-constrained" borrowers** typically appear less creditworthy or are located in areas where lenders believe the risks to be greater. As a result, they have difficulty meeting standard conventional underwriting standards and thus have more limited financing options. Studies have characterized credit-constrained borrowers as follows: households with low incomes or low levels of wealth, minority households, young households, and households living in poor, inner-city neighborhoods. Section V will show that low-income and minority households are much more likely to have their mortgage applications rejected than are other mortgage applicants.

first-time homebuyers, borrowers making low downpayments, and households living in underserved areas (that is, high-minority and low-income census tracts).

- FHA's overall share of the conforming mortgage market in metropolitan areas was 23 percent in 1993.[2] But, for each of the above named groups, FHA accounts for a significantly larger share of the mortgage market. For instance, in 1993 FHA accounted for 47 percent of conforming mortgages made to black households, 35 percent of mortgages to low-income households, and 36 percent of mortgages financing properties in underserved census tracts.[3] If the market is further restricted to include only loans eligible for FHA insurance, FHA accounted for 53 percent of loans to black households, 36 percent of loans to low-income households, and 40 percent of loans in underserved areas.

- While FHA insurance is concentrated among low-income borrowers, it also serves a significant number of borrowers with higher relative incomes. In 1993, one-fifth of FHA's business in metropolitan areas involved borrowers with over 120 percent of area median income. These borrowers rely on FHA for low downpayments to the same extent as do lower-income borrowers.

- Since the mid-1980s, FHA's repeat-purchase homebuyers have been increasingly making low downpayments. By 1993, 61 percent of repeat-purchase loans had an over-95-percent LTV ratio, which was only slightly lower than the 63 percent figure for first-time homebuyer loans. This suggests that FHA may be helping repeat-purchase households who have lost equity in a declining housing market or who have moved into a higher-cost housing market.

- After lying dormant for six years, FHA's ARM program finally took off in 1992 and 1993. The volume of FHA-insured ARMs jumped from 42,211 in 1991 to 123,313 in 1992 and 149,829 in 1993. FHA ARMs appear to be

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[2]Conforming mortgages consist of loans less than the maximum loan amount that Fannie Mae and Freddie Mac can purchase; in 1993, the conforming loan limit was $203,150.

[3]As explained in Section II, market comparisons used here exclude loans insured by the Veterans Administration and the Farmers Home Administration. If these loans were to be included in the market comparisons, FHA's 1993 share of conforming home purchase loans to black households in metropolitan areas would fall to 39 percent.

alleviating affordability problems in markets with high housing prices. Compared with FRMs, they are disproportionately originated by borrowers with low-income and high payment-to-income ratios and borrowers who live in high-cost, suburban areas in the West.

- There is a substantial socioeconomic gap between borrowers served by FHA and the GSEs. FHA borrowers appear much more credit constrained than GSE borrowers across all of the dimensions examined in this study. ("GSE borrowers" refer to borrowers who took out a mortgage in 1993 that was subsequently purchased or securitized by Fannie Mae or Freddie Mac.)

- The conventional market is highly segmented in terms of the types of borrowers and neighborhoods served. Non-GSE borrowers appear to be more credit constrained than borrowers served by the GSE portion of the conventional market, but not as credit constrained as those served by FHA. Non-GSE lenders consist mainly of commercial banks and thrift institutions that choose to hold their loans in portfolio rather than to sell them to Fannie Mae or Freddie Mac.[4] The apparent borrower differences between non-GSE portfolio lenders and those who sell to the GSEs may be due to the portfolio lenders' greater knowledge of local markets, to the portfolio lenders' flexibility in underwriting borrowers that they know to be good risks based on long-term customer relationships, and to the funding by non-GSE portfolio lenders of certain types of properties -- such as mobile homes -- which the GSE lenders will only fund under more restrictive conditions.

- FHA-eligible loans originated by conventional portfolio lenders exhibit some of the same characteristics as FHA loans. For instance, 39 percent of these conventional loans were for low-income borrowers, only slightly below the 42 percent low-income figure for FHA. However, FHA showed a much greater concentration of loans to blacks and Hispanics, who accounted for 26 percent of FHA loans compared with 15 percent of FHA-eligible loans originated by portfolio lenders.

Metropolitan Areas. Most of the data presented in subsections A and B compare FHA and conventional lending using aggregate data for home purchase loans in metropolitan areas. Data for **non-metropolitan areas** are analyzed separately and comparisons are

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[4]It is recognized that many banks and thrifts sell part of their originations to the GSEs and hold the remainder in portfolio.

presented in subsection C.[5] The comparisons relate to single points in time (most often 1993 but earlier in some cases). Issues related to the role of FHA in the mortgage market over time are briefly discussed in Section VIII; more research remains to be done on this issue.[6]

1993 Economic Environment. It should be emphasized that most of the data reported in this section pertain to 1993, a year characterized by unusually favorable economic conditions for home purchase. Record low interest rates during 1993 made it easier for lower-income borrowers to meet conventional payment-to-income standards, thus reducing the qualifying advantage that FHA offers lower-income homebuyers and its share of that market. Therefore, one should be cautious about generalizing from the 1993 experience. One should not expect the 1993 shares for FHA and conventional lending to remain the same with changing economic conditions. For example, higher interest rates would raise the monthly mortgage payment and thus the income required to finance home purchases, disqualifying many lower-income households while making FHA the only alternative for other low- and moderate-income households. Under these circumstances, one could expect FHA's share of the smaller lower-income market, as well as its shares for minority, central-city, and underserved-area households, to increase relative to conventional lender shares. The relationship between the level of interest rates and FHA's share of the lower-income market needs further study.

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[5]Metropolitan and nonmetropolitan area data are analyzed separately to allow for systemic differences in the two types of housing markets and to avoid clouding comparisons of borrowers served by FHA and conventional lending alternatives. For example, it is generally understood that nonmetropolitan, rural housing markets have lower home-price-to-income ratios, less turnover, greater variance in the nature and type of property exchanged, less diversified economies, and a lower proportion of rental housing. Consequently, there is ample reason to believe that nonmetropolitan, rural homebuyers operate in a substantially different environment than is typical for metropolitan homebuyers and that these differences could be reflected in their home finance decisions. Moreover, HMDA data is only available for metropolitan areas and separate analysis facilitates comparison of results from alternative data sources.

[6]Two important issues that this paper does not address are (1) the impact of the economic cycle (income growth, changes in interest rates) on FHA financing and (2) whether FHA has served as a stabilizing force in past regional recessions. Issue (1) will be addressed in our planned analysis of American Housing Survey data.

A. 1993 HMDA Data

Borrower Income. According to the "distribution of business" data shown in Table 4.1, low-income households are more likely to choose FHA than are high-income households, but substantial numbers of high-income households still rely on FHA to help them obtain home financing. In 1993, households with less than 80 percent of the median income for their metropolitan area accounted for 41.8 percent of FHA home purchase mortgages; households with over 120 percent of area median income accounted for 20.1 percent of such loans.

As expected, a larger portion of FHA business is with low-income borrowers than is conventional business.[7] Low-income borrowers accounted for 23.7 percent of conforming loans originated by conventional lenders, a figure substantially below the low-income share (41.8 percent) of FHA business.

Lower-income households are attracted to FHA because its downpayment, income qualification, and other underwriting standards are less restrictive than those found in the conventional market. In addition, the fact that FHA's maximum loan amounts are set near the median house price for most metropolitan areas reduces FHA's attractiveness to high-income borrowers who tend to purchase more expensive housing. Thus, not surprisingly, FHA ends up playing a much more important role in the lower-income end of the mortgage market. According to the "market share" data in Table 4.2, FHA insured 35 percent of all low-income loans originated in 1993.

Nevertheless, as noted above, about 20 percent of FHA loans went to borrowers with income above 120 percent of their MSA median. In 1993, FHA-insured loans accounted for 12 percent of the higher-income-loan market in metropolitan areas. Table 4.3 compares these higher-income borrowers with lower-income borrowers. While these borrowers have more income than FHA borrowers with lower incomes, as is evident in their lower payment-to-income ratios in Table 4.3, on other dimensions they are surprisingly similar to the lower-income borrowers. The greatest similarity is seen in loan-to-value ratios. Higher-income FHA borrowers appear almost as cash-constrained as their lower-income counterparts. Due to their wealth constraints, FHA allows them to purchase a better quality home than they could with a conventional loan. In

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[7]Low-income borrowers are those with a median income less than 80 percent of the metropolitan area (MSA) median income, middle-income borrowers are those with a median income between 80 percent and 120 percent of the MSA median, and high-income borrowers are those with median income above 120 percent of the MSA median.

TABLE 4.1: Distribution of Home Purchase Loans by Characteristics of the Borrower and of the Census Tract: FHA and Conforming Conventional Market, 1993

Borrower and Census Tract Characteristics	FHA	Conforming Conventional		
		Total	FHA-Eligible	Not Eligible
Income of Borrower				
80% of Median or Below	41.8%	23.7%	36.7%	1.8%
81-100% of Median	22.5%	15.3%	20.5%	6.4%
101-120% of Median	15.6%	14.6%	15.5%	12.4%
121-150% of Median	11.8%	17.4%	13.7%	23.4%
+150% of Median	8.3%	29.0%	13.6%	56.0%
	100.0%	100.0%	100.0%	100.0%
Under Median	64.3%	39.0%	57.2%	8.2%
Over Median	35.7%	61.0%	42.8%	91.8%
Race/Ethnicity of Borrower				
White	75.5%	86.6%	85.6%	88.7%
Black	11.0%	3.8%	4.4%	2.5%
Hispanic	10.5%	4.7%	5.3%	3.4%
Asian	2.0%	3.9%	3.7%	4.4%
Other	1.0%	1.0%	1.0%	1.0%
	100.0%	100.0%	100.0%	100.0%
Income of Tract				
80% of Median or Below	16.9%	9.5%	12.4%	3.7%
81-100% of Median	28.8%	21.4%	26.0%	11.8%
101-120% of Median	29.0%	27.9%	29.7%	24.3%
121-150% of Median	19.5%	26.0%	22.3%	33.7%
+150% of Median	5.6%	14.9%	9.3%	26.4%
	100.0%	100.0%	100.0%	100.0%
Minority Composition of Tract				
10% Minority or Less	42.3%	59.7%	58.4%	62.2%
11-30% Minority	35.1%	27.5%	27.2%	28.0%
31-50% Minority	10.7%	6.3%	6.7%	5.6%
+50% Minority	11.9%	6.5%	7.7%	4.2%
	100.0%	100.0%	100.0%	100.0%
Served Tracts	72.3%	84.6%	81.2%	91.6%
Underserved Tracts	27.7%	15.4%	18.8%	8.3%
Central Cities	46.4%	39.6%	38.5%	35.4%
Suburbs	53.6%	60.4%	61.5%	64.0%

SOURCE: PD&R analysis of 1993 HMDA data for metropolitan areas.

NOTE: Conventional conforming loans include loans below $203,150, which was the 1993 loan limit for the two GSEs, Fannie Mae and Freddie Mac. "FHA-Eligible" loans are conventional loans below the FHA maximum loan amount for each metropolitan area. "Not Eligible" loans are conventional loan above the FHA limit for the metropolitan area, but below the conforming limit.

Median income refers to the median MSA income.

TABLE 4.2: Market Shares for Home Purchase Loans by Borrower and Census Tract Characteristics, 1993

Borrower and Census Tract Characteristics	FHA Share of Conforming Market	FHA Share of Eligible Market
Total Market	23.4%	31.2%
Income of Borrower		
80% of Median or Below	35.1%	35.7%
81-100% of Median	31.1%	34.3%
101-120% of Median	24.7%	31.2%
121-150% of Median	17.3%	27.1%
+150% of Median	8.1%	19.2%
Under Median	33.6%	35.2%
Over Median	15.2%	26.1%
Race/Ethnicity of Borrower		
White	21.3%	28.8%
Black	47.3%	53.2%
Hispanic	40.8%	47.3%
Asian	14.2%	20.8%
Income of Tract		
80% of Median or Below	35.1%	38.2%
81-100% of Median	29.2%	33.5%
101-120% of Median	24.1%	30.7%
121-150% of Median	18.6%	28.3%
+150% of Median	10.3%	21.4%
Minority Composition of Tract		
10% Minority or Less	17.8%	24.7%
11-30% Minority	28.1%	36.9%
31-50% Minority	34.0%	41.9%
+50% Minority	35.9%	41.4%
Served Tracts	20.7%	28.8%
Underserved Tracts	35.5%	40.1%
Central Cities	27.5%	35.4%
Suburbs	20.8%	28.4%

SOURCE: PD&R analysis of 1993 HMDA data for metropolitan areas.

NOTE: Conforming loans include loans below $203,150, which is the loan limit for the two GSEs, Fannie Mae and Freddie Mac. The "Eligible Market" includes both FHA and conventional loans below the FHA maximum amount for each metropolitan area. "Not Eligible" loans are conventional loans above the FHA limit for the metropolitan area, but below the conforming limit.

Median income refers to the median MSA income.

TABLE 4.3: Characteristics of FHA loans to Borrowers with Income Below 120% of Median and to Borrowers with Income Over 120% of Median, 1993

Characteristics	Over 120% of Median	Under 120% of Median
Age		
Less than 30	39.9%	48.5%
Greater than 40	21.1%	21.5%
Race		
Black	7.7%	10.5%
Hispanic	9.0%	9.6%
White	80.7%	77.5%
First-time Homeowner	56.3%	69.3%
Loan-to-Value Ratio		
Greater than 80%	97.9%	97.1%
Greater than 90%	87.7%	86.9%
Greater than 95%	59.9%	63.0%
Payment-to-Income Ratio		
25% or Less	95.1%	58.1%
26-28%	1.9%	12.4%
Over 28%	1.6%	23.3%
Tract Income		
Less than 80% of Median	10.4%	18.6%
Over 120% of Median	37.3%	22.0%
Tract Minority Composition		
Less than 10%	40.2%	43.8%
Greater than 30%	21.7%	22.6%
In Underserved area	21.4%	29.1%
In Central City	48.1%	45.9%
Denial Rate	9.8%	11.9%

SOURCE: FHA loan-level data files maintained by HUD and 1993 HMDA data.

NOTE: This table reports characteristics for FHA mortgages made in metropolitan areas. Data on borrower age, first-time homeowner, loan-to-value ratio and payment-to-income ratio are from FHA data. The remaining data are from HMDA.

addition, the two groups have similar percentages of households in central cities and predominantly white census tracts.

On other dimensions, the differences between higher-income and lower-income FHA borrowers are somewhat larger. For example, more borrowers are under 30 years of age than are over 40 for both the over 120 percent of median and under 120 percent of median income cohorts. But for higher-income borrowers the ratio of under-30-to-over-40 is 2 to 1, compared with 3 to 1 for lower-income borrowers. The majority of both groups of borrowers are first-time homeowners (56 percent for the higher-income group and 69 percent for the lower-income group). The percentage of higher-income borrowers who are black (7.7 percent) is not too much lower than the share of lower-income borrowers who are black (10.5 percent). However, substantially fewer loans to higher-income borrowers are made in underserved tracts (21 versus 29 percent).

While the higher-income borrowers have a lower mortgage denial rate than the lower-income borrowers (9.8 versus 11.9 percent), the difference is small. When the income groups are disaggregated further, as can be seen in Table 5.1 in Section V, the denial rate for FHA loans is lowest for borrowers in the 101-150 percent of median income range, and rises for those with both higher and lower incomes. In fact, FHA applicants with incomes over 150 percent of median have slightly higher denial rates than do conventional applicants of similar income, a pattern which is the opposite of all other income classes. This suggests that the highest-income FHA borrowers have a higher risk profile and would be less able to meet conventional underwriting standards.

FHA-Eligible Market. Another way to examine FHA's performance in serving households of different incomes is to compare FHA loans, first, with all loans eligible for FHA insurance and, then, with "GSE-purchased" loans and "non-GSE" loans that are originated in the FHA-eligible market. Segmenting the conventional market in this manner appropriately restricts the comparisons between FHA and conventional lenders to those market sectors with more similar house prices and permits interesting comparisons of FHA with both the GSEs and portfolio lenders (the latter making up most of the "non-GSE" part).

Performing this segmentation shows that low-income households accounted for 36.7 percent of eligible loans originated by conventional lenders in 1993 while high-income households accounted for 27.3 percent of those loans (see Table 4.1). As reported above, comparable numbers for FHA are 41.8 percent and 20.6 percent, which means that FHA continues to outperform conventional lenders, but restricting the market to eligible loans obviously narrows the gap.

What is more interesting, however, are the very different distributions of business by income within the eligible

conventional market. As shown in Table 4.4, loans to low-income households represented 39.0 percent of loans originated in 1993 by portfolio lenders such as thrifts and banks; in contrast, they represented only 28.9 percent of home purchase mortgages bought or securitized by the GSEs. The low-income share of portfolio lender business is closer to the low-income share of FHA business (39.0 percent versus 41.8 percent).

The smaller share of low-income borrowers in the eligible conventional market, as compared with the FHA market, is due to the relatively small share of low-income loans bought or securitized by the GSEs. The higher low-income share of portfolio lenders compared to lenders selling to the GSEs may be due in part to their greater knowledge of local markets, to their flexibility in underwriting borrowers that they know to be good risks based on long-term customer relationships, and to the funding by portfolio lenders of certain types of properties -- such as mobile homes -- which the GSE lenders will only fund under more restrictive conditions.

Borrower Race. Findings from the academic literature that blacks and Hispanics rely heavily on FHA are supported by the 1993 HMDA data presented in Table 4.1. The proportion of FHA's purchase loan business going to blacks, 10.8 percent, is two-and-one-half times the proportion of conventional purchase loans going to blacks (4.3 percent). FHA participation by Hispanics is 10.2 percent, which is almost double the corresponding number (5.2 percent) in the conventional market. While FHA represented only 23 percent of the market for conforming loans in metropolitan areas, it accounted for 47 percent of conforming loans going to blacks and 41 percent of conforming loans going to Hispanics.

Table 4.4 also compares FHA to the FHA-eligible portion of the conventional market. Unlike the income comparisons of Table 4.4, which showed that portfolio lenders financed low-income loans at almost the same rate as FHA, the racial data show that FHA significantly leads the market in meeting the credit needs of minorities. While blacks and Hispanics accounted for 21.0 percent of FHA's 1993 loans, they accounted for only 11.2 percent of eligible loans originated by portfolio lenders. Similar to the findings with respect to low-income targeting, GSE purchases were not particularly targeted to minorities, as blacks and Hispanics accounted for only 8.1 percent of GSE purchases of eligible loans.[8]

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[8]Readers might note the data on loans to Asian borrowers given in Tables 4.1 and 4.4. Asians rely more heavily on conventional lenders. Almost four percent of conforming loans went to Asians in 1993, compared with only two percent of FHA loans. FHA accounted for only 14 percent of all conforming loans made to Asians in 1993.

TABLE 4.4: Distribution of Home Purchase Loans by Characteristics of Borrowers and Census Tracts In Which Properties Are Located: FHA and the FHA-Eligible Market

Borrower and Census Tract Characteristics	FHA	FHA-Eligible		
		All	GSE	Non-GSE
Income of Borrower				
80% of Median or Below	41.8%	36.7%	28.9%	39.0%
81-100% of Median	22.5%	20.5%	20.9%	18.4%
101-120% of Median	15.6%	15.5%	17.4%	14.1%
121-150% of Median	11.8%	13.7%	16.3%	13.0%
+150% of Median	8.3%	13.6%	16.5%	15.6%
	100.0%	100.0%	100.0%	100.0%
Under Median	64.3%	57.2%	49.8%	57.4%
Over Median	35.7%	42.8%	50.2%	42.7%
Race/Ethnicity of Borrower				
White	75.5%	86.0%	86.9%	84.6%
Black	11.0%	4.5%	3.3%	5.4%
Hispanic	10.5%	5.1%	4.7%	5.8%
Asian	2.0%	3.4%	4.1%	3.2%
Other	1.0%	1.0%	1.0%	1.0%
	100.0%	100.0%	100.0%	100.0%
Income of Tract				
80% of Median or Below	16.9%	12.4%	9.5%	15.3%
81-100% of Median	28.8%	26.0%	23.4%	28.6%
101-120% of Median	29.0%	29.7%	30.8%	28.8%
121-150% of Median	19.5%	22.3%	25.6%	19.3%
+150% of Median	5.6%	9.3%	10.7%	8.1%
	100.0%	100.0%	100.0%	100.0%
Minority Composition of Tract				
10% Minority or Less	42.3%	58.4%	58.7%	58.1%
11-30% Minority	35.1%	27.2%	28.4%	26.0%
31-50% Minority	10.7%	6.7%	6.5%	6.9%
+50% Minority	11.9%	7.7%	6.4%	8.9%
	100.0%	100.0%	100.0%	100.0%
Served Tracts	72.3%	81.2%	84.5%	78.0%
Underserved Tracts	27.7%	18.8%	15.5%	22.0%
Central Cities	46.4%	38.5%	38.0%	38.9%
Suburbs	53.6%	61.5%	62.0%	61.1%

SOURCE: PD&R analysis of 1993 HMDA data for metropolitan areas.

Note: "FHA-Eligible" loans are conventional loans below the FHA maximum loan amount for each metropolitan area. "GSE" loans are those purchased by either Fannie Mae or Freddie Mac, and "Non-GSE" loans are those not purchased by either.

Median income refers to the median MSA income.

Given that the above patterns could be due to the low incomes of blacks and Hispanics, Table 4.5 examines FHA's market share of eligible loans for minorities but this time controlling for borrower income. In 1993, FHA insured 31.3 percent of eligible mortgages in metropolitan areas. It insured almost half of eligible loans going to blacks and Hispanics and about 30 percent of loans going to whites for each income group except the very highest, which in Table 4.5 includes households with incomes over 150 percent of the area median. Even for the over-150-percent group, FHA insured 41 percent of loans going to blacks and 33 percent of loans going to Hispanics, compared with only 18 percent of the loans going to whites. Thus, FHA's greater targeting to minorities persists across all income groups.[9]

Census Tract Characteristics. HMDA data has sparked much academic research about the types of neighborhoods served by the mortgage lending industry. That research, which will be reviewed in Section V, has focused on the issue of redlining and the extent to which lenders are meeting the credit needs of underserved borrowers and their neighborhoods. Major findings from this neighborhood-level research are that substantial disparities in mortgage flows exist across neighborhoods and that low-income and high-minority neighborhoods appear to be underserved by the mortgage market. This section examines the types of neighborhoods that FHA and conventional lenders are serving. Lending activity is arrayed by the median income and racial composition of census tracts and by a new definition of underserved areas. That definition was introduced in the Department's recently released rule governing the regulation of Fannie Mae and Freddie Mac.

The findings with respect to census tract characteristics mirror closely those reported earlier for borrower race -- FHA lending is much more concentrated in underserved neighborhoods than is conventional lending. First, consider Table 4.1, which also arrays 1993 lending data for conforming loans by the median income of the census tract. Lending to low-income census tracts represented 16.9 percent of FHA lending in 1993 but only 9.5 percent of conventional lending.[10] While 25 percent of FHA loans

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[9]To address ongoing controversies about fairness in the lending, Section V will take a more in-depth look at the role of FHA in meeting the credit needs of minorities and their communities. Data on mortgage rejections by FHA and conventional lenders will be analyzed there.

[10]Low-income tracts have median income less than 80 percent of the metropolitan area (MSA) median income. Middle-income tracts are between 80 percent and 120 percent, and high-income tracts are above 120 percent. The tables also separate out very high income census tracts (over 150 percent of MSA median), which rely disproportionately on conventional lending.

TABLE 4.5: FHA Share of Home Purchase Market by Income and Racial Characteristics of Borrowers and Census Tracts in Which Properties Are Located, 1993

Income and Race of Borrower	FHA Share of Eligible Market	Income and Minority Composition of Tract	FHA Share of Eligible Market
Total Market	31.3%	Total Market	31.3%
80% of Median or Below		80% of Median or Below	
White	32.7%	10% Minority or Less	29.4%
Black	54.0%	11-30% Minority	39.6%
Hispanic	50.4%	31-50% Minority	41.2%
Asian	25.5%	+50% Minority	41.6%
81-100% of Median		81-100% of Median	
White	32.0%	10% Minority or Less	27.4%
Black	56.5%	11-30% Minority	38.6%
Hispanic	50.9%	31-50% Minority	43.5%
Asian	22.9%	+50% Minority	43.2%
101-120% of Median		101-120% of Median	
White	29.2%	10% Minority or Less	24.6%
Black	55.7%	11-30% Minority	39.1%
Hispanic	47.4%	31-50% Minority	43.2%
Asian	19.3%	+50% Minority	44.0%
121-150% of Median		121-150% of Median	
White	25.2%	10% Minority or Less	22.8%
Black	51.9%	11-30% Minority	35.8%
Hispanic	43.7%	31-50% Minority	40.8%
Asian	16.6%	+50% Minority	35.9%
150%+ of Median		150%+ of Median	
White	17.9%	10% Minority or Less	19.6%
Black	41.2%	11-30% Minority	23.8%
Hispanic	32.6%	31-50% Minority	30.4%
Asian	13.4%	+50% Minority	22.8%

SOURCE: 1993 HMDA data on home purchase loans in metropolitan areas.

went to high-income tracts, over 40 percent of conventional lending went to those tracts. As a result of its targeting, FHA has a much larger share of the total lending market in low-income census tracts than in high-income tracts. In 1993, FHA insured 35 percent of all conforming purchase mortgages in low-income tracts, compared to 26 percent in middle-income tracts and only 16 percent in high-income tracts.

FHA business is also much more concentrated in minority tracts than is conventional business. Almost 23 percent of FHA lending took place in census tracts where minorities accounted for more than 30 percent of the population; only 14 percent of conventional lending took place in high-minority tracts. On the other hand, 58 percent of conventional lending financed properties located in predominately white census tracts, compared with only 42 percent of FHA lending. This much greater concentration of FHA lending in minority tracts translates into significant market shares for FHA. Thirty-five percent of all conforming loans in high-minority tracts were FHA loans; in contrast, FHA's market share in predominately white tracts was only 18 percent.[11]

Table 4.5 examines the effects on FHA's market share when the income and racial composition of census tracts are considered simultaneously. FHA's relatively large share of the mortgage market in high-minority tracts is not confined to lower income tracts. Its market share for eligible mortgages originated in high-minority tracts stays in the 40-45 percent range until census tract income rises above 150 percent of area median. For the over-150-percent income tracts that also have a high racial composition, FHA's share of eligible mortgages drops to less than 30 percent.

Underserved Neighborhoods. FHA's neighborhood targeting can be summarized by using the underserved area definition included in HUD's proposed GSE regulations. HUD's definition is based on academic research documenting that neighborhoods with lower income and higher shares of minority populations consistently have poorer access to mortgage credit, with higher mortgage denial rates and lower mortgage origination rates.[12] Thus, HUD defines underserved areas as census tracts:

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[11] The pattern is the same, but with overall higher shares, when data for FHA-eligible mortgages are examined. As shown in Table 5, FHA accounted for 41.4 percent of eligible loans in tracts with more than 50 percent minority and 41.9 percent in tracts with minority composition between 30 and 50 percent, compared with only 24.7 percent of eligible loans in predominately white tracts.

[12]See Section V below and Appendix B of HUD's proposed regulation governing GSE housing activities for a review of these studies.

> Where minorities comprise 30 percent or more of the residents and the median income does not exceed 120 percent of the area median income; or where the median income of families does not exceed 80 percent of the area median income.

HUD's definition accounts for 17,337 of the 44,447 census tracts in metropolitan areas. According to 1993 HMDA data, 22 percent of the mortgage applications in underserved tracts were rejected by lenders, a rejection rate twice that in the remaining tracts of metropolitan areas. Underserved tracts are also highly distressed neighborhoods; they exhibit an average poverty rate of 23 percent, compared with only 7 percent in the remaining served tracts. Thus, HUD's definition provides a reasonable standard for evaluating lending flows within metropolitan areas.

The comparisons given in Table 4.6 between FHA and conventional lending activity in underserved areas clearly demonstrate the important role that FHA plays in solving the problems of credit-constrained, urban neighborhoods. Underserved areas were responsible for 28 percent of FHA loans but only 15 percent of conventional loans. Within central cities, underserved areas account for 37 percent of FHA loans, as compared with 24 percent of conventional loans. In terms of market share, FHA accounts for 37 percent of conforming loans going to underserved areas of central cities and 34 percent of conforming loans going to underserved areas of suburban communities -- both percentages larger than FHA's overall 23 percent share of the conforming market in metropolitan areas.

The comparisons change slightly for the FHA-eligible portion of the conventional market. In 1993, about 19 percent of eligible loans originated by conventional lenders were for properties in underserved areas, compared with 28 percent of loans insured by FHA. (See Table 4.4.) In all, FHA insured 40 percent of eligible loans originated in underserved census tracts of metropolitan areas. But again, what is more interesting are the different patterns for the GSE and non-GSE (portfolio lender) portions of the conventional market. Only 16 percent of the GSEs' purchases of eligible mortgages were in underserved areas, as compared with 22 percent of the eligible loans originated by portfolio lenders, and, as mentioned above, 28 percent of loans insured by FHA. Thus, GSE activity is much less concentrated in underserved areas than is either FHA insurance or lending by banks and thrifts.[13]

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[13]The GSEs purchase loans from all lenders. An important question is whether the GSE's borrower qualification standards preclude portfolio lenders from selling them many loans from underserved areas.

TABLE 4.6: FHA and Conventional Conforming Home Purchase Loans in Underserved Areas, 1993

			Conventional					
	FHA		Conforming		FHA-Eligible		FHA Market Share	
Location	Number	%	Number	%	Number	%	of Conforming Market	of Eligible Market
Central Cities	226,409	100.0%	597,765	100.0%	413,741	100.0%	27.5%	35.4%
Underserved	82,791	36.6%	142,271	23.8%	120,182	29.0%	36.8%	40.8%
Served	143,618	63.4%	455,494	76.2%	293,559	71.0%	23.0%	32.9%
Suburbs	261,487	100.0%	995,816	100.0%	660,658	100.0%	20.8%	28.4%
Underserved	52,320	20.0%	102,731	10.3%	81,909	12.4%	33.7%	39.0%
Served	209,167	80.0%	893,085	89.7%	578,749	87.6%	18.9%	26.5%
Metropolitan Areas	487,896	100.0%	1,593,581	100.0%	1,074,399	100.0%	23.4%	31.2%
Underserved	135,111	27.7%	245,002	15.4%	202,091	18.8%	35.5%	40.1%
Served	352,785	72.3%	1,348,579	84.6%	872,308	81.2%	20.7%	28.8%

SOURCE: 1993 HMDA data for metropolitan areas.

NOTE: Conventional conforming loans include loans below $203,150, which was the 1993 loan limit for the two GSEs, Fannie Mae and Freddie Mac. "FHA-Eligible" loans are conventional loans below the FHA maximum loan amount for each metropolitan area. The "Eligible Market" equals FHA loans plus FHA-eligible conventional loans. VA and Farmers Home loans are excluded.

B. Additional Characteristics of FHA Lending

This subsection continues comparing FHA with the conventional market and the GSEs but moves beyond the HMDA data. It has five parts: The first briefly defines four new data bases used here; the second describes FHA's role in the low-downpayment market; the third details the greater utilization of FHA by young, first-time homebuyers; the fourth offers several additional comparisons between FHA-insured financing and GSE loan purchases; and the fifth compares the characteristics of FHA ARMs and FHA fixed-rate mortgages.

B.1 Data Sources

Four data sources are used for analysis in this section. The first two are data from FHA's "F-42" loan characteristics files and from GSE loan purchase records for 1993. Both of these sources provide detailed borrower and financial information for the loans sponsored by each of these organizations.[14] Data on the overall mortgage market are obtained from two national samples -- the American Housing Survey (AHS) and the 1991 Survey of Residential Finance (SRF). The AHS provides information on borrower and mortgage characteristics of households and is taken during odd numbered years.[15] Here we use data from the 1985-1993 surveys. Only households that moved into their dwelling unit in the two years prior to the date of the survey are used here. The SRF provides similar information for a national sample of households that were surveyed in 1991 with a particular emphasis on household finances. We focus our analysis on households that took out home purchase mortgages between 1989 and 1991.[16]

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[14]HUD is also using the GSE data to evaluate performance under regulatory housing goals established for the GSEs by Congress. Congress required the GSEs to submit loan-level data to HUD beginning with their mortgage purchases for 1993.

[15]The AHS tracks housing units over time. There are two samples -- a national sample that is conducted biannually and a metropolitan area sample for 47 large MSAs that is conducted on a four-year rotational basis. In their analysis of FHA issues, Shear and Yezer (1985) use the national sample of the AHS, and Hendershott and LaFayette (1994) use the metropolitan area sample.

[16]The SRF is the only data base that identifies whether a mortgage is insured by PMIs. Information from the SRF on private mortgage insurance will be discussed in Section VII, which examines the overlap between FHA and private mortgage insurance. For further description of the SRF and some of the limitations of its mortgage data, see Price Waterhouse (1994b) and Follain

loans had an LTV ratio under 80 percent, compared with only 3 percent of FHA loans.

These differences in LTV ratios between the FHA and conventional sectors are only partially explained by FHA's higher level of first-time homebuyer activity (discussed below). If the above 1989-93 AHS comparisons are restricted to only first-time homebuyers, about 80 percent of FHA loans had an LTV over 90 percent, compared with slightly over 40 percent of conforming conventional loans. The ratios of high-LTV FHA loans among first-time and repeat homebuyers has been changing over time, as seen below:

AHS Sample: FHA-Insured Home Purchases in:	% with an LTV above 95% First-time Purchaser	Repeat Purchaser
1983-84	56%	38%
1985-86	55%	40%
1987-88	59%	37%
1989-90	60%	49%
1991-92	56%	59%

According to the AHS, about 55-60 percent of FHA's first-time purchasers have consistently put less than five percent down. On the other hand, there has been a recent increase in the proportion of FHA's repeat purchasers that have been making small downpayments. By 1992, the LTV distribution for repeat purchasers was similar to that for first-time homebuyers.[19] These LTV trends suggest that FHA is playing an increasingly important role helping repeat homebuyers who have lost equity during housing market downturns or who are moving from low-cost to high-cost areas. Helping people start over again could be just as important as helping first-time homebuyers. Several in this segment of the homebuying market have shown a commitment to home ownership but experienced financial difficulties through which they lost their home equity. More research is needed to explore the credit constraints they face.

In contrast, the LTV distributions reported in Table 4.7 for the conforming market and the GSEs exhibit the expected relationship of first-time homebuyers putting less money down than repeat purchasers. For instance, the percentage of GSE first-time homebuyers with an initial LTV ratio over 90 percent was almost double the percentage of GSE repeat purchasers with an LTV ratio over 90 percent (30 percent versus 16 percent).

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[19]FHA's 1993 data also show similar percentages of over-95-percent LTVs for first-time and repeat homebuyers (63 percent and 61 percent, respectively).

B.3 First-time Homebuyers -- Further Discussion

FHA's lower downpayment and more liberal income-qualification requirements are particularly important to first-time homebuyers. Among all homebuyers, first-time buyers have had the least opportunity to accumulate the wealth and income necessary for home purchase. The data reported below suggests that FHA represents an extremely important avenue to homeownership for a substantial number of would-be homeowners with little wealth.

FHA-GSE Comparisons. In 1993, FHA and the GSEs helped roughly the same number of first-time homebuyers with the purchase of their homes. FHA accounted for 369,408 first-time purchasers compared with a combined total for Fannie Mae and Freddie Mac of 404,300.[20] First-time buyers, however, account for a much larger proportion of FHA's home purchase business than that of the GSEs. In 1993, first-time buyers accounted for two-thirds of FHA's home purchase business while accounting for 30 percent of that for the GSEs.

Moreover, first-time buyers served by FHA are less wealthy that those served by the GSEs. Table 4.8 compares the characteristics of FHA and GSE first-time homebuyers in the FHA-eligible market of metropolitan areas. In 1993, about one-tenth of FHA first-time buyers made downpayments in excess of 10 percent, compared with 70 percent of GSE first-time buyers. And, 46 percent of FHA first-time buyers had low incomes compared with 35 percent of GSE first-time buyers. According to Table 4.8, a greater proportion of FHA first-time buyers were also living in low-income and high-minority census tracts.

FHA-Conforming Market Comparisons. According to SRF data for the period between 1989 and 1991, 37 percent of borrowers in the conforming conventional market had not previously owned a home, which is much less than the estimated 66 percent of FHA borrowers who had not previously owned a home.[21] FHA's higher level of first-time homebuyer activity is associated with a relatively high percentage of young borrowers. American Housing Surveys since 1987 report that one-third of FHA borrowers are under 30 years of age, compared with slightly over one-fifth of conventional borrowers.

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[20]This number includes GSE purchases of seasoned mortgages. If only mortgages originated in 1993 are considered, the GSE first-time homebuyer number falls to 364,407.

[21]The figure for the conforming conventional market rises to 56 percent if only privately-insured loans in that market are considered. The data private mortgage insurers will be discussed in Section VI.

TABLE 4.8: Characteristics of First-time and Repeat Homebuyers in Metropolitan Areas, 1993 Data for FHA and GSEs

Characteristics	FHA		GSEs (FHA-Eligible Only)	
	First-time	Repeat	First-time	Repeat
Number	335,734	166,815	231,728	429,644
Age				
Less than 30	54%	30%	43%	17%
Greater than 40	13%	27%	21%	46%
Income				
Less than 80% of Median	46%	35%	35%	25%
Over 120% of Median	16%	25%	25%	38%
Race				
Black or Hispanic	22%	15%	10%	7%
White	75%	83%	83%	89%
Loan-to-Value Ratio				
Greater than 80%	98%	97%	55%	32%
Greater than 90%	88%	86%	30%	14%
Greater than 95%	63%	61%	0%	0%
Tract Income				
Less than 80% of Median	18%	13%	11%	8%
Over 120% of Median	22%	29%	33%	40%
Tract Minority Composition				
Less than 10%	42%	45%	54%	58%
Greater than 30%	24%	17%	16%	12%
In Underserved area	30%	22%	19%	14%
In Central City	47%	48%	35%	33%

SOURCE: FHA and GSE loan-level data files maintained by HUD.

NOTE: This table reports characteristics for all mortgages made in metropolitan areas. The GSE loans are restricted to those which are "FHA-eligible," i.e. below the FHA loan limit for each metropolitan area. Alternative products, such as balloons are not included.

Median income refers to the median MSA income.

Table 4.9 compares the characteristics of first-time and repeat homebuyers for FHA and the conforming conventional market based on national data from American Housing Surveys conducted between 1985 and 1993. FHA first-time homebuyers appear much more credit-constrained than first-time homebuyers in the conventional market -- they had lower average incomes, took out smaller loans, were more likely to be minority, and, as discussed earlier, made smaller downpayments. However, the differences between FHA and conventional market first-time homebuyers are not as great as is reported above for FHA and the GSEs. This is because GSE loans are concentrated at the top end of the conforming conventional market.

B.4 FHA-GSE Comparisons

The FHA and GSE loan-level data permit comparisons of the characteristics of households served by these organizations. Data already presented in this and earlier sections clearly show that borrowers served by the GSEs are much less credit-constrained than those served by FHA. According to HMDA data, the GSEs also serve a much less credit-constrained borrower than is served by portfolio lenders in the conventional market. Tables 4.10 and 4.11, which provide FHA and GSE home purchase data for metropolitan areas in 1993, support this general picture of the GSEs. A wide socioeconomic gap exists between credit-constrained households served by FHA and the relatively well-off households served by the GSEs. Since much of this material has already been discussed, only a few comparisons from the tables will be noted here.

Table 4.10 provides basic information on the GSE and FHA programs. GSE purchases cover a wider range of product types than does FHA insurance. In 1993, 15-year, fixed-rate mortgages and "other" product types such as balloon mortgages contributed significantly to GSE business but not to FHA business. ARMs, on the other hand, were more important for FHA than for the GSEs. (See Section B.5 below for a discussion of FHA ARMs.)

Compared with FHA, GSE business is more concentrated in the Northeast and less concentrated in the South. The Midwest and West accounted for similar proportions of FHA and GSE home purchase business in 1993. Within metropolitan areas, one-third of GSE home purchases mortgages were for properties located in central cities compared with almost one-half (48 percent) of FHA home purchase mortgages.

Table 4.11 focuses on the socioeconomic contrast of borrowers and neighborhoods served by FHA and the GSEs. In 1993, GSE business was much less targeted to minorities than was FHA business. Blacks and Hispanics accounted for only 6.9 percent of GSE home purchase mortgages, compared with 19.5 percent of FHA home purchase mortgages. The GSEs also performed much more poorly than FHA in terms of serving the types of borrowers and

TABLE 4.9: Comparison of FHA and Conforming Conventional Home Purchase Loans

	1985		1987		1989		1991		1993	
	FHA	Conventional	FHA	Conventional	FHA	Conventional	FHA	Conventional	FHA	Conventional
All Home Purchase Borrowers										
Average Family Income	$37,054	$42,128	$39,231	$48,036	$41,211	$50,338	$44,161	$54,623	$46,974	$57,677
Average Loan Size	$53,797	$51,637	$60,694	$65,245	$65,105	$71,937	$65,488	$80,789	$70,389	$85,475
% Black or Hispanic	19%	7%	17%	8%	16%	9%	22%	11%	16%	11%
% Loans under $100,000	96%	93%	98%	80%	88%	74%	88%	66%	85%	66%
% with 95%+ LTV	42%	13%	44%	11%	46%	12%	55%	12%	50%	16%
% with 90%+ LTV	62%	29%	70%	22%	76%	23%	74%	24%	75%	33%
% with 80%+ LTV	80%	49%	85%	42%	89%	49%	87%	49%	90%	57%
First-time Home Purchase Borrowers										
Average Family Income	$32,549	$34,857	$35,415	$39,943	$38,264	$41,434	$39,737	$48,495	$40,921	$44,885
Average Loan Size	$52,121	$47,077	$56,753	$59,960	$62,269	$62,388	$61,765	$80,054	$65,751	$78,082
% Black or Hispanic	29%	12%	21%	12%	20%	13%	23%	14%	23%	13%
% Loans under $100,000	97%	97%	99%	83%	91%	85%	92%	66%	89%	73%
% with 95%+ LTV	56%	18%	55%	19%	59%	24%	60%	19%	56%	25%
% with 90%+ LTV	81%	42%	84%	38%	83%	41%	79%	37%	82%	48%
% with 80%+ LTV	92%	67%	91%	63%	94%	71%	92%	71%	95%	74%
Repeat Home Purchase Borrowers										
Average Family Income	$39,527	$46,965	$43,080	$48,374	$42,870	$56,793	$48,838	$57,308	$52,296	$61,149
Average Loan Size	$55,134	$52,435	$58,062	$62,446	$63,227	$74,069	$66,219	$78,381	$79,780	$87,725
% Black or Hispanic	14%	6%	13%	11%	12%	6%	27%	9%	9%	16%
% Loans under $100,000	97%	93%	99%	80%	88%	71%	86%	67%	80%	64%
% with 95%+ LTV	38%	17%	40%	15%	37%	7%	49%	15%	59%	16%
% with 90%+ LTV	58%	36%	69%	24%	79%	19%	77%	30%	81%	31%
% with 80%+ LTV	80%	59%	87%	48%	94%	50%	90%	56%	95%	56%

SOURCE: American Housing Survey in indicated years. The data are from the national sample based on home purchases in the survey year and the year prior to the survey.

NOTES: While FHA loans can exceed 95% LTV, conventional loans are normally limited to 95%.
Due to missing data on the first-time buyer indicator, the "All" category includes more cases than the other two categories and does not always represent a weighted average of the components.

TABLE 4.10: Basic Characteristics of FHA and GSE Home Purchase Mortgages in Metropolitan Areas, 1993

Loan Characteristics	FHA	GSE	
		All	Eligible-Only
Type of Mortgage			
30-year FRM	77.5%	71.2%	70.6%
15-year FRM	2.0%	14.2%	16.4%
ARM	20.1%	5.2%	4.3%
Other	0.5%	9.4%	8.7%
	100.0%	100.0%	100.0%
Loan-to-Value			
Over 95%	62.4%	0.1%	0.1%
91-95%	24.7%	19.8%	18.6%
81-90%	10.2%	23.4%	20.8%
80% or Less	2.7%	56.7%	60.5%
	100.0%	100.0%	100.0%
Region			
Northeast	9.5%	18.3%	21.1%
North Central	24.3%	27.3%	28.3%
South	41.1%	31.5%	29.7%
West	25.1%	22.9%	20.9%
	100.0%	100.0%	100.0%
Central City	47.5%	32.5%	33.2%
Suburbs	52.5%	67.5%	66.8%
	100.0%	100.0%	100.0%
Located in:			
FHA High-Cost Area	14.2%	27.9%	29.5%
FHA Medium-Cost Area	76.8%	69.5%	68.7%
FHA Low-Cost Area	9.0%	2.6%	1.8%
	100.0%	100.0%	100.0%

SOURCE: FHA and GSE loan-level data files maintained by HUD.

NOTE: "Eligible-only" loans are GSE loans which are below the FHA loan limit in each metropolitan area.

"FHA High-Cost Areas" are those areas where the FHA loan limit was set at the maximum $151,725 for 1993. "FHA Medium-Cost Areas" are those areas where the FHA loan limit was set at 95% of the area median, i.e. those areas where the loan limit was between $67,500 and $151,725 in 1993. "FHA Low-Cost Areas" are those areas where the loan limit was set at $67,500 in 1993.

TABLE 4.11: Distribution of Borrower and Census Tract Characteristics of FHA and GSE Home Purchase Mortgages in Metropolitan Areas, 1993

Borrower and Census Tract Characteristics	FHA	GSE	
		All	Eligible-Only
Income of Borrower			
80% of Median or Below	42.0%	18.3%	28.0%
81-100% of Median	23.0%	15.3%	20.9%
101-120% of Median	16.0%	15.7%	17.6%
121-150% of Median	11.8%	19.3%	16.6%
+150% of Median	7.2%	31.4%	16.8%
	100.0%	100.0%	99.9%
Under Median	65.0%	33.6%	48.9%
Over Median	35.0%	66.4%	51.0%
First-time Homebuyer	66.8%	30.7%	35.0%
Repeat Buyer	33.2%	69.3%	65.0%
Race/Ethnicity of Borrower			
White	78.1%	87.6%	86.9%
Black	10.0%	2.7%	3.0%
Hispanic	9.5%	4.2%	4.8%
Asian	2.0%	4.3%	4.1%
Other	0.4%	1.2%	1.2%
	100.0%	100.0%	100.0%
*Income of Tract			
80% of Median or Below	16.1%	6.7%	8.8%
81-100% of Median	29.7%	18.3%	22.9%
101-120% of Median	29.9%	27.7%	30.6%
121-150% of Median	19.0%	29.0%	26.0%
+150% of Median	5.3%	18.3%	11.7%
	100.0%	100.0%	100.0%
*Minority Composition of Tract			
10% Minority or Less	43.1%	57.3%	56.4%
11-30% Minority	34.8%	30.5%	30.1%
31-50% Minority	10.3%	6.5%	6.8%
+50% Minority	11.8%	5.7%	6.7%
	100.0%	100.0%	100.0%
*Underserved Areas	27.1%	12.7%	15.5%
*Served Areas	72.9%	87.3%	84.5%

SOURCE: FHA and GSE loan-level data files maintained by HUD.

NOTE: Data include all types of home purchase mortgages.

* A match of FHA loan data with census tract identifiers could not be be made for 15 percent of the home purchase loans in the FHA F-42 file.

neighborhoods targeted by the three GSE housing goals recently proposed by HUD:

Targeted by Housing Goals	% of GSE Home Purchase Loans		% of FHA Purchase Loans
	All GSE	Elig. GSE[22]	
1. Very-low-income borrowers[23]	6.8%	10.6%	17.7%
2. Less-than-median-income borrowers	33.6%	48.9%	65.0%
3. Properties located in underserved areas	12.7%	15.5%	27.1%[24]

Restricting the comparisons to only FHA-eligible loans reduces the gap between GSE and FHA performance, particularly for the two housing goals based on borrower incomes. Neither the underserved area comparisons nor the above minority comparisons are much affected by restricting the definition of the market in this way.[25]

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[22]Percentages in this column refer to GSE purchases of FHA-eligible mortgages, that is, those GSE home purchase mortgages with a loan amount less than the FHA maximum limit in each metropolitan area.

[23]Very-low-income is defined as income less than 60 percent of area median income. It should be noted that these percentages refer to only home purchase loans in metropolitan areas. The GSEs' performance under the housing goals is evaluated in terms of their total mortgage purchases including single-family home purchase and refinance loans and mortgages for rental properties.

[24]To compare FHA and GSE loan-level data with data reported to HMDA, compare the figures reported here with corresponding figures reported earlier in Table 4.4. For instance, based on HMDA data, 64.3 percent of FHA borrowers had incomes less than area median and 27.7 percent of FHA-insured loans financed properties located in underserved areas; the corresponding figures reported here based on FHA loan-level data maintained by HUD are 65.0 percent and 27.1 percent, respectively.

[25]Restricting the comparisons to FHA-eligible loans raises the proportion of GSE business accounted for by blacks and Hispanics to 7.8 percent, only a marginal increase from the 6.9 percent figure reported for all GSE home purchase mortgages in metropolitan areas.

B.5 FHA Adjustable Rate Mortgages (ARMs)

Since the mid-1980s, FHA has offered an adjustable rate mortgage with one percentage point annual caps and a five percentage point lifetime cap on interest rate changes. This 1/5 ARM product provides the qualifying advantage of short-term interest rates, which are generally lower than the long-term rates imbedded in fixed rate mortgage (FRM) terms. ARMs came into popularity in the early 1980s because investors could shift some of the risk of interest rate changes onto borrowers, and because borrowers could effectively lock into refinance plans during a time when mortgage interest rates were at historical highs. But ARM terms varied widely, and the FHA 1/5 ARM was the first major attempt at market standardization. In 1986 the GSEs choose to accept a standardized 2/6 conventional ARM. Because this allows for larger interest rate changes than does the FHA 1/5 ARM, lenders offer them with larger discounts from fixed mortgage rates.

The FHA product offers a smaller qualifying advantage to borrowers than does the conventional ARM, but it in turn provides greater protection from payment shocks induced by increases in interest rates over time. It therefore is most attractive to homebuyers during periods when interest rates are at cyclical lows and the interest rate yield curve is steep, that is, there is expectation of rising interest rates over time. This environment began to form in 1991, at which time the FHA 1/5 ARM became an important product in the mortgage market.

Throughout the 1980s, FHA did little ARM business. Some lenders claimed that the one percentage point cap was too restrictive, making the FHA ARM unattractive to investors so that lenders did not aggressively market it. However, Gardner and Reeder (1989) argued that one could expect pricing adjustments forced in a competitive industry to overcome this impediment. In fact, they observed that there was healthy trading and investment in fixed-rate mortgages, which were in essence simply ARMs with very restrictive 0-0 adjustment caps. They speculated that with between 60 to 90 percent of large mortgage companies regularly offering the FHA ARM, a more reasonable explanation for its low utilization was a reluctance of financially extended FHA borrowers to risk substantially higher future payments and loss of their homes for a one percentage point initial qualifying advantage.[26]

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[26]Introductory FHA ARM interest rates were on the order of 100 basis points below rates for fixed-rate mortgages. Thus, an ARM borrower could qualify for the same fixed-rate mortgage amount with roughly 8 percent less income or conversely for 8 percent more mortgage money with the same income. The 2-6 conventional ARM offered a qualifying advantage that was at least double that for FHA and with introductory teaser rates could be almost triple.

But an increase in the interest rate spread between FHA's fixed- and adjustable-rate mortgages to 200 basis points encouraged FHA borrowers to start taking out ARMs in 1992. After insuring 42,211 ARMs in 1991, FHA saw its ARM production jump to 123,313 in 1992 and 149,829 in 1993. In 1993, 105,985 ARMs were for a home purchase and 27,547 were for refinancing. ARMs accounted for 19.1 percent of FHA's home purchase mortgages and for 6.3 percent of its refinance mortgages. While the market share of ARMs will vary with interest rate conditions, the experience of the past two years illustrates that the FHA ARM can provide a viable insurance product when market conditions dictate.

Tables 4.12 and 4.13 compare the characteristics of ARM and fixed-rate mortgages insured by FHA in metropolitan areas in 1993.[27] The characteristics of ARM borrowers resemble those of FRM borrowers along several of the dimensions reported in the Tables; for example, the two mortgage types show similar LTV distributions and similar rates of first-time homeownership, black and Hispanic borrowers, and location in low-income and high-minority census tracts. However, other data suggest that ARMs are being used to alleviate affordability problems in markets with high housing prices. Twenty-nine percent of ARMs were originated in high-cost metropolitan areas compared with only 11 percent of FRMs. Thirty-seven percent of ARMs are from the Western region which is not surprising given that ARMs have always played a major role in the California mortgage market. ARM borrowers had lower incomes and higher payment-to-income ratios than did FRM borrowers. Again, this verifies the qualifying advantage of ARMs for lower-income borrowers.

C. Non-metropolitan Areas

Tables 4.14 and 4.15 compare FHA loans in non-metropolitan areas to those in metropolitan areas. Non-metropolitan FHA borrowers are similar to their metropolitan counterparts with respect to loan-to-value distribution. Slightly over 60 percent of both groups had LTV ratios over 95 percent in 1993. Non-metropolitan borrowers rely more on fixed-rate loans; only 10 percent of them had ARMs, compared to 20 percent of metropolitan borrowers. Not surprisingly, non-metropolitan loans are more concentrated in regions of the country where non-metropolitan population is greater, and less concentrated in regions dominated by large urban populations. FHA's regional share of its non-metropolitan loans is higher than its counterpart share of its metropolitan loans in the New England, West North Central, East

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[27]The ARM numbers reported above came from the FHA A-43 Insurance-In-Force data base. Tables 4.14 and 4.15 are based on the FHA F-42 Characteristics File, which included a smaller number of ARM mortgages in 1993 than A-43 file; this discrepancy will be checked out further.

TABLE 4.12: Financial and Borrower Characteristics of FHA-Insured ARM and Fixed-Rate Home Purchase Mortgages in Metropolitan Areas, 1993

Loan Chararacteristics	ARMs	Fixed-Rate
Number	100,790	401,759
% Share of FHA Business	20%	80%
1. Financial Characteristics		
Loan-to-Value Ratio		
Greater than 90%	87%	87%
Greater than 95%	60%	63%
Payment-to-Income Ratio		
Less than 25%	55%	67%
Greater than 28%	26%	17%
2. Borrower Characteristics		
First-time Homeowner	68%	67%
Repeat Homeowner	32%	33%
Age		
Less than 30	49%	45%
Greater than 40	16%	18%
Income		
Less than 80% of Median	48%	40%
Over 120% of Median	15%	20%
Race		
Black	8%	11%
Hispanic	10%	9%
White	79%	77%

SOURCE: FHA single-family data for Section 203(b) and condominium loans.

TABLE 4.13: Locational Characteristics of FHA-Insured ARM and Fixed-Rate Home Purchase Mortgages in Metropolitan Areas, 1993

Property Location	ARMs	Fixed-Rate
Region		
Northeast	9%	10%
North Central	28%	23%
South	25%	45%
West	38%	22%
	100%	100%
In Central City	40%	49%
In Suburbs	60%	51%
In FHA High-Cost Area	29%	11%
*Tract Income		
Less than 80% of Median	14%	17%
Over 120% of Median	25%	24%
*Tract Minority Composition		
Less than 10%	43%	43%
Greater than 30%	21%	22%
*In Underserved Area	26%	27%

SOURCE: FHA single-family data for Section 203(b) and condominium loans.

* A match of FHA loan data with census tract identifiers could not be be made for 15 percent of the home purchase loans in the FHA F-42 file.

TABLE 4.14: Loan and Locational Characteristics of FHA Home Purchase Mortgages in Non-metropolitan and Metropolitan Areas, 1993

Characteristics	Non-metro	Metro	Total
Number of Loans	53,770	502,549	556,319
Type of Mortgage			
30-year FRM	81.0%	77.4%	77.7%
15-year FRM	7.3%	2.0%	2.5%
ARM	9.7%	20.1%	19.1%
Other	2.0%	0.5%	0.7%
	100.0%	100.0%	100.0%
Loan-to-Value			
Over 95%	62.9%	62.4%	62.4%
91-95%	21.7%	24.7%	24.4%
81-90%	11.5%	10.2%	10.3%
80% or Less	3.9%	2.7%	2.9%
	100.0%	100.0%	100.0%
Region			
New England	3.9%	2.5%	2.6%
Middle Atlantic	2.9%	7.0%	6.6%
East North Central	10.7%	15.5%	15.0%
West North Central	15.9%	8.8%	9.5%
South Atlantic	13.0%	22.5%	21.6%
East South Central	9.6%	6.4%	6.7%
West South Central	11.6%	12.2%	12.2%
Mountain	19.0%	12.1%	12.8%
Pacific	13.4%	13.0%	13.0%
	100.0%	100.0%	100.0%
*Located in:			
FHA High-Cost Area	4.2%	12.0%	14.2%
FHA Medium-Cost Area	34.8%	84.9%	76.8%
FHA Low-Cost Area	61.0%	3.1%	9.0%
	100.0%	100.0%	100.0%

SOURCE: FHA single-family data maintained by HUD.

* A match of FHA loan data with county identifiers could not be be made for 15 percent of the home purchase loans in the FHA F-42 file.

TABLE 4.15: Borrower Characteristics of FHA Home Purchase Mortgages in Non-metropolitan and Metropolitan Areas, 1993

Borrower Characteristics	Non-metro	Metro	Total
Income of Borrower			
80% of Median or Below	30.7%	42.0%	41.0%
81-100% of Median	22.0%	23.0%	22.9%
101-120% of Median	17.3%	16.0%	16.0%
121-150% of Median	15.9%	11.8%	12.2%
+150% of Median	14.1%	7.2%	7.9%
	100.0%	100.0%	100.0%
Under Median	52.7%	65.0%	63.9%
Over Median	47.3%	35.0%	36.1%
First-time Homebuyer	62.6%	66.8%	66.4%
Repeat Buyer	37.4%	33.2%	33.6%
Race/Ethnicity of Borrower			
White	88.6%	78.1%	79.1%
Black	3.7%	10.0%	9.4%
Hispanic	5.7%	9.5%	9.1%
Asian	1.5%	2.0%	2.0%
Other	0.5%	0.4%	0.4%
	100.0%	100.0%	100.0%
Age			
Less than 30	47.0%	46.8%	46.9%
Greater than 40	17.6%	17.7%	17.6%

SOURCE: FHA single-family data maintained by HUD.

South Central, and Mountain regions. Regional non-metropolitan shares are lower in the Middle Atlantic, East North Central, and South Atlantic regions. The shares are comparable in the West South Central and Pacific regions.

Slightly fewer non-metropolitan FHA borrowers are first-time homebuyers: 63 percent, compared to 67 percent in metropolitan areas. A smaller share of non-metropolitan loans go to black and Hispanic borrowers, 9.4 percent versus 19.5 percent in metropolitan areas. Of course, this difference is reflective of the differences in composition of the respective populations.

Given the lower house price levels found in non-metropolitan areas, it is not surprising that 61 percent of FHA loans made in non-metropolitan areas are in low-cost areas, that is, they are made in non-metropolitan counties where the FHA loan limit is set at its minimum value of $67,500 which means that a significant portion of FHA loans in these areas are probably financing above-median-priced houses. This is one reason why non-metropolitan borrowers are more concentrated in the higher-income groups than are metropolitan area borrowers -- 30 percent of non-metropolitan borrowers had incomes above 120 percent of the local median income versus only 19 percent of metropolitan area borrowers.[28] Because the FHA loan limit is less restricting in non-metropolitan areas, higher-income borrowers are able to use FHA to purchase above-median-priced houses. PMIs require larger downpayments in non-metropolitan areas which is another factor explaining the attraction of FHA to higher-income borrowers in non-metropolitan areas.[29]

D. Refinance Mortgages

The previous discussions have focused on home purchase mortgages. This section will briefly look at FHA refinance loans for all areas (metropolitan and non-metropolitan). The characteristics of refinance loans are compared to purchase loans in Tables 4.16 and 4.17. Refinances represented a substantial proportion of the FHA market in 1993, comprising 44 percent of all FHA loans in that year. Locationally, FHA refinance loans were

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[28]The lower house prices and the relatively higher-income borrowers choosing FHA in non-metropolitan areas also explain why ARMs account for such a small share of the FHA's non-metropolitan business -- the qualifying advantage of ARMs is not needed as much as it is in higher-cost metropolitan areas.

[29]The lower rate of housing turnover in non-metropolitan areas increases the variance of housing prices which increases the probability of mortgage default and the magnitude of claim losses. Thus, PMIs require higher downpayments to insure non-metropolitan loans.

TABLE 4.16: Loan and Locational Characteristics of FHA Home Home Purchase and Refinance Mortgages, 1993

Census Tract Characteristics	Purchase	Refinance	Total
Number of Loans	556,318	436,393	992,711
*Income of Tract			
80% of Median or Below	16.6%	12.5%	14.7%
81-100% of Median	31.2%	28.0%	29.7%
101-120% of Median	29.4%	31.2%	30.2%
121-150% of Median	17.9%	22.1%	19.9%
+150% of Median	4.9%	6.2%	5.5%
	100.0%	100.0%	100.0%
*Minority Composition of Tract			
10% Minority or Less	45.0%	43.0%	44.1%
11-30% Minority	33.8%	38.3%	35.8%
31-50% Minority	10.1%	10.3%	10.2%
+50% Minority	11.1%	8.4%	9.9%
	100.0%	100.0%	100.0%
*Underserved Areas	27.3%	22.7%	25.2%
*Served Areas	72.7%	77.3%	74.8%
Region			
New England	2.6%	1.5%	2.1%
Middle Atlantic	6.6%	3.7%	5.3%
East North Central	15.0%	7.2%	11.6%
West North Central	9.5%	13.3%	11.2%
South Atlantic	21.6%	20.3%	21.1%
East South Central	6.7%	4.5%	5.7%
West South Central	12.2%	12.4%	12.3%
Mountain	12.8%	22.7%	17.1%
Pacific	13.0%	14.4%	13.6%
	100.0%	100.0%	100.0%
*Located in:			
FHA High-Cost Area	13.3%	11.3%	12.4%
FHA Medium-Cost Area	71.0%	69.1%	70.1%
FHA Low-Cost Area	15.7%	19.6%	17.5%
	100.0%	100.0%	100.0%

SOURCE: FHA single-family loan-level data maintained by HUD.

* A match of FHA loan data with census tract identifiers could not be be made for 15 percent of the home purchase loans in the FHA F-42 file.

TABLE 4.17: Borrower and Loan Characteristics of FHA Home Home Purchase and Refinance Mortgages, 1993

Borrower and Loan Characteristics	Purchase	Refinance	Total
*Income of Borrower			
80% of Median or Below	40.7%	8.6%(44%)	26.6%(41%)
81-100% of Median	22.8%	2.9%(15%)	14.0%(22%)
101-120% of Median	16.0%	2.5%(13%)	10.1%(16%)
121-150% of Median	12.1%	2.6%(14%)	7.9%(12%)
+150% of Median	7.9%	2.7%(14%)	5.6%(9%)
Missing	0.5%	80.7%	35.8%
	100.0%	100.0%(100%)	100.0%(100%)
Race/Ethnicity of Borrower			
White	79.1%	86.1%	82.1%
Black	9.4%	5.5%	7.7%
Hispanic	9.1%	6.0%	7.8%
Asian	2.0%	2.0%	2.0%
Other	0.4%	0.4%	0.4%
	100.0%	100.0%	100.0%
Age			
Less than 30	47.0%	22.8%	37.9%
Greater than 40	17.6%	29.6%	22.1%
*Loan-to-Value			
Over 95%	60.6%	5.4%(19%)	36.4%(54%)
91-95%	23.7%	6.9%(24%)	16.3%(24%)
81-90%	10.0%	10.7%(38%)	10.3%(15%)
80% or Less	2.8%	5.5%(19%)	4.0%(6%)
Missing	2.9%	71.5%	33.0%
	100.0%	100.0%(100%)	100.0%(100%)

SOURCE: FHA single-family loan-level data maintained by HUD.

* Values in parentheses are distribution without missing values.

more concentrated in higher income tracts and in served tracts than were home purchase loans. Relative to purchase loans, refinance loans are more concentrated in tracts with minority composition between 10 and 30 percent. Conversely, refinance loans are less concentrated in predominantly white tracts and those with minority concentrations over 50 percent. The lower presence of FHA refinance activity in white tracts may be a reflection that residents of these tracts are the most likely to qualify for conventional refinancing. Refinance loans also have a higher concentration in FHA low-cost areas (20 percent versus 16 percent for purchase loans).

With respect to borrower characteristics, borrowers who refinance tend to be more predominantly white and to be older than those who are purchasing with FHA. With respect to other characteristics, it should be noted that a substantial proportion of FHA refinances are streamline, requiring no documentation of the borrower's income or loan-to-value. As a result, there is not income data for 80 percent of refinance borrowers, and no loan-to-value data for 70 percent. Thus, the income and LTV distribution available is skewed towards the characteristics of those who are unable to receive a streamline refinance. These borrowers have a smaller concentration in the middle-income groups, and larger concentrations in both the low- and high-income groups relative to purchase loans. Refinance loans have substantially lower LTVs than purchase loans.

V. FHA AND MINORITIES -- MORTGAGE DENIAL RATES

The academic studies of mortgage choice reviewed in Section III found that blacks, Hispanics, and households living in neighborhoods with a high racial composition disproportionately choose FHA financing. The descriptive analysis of mortgage originations in Section IV found that FHA accounted for a major portion of the loans made to minorities and their neighborhoods. There has been considerable debate as to whether this pattern is the result of such markets being underserved by the conventional market. This section now adds to the earlier analysis by comparing FHA and conventional denials of mortgage applications. Analysis of denial data, which became available from HMDA in 1990, offers important insights about how FHA is serving minorities and their neighborhoods.

Main Findings

The main finding here is consistent with earlier results: FHA is doing a better job meeting the credit needs of minorities than are conventional lenders. FHA has lower mortgage denial rates than conventional lenders for all borrower groups and types of neighborhoods that the academic literature identifies as experiencing credit problems. Specific findings include the following:

- Studies by HUD and by researchers at the Boston Federal Reserve Bank have found that minorities experience higher mortgage denial rates even after accounting for measures of credit risk. These studies lend validity to denial rate comparisons such as those made in this section.

- Denial rates are higher for minorities than for whites applying for both FHA and conventional loans. However, FHA denial rates are substantially lower than conventional denial rates. Blacks applying for FHA home purchase loans are rejected 20.0 percent of the time, versus 25.9 percent for conventional loan applications. Hispanics applying for FHA loans are rejected 13.9 percent of the time, versus 22.5 percent for conventional loan applications.

- Underserved areas are high-minority and low-income census tracts that have had historically poor access to mortgage credit. Underserved census tracts have higher mortgage denial rates than other census tracts for both FHA and conventional loans.

- FHA denial rates are substantially lower than conventional denial rates in underserved areas. Households applying for an FHA home purchase loan in an underserved census tract are denied 15.1 percent of the

time, which is a smaller differential from the denial rate for FHA loans in other census tracts than the diference for conventional loans. The denial rates for conventional loans are 22.0 percent for underserved tracts but only 11.3 percent for other tracts.

Subsection A summarizes findings from research on racial disparities in mortgage lending and subsection B compares denial rates on FHA and conventional loans. The final subsection reports findings from an econometric study of the determinants of mortgage denials under FHA and conventional loan programs.

A. Disparities in Access to Mortgage Credit -- Background

The nation's housing finance market is a highly efficient system where most creditworthy homebuyers can obtain long-term funding at relatively small spreads above the lender's borrowing costs. Unfortunately, this highly efficient financing system does not work for everyone or everywhere. Access to credit all too often depends on improper evaluation of characteristics of the mortgage applicant and the neighborhood in which the applicant wishes to buy. Mortgage rejection rates are substantially higher for minority applicants and in minority and low-income neighborhoods.

Disagreement exists in the academic literature regarding the underlying causes of disparities in access to mortgage credit, particularly as related to the roles of discrimination, "redlining" of specific neighborhoods,[1] and the barriers posed by traditional underwriting guidelines to potential minority and low-income borrowers. Because the mortgage system is quite complex and involves numerous participants, it will take more data and research to gain a fuller understanding of why these disparities exist. Still, numerous research studies have found that the individual's race and the racial and income composition of neighborhoods influence mortgage access even after accounting for demand and risk

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[1] A number of studies using early HMDA data sought to test for the existence of geographical redlining. Consistent with the redlining hypothesis, these studies found lower lending rates in low-income and high-minority neighborhoods. However, such analyses were criticized because they did not distinguish between demand and supply effects -- that is, whether loan volume was low because people in high-minority and low-income areas were unable to afford home ownership and therefore were not applying for mortgage loans, or because lenders refused to make loans in these areas. For critiques of the early HMDA studies, see Perle, Lynch, and Horner (1993), Schill and Wachter (1993), and Holmes and Horvitz (1994).

factors that may influence borrowers' decisions to apply for loans and lenders' decisions to make those loans.[2]

An important question is whether variations in denial rates reflect lender bias against certain kinds of borrowers, or simply the credit quality of the mortgage (as indicated by the applicant's available assets, credit rating, employment history, etc.). The best example of accounting for credit risk is the study by researchers at the Federal Reserve Bank of Boston, which analyzed mortgage denial rates.[3] To control for credit risk, the Boston Fed researchers included 38 borrower and loan variables indicated by lenders to be critical to loan decisions. They found that minorities' higher denial rates could not be explained fully by income and credit risk factors. Blacks and Hispanics were about 60 percent more likely to be denied credit than whites, even after controlling for credit risk characteristics such as credit history, employment stability, liquid assets, self-employment, age, and family status and composition. Although almost all highly-qualified applicants of all races were approved, differential treatment was observed most often among borrowers with lesser qualifications.[4]

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[2]In addition to the Boston Fed study, which is reviewed in the text, studies by Schill and Wachter (1993) and Avery, Beeson, and Sniderman (1994) have found that minorities have higher denial rates even after accounting for the effects of credit risk. Studies of FHA reach similar conclusions; see Onder (1994), which was reviewed in Section III, and the study by ICF (1994), which will be reviewed later in this section. Several recent studies have focused on the relative importance of the applicant's race versus the racial composition of the applicant's neighborhood. Generally, these studies find that the race of the applicant is a more important factor in the lender's decision to reject an application than is the racial composition of the applicant's neighborhood.

[3] Alicia H. Munnell, Lynn E. Browne, James McEneaney, and Geoffrey M. B. Tootell, "Mortgage Lending in Boston: Interpreting HMDA Data," Federal Reserve Bank of Boston, Working Paper Series, No. 92-7, October 1992.

[4] This study was the subject of substantial criticism with regard to data quality and model specification, but even after accounting for these problems, the race conclusions were found to persist in a re-estimation of the model by Fannie Mae. See James H. Carr and Isaac F. Megbolugbe, "The Federal Reserve Bank of Boston Study on Mortgage Lending Revisited," Journal of Housing Research, Volume 4, Issue 2, 1993, pp. 277-313. Other criticisms, however, have also been mentioned. For instance, the fact that the credit risk variables included in the model are correlated with the minority variable suggests that the latter

The Boston Fed concluded that the effect of borrower race on mortgage rejections persists even after controlling for legitimate determinants of lenders' credit decisions. Thus, that study gives some legitimacy to denial rate comparisons such as those reported below. However, the independent race effect identified is still difficult to interpret. In addition to lender bias, access to credit can be limited by loan characteristics that reduce profitability[5] and by underwriting standards that have disparate effects on minority and lower income borrowers and their neighborhoods.[6]

B. FHA Versus Conventional Mortgage Denial Rates

HMDA data, beginning with data for 1990 which was the first to include loan application disposition data, have shown consistent patterns in which minorities have experienced higher denial rates than whites, and where denial rates rise as income falls. FHA loans show a pattern of disparity similar to that of conventional loans, though overall denial rates are substantially lower for FHA loans.

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may be picking up the effects of still other credit risk variables omitted from the model. See John Straka, "Boston Federal Reserve Study of Mortgage Discrimination," Secondary Mortgage Markets, Volume 10, No. 1, Winter 1993, pp. 8-9, for a useful discussion of other aspects of the Boston Fed study. Also see Rachlis and Yezer (1993) and Yezer, Philips, and Trost (1994) for a discussion of the statistical problems with single-equation denial rate models such as the one estimated by Munnell et al.

[5] Lenders are sometimes discouraged from making smaller loans in older neighborhoods. Since upfront loan fees are frequently determined as a percentage of the loan amount, such loans generate lower revenue and thus are less profitable to lenders.

[6] Standard underwriting practices may exclude lower income families that are, in fact, creditworthy. Such families tend to pay cash, leaving them without a credit history. In addition, the usual front-end and back-end ratios applied to applicants' housing expenditures and other on-going costs may be too stringent for lower income households, who typically pay higher shares of their income for housing than higher income households. Recent affordability initiatives are breaking down these barriers. (See Section VII for further discussion).

Borrower Income. Table 5.1 presents data on mortgage denial rates by various borrower and census tract characteristics.[7] Data on FHA's share of the FHA-eligible market are also included to remind readers of FHA's important role in the low-income and high-minority market segments.

Analysis of 1993 HMDA data shows a 15.5 percent denial rate for "eligible" conventional loans, compared to a 11.8 percent denial rate for FHA loans. With respect to borrower income, borrowers with incomes below 60 percent of the area median were denied 26.1 percent of the time for conventional eligible loans, compared to a 10.1 percent denial rate for those with incomes above 150 percent of area median. Applicants for FHA home purchase loans with incomes below 60 percent of the area median were denied 16.5 percent of the time, and those with incomes above 150 percent of median were denied 10.1 percent of the time.

As discussed in the previous paragraph, both FHA and eligible conventional denial rates are higher for lower-income borrowers and FHA denial rates are lower than conventional rates at almost every income level. However, FHA denial rates are proportionately smaller relative to conventional denial rates for lower-income applicants than for higher-income applicants. (See the ratios of FHA to conventional denial rates given in fourth column of Table 5.1.) For those with income below 60 percent of median, the FHA denial rate is 63 percent that of conventional lenders, compared to 91 percent for those with income between 120 and 150 percent of median, and 100 percent for those over 150 percent. Thus, high-income FHA applicants had the same denial rate as conventional applicants. High income borrowers who choose FHA over less costly conventional loans most likely do so to make lower downpayments, as was suggested in Table 4.3. Note that FHA serves a larger share of the eligible market for borrowers on the lower end of the market. FHA insures over a third of such loans, compared to less than 20 percent of those to borrowers with incomes higher than 150 percent of median.

Borrower Race. Minorities experience denial rates higher than whites for both FHA loans and FHA-eligible conventional loans. The denial rate for blacks is about double that for whites for both FHA and eligible conventional loans. Although both types of loans have higher denial rates for Hispanics than for whites, FHA has a much

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[7] Table 5.1 presents denial rates for both conventional conforming and FHA-eligible conventional loans. The text focuses on a comparison of FHA to FHA-eligible conventional loans. The conforming loan data are provided for information purposes. In general, conforming loans have lower denial rates than do the subset of FHA-eligible conventional loans because more high-income applicants are represented among the total group of conforming loans.

TABLE 5.1: Denial Rates for Home Purchase Loans by Type of Loan, 1993

Borrower and Census Tract Characteristics	FHA	Conventional		FHA to Eligible Denial Rate Ratio	FHA Share of Total Eligible Market
		Conforming	FHA-Eligible		
Total Market	11.8%	13.3%	15.5%	0.76	31.2%
Income of Borrower					
60% of Median or Below	16.5%	26.1%	26.1%	0.63	34.0%
61-80% of Median	11.4%	16.3%	16.2%	0.70	37.0%
81-100% of Median	10.0%	12.8%	12.9%	0.78	34.3%
101-120% of Median	9.4%	10.7%	11.4%	0.82	31.2%
121-150% of Median	9.5%	9.3%	10.4%	0.91	27.1%
+150% of Median	10.1%	8.1%	10.1%	1.00	19.2%
Race/Ethnicity of Borrower					
White	9.9%	11.5%	13.6%	0.73	28.8%
Black	20.0%	25.9%	27.9%	0.72	53.2%
Hispanic	13.9%	22.5%	23.6%	0.59	47.3%
Asian	10.9%	13.2%	13.4%	0.81	20.8%
Income of Tract					
60% of Median or Below	18.5%	25.3%	26.3%	0.70	37.8%
61-80% of Median	14.5%	22.1%	23.0%	0.63	38.3%
81-100% of Median	12.2%	17.0%	18.1%	0.67	33.5%
101-120% of Median	10.6%	12.3%	13.7%	0.77	30.7%
121-150% of Median	10.2%	9.4%	10.9%	0.93	28.3%
+150% of Median	9.9%	7.8%	9.7%	1.03	21.4%
Minority Composition of Tract					
10% Minority or Less	10.1%	10.7%	12.9%	0.78	24.7%
11-30% Minority	11.4%	14.0%	16.1%	0.71	36.9%
31-50% Minority	13.7%	18.9%	20.6%	0.66	41.9%
+50% Minority	16.9%	23.7%	24.9%	0.68	41.4%
Served Areas	10.5%	11.3%	13.3%	0.79	28.8%
Underserved Areas	15.1%	22.0%	23.1%	0.65	40.1%

SOURCE: PD&R analysis of 1993 HMDA data for metropolitan areas.

NOTE: Conventional conforming loans include loans below $203,150, which was the 1993 loan limit for the two GSEs, Fannie Mae and Freddie Mac. "FHA-Eligible" loans are conventional loans below the FHA maximum loan amount for each metropolitan area. The "Eligible Market" equals FHA loans plus FHA-eligible conventional loans. VA and Farmers Home loans are excluded.

Median income refers to the median MSA income.

smaller differential (40 percent higher compared to 75 percent higher for eligible conventional loan applications). Asians have only a slightly higher denial rates than whites with FHA (10.9 percent compared to 9.8 percent), and a slightly lower denial rate than whites with eligible conventional loans (13.4 percent versus 13.6 percent).

As can be seen in Table 5.2, racial differentials persist even when borrower income is controlled. Denial rates for blacks are about twice those for whites at almost all income levels, and for both FHA and conventional loans. For all racial groups, the differential between FHA and conventional denial rates is largest for lower-income applicants and lowest for higher-income applicants. However, Table 5.2 also shows that mortgage rejection rates for higher-income blacks are typically higher than rejection rates for less-than-median-income whites, for FHA as well as conventional loans.

Census Tract Minority Composition and Income. Similar patterns were observed for neighborhood minority composition and income level. That is, denial rates increase as neighborhood minority concentration increases and median income decreases, for both conventional and FHA loans. FHA denial rates are much lower than conventional denial rates in low-income and high-minority tracts. For instance, the denial rate for applicants seeking FHA mortgages for properties located in census tracts with income less than 60 percent of area median was 18.5 percent, compared with a denial rate of 26.1 percent for applicants seeking conventional mortgages in these same census tracts.

Table 5.3 examines denial rates in census tracts defined by both minority composition and median income level. FHA denial rates are a fairly consistent 60 to 70 percent of conventional rates, except in tracts with median income above 120 percent of the area median. In these high income tracts, FHA denial rates are closer to conventional rates, averaging 80 percent of conventional rates in white tracts and 60 to 70 percent of those rates in minority tracts.

The census tract information can best be summarized by examining denial rates according to served and underserved areas:

Denial Rates

	FHA	FHA-Eligible Conventional	Ratio of Conventional to FHA
Underserved areas	15.1%	23.1%	1.5:1
Served areas	10.5%	13.3%	1.3:1

TABLE 5.2: Denial Rates by Income and Race of Borrower by Type of Loan, 1993

Income and Race of Borrower	FHA	Conventional		FHA to Eligible Denial Rate Ratio	FHA Share of Total Eligible Market
		Conforming	FHA-Eligible		
Total Market	11.8%	8.2%	15.5%	0.76	31.2%
60% of Median or Below					
White	13.9%	24.0%	24.0%	0.58	30.5%
Black	24.0%	34.7%	34.7%	0.69	50.9%
Hispanic	17.7%	31.0%	30.9%	0.57	48.5%
Asian	13.9%	17.7%	17.5%	0.79	26.3%
61-80% of Median					
White	9.6%	14.4%	14.4%	0.66	34.4%
Black	18.9%	27.7%	27.5%	0.69	57.7%
Hispanic	13.8%	24.4%	23.8%	0.58	52.1%
Asian	10.6%	13.1%	12.3%	0.86	25.0%
81-100% of Median					
White	8.3%	11.2%	11.3%	0.74	32.0%
Black	18.3%	23.1%	23.5%	0.78	56.5%
Hispanic	12.1%	21.9%	21.5%	0.56	50.9%
Asian	8.5%	13.3%	12.6%	0.67	22.9%
101-120% of Median					
White	7.9%	9.1%	9.7%	0.82	29.2%
Black	16.9%	21.8%	22.7%	0.74	55.7%
Hispanic	11.7%	20.6%	20.3%	0.57	47.4%
Asian	9.6%	12.3%	11.9%	0.81	19.3%
121-150% of Median					
White	8.1%	7.9%	8.9%	0.91	25.2%
Black	16.9%	19.1%	20.8%	0.81	51.9%
Hispanic	11.7%	19.1%	19.5%	0.60	43.7%
Asian	10.4%	11.7%	12.0%	0.87	16.6%
150%+ of Median					
White	8.6%	7.0%	8.8%	0.97	17.9%
Black	18.1%	17.3%	20.0%	0.90	41.2%
Hispanic	12.8%	16.0%	17.8%	0.72	32.6%
Asian	11.4%	12.1%	13.3%	0.86	13.4%

SOURCE: PD&R analysis of 1993 HMDA data for metropolitan areas.

NOTE: Conventional conforming loans include loans below $203,150, which was the 1993 loan limit for the two GSEs, Fannie Mae and Freddie Mac. "FHA-Eligible" loans are conventional loans below the FHA maximum loan amount for each metropolitan area. The "Eligible Market" equals FHA loans plus FHA-eligible conventional loans. VA and Farmers Home loans are excluded.

Median income refers to the median MSA income.

TABLE 5.3: Denial Rates by Income and Minority Composition of Tract and by Loan Type, 1993

Income and Minority Composition of Tract	FHA	Conventional		FHA to Eligible Denial Rate Ratio	FHA Share of Total Eligible Market
		Conforming	FHA-Eligible		
Total Market	11.8%	8.2%	15.5%	0.76	31.2%
60% of Median or Below					
10% Minority or Less	19.7%	20.4%	21.0%	0.94	25.3%
11-30% Minority	16.4%	22.9%	24.2%	0.68	35.7%
31-50% Minority	16.5%	22.6%	24.2%	0.68	41.0%
+50% Minority	19.3%	27.0%	27.9%	0.69	38.7%
61-80% of Median					
10% Minority or Less	12.8%	19.5%	20.2%	0.63	29.7%
11-30% Minority	13.6%	21.2%	22.4%	0.61	40.2%
31-50% Minority	14.3%	22.1%	23.3%	0.62	41.3%
+50% Minority	16.8%	26.2%	27.0%	0.62	44.0%
81-100% of Median					
10% Minority or Less	10.7%	15.3%	16.4%	0.65	27.4%
11-30% Minority	12.1%	17.4%	18.9%	0.64	38.6%
31-50% Minority	13.3%	20.1%	21.5%	0.62	43.5%
+50% Minority	16.9%	23.2%	24.0%	0.70	43.2%
101-120% of Median					
10% Minority or Less	9.7%	10.8%	12.2%	0.79	24.6%
11-30% Minority	10.6%	13.6%	15.1%	0.70	39.1%
31-50% Minority	12.7%	17.0%	18.5%	0.68	43.2%
+50% Minority	14.2%	20.4%	21.2%	0.67	44.0%
121-150% of Median					
10% Minority or Less	9.1%	7.9%	9.6%	0.95	22.8%
11-30% Minority	10.4%	10.9%	12.2%	0.85	35.8%
31-50% Minority	12.8%	15.9%	16.8%	0.76	40.8%
+50% Minority	15.0%	16.7%	16.9%	0.89	35.9%
150%+ of Median					
10% Minority or Less	9.4%	6.5%	8.3%	1.14	19.6%
11-30% Minority	9.5%	9.6%	11.3%	0.84	23.8%
31-50% Minority	16.0%	13.0%	14.5%	1.10	30.4%
+50% Minority	12.7%	15.6%	18.2%	0.70	22.8%

SOURCE: PD&R analysis of 1993 HMDA data for metropolitan areas.

NOTE: Conventional conforming loans include loans below $203,150, which was the 1993 loan limit for the two GSEs, Fannie Mae and Freddie Mac. "FHA-Eligible" loans are conventional loans below the FHA maximum loan amount for each metropolitan area. The "Eligible Market" equals FHA loans plus FHA-eligible conventional loans. VA and Farmers Home loans are excluded.

Median income refers to the median MSA income.

FHA's denial rate in underserved areas is about 44 percent higher than its denial rate in served areas. FHA-eligible conventional applicants, on the other hand, have a denial rate about 50 percent higher than FHA in underserved areas and one-third higher than FHA in served areas. Again, FHA's differential performance is largest in those areas experiencing the most severe credit problems.

C. Econometric Study of FHA Denial Rates

The patterns presented above do not account for differences in risk profiles among racial groups. A study of FHA and conventional denial rates in ten metropolitan areas performed regression analyses to control for borrower and neighborhood risk characteristics.[8] Applicants with low incomes and a high predicted probability of defaulting (estimated from a separate equation), and applicants from neighborhoods with low property values and high poverty and unemployment rates, had a higher probability of being denied a loan.

After controlling for these risk factors, blacks continued to have a significantly higher probability of being denied a loan than comparable whites. This pattern held for both FHA and conventional loans. Hispanic applicants also had significantly higher denial rates than comparable white applicants, although they consistently fared better than blacks. In contrast, Asian applicants generally fared better than either black or Hispanic applicants.

Because the analysis was unable to control for all risk characteristics, such as the applicant's wealth, requested loan-to-value ratio and credit history, the racial differentials in denial rates that persisted could not be attributed to discrimination. However, the race differentials that remained after controlling for the observable risk factors were rather large. Compared with <u>comparable</u> whites, blacks applying for FHA loans were estimated to have the following higher denial rates: Atlanta (18 percent), Baltimore (7 percent), Chicago (11 percent), Columbus (12 percent), Dallas (14 percent), Houston (18 percent), Los Angeles (9 percent), Memphis (14 percent), and St. Louis (12 percent). Only in

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[8] ICF Inc., "The Role of FHA in the Provision of Credit to Minorities," Prepared for the U.S. Department of Housing and Urban Development, Office of Policy Development and Research, April 25, 1994. ICF used 1990 and 1991 HMDA data for ten metropolitan areas. Also see Section III for a discussion of FHA-conventional choice models estimated in this study.

Both the AHS and the SRF have weighing factors which allow identification of broad national differences between FHA and conventional lending. The SRF data will also be used later in this paper to examine FHA's overlap with the PMIs.

B.2 Low Downpayments

FHA is perhaps best known for the homeownership opportunities it offers to young households that have not been able to accumulate enough cash to pay the downpayment and closing costs charged by conventional lenders. This can be seen from Table 4.7, which reports loan-to-value (LTV) distributions for all FHA, GSE, and conforming mortgages. FHA has a high concentration of low-downpayment loans in both its new business and outstanding insurance portfolio. In 1993, 54 percent of FHA's new insurance written had LTV ratios over 95 percent and an additional 25 percent had LTV ratios between 90 and 95 percent.[17] This increased the share of outstanding loans in FHA's insured portfolio with LTV ratios over 90 percent to about 70 percent. Preliminary data for new 1994 business show concentrations of low-downpayment mortgages similar to 1993.

FHA insures relatively more low-downpayment loans than are originated in the conventional market. American Housing Surveys between 1989 and 1993 show that half of FHA purchase loans had original LTV ratios above 95 percent, while only 13 percent of conforming conventional loans were at that level. Similarly, three-fourths of FHA purchase loans had LTVs above 90 percent compared with only one-fourth of conforming conventional loans.

The same contrast holds when comparing FHA to GSE-purchased originations. Home purchase loans with an LTV over 90 percent accounted for 87 percent of FHA's business in 1993, compared with only 20 percent of GSE business.[18] Fifty-seven percent of GSE

(1995).

[17]These comparisons cover **all** new 1993 mortgages in FHA's Mutual Mortgage Insurance (MMI) Fund except FHA-to-FHA refinances without appraisals, which do not have information on the current value of the property needed for computing an LTV ratio. These no-LTV refinances totaled 311,777 in 1993, or 71 percent of FHA's 436,393 refinance loans.

[18]Not surprisingly, the same differences existed among loans originated in earlier years. For instance, two-thirds of the mortgages on FHA's MMI Fund books at the end of fiscal year 1991 had original loan-to-value ratios of 90 percent or higher. In comparison, only one-eighth of FNMA's portfolio had original loan-to-value ratios of 90 percent or higher at the end of 1991.

TABLE 4.7: Loan-to-Value Ratios of FHA, GSE, and Conventional Home Purchase Loans, 1993

	Over 95% LTV	Over 90% LTV	Over 80% LTV
FHA (1993)			
Refinances and Purchases (national) **	54%	79%	94%
Purchases (in metro areas)			
First-time Buyer	63%	88%	98%
Repeat Buyer	61%	86%	97%
All	62%	87%	97%
GSE (1993)			
Refinances and Purchases (national)	0%	6%	20%
Purchases (in metro areas)			
First-time Buyer	0%	30%	58%
Repeat Buyer	0%	16%	38%
All	0%	20%	43%
Purchases (FHA-eligible market in metro areas)			
First-time Buyer	0%	29%	55%
Repeat Buyer	0%	14%	32%
All	0%	19%	39%
AHS (national sample, 1991-1993)			
FHA			
All	50%	75%	90%
First-time Buyer	56%	82%	95%
Repeat Buyer	59%	81%	95%
Conforming Conventional			
All	16%	33%	57%
First-time Buyer	25%	48%	74%
Repeat Buyer	16%	31%	56%

SOURCE: FHA and GSE loan-level data files maintained by HUD, and data from the 1993 American Housing Survey.

** 71.4% of FHA refinances have missing LTVs because they are streamline refinances.

NOTE: The AHS data provide different values from the other sources, primarily due to small sample sizes. In addition, even small errors in reporting of house price or loan amount can place the loan in the wrong LTV category. Note that values are closer for wider categories, such as over 80% LTV.

Sacramento did blacks have a lower denial rate after controlling for the risk factors.[9]

[9] It should be noted that ICF's sample of ten MSAs suggested that blacks and Hispanics received similar treatment in the FHA and conventional sectors. National HMDA data, such as reported earlier, suggest that blacks and Hispanics are significantly less likely to be denied a loan under FHA programs than under conventional programs.

VI. THE OVERLAP OF FHA WITH CONVENTIONAL LENDERS AND PMIs

This chapter examines the overlap of the FHA program with activities of conventional lenders and private mortgage insurers (PMIs). Subsection A reviews previous studies of this issue and subsection B reports the limited data that is available on FHA-PMI comparisons. Subsection C then provides a more systematic treatment of the overlap issue.

Main Findings

The main conclusion of this section is that the range of service provided by FHA extends beyond that available from PMIs and thus there is not much overlap between FHA and PMI borrowers. Specific findings include:

- Because of limited public data on insurance written by private mortgage insurers, only a few studies have compared the characteristics of FHA and PMI borrowers. Those studies, as well as the FHA and PMI data presented in this section, show that borrowers insured by FHA are more apt to be credit constrained than borrowers insured by the PMIs.

- While PMI and FHA borrowers share some of the same characteristics, FHA borrowers have lower incomes, purchase lower-valued homes, make lower down payments, are more likely to be a first-time homebuyer or a minority, and are more likely to live in a low-income, high-minority census tract.

- Past privatization studies imply a consensus definition, such that overlap is only possible when lender and borrower fail to take advantage of a PMI offer of the same service at lower cost.

- Under this consensus definition, it is difficult to imagine that there would be much overlap between FHA and PMIs. And, if there were, it would seem that better marketing by PMIs and conventional lenders would be a lower-cost remedy than placing additional legislative and regulatory constraints on the free market choices of private market lenders and borrowers.

- It is shown that the range of service provided by FHA extends beyond that available from PMIs; thus, there is no possibility of overlap where borrowers choose FHA loans with higher LTVs or higher payment-to-income ratios than are available from PMIs.

- Roughly 65 percent of 1993 FHA borrowers had LTVs in excess of 95 percent compared with virtually zero for GSE borrowers. Thus, under the consensus definition of overlap, about two-thirds of FHA business can be immediately eliminated from any further consideration of overlap with PMI loans purchased by the GSEs.

- Regression analysis revealed that, even before considering differences in personal credit history, the remaining third of FHA loans differed from PMI loans with similar LTVs with respect to other factors, such as type of housing market and neighborhood location, relative income status, relative loan size status, and household demographics.

- FHA insures the bulk of mortgages in the FHA-eligible market. In 1993, FHA accounted for 70 percent of first-time buyers and 64 percent of all homebuyers using either FHA or privately-insured GSE loans with fixed interest rates to purchase modest homes in metropolitan areas.

- With FHA serving such a large fraction of the insured, FHA-eligible market, determining whether any significant overlap between FHA and PMI exists takes on vital importance. Legislative remedies for what is, in fact, imagined overlap would have severe repercussions for prospective homebuyers in the FHA-eligible market.

Note that most of the LTV comparisons in this section do not include FHA-eligible and PMI loans made by thrift and bank portfolio lenders. PMIs have only recently introduced insurance for 97 percent LTV loans, and it is not clear to what extent local portfolio lenders may have made loans with LTVs in excess of 95 percent. Further note that there are some local markets -- Minnesota, for example -- in which FHA serves an unusually large share of the eligible market. In these localities there is likely to be relatively more overlap than in the nation as a whole.

A. Review of Previous Studies

PD&R study.[1] Although it covered an earlier period, a 1986 study by HUD's Office of Policy Development and Research (PD&R) provides several interesting findings on the overlap issue. The study examined mortgage activity between 1977 and 1984 to determine the extent to which FHA borrowers were distinct from those using PMI and the degree to which FHA expanded homeownership

[1] An Assessment of FHA's Section 203(b) Program: A Comparison with Private Mortgage Insurance, Office of Policy Development and Research, Department of Housing and Urban Development, 1986.

opportunities for certain groups. Private mortgage insurers provided their origination data in aggregated format to PD&R for the study. The study concluded that while FHA served the more credit-constrained borrowers, there was much overlap in the characteristics of PMI and FHA borrowers, as indicated by the following comparisons:

Percent of FHA or PMI with Borrower Characteristics:	FHA	PMI
Low/Middle Incomes (LT 120% median)	45%	38%
Downpayment of 5% or less	64%	28%
First-time Homebuyer	63%	53%
Minority	22%	14%
Central City (versus Suburb)	31%	34%

Low down payments and minority status were the main distinguishing characteristics of FHA borrowers during the study time period.[2] The incomes of FHA and PMI buyers were not so different.

The PD&R study provided interesting data on the effects of interest rates on FHA and PMI activity over time. The following table compares the percentage of low- and middle-income borrowers (income less than 120% area median income) insured by FHA and the PMIs between 1977 and 1984:

	FHA	PMI	Average 30-year Interest Rate[3]
1977	72%	72%	8.84%
1978	67%	50%	9.63%
1979	42%	35%	11.19%
1981	31%	36%	16.63%
1983	42%	36%	13.23%
1984	45%	38%	13.87%

As interest rates increased and affordability became worse between 1977 and 1981, the proportion of low- and middle-income buyers in the market declined. As interest rates began to fall after 1981, these households returned to the market, taking out both FHA and PMI loans.

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[2]The income and downpayment data are for 1984. The other data are from the 1981 and 1983 American Housing Surveys.

[3]Freddie Mac survey of major lenders of contract rates on commitments for fixed-rate, 80 percent LTV mortgages. Does not include points.

Finally, the PD&R study provided interesting data on the wide variation in FHA and PMI activity across metropolitan areas. It found that in places where housing is more affordable, modest-income buyers usually comprised a larger percentage of both PMI and FHA insurance activity. In addition, in those metropolitan areas where FHA's maximum limits were binding, the FHA program was mainly confined to insuring lower priced homes, purchased by modest-income buyers.

Fed Study.[4] Glenn Canner and Wayne Passmore compared the characteristics of FHA and PMI applicants using HMDA data for 1993.[5] They reported the following distributions of FHA and PMI applicants for home purchase mortgages:

Percent of FHA or PMI with Applicant Characteristics or Location:	FHA	PMI
Minority (Black or Hispanic)	22.8%	15.0%
Low-income (LT 80% MSA median)	46.3%	31.2%
In High-Minority Tract (GT 20%)	36.5%	28.1%
In Low-income Tract (LT 80% MSA median)	18.2%	16.0%
In Central City (versus Suburb)	47.5%	40.6%

FHA borrowers are more apt to be a minority, to have low incomes, and to live in inner-city, high-minority census tracts. Note that the minority rate in the recent Fed study is similar to that found in the earlier PD&R study. However, the difference between FHA and PMI borrower income is much greater in the 1993 Fed study than was found in the earlier PD&R study. Section VIII explains that the median income of FHA borrowers relative to the U.S. median income declined between 1983 and 1993 by approximately 30 percent. While comparable data are not available for the PMIs, it appears that the income gap between FHA and PMI borrowers may have widened during the 1980s.

B. Available Data on the Characteristics of PMI-Insured Loans

While data on FHA activity is widely available from both HUD and HMDA, only limited information is available on mortgage loans insured by PMIs. This section reports data on PMI-insured loans from two sources -- the Survey of Residential Finance (SRF) and the GSE data collected by HUD. Both of these data sources were described in Section IV.

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[4]Glenn Canner and Wayne Passmore, "Private Mortgage Insurance", Federal Reserve Bulletin, October 1984.

[5]Eight PMIs released HMDA-type data for applications acted on during the fourth quarter of 1993. This is the first time that PMIs have made these data available. The FHA data in the Fed study cover the period August to December, 1993.

Survey of Residential Finance. The SRF is a national sample of households that were surveyed in May 1991. The following information pertains to those households who purchased a home between 1989 and 1991 and took out a mortgage for an amount less than the conforming loan limit (for the moment, ignore column 3 which refers to GSE loans with private mortgage insurance):

Household, Location, Property, and Mortgage Characteristics	(1) FHA	(2) PMIs	(3) GSE w/insur.
Household:			
Average Income	$43,775	$63,579	$64,196
% Minority (Black or Hispanic)	22%	12%	10%
% First-time Homebuyer	65%	43%	39%
Age of Owner (average years)	33	36	36
Location:			
In Central Cities	31%	30%	22%
In Suburbs	60%	57%	67%
In Non-metropolitan Areas	9%	13%	11%
	100%	100%	100%
Region:			
Northeast	9%	18%	20%
Midwest	27%	30%	30%
South	39%	31%	27%
West	25%	21%	23%
	100%	100%	100%
Property:			
Purchase Price	$71,800	$110,300	$114,300
Mortgage Type:			
Fixed-Rate	98%	85%	97%
ARM	2%	12%	0%
Other	0%	3%	3%
	100%	100%	100%

These results are similar to those reported above for the PD&R and Fed studies -- PMI borrowers have higher incomes, purchase higher-valued homes, and are less likely to be a minority or a first-time homebuyer. PMIs insure more ARMS than FHA and their activity is more concentrated in the Northeast than is FHA activity.[6]

GSE Data. Loans purchased by Fannie Mae and Freddie Mac that have a loan-to-value (LTV) ratio over 80 percent typically carry

[6]For a similar comparison using RFS data, see Price Waterhouse (April, 1994).

private mortgage insurance.[7] Thus, this section uses the GSE's over-80-percent-LTV loans as a proxy for PMI loans. It is estimated that GSE loans account for over half of PMI business.[8] Data from the SRF, however, suggest some caution in using GSE loans as a proxy for PMI loans. SRF data for GSE loans with insurance are given in column 3 above and similar data for all privately-insured loans are given in column 2 above. The SRF data suggest that, compared to all PMI loans, GSE loans with insurance are much less likely to be minority, central city, or ARM loans, and slightly less likely to be loans for first-time homebuyers. On the other hand, GSE loans with insurance were similar to all PMI loans with respect to original purchase price, income, and age of owner. These differences should be kept in mind when interpreting the data presented below.

Table 6.1 compares FHA home purchase loans in metropolitan areas with GSE loans with an over-80-percent LTV ratio; the GSE data are provided for both conforming and FHA-eligible mortgages. PMI business, as proxied by the GSE over-80-LTV data, is not as concentrated as FHA business on credit-constrained borrowers and neighborhoods -- a finding consistent with the SRF data reported above, the recent Federal Reserve Board study of HMDA data, and the earlier PD&R study.[9] The three sharpest contrasts between FHA and PMI insurance involved service to low-income households, to blacks and Hispanics, and to households located in underserved areas. For instance, blacks and Hispanics accounted for 20 percent of FHA business in metropolitan areas versus only 9 percent of the over-80-LTV business of the GSEs.

In only one instance did the differential in targeting change significantly when GSE loans were restricted to FHA-eligible loans. The proportion of GSE-PMI business accounted for by low-income borrowers increased from 15 percent to 25 percent when the top end

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[7]For loans with an LTV ratio over 80 percent, the GSEs are required by their Charter Act to have either private mortgage insurance, recourse to the lender, or some other form of credit enhancement. It is our understanding that most over-80-percent-LTV loans have private mortgage insurance.

[8]The GSEs purchased 769,644 over-80-percent-LTV home purchase and refinance mortgages that were originated during 1993, while the PMIs issued 1,198,307 insurance certificates during 1993. The PMI Group, a subsidiary of Allstate, reports that GSE loans accounted for 64 percent of its 1993 business.

[9]Notice in Table 6.2 that the FHA and PMI percentages for first-time homeowners and minorities for 1993 are practically the same as those reported above from the SRF for the years 1989-1991.

TABLE 6.1: GSE Home Purchase Loans with Over-80-Percent LTVs Compared with FHA Loans in Metropolitan Areas, 1993

Characteristics	FHA	GSE Over-80%-LTV	
		All	Eligible-Only
Number	502,549	468,739	270,569
Income			
Less than 80% of median	42%	15%	25%
Over 120% of Median	19%	52%	31%
Race			
Black or Hispanic	20%	9%	11%
White	78%	86%	85%
Percent First-time Buyers	67%	41%	48%
Borrower Age			
Under 30	46%	34%	39%
Over 40	17%	23%	22%
Payment-to-Income Ratio			
25% or Less	65%	67%	70%
26-28%	16%	13%	12%
Over 28%	19%	20%	18%
Tract Income			
Less than 80% of median	15%	8%	11%
Over 120% of Median	24%	44%	32%
Tract Minority Composition			
Less than 10%	43%	55%	54%
Greater than 30%	22%	14%	15%
In Underserved area	27%	14%	18%
In Central City	48%	34%	36%
Located in			
FHA High-Cost Area	14%	25%	27%
FHA Medium-Cost Area	77%	72%	71%
FHA Low-Cost Area	9%	3%	2%

SOURCE: FHA and GSE loan-level data files maintained by HUD.

NOTE: This table reports characteristics for all mortgages made in metropolitan areas in 1993. For the GSEs, only loans over 80% loan-to-value are included. "Eligible-only" loans are those GSE loans which are below the FHA loan limit for each metropolitan area.

Median income refers to the median MSA income.

of the GSE market was dropped. For comparison, low-income borrowers represented 42 percent of FHA's business.

C. A More Systematic Treatment of Overlap

C.1 Defining and Measuring Overlap

Past Confusion. Virtually every major effort to reassess FHA's role in the mortgage finance system has concluded that FHA should complement, not compete or overlap, with private insurers.[10] With five reports on this issue in the last 20 years, it is clear that a significant number of people believe that FHA does overlap with private mortgage insurers. However, there has been little systematic thought about how to actually determine the extent, if any, of the overlap.

Past efforts, summarized in sections A and B above, have simply examined the aggregate groups of FHA borrowers and PMI borrowers, taking borrower similarities in characteristic-by-characteristic comparisons as evidence of overlap. However, home purchase and finance decisions depend on a number of interrelated factors, including general economic and local housing market conditions. Any comparison of borrower characteristics which fails to account for relevant interrelationships and differences in local conditions can be misleading. For example, it would be hard to argue that finding an FHA borrower and a PMI borrower taking out the same mortgage with the same income (say $35,000) was evidence of overlap if it were known that the FHA borrower purchased his home with a higher payment-to-income ratio 6 months later after mortgage interest rates had risen from 7 percent to 9 percent. A more complex systematic approach is necessary.

Overlap Defined. The first step is to develop a clear understanding of what "overlap" means. Each of the five earlier studies of FHA's role implied an operating definition by stating that FHA should continue to provide mortgage insurance where the private market is unable or unwilling to do so at a competitive price--or, in the words of the Grace Commission, where "Private mortgage insurance companies . . . [are unwilling to] provide a

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[10]See Future Role of FHA (PD&R, 1977), The Report of the President's Commission on Housing (1982), President's Private Sector Survey on Cost Control: Report on Financial Asset Management (a.k.a. Grace Commission Report, Spring-Fall 1983), An Assessment of FHA's Section 203(b) Program: A Comparison with Private Mortgage Insurance (PD&R, 1986), and Privatization: Toward More Effective Government (Report of the President's Commission on Privatization, 1988).

similar service for a smaller premium."[11] Thus, under this consensus definition, there is no potential for overlap unless a lender and borrower ignore (rather than are disqualified for or doubt the warranty of) lower-cost PMI and choose to pay FHA a higher premium price to obtain the same mortgage at the same loan-to-value and payment-to-income ratios as would be offered with PMI. That is, overlap is only possible when the lender and borrower fail to take advantage of a bonafide, PMI offer of the same service at lower cost. Under this consensus definition, it is difficult to imagine that there would be much overlap between FHA and PMIs. Market competition should drive private market lenders to guide as many borrowers as possible to lower-cost, privately-insured conventional loans or risk losing business to their competitors. And, if there were overlap, it would seem that better marketing by PMIs and conventional lenders would be a lower-cost remedy than placing additional legislative and regulatory constraints on the free market choices of private market lenders and borrowers.[12,13]

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[11]See President's Commission (1982) pp. 162-64, and Grace Commission, p. 192.

[12]Some have argued that measured overlap would be larger if one allowed for the possibility that FHA homebuyers could actually qualify for PMI if they were willing to settle for a smaller (home) loan or wait until their circumstances improved. However, it is difficult to comprehend how a lower service (loan) level under identical circumstances or a similar loan later under improved circumstances can in any way be considered overlap. There are, no doubt, isolated instances of true overlap; but based upon the argument above, it would be surprising if they were more than rare exceptions to the rule.

[13]Alternatively, some might contend that overlap exists whenever FHA offers service at a lower (albeit actuarially sound cross-subsidized) premium cost than PMIs would charge, thereby precluding PMIs from profitably offering that specific service. For example, it could be argued that PMIs would have offered high LTV loans in excess of 95 percent had they not had to compete with FHA's cross-subsidized and relatively lower premium for this service. This might very well be true; but, the logical import of such a definition (requiring that FHA price every level of service above what PMIs would charge to avoid overlap) is the ultimate elimination of any social role for FHA by depriving it of use of either its Federal credit enhancement or cross-subsidization to benefit disadvantaged potential homebuyers. Disadvantaged or credit-impaired homebuyers at every risk class would be required to bear the full private cost of the risk they pose, inclusive of a private return to stockholder equity (profit) that reflects a differentially higher capital cost reflecting PMI's lower capacity when compared with government to diversify risk. The effect of such a policy for borrowers now

Even though there may be (1) strong *a priori* reasons to doubt the existence of much overlap between FHA and PMI and (2) market remedies for any that might exist, it could be nonetheless instructive to go through the exercise of trying to fix the magnitude of potential overlap--that which cannot be ruled out by obvious explanations or more carefully structured empirical comparisons. However, it is unlikely that analysis will be able to establish that any remaining potential overlap is, in fact, actual overlap given the complexity of the underwriting decision and the fact that available data will not reflect all factors that lenders and insurance underwriters used to distinguish better risks from poorer risks.

In order to establish whether borrowers are forgoing equivalent but lower cost service of PMIs, it is necessary to compare the range of service provided by PMIs versus FHA and their relative costs along the shared range. There are three major thresholds that must be crossed to finance a home purchase. A homebuyer must first have sufficient assets to make the minimum required equity down payment and pay up-front transaction costs. The buyer must also have sufficient income to support a mortgage that is, in combination with the down payment, large enough to cover the purchase price of the desired home. Finally, the homebuyer must have established sufficiently good credit quality, stability of income, and collateral to convince the lender and mortgage insurance company that he/she does not pose an unacceptably high risk of default and loss.

FHA's Asset Advantage. FHA has traditionally offered more lenient thresholds, making it possible for borrowers purchasing modest homes (below area median price) to obtain a larger mortgage and better house for a given income, asset level, and/or credit rating. With respect to the asset threshold, PMIs have insisted on equity down payments of no less than 5 percent of the home's value and cash payment (no financing) of all up-front transaction costs. Hence, the most a homebuyer using PMI could finance would be 95 percent of the home's price and to complete the purchase the buyer would need about 9.3 percent of the purchase price in cash savings to cover the down payment of 5 percent, closing costs of 2.4 percent, and loan discount points of 2 percent (.02*.95 = 1.9% of value).[14] Because FHA requires marginally lower down payments and

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served by FHA would be substantially higher costs and for many preclusion of homeownership in exchange for relatively modest expansion of PMI and GSE profits.

[14]Prior to the introduction of the monthly premium plan in 1994, homebuyers using PMI had to pay no less than an additional 1 percent up-front premium, which was nonrefundable. Also, the percentage of cash assets may be higher or lower depending on closing costs and discount points.

permits financing of closing costs up to a maximum loan-to-value (LTV) of 97.75 percent,[15] FHA homebuyers can (depending on the price, which determines down payment factors, and closing costs) purchase an identical home with only 5.5 to 7.8 percent in cash savings--that is, with 60 to 83 percent of that required with PMI. The FHA buyer only needs 72 percent of the savings required of a PMI buyer ($6,632 versus $9,270) to purchase a $100,000 home, given closing costs and discount points of 2.4 and 2 percent. Put another way, a buyer with $6,632 in cash assets and compelled to use PMI could purchase a home worth no more than $72,000, 28 percent below what could be purchased with FHA. Thus, FHA provides a substantial qualifying advantage to low-wealth homebuyers who without FHA would face the alternative of settling for a home substantially below the quality available with FHA or deferring purchase for 3 years assuming they could increase their cash assets at a rate of 11.5 percent ahead of home price appreciation averaging 4 percent per year.[16]

FHA's Income Advantage. FHA also provides an income-qualifying advantage over PMI underwriting. The front-end, payment-to-income ratio, giving the percentage of gross income FHA normally allows for housing expense (PITI), is 29 percent. FHA's back-end ratio, giving the percentage of income allowed for housing expense plus other recurring payments for debt, is 41 percent. The corresponding ratios for PMIs are 28 and 36 percent. However, FHA is routinely more lenient than the 29/41 ratios would suggest, allowing front-end ratios and to a lesser degree back-end ratios to range higher in the presence of a wide array of "compensating factors." The one-percentage-point difference in the standard front-end ratios allows borrowers with roughly 3.5 percent less income to qualify for a mortgage that when coupled with the same cash required under PMI is sufficient to purchase the PMI-financed home.[17] This advantage remains throughout the range of house prices and reasonable interest rates. Each additional one-point

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[15]The required down payment and maximum LTV on loans of $50,000 or less are actually less onerous at 3 and 98.75 percent, respectively. The minimum FHA down payment for homes valued at more than $135,000 actually exceeds 5 percent, but up-front cash requirements remain below those for PMI because closing costs are financeable.

[16]Thus, the renter household's assets would have to increase by 16 percent per year, beginning with $1,058 in the first year. The household could reduce the time to two years if assets increased at a rate of 23 percent per year and to one year if they increased at 44 percent per year.

[17]The calculations account for a higher balance FHA mortgage covering the up-front MIP and a higher monthly PMI premium without an up-front component.

relaxation in the front-end ratio translates into a roughly 3 percent reduction in qualifying income. Hence, stretching the front-end ratio to 33 percent is equivalent to reducing the income required with FHA to finance a home of given price by 15 percent below what would be required with PMI at the standard 28 percent ratio. PMIs also allow for variance beyond their 28 percent front-end ratio, but these variances are less frequent and the circumstances more limited.[18]

Finally, FHA is substantially more tolerant of past borrower credit history problems or lack of established credit history. FHA is also more apt to insure mortgages in areas with greater uncertainty about the stability of borrower credit or collateral values.

It has been shown that the range of service provided by FHA extends beyond that available from PMIs. There can be little doubt that there is no possibility of potential overlap where borrowers choose loans with higher LTVs or front- or back-end payment-to-income ratios than are available from PMIs, regardless of FHA's premium cost. Thus, the possibility of overlap can be immediately ruled out for those who choose higher LTVs and/or payment-to-income ratios than are provided by PMIs. The remaining pool of FHA borrowers who choose LTV and payment ratio combinations provided by PMIs can yet differ in many important respects from PMI borrowers. FHA and PMI borrowers who have similar LTV and payment ratios can still differ with respect to type of housing market and neighborhood location, relative income status, relative loan size status, household demographics, personal credit history, etc. What is more, one can expect the content and descriptive character of these pools to change over time as households shift among the pools with changes in economic conditions.

C.2 Examining 1993 FHA and GSE Data for Overlap[19]

FHA and FHA-eligible GSE purchase mortgage business for 1993 was analyzed to ascertain the extent to which LTV and payment ratio combinations chosen by FHA borrowers differed from those offered to

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[18]Note that in Tables 6.6 and 6.7 below, the percentage of high-LTV (above 90 percent) FHA borrowers with payment ratios exceeding 28 percent is roughly twice that for high-LTV PMI borrowers.

[19]The reader should note that subsequent analyses and comparisons do not include FHA-eligible and PMI-insured loans made by thrift and bank portfolio lenders.

GSE borrowers.[20] Table 6.2 shows how this FHA and FHA-eligible business was distributed by type of purchase borrower for both FHA and the GSEs. FHA accounted for 390,445 long-term, fixed-rate purchase borrowers and 67 percent of those were first-time homebuyers; the GSEs accounted for 467,677 comparable mortgage loans, 38 percent of which went to first-time homebuyers. FHA appeared to provide service to 46 percent of all FHA and GSE FHA-eligible homebuyers and 60 percent of the combined total of first-time homebuyers.[21]

LTV Distributions. Tables 6.3 and 6.4 show that over half, 54 percent, of the GSE buyers had LTVs of 80 percent or less and did not need PMI while no more than 2.6 percent of FHA buyers had LTVs of 80 percent or less. One can assume that this small proportion of FHA borrowers could not obtain the credit they sought from the conventional market since it would normally be available without any requirement of mortgage insurance. By excluding borrowers who did not need PMI because of their down payments of 20 percent, the table distributions were redrawn to focus on the borrower population for which overlap was a possibility.

Table 6.5 shows the importance of FHA insurance in the FHA-eligible market. Almost three-fourth's (70.3 percent) of the first-time buyers in need of mortgage insurance for obtaining FHA-eligible mortgage loans took out FHA insurance. FHA accounted for 64 percent of all insured FHA-eligible loans and 53 percent of insured, repeat-buyer loans. With FHA serving such a large fraction of the insured, FHA-eligible market, determining whether any significant overlap between FHA and PMI exists takes on vital importance. Legislative remedies for what is, in fact, <u>imagined</u>

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[20]The FHA and GSE data were limited to long-term, fixed-rate loans for one-unit, owner-occupied properties in metropolitan areas. The GSE loans were further limited to those which were FHA eligible, falling below the area-specific FHA loan limit. Payment ratios were estimated for GSE loans using the Freddie Mac coupon rate prevailing 2 months prior to the origination date, the metropolitan-specific tax and insurance percentage rate estimated from FHA data in the same year, acquisition unpaid principal balance, and borrower income. Estimated payment ratios would be biased upward to the extent the Freddie Mac coupon rate or tax and insurance percentages exceed actual loan-specific rates. Because interest rates varied by less than one-half percentage point over any two-month period in 1993, the potential bias is likely to be less than 1 percentage point in either direction. Finally, FHA loans were divided by 1.03 to purge the loan of financed MIP and make FHA LTVs comparable to GSE LTVs.

[21]The reader is reminded that these comparisons do not include FHA-eligible and PMI-insured loans made by thrift and bank portfolio lenders.

overlap would have severe repercussions for prospective homebuyers in the FHA-eligible market.

Tables 6.6 and 6.7 focus on the LTV and payment ratio combinations of borrowers who required mortgage insurance to obtain their loans.[22] Perhaps the most important thing to note is that two-thirds of the FHA loans either had LTVs in excess of the highest LTV on GSE loans, or else had LTVs that were low enough not to require PMI if financed conventionally. Roughly 65 percent of FHA borrowers have LTVs in excess of 95 percent compared with virtually zero for GSE borrowers.[23] Another 3 percent of FHA's loans had LTVs under 80 percent, which are loans that would not need mortgage insurance if they qualified for conventional financing. Thus, under the consensus definition of overlap presented above, over two-thirds of FHA business can be immediately eliminated from any further consideration of potential overlap. Thus, the overlap between FHA and PMI can be no greater than the remaining third of FHA's business with LTV's that fall between 80 and 95 percent. And, as shown below, the potential for overlap with that remaining third can be further narrowed by examining the loans for differences with respect to other factors, such as payment ratio, type of housing market and neighborhood location, relative income status, relative loan size status, household demographics, and personal credit history.

Payment-to-Income Ratios. Tables 6.6 and 6.7 reveal that the proportion of FHA-insured business having high payment-to-income ratios is under 20 percent and no more than 3 percentage points higher than that for the GSE's insured business. This should not be surprising given that low interest rates during 1993 made home purchase more affordable and FHA's income-qualification advantage less important than had been true for the last 25 years. However, if one compares the LTV distribution for high payment ratio borrowers, a notable difference leaps out. Most of FHA's high payment ratio borrowers also have high LTV ratios in excess of 90 percent while a markedly smaller proportion of GSE borrowers with PMI have high LTVs. High-LTV FHA homebuyers are roughly <u>twice</u> as

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[22]Loans with missing payment ratio or LTV have also been excluded.

[23]Despite changes that have occurred in the market in 1994 showing more high LTV loans (that is, LTVs over 90 percent) being sold to the GSEs, the 1994 GSE percentage of home purchase loans with LTVs over 95 percent remained below 1 percent of their business. Note also that the comparison in the text does not include FHA-eligible and PMI-insured loans made by thrift and bank portfolio lenders. While PMIs have only recently introduced 97 percent LTV loans, it is not clear to what extent local portfolio lenders may have made loans with LTVs in excess of 95 percent.

Table 6.2

FHA-ELIGIBLE LONG-TERM, FIXED-RATE METROPOLITAN PURCHASE MORTGAGES BY SOURCE OF FINANCING AND TYPE OF BORROWER, 1993

Type of Purchase Borrower	Source of Financing			FHA's Share of Combined
	FHA	GSE	Combined	
First-Time	260,588	175,525	436,113	59.8%
Col.Share	66.7%	37.5%	50.8%	
Repeat	129,857	292,152	422,009	30.8%
Col.Share	33.3%	62.5%	49.2%	
All	390,445	467,677	858,122	45.5%
Col.Share	100.0%	100.0%	100.0%	

Source: PD&R Analysis of FHA F42 and GSE Data.

Table 6.3

DISTRIBUTION OF FHA LONG-TERM, FIXED-RATE, METROPOLITAN PURCHASE BUSINESS

All Purchase Borrowers

Payment-to-Income Ratio	Loan-to-Value Ratio						
	ZERO	LE 80%	80-90%	90-94%	94-95%	GT 95%	TOTAL
LE 25%	2%	1%	6%	9%	6%	42%	66.8%
25-28%	0%	0%	1%	2%	1%	9%	15.3%
GT 28%	0%	1%	2%	3%	2%	9%	17.4%
MISSING	0%	0%	0%	0%	0%	0%	0.6%
TOTAL	3.1%	2.6%	9.5%	14.8%	8.8%	61.2%	100.0%

First-Time Purchase Borrowers

Payment-to-Income Ratio	Loan-to-Value Ratio						
	ZERO	LE 80%	80-90%	90-94%	94-95%	GT 95%	TOTAL
LE 25%	2%	1%	5%	9%	6%	42%	64.8%
25-28%	0%	0%	2%	2%	1%	10%	16.0%
GT 28%	1%	1%	2%	3%	2%	10%	18.7%
MISSING	0%	0%	0%	0%	0%	0%	0.5%
TOTAL	3.1%	2.4%	9.2%	14.7%	8.8%	61.9%	100.0%

Repeat Purchase Borrowers

Payment-to-Income Ratio	Loan-to-Value Ratio						
	ZERO	LE 80%	80-90%	90-94%	94-95%	GT 95%	TOTAL
LE 25%	2%	2%	6%	10%	6%	44%	70.8%
25-28%	0%	0%	1%	2%	1%	8%	13.7%
GT 28%	0%	1%	2%	3%	1%	8%	14.8%
MISSING	0%	0%	0%	0%	0%	0%	0.7%
TOTAL	3.1%	3.0%	10.1%	15.1%	8.9%	59.8%	100.0%

Source: PD&R Analysis of 1993 FHA F42 File.

Table 6.4

GSE DISTRIBUTION OF FHA-ELIGIBLE LONG-TERM, FIXED-RATE, METROPOLITAN PURCHASE BUSINESS

All Purchase Borrowers

Payment-to-Income Ratio	Loan-to-Value Ratio						
	ZERO	LE 80%	80-90%	90-94%	94-95%	GT 95%	TOTAL
LE 25%	0%	38%	15%	3%	15%	0%	71.50%
25-28%	0%	6%	3%	1%	2%	0%	11.70%
GT 28%	0%	8%	3%	1%	2%	0%	14.19%
MISSING	0%	2%	1%	0%	0%	0%	2.61%
TOTAL	0.01%	53.89%	21.60%	4.21%	20.22%	0.07%	100.00%

First-Time Purchase Borrowers

Payment-to-Income Ratio	Loan-to-Value Ratio						
	ZERO	LE 80%	80-90%	90-94%	94-95%	GT 95%	TOTAL
LE 25%	0%	27%	17%	4%	21%	0%	68.10%
25-28%	0%	5%	4%	1%	4%	0%	13.57%
GT 28%	0%	8%	4%	1%	4%	0%	17.23%
MISSING	0%	0%	0%	0%	0%	0%	1.10%
TOTAL	0.02%	40.46%	24.89%	5.59%	28.92%	0.12%	100.00%

Repeat Purchase Borrowers

Payment-to-Income Ratio	Loan-to-Value Ratio						
	ZERO	LE 80%	80-90%	90-94%	94-95%	GT 95%	TOTAL
LE 25%	0%	45%	14%	2%	11%	0%	73.54%
25-28%	0%	6%	2%	0%	2%	0%	10.57%
GT 28%	0%	8%	2%	0%	2%	0%	12.36%
MISSING	0%	2%	1%	0%	0%	0%	3.52%
TOTAL	0.00%	61.96%	19.63%	3.38%	15.00%	0.03%	100.00%

Source: PD&R Analysis of 1993 GSE Data.

Table 6.5

INSURED FHA-ELIGIBLE LONG-TERM, FIXED-RATE METROPOLITAN PURCHASE MORTGAGES BY SOURCE OF FINANCING AND TYPE OF BORROWER, 1993

Type of Purchase Borrower	Source of Financing			FHA's Share of Combined
	FHA	GSE	Combined	
First-Time	245,051	103,407	348,458	70.3%
Col.Share	66.9%	49.1%	60.4%	
Repeat	120,990	107,366	228,356	53.0%
Col.Share	33.1%	50.9%	39.6%	
All	366,041	210,773	576,814	63.5%
Col.Share	100.0%	100.0%	100.0%	

Source: PD&R Analysis of FHA F42 and GSE Data.

Table 6.6

DISTRIBUTION OF FHA LONG-TERM, FIXED-RATE, METROPOLITAN PURCHASE BUSINESS
(Excluding Loans Missing Ratios or with LTV LE 80 Percent)

All Purchase Borrowers

Payment-to-Income Ratio	Loan-to-Value Ratio			TOTAL
	80-90%	90-95%	GT 95%	
LE 28%	8%	20%	55%	82.8%
GT 28%	2%	5%	10%	17.2%
TOTAL	10.0%	25.1%	64.9%	100.0%

First-Time Purchase Borrowers

Payment-to-Income Ratio	Loan-to-Value Ratio			TOTAL
	80-90%	90-95%	GT 95%	
LE 28%	7%	20%	55%	81.5%
GT 28%	3%	5%	11%	18.5%
TOTAL	9.7%	24.8%	65.5%	100.0%

Repeat Purchase Borrowers

Payment-to-Income Ratio	Loan-to-Value Ratio			TOTAL
	80-90%	90-95%	GT 95%	
LE 28%	8%	21%	56%	85.4%
GT 28%	2%	4%	8%	14.6%
TOTAL	10.7%	25.6%	63.7%	100.0%

Source: PD&R Analysis of 1993 FHA F42 File.

Table 6.7

GSE DISTRIBUTION OF FHA-ELIGIBLE LONG-TERM, FIXED-RATE, METROPOLITAN PURCHASE BUSINES
(Excluding Loans Missing Ratios or with LTV LE 80 Percent)

All Purchase Borrowers

Payment-to-Income Ratio	Loan-to-Value Ratio			
	80-90%	90-95%	GT 95%	TOTAL
LE 28%	40%	46%	0%	86.46%
GT 28%	7%	7%	0%	13.54%
TOTAL	46.75%	53.11%	0.15%	100.00%

First-Time Purchase Borrowers

Payment-to-Income Ratio	Loan-to-Value Ratio			
	80-90%	90-95%	GT 95%	TOTAL
LE 28%	35%	50%	0%	84.43%
GT 28%	7%	8%	0%	15.57%
TOTAL	41.81%	57.98%	0.21%	100.00%

Repeat Purchase Borrowers

Payment-to-Income Ratio	Loan-to-Value Ratio			
	80-90%	90-95%	GT 95%	TOTAL
LE 28%	45%	43%	0%	88.41%
GT 28%	6%	5%	0%	11.59%
TOTAL	51.50%	48.42%	0.08%	100.00%

Source: PD&R Analysis of 1993 GSE Data.

likely to have high payment ratios as well, suggesting that FHA is more amenable to relaxing its payment ratio standard without acompensating risk reduction tradeoff, such as a lower LTV. This advantage takes on added significance when one considers the larger absolute number of homebuyers being served by FHA in the FHA-eligible market.

Non-Credit Factors Differentiating Loans with Like LTVs. While it is clear that there is a marked difference between PMI and FHA tolerance for high payment ratios, it would be difficult to determine by how much potential overlap might be further narrowed using Tables 6.6 and 6.7 alone. However, potential overlap can be further narrowed by using regression analysis to examine the remaining third of FHA loans to see whether after controlling for LTV and payment ratio they systematically differ from PMI loans with respect to other factors, including type of housing market and neighborhood location, relative income status, relative loan size status, and household demographics.[24] This was done by combining the remaining third of FHA loans and GSE loans having LTVs between 80.01 and 95 percent and using a linear probability model, regressing a 1/0 variable distinguishing FHA from GSE loans on the other factors listed in Table 6.8, inclusive of LTV and payment ratio, to discern whether any of the factors accounted for a differential likelihood of having an FHA loan.

If overlap between FHA and PMI for this remaining third of FHA business were indeed extensive, one would expect to find few, if any, factors to be systematically related to the likelihood of having an FHA loan. Instead, one would expect to find no significant relation between FHA and the other factors, indicating a process of random assignment to FHA or PMI. The regression results, reported in Table 6.9, do not support the hypothesis of random assignment, as was needed for there to be extensive overlap.

The first column of Table 6.9 reports the regression results for all the loans aggregated across all metropolitan housing markets, inclusive of high, medium, and low cost areas.[25] FHA

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[24]Personal credit history is probably the most important factor distinguishing higher risk FHA loans from PMI loans, but direct proxies for this factor are not available for analysis.

[25]It should be noted at the outset that the linear probability model is not the most precise tool for this analysis. While easy to employ, it is subject to several limitations, the principal one for large samples, such as ours, being that the model can yield probabilities falling outside the range of zero to 1, which is a theoretical impossibility. The practical solution is to reset the outlier probabilities to zero or 1, but a probit or logit model which is free of this problem would be preferable. For more on this, see Damodar N. Gujarati, Basic

loans made up 36 percent of the observations. The R^2 is 0.0927 but this is not surprising for a linear probability model.[26] The F-test is a far better indicator as to the whether some of the variables included in the regression are related to the likelihood of having an FHA loan and its value of 1825.51 is well in excess of 1.99, the critical value at the 0.01 significance level. In fact, all of the included variables except for location in an underserved area or female head of household are shown to have an effect which is significantly different from zero. And, the finding for the redundant inclusion of UNDRSRVD is not surprising given that it is solely a function of TRACTINC and TRACTMIN, both of which are included in the regression and have coefficients which are significantly different from zero.

The coefficient for AGE indicates that older homebuyers are less likely to have FHA insurance on loans that are alike with respect to the other factors included in the regression. The coefficient for RELLOAN indicates that homebuyers with otherwise similar loans are less likely to have FHA insurance the larger is the loan relative to the applicable FHA loan limit. TRACTINC indicates that over all housing markets there is a mildly positive relationship with the income of housing submarkets relative to that of the MSA. TRACTMIN reveals a strongerpositive relationship with the degree of minority concentration in an area. CENTCITY indicates that over all markets, homebuyers in central cities with otherwise similar loans are more likely to have FHA insurance. The negative coefficient for LTV indicates that otherwise similar loans in this grouping are less likely to have FHA insurance the higher is the LTV. This result is not so surprising once one compares the bimodal distribution of GSE loan LTVs with the unimodal distribution for FHA loans. Roughly 44 percent of the GSE loans have LTVs of 95 percent and another 47 percent had LTVs between 80 and 90 percent. Just under 45 percent of FHA borrowers in this grouping had LTVs between 90 and 94 percent while not quite 27 percent had LTVs of 95 percent.

PAYINC indicates that the likelihood of having an FHA loan rises with the payment-to-income ratio and RELINC indicates that

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Econometrics (2nd ed., New York: McGraw-Hill Publishing Company, 1988) pp. 468-71. A more precise analysis is planned, but given the large number of loans in our sample, the linear probability analysis will, nevertheless, be very instructive.

[26]The R^2 is of limited value as a measure of goodness of fit in dichotomous (1/0) response models because for any given value of an independent variable (X), there are only two dependent variable (Y) responses, one at either extreme. Fitting a smooth line to scatters of this kind is even less likely when the X variables are dichotomous as well. See Gujarati, p. 472.

Table 6.8

NON-CREDIT FACTORS THAT MAY ACCOUNT FOR
DIFFERENTIAL USE OF FHA AND PMI

Variable Name	Definition
FHA	1 if loan insured by FHA, 0 else
AGE	Borrower age
RELLOAN	Ratio of Borrower's Loan to Area's FHA Loan Limit
TRACTINC	Census tract's median family income as a percentage of the MSA median family income
TRACTMIN	Percentage of minority households in census tract
CENTCITY	1 if central city location, 0 else
UNDRSRVD	1 if located in underserved area, 0 else
LTV	Borrower's loan-to-value ratio (in percent)
PAYINC	Borrower's payment-to-income ratio
RELINC	Borrower's income as a percentage of the MSA median family income
FTBUYER	1 if first-time buyer, 0 else
BLACK	1 if African American, 0 else
HISPANIC	1 if Hispanic, 0 else
OTHRACE	1 if not Black, Hispanic, or Caucasian, 0 else
FEMALE	1 if female-headed household, 0 else
HIGHCOST	1 if FHA loan limit is at $151,725, 0 else
MEDCOST	1 if FHA loan limit is between $151,725 and $67,500, 0 else
LOWCOST	1 if FHA loan limit is under $67,500, 0 else

Table 6.9

REGRESSION ANALYSIS OF NON-CREDIT FACTORS WHICH MAY DIFFERENTIATE FHA LOANS FROM PMI LOANS WITH LIKE LTVs, 1993[a]

Variable Name	All Areas	High Cost Areas	Medium Cost Areas	Low Cost Areas
DF	285,931	65,011	214,966	5,954
Pct. FHA	36.09%	26.06%	38.84%	46.20%
R^2	0.0927	0.0871	0.0842	0.1383
F	1825.51	443.07	1410.90	68.06
INTERCPT	1.97298	1.67835	2.03059	1.52338
AGE	-0.00284	-0.00123	-0.00323	-0.00209[b]
RELLOAN	-0.21968	-0.19066	-0.25765	0.41374
TRACTINC	0.00011[b]	-0.00036	0.00020	0.00121
TRACTMIN	0.00178	0.00184	0.00179	0.00413
CENTCITY	0.06890	-0.01729	0.08724	0.10920
UNDRSRVD	0.00255[d]	0.00121[d]	0.00008[d]	-0.00808[d]
LTV	-0.01614	-0.01424	-0.01650	-0.01975
PAYINC	0.00172	0.00194	0.00169	0.87363
RELINC	-0.0000005	-0.0003365	-0.0000005	0.0002206[d]
FTBUYER	0.12771	0.12890	0.12506	0.12172
BLACK	0.14425	0.13574	0.14385	0.15795
HISPANIC	0.07046	0.06372	0.07496	-0.04953[d]
OTHRACE	-0.05983	-0.06349	-0.05520	-0.16791[b]
FEMALE	-0.00150[d]	0.00072[d]	-0.00516[c]	-0.00494[d]
HIGHCOST	-0.14990	--	--	--
LOWCOST	0.08465	--	--	--

[a]All regression coefficients are significant at the .0001 level unless otherwise noted.

[b]Significant at the .005 level.

[c]Significant at the .05 level.

[d]Not significant at the .15 level.

the likelihood of having an FHA loan declines the higher is the borrower's income in relation to the MSA median income.

Coefficients for FTBUYER, BLACK, and HISPANIC indicate that the likelihood of having an FHA loan is significantly greater for first-time homebuyers, African-Americans, and Hispanics. Other non-Caucasian borrowers (OTHRACE) appear less likely to have an FHA loan. And, female-headed households do not appear any more likely to have FHA loans.

Finally, the coefficients for HIGHCOST and LOWCOST indicate that borrowers in high-cost areas are actually significantly less likely than borrowers in medium-cost areas to have an FHA loan while borrowers in low-cost areas are more likely than their medium-cost area counterparts to have an FHA loan. These results are not surprising when one considers that FHA loan limits constrain high-cost area borrowers to below mid-market loans and permit low-cost area borrowers to have above mid-market loans. FHA borrowers in medium-cost areas are limited to mid-market loans of 95 percent of median sales price.

Regressions were estimated separately for high, medium, and low cost areas to determine if the relationship established between FHA and the other factors does in fact differ across housing markets where FHA's loan limit is more or less restrictive. The regression results are reported separately in Table 6.9.

One will note that FHA's share of the loans with LTVs of 95 percent or less rises from 26 percent in high-cost area to 46 percent in low-cost areas. The F-values for all three regressions are well in excess of the 2.07 critical value. While the relationship between FHA and most of the other factors remains roughly unchanged across markets, a couple of variations are in evidence. The coefficients for TRACTINC reveal that the differential likelihood of having FHA in higher income neighborhoods is relatively higher in low-cost areas but, in fact, reverses sign for high-cost areas, showing FHA to be less likely in higher income neighborhoods. However, the coefficient for RELINC in both high- and medium-cost areas indicates that the likelihood of having FHA insurance declines with the relative income of borrowers.

Taken together, the neighborhood and borrower income effects would suggest that borrowers with differentially less income are utilizing FHA to purchase homes in better neighborhoods than they could otherwise afford. In low-cost areas, the neighborhood and borrower income effects when combined with the large positive differential for relative loan size (RELLOAN) and payment-to-income ratio (PAYINC) suggest that borrowers at all income levels utilize FHA to purchase better housing than they would otherwise be able to buy. This differential experience across high-, medium, and low-cost areas is likely attributable to the differential constraining

impact of FHA loan limits in each of the three types of housing market. The constraining impact of FHA's high-cost, statutory loan limit is also the likely reason for the sign reversal indicating FHA to be less likely in high-cost central cities.

Finally, FHA differential likelihood of having FHA in neighborhoods with higher minority concentration is greater in low-cost areas while the differential likelihood for Hispanics disappears and becomes more intensely negative for other non-caucasian households (OTHRACE).

C.3 Conclusion

It was argued in subsection C.2 above that the potential for overlap between FHA and PMI is small. This is because market competition should drive lenders to guide as many borrowers as possible to lower-cost, privately-insured conventional loans or risk losing business to their competitors. Nothing prevents the conventional market from serving as many potential FHA borrowers with lower-cost PMI as is deemed prudent. Indeed, there is no possibility of overlap where borrowers obtain FHA loans with higher LTVs or higher payment-to-income ratios than are available in the conventional market. And, FHA and conventional borrowers who have similar LTV or payment ratios may still differ with respect to type of housing market and neighborhood location, relative income status, relative loan size status, household demographics, or personal credit history.

Subsection C.3 analyzed FHA and GSE long-term, fixed-rate, purchase loans originated in 1993 and revealed that two-thirds of the FHA loans either had LTVs in excess of the highest LTV on GSE loans, or else had LTVs that were low enough not to require PMI if financed conventionally. This limited potential overlap between FHA and privately-insured GSE loans to no more than one-third of FHA purchase loans. When this third was compared with GSE loans having similar LTVs (80 up to 95 percent), other factors in addition to LTV and payment-to-income ratio were found to be important in distinguishing FHA from privately-insured conventional loans. Hence, most of the potential overlap between FHA and PMI was ruled out by observed differences in LTV or non-credit factors before even considering differences in personal credit history.

VII. FHA'S ABILITY TO SURVIVE: COMPETITION FROM THE CONVENTIONAL AFFORDABLE LOAN MARKET

Over the past several years, there has been a great deal of attention given to efforts by conventional mortgage market institutions to expand their affordable lending programs. These initiatives appear to be opening the doors of homeownership to many who did not believe it was possible for them to own their own homes. For instance, recent market analysis by the Mortgage Guaranty Insurance Corporation (MGIC) showed that as many as one-third of those being served by its special affordable programs would have qualified under conventional standards, but just did not know that the opportunity existed. Such outreach efforts are expected to continue to grow throughout the foreseeable future as the private market seeks new ways to increase production and servicing volume and as it works to meet the increasing scrutiny being given to CRA performance.

These efforts by the private market to attract low downpayment loans from lower-income and minority borrowers by offering higher payment ratios and other flexibilities have raised questions concerning the continued viability of FHA's single-family insurance programs. These underwriting changes, as well as outreach efforts to underserved markets and technological innovations currently being made in the conventional market, are likely to cut into a part of the market in which FHA has been a dominant force. Some have even argued that this private market activity will marginalize FHA to the point where it will no longer be able to support a mutual program of insurance where lower-risk borrowers help subsidize higher-risk borrowers at no net cost to the government. These are valid concerns which must be addressed in the plan for a new FHA corporation.

Section Outline. This section examines the ability of FHA to remain a viable player in the single-family mortgage market should CRA-initiated conventional affordable lending create more competition for its loan products.[1] After this introduction, Subsection B describes recent market changes and program initiatives designed to make housing more affordable to lower income families. Subsection C summarizes HMDA data that suggests these affordability initiatives are working. Subsection D summarizes possible impacts of conventional affordable housing programs on FHA while subsection E and the appendix examine the important issue of credit risk.

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[1]Section VIII examines the related issue of whether FHA suffers from problems of adverse selection that could lead to its eventual insolvency.

Before going to these topics, a summary is provided for readers not interested in the more detailed discussion of recent affordability initiatives.

Summary and Main Findings

While the conventional market is making headway in meeting the needs of underserved borrowers, it is too early to predict the growth and future magnitude of recent affordability efforts, or to gauge the impacts on FHA market shares of such private market innovations as automated underwriting and monthly premiums. Evidence to date suggests that FHA continues to have an important role in promoting homeownership, even in the presence of increased affordability initiatives in the private sector.

FHA provides a much greater degree of flexibility in underwriting than do private affordable lending programs. This is because private initiatives often limit the number of underwriting criteria which can be relaxed and generally look for some type of compensating factors. They are generally looking for ways to increase loan originations without measurable increases in overall credit risk exposure. Only FHA allows for a combination of credit histories, cash balances, downpayments, and payment ratios which provide mortgage credit opportunities to families with past credit problems and broken income streams. Because of this, private market initiatives will grow as they attract new homeowners, but they will not significantly diminish the core business of FHA.

The **specific findings** of this section are:

- Conventional lenders, the GSEs, and private mortgage insurers are implementing numerous changes that are extending homeownership opportunities to lower-income and historically FHA-served households. These changes include more flexible underwriting, increased marketing and outreach efforts, pre-purchase counseling programs, and efforts to reduce the borrower's upfront closing costs (e.g., lower required downpayments, zero-point mortgages, monthly insurance premiums).

- An emerging consensus is apparent from reviewing the new underwriting procedures and programs being put in place by various mortgage market organizations: there are profitable opportunities to make "creditworthy" loans to lower-income borrowers and communities that have not previously been exploited. These efforts are being carefully designed to prevent significant increases in default costs over standard loan programs.

- HMDA data suggest these initiatives may be having an impact. Between 1991 and 1993, conventional loans to low-income and minority families grew at a much faster rate than loans to higher income and predominately white families. This rapid growth, however, was also due to historically low interest rates during this period, which made housing affordable for many families that were closed out of the housing market during the 1980s. In addition, many higher-income trade-up buyers have been sitting on the sidelines during the past few years, forcing home builders to cater more to the first-time buyer market.

- While the new affordable lending initiatives of the private market advertise underwriting criteria that look similar to those of FHA, they in-fact produce something less. They will allow for expansion of allowances across one or at most two dimensions only. FHA still provides much greater flexibility with regard to the totality of risk measures: cash reserves, credit history, payment-to-income ratios, employment history, loan-to-values, and neighborhood characteristics.

- The depth of mortgage insurance coverage now required by the GSEs on affordable loans makes FHA pricing more competitive than it had previously been, especially with adjustable rate mortgages.

- FHA is seeking to improve its program by re-examining its underwriting standards and making its products more "user friendly". FHA recently made several changes to its underwriting guidelines similar to those being made in the private sector. In addition, FHA made its Section 203(k) program for purchase-plus-rehabilitation loans more attractive to lenders and home buyers.

- The central issue of why private market initiatives cannot be expected to replace FHA is that of credit risk. FHA borrowers tend to be much more vulnerable to economic shocks, which means that what is profitable business during good times can quickly fall to a net loss position when regional or national unemployment rises. This is ultimately why it is extremely unlikely that private initiatives will supplant FHA: only the Federal government employing cross-subsidization across loan-to-value and/or other risk categories, can afford to fully accept and insure the catastrophic risk on loans to the type of persons FHA serves.

A. Increased Conventional Lending to Targeted Groups

Renewed public emphasis on CRA lending along with enforcement of HMDA disclosures and fair housing and lending

standards have, in recent years, increased interest in lending to the types of borrowers traditionally served by FHA.[2] In addition, the aftermath of the 1992-1994 refinance boom has left the mortgage industry looking for new avenues for lending in order to cushion the post-refinance drop-off of business.

Three factors now driving market competition for new business could impact on FHA. These are all tied to the revolution in underwriting taking place in the 1990s. They include a new understanding of underwriting risk, lower transactions costs of obtaining mortgage loans, and the application of new technologies.

New Underwriting Flexibility. Starting with GE Capital's 1989 Community Homebuyer experiment, much has now been learned about the creditworthiness of customers previously denied credit because they did not conform to traditional underwriting standards. The Homebuyer program allows borrowers to qualify for larger loans than with primary product lines, provided they complete a prescribed homebuyer education course.[3] The education covers how to purchase a home, obtaining and maintaining a mortgage, family budgeting, and home repairs. By the end of 1993, GE Capital had declared that these loans made on the basis of factors other than traditional credit verifications, sources of funds, and debt coverage ratios, could be just as viable as those underwritten with traditional guidelines.[4] Fannie Mae and Freddie Mac are now full partners in purchasing Community

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[2]A recent survey by the Consumer Bankers Association found that there are more flexible, affordable mortgage products being offered today by banks and thrifts than there were two years ago. The most significant changes since 1992 include lower down payments and more flexible terms regarding debt-to-income ratios and credit history, employment, and mortgage insurance requirements. For instance, more than 53 percent of the respondents reported occasions on which they waived private mortgage insurance requirements for some borrowers in 1994, compared with only 36 percent in 1992. See "LMI Mortgages Up in 1994, More Flexible, Affordable" in CRA/HMDA UPDATE, Volume V, Number 10, October 1994, pp. 19-21.

[3]The Homebuyer program relaxes the front-end and back-end payment-to-income ratios to 33 percent and 38 percent, respectively, compared with 28 percent and 36 percent in the standard program. In addition, borrowers can satisfy two percent of their five percent downpayment with a gift from relatives or a loan from city government or nonprofit programs.

[4]GE Capital announced this at the Mortgage Bankers Association of America's conference in Chicago during October 1993.

Homebuyer loans and other private insurers offer similar programs.

The result of the Community Homebuyer experiment has been that mortgage insurers and the GSEs have modified underwriting standards in several ways that treat low- and moderate-income households more fairly. The goal of these changes is not to loosen risk standards, but rather to identify creditworthiness by alternative means that more appropriately measure the circumstances of these households. They include, for example:

- Using a stable income standard (rather than a stable job standard) which particularly benefits low-skilled applicants who have successfully remained employed, even with frequent job changes;

- Using an applicant's history of rent and utility payments as a measure of creditworthiness, which benefits lower-income applicants that have not established a credit history;

- Allowing pooling of funds for qualification purposes, which benefits applicants from cultures with extended family members;

- Making exceptions to the "declining market" rule, which benefits applicants from inner city, underserved neighborhoods; and

- Allowing for greater flexibility among various underwriting criteria while providing a positive overall risk score.

The first factor driving market competition is therefore the knowledge that there is a vast untapped pool of potential homeowners who can be served prudently with appropriate changes in traditional underwriting standards.[5]

Lower Upfront Costs. The second factor making lending to newly targeted groups easier is a convergence of forces which is substantially lowering the cash required at loan closing. Lower income households and other groups targeted by affordability efforts list lack of cash for downpayment and closing costs as

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[5]While Fannie Mae has introduced changes of this sort in special community lending programs, Freddie Mac has taken the approach of testing in small demonstrations, with the intention of applying successful approaches to its regular program. In its Affordable Gold version of the Homebuyer's Program, Freddie Mac is attempting to allow for underwriting flexibilities that still permit enough standardization for securitization.

the primary reason why they cannot afford to purchase a home. Three developments are converging to lessen this burden.

- First, the **zero point mortgage** came of age in 1993. A survey of mortgage originators, performed in late 1993 by the Mortgage Bankers Association of America, showed that 96 percent were offering zero point mortgages.[6]

- The second development is **lower downpayments** on conventional loans. A standard Community Homebuyer type loan requires a 5 percent downpayment, but only 3 percent needs to come from the buyer. The success of these loans led, in early 1994, to the introduction of a purely 3 percent downpayment loan to be insured by the private mortgage insurers. Fannie Mae has now become a full partner in the program. Freddie Mac will allow borrowers to put down even less than 3 percent of their own cash so long as there is a full 5 percent in equity, that is, the borrower's cash in combination with gift or grant sources.
  The key to eliminating excess credit risk on low downpayment loans appears to be the self-screening caused by the prepurchase homebuyer education course requirement, and control over the dimensions on which underwriting will be relaxed. For example, while Homebuyer type loans allow for higher debt ratios, this qualifying advantage is only available because of the credit risk offset of the prepurchase education. The 3 percent downpayment loans have tolerable risk only so long as the lower downpayment is offset by other factors such as homeowner warranties, ample cash reserves, or strong credit ratings. Thus these loans are not fully comparable to FHA offerings. In addition, recent reports suggest that the PMIs do not anticipate doing much business with 97-percent LTV loans because of continued concerns about their risks. Ninety-five-percent-LTV loans, on the other hand, are expected to remain strong.[7]

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[6]Inside Mortgage Finance, October 29, 1993, p. 10.

[7]See "Low-Downpayment Loans, First-time Home Buyers Made '94 Good Year for MIs: Will Trend Continue?" in Inside Mortgage Finance, February 10, 1995, pages 6-7; and "Allstate Filing on PMI Offers Glimpse of How Industry Works" in National Mortgage News, February 6, 1995. The first article discusses the importance of low downpayment loans to PMI business during 1994 as the overall mortgage market declined, and PMI projections that these loans will continue strong in 1995. It also notes that PMIs have increasing doubts about the risks associated with 97-percent-LTV loans and their ability to price these risks. According to the second article, 49 percent of the new loans insured by the PMI Group (an Allstate subsidiary) in the third quarter of 1994 had an LTV of 95 percent. On the other hand,

- A third development making borrowing easier for target populations is **monthly insurance premiums**. Introduced in late 1993, the private mortgage insurers have dramatically reduced the up-front cost of mortgage finance by allowing for monthly rather than annual premium payments.[8] This makes the up-front burden of conventional loans closer to that of FHA which allows full financing of the initial insurance premium.

New Technology. In addition to reduced closing costs and downpayments, mortgage market competition is also fueling the development of new originations technology. This is the third critical factor that will make purchasing of affordable loans easier for the conventional market.[9] Both Fannie Mae and Freddie Mac are currently piloting computer software for loan approvals that could substantially free loan originators from being tied to the bricks-and-mortar of retail branches. With a laptop computer and modem, an originator can meet potential borrowers in their homes, at churches, schools, or in community centers, and often have a loan approved on the spot. This use of computer technology not only has the potential to bring lenders to the people and neighborhoods they serve, but is also expected to eventually cut the costs of loan origination by over $1,000.[10] Both Fannie Mae and Freddie Mac expect their systems to be fully operational in 1995. The private mortgage insurers have developed similar systems, and eventual coordination between them and the secondary mortgage market will yield substantial efficiencies.

All of the above factors -- underwriting flexibilities, reductions in borrowing costs, and emerging technologies -- are generating significant changes in the abilities of conventional

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less than 0.1 percent of the PMI Group's outstanding risk-in-force at the end of 1994 consisted of 97-percent-LTV loans.

[8]This only affects the cash required at loan closing because typical loan escrow accounts create monthly premium payments for borrowers even though insurers are paid by the lenders annually.

[9]Questions have been raised about the impact of automated underwriting and credit scoring systems on lower-income and minority borrowers with affordability problems. This is an area that HUD plans to monitor.

[10]Initially, the GSEs are promoting their automated loan application and underwriting systems as time saving devices which will lower personnel cost by about $300. If the systems grow and communicate with information systems that allow title verifications and appraisal data gathering, savings are expected to be much larger.

lenders to offer loan products to attract an increased clientele of affordable business. There are, however, questions about how much of this lending can be done in a prudent fashion. It is well documented that low-downpayment lending to low-income households involves more credit risk than other lending.[11] At this early date, PMIs and lenders report that defaults have not been a serious problem, though special affordable loans do have higher delinquency and default experience relative to traditional 95 percent LTV conventional loans. However, as will be argued below, credit risk is the major reason that affordability efforts of the private sector will not significantly cut into FHA's core business.

B. Impact of Affordability Efforts: Evidence from HMDA and GSE Data

When releasing the 1993 HMDA data, the Federal Financial Institutions Examination Council (FFIEC) noted that the affordable home loan programs being initiated by lenders may be having an impact. The number of conventional purchase loans going to families with less than median income increased by 27 percent between 1991 and 1992, compared with 10 percent growth for loans to higher income families. Between 1992 and 1993, the number of conventional home purchase loans showed the following percentage increases:[12]

Borrower Characteristics:	Percentage Increase, 1992 to 1993
Income Less Than 80% Area Median	38%
Income Greater Than 120% Area Median	16%
Black	36%
Hispanic	24%
White	17%

[11]The Regulatory Impact Analysis to HUD's recently proposed GSE regulations examines the credit risk issue in detail. It reviews both the methods (e.g., pre-purchase counseling and proactive servicing) that the mortgage industry has adopted to control credit risk and the early default performance of their affordable housing programs.

[12]The percentages exclude the effects of the additional mortgage bankers reporting to HMDA for the first time in 1993.

Loans to low-income and minority borrowers have grown faster than loans to other borrowers.[13] The non-GSE portion of the conventional conforming market, which consists mainly of banks and thrifts that hold loans in portfolio, is participating in this expanding low-income market. The percentage of their business going to very-low-income borrowers increased from 7.0 to 8.7 percent between 1992 and 1993.

Similar patterns are evident from GSE data on the share of their total business that went to low- and moderate-income families, that is, those with income less than the area median income:

	Fannie Mae	Freddie Mac
1992	28%	24%
1993	36%	29%
1994	46%	37%

These data suggest that recent affordable home loan program initiatives may be increasing the flow of funds to underserved borrowers. It must be remembered, however, that these years were a period of historically low interest rates. Given that many lower-income and minority renters were closed out of the housing market during the 1980s, the increases given above were only partially due to new affordable home loan programs. Low interest rates and stabilized prices on the two coasts were primary driving forces in the resurgence of first-time homebuyers in the housing and mortgage markets.[14]

C. Impact of Conventional Market Affordability Efforts on FHA

While FHA could experience some decline in market share as a result of conventional affordable housing initiatives, it is too early to predict any significant impact on FHA from these initiatives. Data from earlier sections of this paper along

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[13]However, a somewhat surprising contra fact is that loans to low-income and high-minority census tracts grew slower than loans to high-income and predominantly white census tracts. This pattern of family and census tract growth rate differentials by income then suggests an upward-mobility phenomenon where low-income minorities were gaining homeownership opportunities in predominantly white neighborhoods. This merits further study.

[14]Other factors were keeping higher-income families out of the housing market. The 1990-91 recession and economic problems in New England and on the West coast kept many potential trade-up buyers out of the market. Others did not have the equity to move up because they had cashed-out that equity to take advantage of the tax benefits of using it to finance other purchases.

with the limited flexibility provided in private affordable lending programs, suggest that FHA will continue to retain a core clientele. FHA still offers many benefits: mortgages to borrowers with lesser quality credit histories than the conventional market; up to full financing of up-front loan closing costs and insurance premiums; low downpayment requirements on home purchase loans; higher allowable loan-to-value ratios on loan refinances, which is especially important in areas with weak house-price appreciation; higher allowances for seller-paid closing costs; and greater protections against foreclosure, and **all of this in the same loan package.** Its 1-5 ARM program--maximum interest rate changes of 1-percent annually and 5 percent over the loan lifetime--became very popular in 1992 and has no significant conventional competition.[15]

The capacities of the private market to extend its affordable housing programs to borrowers who have traditionally relied on FHA is already being tested. MGIC recently performed analysis of its experience with underwriting flexibilities to simulate potential delinquency and claim patterns of affordable housing loans.[16] Using historical experience from its standard portfolio, MGIC showed how affordable loan programs that allow multidimensional deviations from standard underwriting guidelines can result in substantial risk. For example, 95 percent LTV loans with the higher payment ratios allowed in affordable programs can be expected to experience claim rates more than 50 percent higher than loans made using standard limits on payment ratios. If payment ratios are stretched and there are also adverse credit rating factors at loan origination, then the expected claim rate is close to three times that of standard loans with lower ratios and no adverse credit factors. These factors are why conventional mortgage originators are being cautioned to look for significant compensating factors before allowing for deviations from standard underwriting guidelines in multiple directions or in significant measures.

FHA's ability to provide competitive products in the affordable housing area is being enhanced by ongoing work to update its program regulations along the same lines as conventional lenders. It recently changed its underwriting

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[15]The standard conventional is a 2-6 ARM. These ARMs generally come with larger initial interest-rate discounts than do FHA ARMs, but borrowers prefer the safety of the smaller adjustment caps of the FHA loan and are attracted to it at favorable interest-rate spreads.

[16]See Layered Risk Underwriting Looking at the Big Picture, Milwaukee, WI: Mortgage Guaranty Insurance Corporation, December 1994 (publication #71-40493).

standards to eliminate "unnecessary barriers" for applicants whose income profiles or debt ratios do not fit the standard rules.[17] FHA is also seeking other ways to improve its products. For instance, it has reintroduced its purchase-and-renovation loan program (Section 203(K)) and has cut processing time lags by relying on its network of direct (delegated) endorsement lenders rather than using HUD field office personnel to perform all underwriting tasks. FHA has also begun to enter the electronic age, allowing automated underwriting for the first time, and accepting computer-generated, merged in-file credit reports.

The fact that FHA is not standing still will reduce the competitive effects of conventional affordability efforts. In addition, the GSEs have recently increased the depth of required mortgage insurance coverage, which in many cases makes FHA insurance less expensive for first-time homebuyers and others with low downpayments (see Table 8.4 in Section VIII). At the same time, cross subsidization requires that FHA premiums on lower LTV loans remains above those of private insurers. Thus private mortgage insurers will continue to have the opportunity to attract the "better" loans in FHA's traditional market.

Finally, it is too early to predict the market effects on FHA of automated underwriting and other technological advances that are being introduced into the conventional market by the GSEs and PMIs. The technological changes currently being planned have the potential for changing the way mortgages are processed, originated, and serviced for a significant group of borrowers. The extent to which these improvements will prove appropriate for the broad populace is yet unknown. This is an important area that needs further study.

C. Credit Risk

The ultimate reason why private market initiatives cannot be expected to replace FHA is that of credit risk. Measuring credit

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[17]FHA recently made the following changes to its underwriting. Lenders are encouraged to look for compensating factors that indicate creditworthiness to allow debt-to-income ratios to exceed the normal FHA guidelines. FHA standards on income that may be considered for qualifying purposes have been eased or clarified, including reducing the period an income source is required to continue from five to three years, and recognition of part-time income and income from bonuses and overtime. Child-care expenses are no longer included in calculating debt-to-income ratios on the grounds that cheaper alternatives can be found during times of economic strain. FHA will no longer consider down payments derived from community-based "savings clubs" as borrowed funds.

risk from affordable lending initiatives involves more than just projections of claim rates under static economic conditions. The primary risk comes from the vulnerability of a borrower class to economic shocks. FHA borrowers tend to be much more vulnerable, which means that what is profitable business during good times can quickly fall to a net loss position when regional or national unemployment rises.

For example, during the 1991-92 period, when the nation as a whole was in a mild recession, 90-day delinquencies on FHA-insured loans increased by 20 percent, from 1.17 to 1.40 percent of all loans outstanding. The same measure of troubled status among conventional loans increased only 6 percent, from 0.47 to 0.50 percentage points. The conventional troubled-loan rate peaked one quarter earlier than that of FHA and quickly returned to a lower level than existed at the beginning of 1991.[18] Only the Federal government can afford to fully accept catastrophic risk on loans to the type of persons FHA serves on any large scale. Without a Federal guarantee, the private market would not supply credit to these borrowers. Their business can be profitable during normal economic times, but the risk of losses during recessionary periods is very high.

FHA can allow profitable books of business (and products) to support those with higher risk of being unprofitable. In the private sector, on the other hand, each investment dollar is gauged by its expected marginal return. If expected returns are lower than the opportunity cost of funds, then the investment is not undertaken. That is, the insurer stops writing new insurance for that product. FHA is not bound by these restrictions on stockholder investment. It therefore has a much greater capacity for promoting homeownership among traditionally underserved borrower groups.

This point is most obvious in a comparison of FHA to GSE portfolios. Even among Community Homebuyer affordable loans, GSE purchases are concentrated among borrowers near or above area median income and in major metropolitan areas. Indeed, General Electric Mortgage Insurance Corporation (GEMICO) never placed any income caps on use of the Homebuyer program, and Fannie Mae liberally allows use of the program to households with incomes above area medians. Higher concentrations of homebuyers with low incomes and lower valued homes creates greater risk of loan defaults in the FHA insurance portfolio.

The following Appendix provides numerical illustrations of how private provision of FHA-comparable high-LTV products would require costs to borrowers that are higher than current FHA premiums.

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[18]Data are from the MBA National Delinquency Surveys.

Appendix to Section VII

THE ANALYTICS OF CREDIT RISK

A.1 The Idea of Risk Tranches

To understand the difference between conventional and FHA markets in regard to economic sensitivities of profits and losses, note that mortgage cash flows are often referred to in terms of *tranches* designated as "A," "B," and "C." The A tranche is the "top" or "senior" piece. It is most secure and generally can be sold to private investors without additional credit enhancements. Losses on this are only possible in the event of a truly catastrophic downturn. The B tranche is the "mezzanine" piece which does not normally experience any losses, but which can be expected to do so during regional downturns or moderate national recessions. Then there is the C tranche, or "junior" piece, which encompasses the last call on cash flows, and thus the first loss position. In the private market, the first risk (B and C tranches) of loss on these cash flow tranches is taken primarily by the private mortgage insurers. The GSEs and portfolio lenders secure residual risk (A level) pieces.

An illustrative breakout of a mortgage pool into risk tranches is shown in Figures 4 and 5 for conventional and FHA loans, respectively.[19] The "C" pieces are darkly shaded, the "B" pieces are more lightly shaded, and the "A" pieces are unshaded. The various levels, 1, 2, and 3, correspond to the vulnerability of each part of individual loans, with Level 1 being that portion that is expected to be lost on all mortgage claims.[20]

A.2 Risk Tranches in the Private Market

The idea of cash-flow or risk tranches is different for single-family mortgages than it is for commercial ones, where pool insurance is more common. Single-family insurance is loan specific. Figures 4 and 5 show how this works for a pool of 95 percent LTV conventional loans. If a PMI covers the top 30 percent of individual loan balances for such a pool, it is guaranteeing the C1, B1, and A1 pieces shown in Figure 4. The PMI maximum per loan exposure of 30 percent is not entirely a

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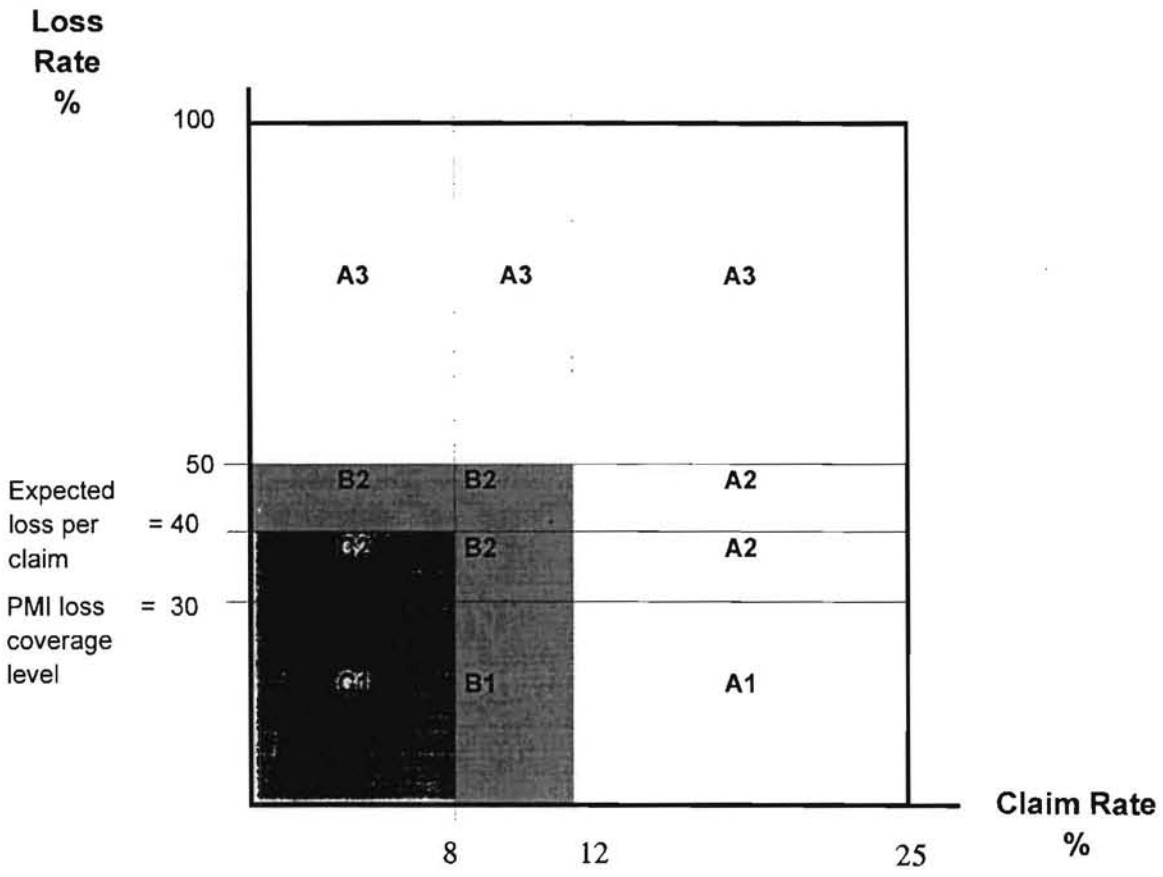
[19]These are pictured as a dissection of the underlying principal of the pool. The same concept holds for a dissection of cash flows imbedded in those pools.

[20]Throughout this Appendix, the issue of discounting future cash flows will be ignored for ease of exposition. While actual pricing must factor the varied timing of cash inflows and outflows, the basic concepts being highlighted here do not require that level of detail.

Figure 4

Mortgage Pool Loss Allocation and Cash Flow Tranching
95% LTV Single Family Loans
Private Conventional Market

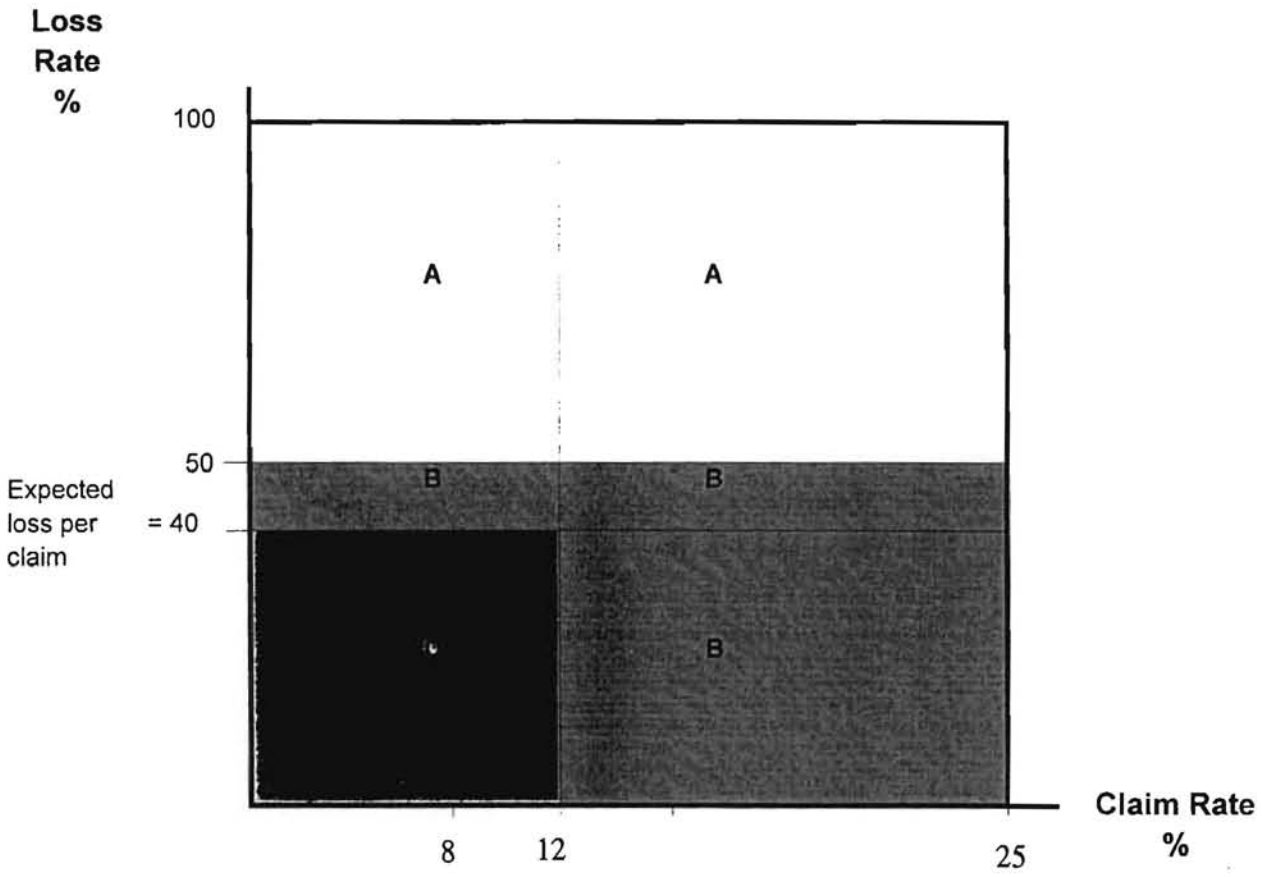


C tranche Expected loss to pool under normal economic conditions
B tranche Potential loss during recessions
A tranche: Secure portion of mortgage pool

Level 1 : Potential losses covered by private mortgage insurers
Level 2 : Potential losses covered by GSEs or portfolio lenders
Level 3 : Losses unforeseen at this level

Figure 5

Mortgage Pool Loss Allocation and Cash Flow Tranching
95% LTV Single Family Loans
FHA Market



C tranche: Expected loss to pool under normal economic conditions
B tranche Potential loss during recessions
A tranche: Secure portion of mortgage pool

FHA insures all three tranches against loss

first-loss position on the pool, because pool losses occur any time the loss on an individual loan exceeds 30 percent.[21]

Although its coverage includes the A1 piece, the PMI prices its insurance based on elements C1 and B1 only. Typically this means an expected ultimate foreclosure rate of under 8 percent of the insurance in force. However, the PMI company has the potential to cover a 12 percent foreclosure rate by extracting from its premiums that part which would otherwise provide a return on its required portfolio reserve.[22]

The company is then effectively pricing to insure the top 2.4-3.6 percent of the value of the pool.[23] The "price" of the upper 1.2 percent, if needed, is the reduction in the return on equity investment. Losses above the expected range make it more difficult for the company to raise new capital.[24]

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[21]Technically, PMIs are only allowed by law to insure the top 25% of a loan balance and must reinsure the remaining 5%. This does not affect the analytics shown here.

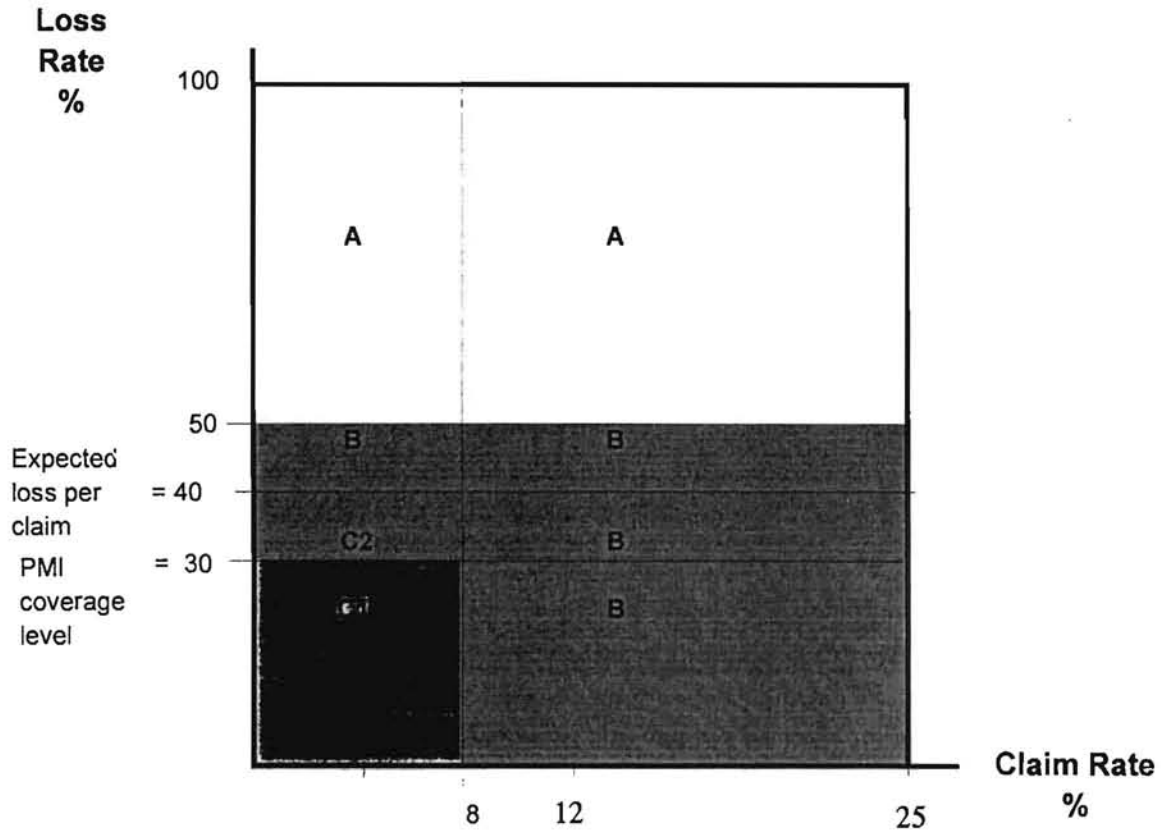
[22]The 8 percent foreclosure rate used here is illustrative. Historically, under "normal" economics, a PMI's claims will usually involve 6 to 8 percent of its insurance in force. It is difficult to be exact because neither PMIs nor GSEs regularly publish product-by-product foreclosure rates as they are considered proprietary information. Required reserve levels are set by State regulators at 4 percent of risk exposure (risk in force), which is defined as the dollar amount of insurance in force in the loan pool times the PMI insurance coverage percentage on each loan. The GSEs require that PMIs hold higher levels of reserves -- an extra 1 percent of risk in force. This does not change the legal risk exposure of PMIs on each loan, but it provides the GSE, which essentially backs up the PMI, with greater assurance that the PMI will not fall below the state mandated minimum should a larger number of loans go to claim.

[23]These percentages are computed by multiplying the two foreclosure rates by 0.3, which corresponds to the PMI coverage oneach loan.

[24]Private investors require higher expected returns in exchange for increased risk. The expected return is the dividend payout factored into the base premium pricing in order to attract the reserve equity. If claims are lower than 8%, investors receive increased returns, and if claims are higher than 8% they receive smaller returns. At some point above a 12% claim rate, core capital starts to be expended in order to meet insurance obligations. For simplicity, we assume capital deterioration begins immediately after claim rates rise above 12%.

Figure 6

Mortgage Pool Loss Allocation and Cash Flow Tranching
95% LTV Single Family Loans
Conventional Loans with Federal Government Reinsurance



C tranche: Expected loss to pool under normal economic conditions
B tranche Potential loss during recessions (Federal insurance)
A tranche: Secure portion of mortgage pool

Cell C1: Potential losses covered by private mortgage insurer
Cell C2: expected losses in normal economics covered by Federal reinsurance

If a catastrophe were defined to be a 25 percent ultimate claim rate, then the PMI catastrophic loss exposure would still be just 7.5 percent of the mortgage pool. Once expected losses push beyond 2.4 percent of the pool, the level covered by insurance premiums, stockholders' return on invested capital would be in jeopardy and the firm may begin to retrench from that market. If losses passed 3.6 percent of the pool amount (corresponding to an ultimate claim rate above 12 percent), there would be no return on the capital reserves for the pool and more importantly, the amount of capital held would decline. In this case, the firm would pull out of that market and stop writing new insurance. This effectively happened in the mineral extraction states during the mid 1980s.[25]

Figure 4 shows how the PMI does not cover the entire potential loss per foreclosure of 40-50 percent of the loan. The C2 and B2 sections of the pool are guaranteed either by the GSEs or portfolio lenders. All of the "A" sections could be sold without credit enhancement, though PMI loan-by-loan contracts put their guarantee on A1. GSE guarantee fees are also loan specific and give them responsibility for insuring sections A2 and A3 as well as B2.[26]

A.3 Risk Tranches in the FHA Market

As seen in Figure 5, FHA 95-percent-LTV loans will have a much wider range of ultimate foreclosure rates across economic

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[25]Conventional loan underwriting was significantly tightened in 1986 so that the chances of such an episode happening again are much less than they were at that time. However, private mortgage insurers did restrict high LTV loan insurance in California when prices dipped in the early 1990s.

[26]An increasing emphasis on loss mitigation techniques over the past few years is reducing the loss per default by providing alternatives to foreclosure (e.g., loan modifications and short or pre-foreclosure sales). This expands the default level supportable by a given insurance premium and capital reserves. Discussions with the PMIs suggests that, as of 1993, these tools were reducing foreclosure incidence by between 10 and 15% and overall loss severities on all claims by around 2 percentage points. FHA is also involved in loss mitigation activities, so the relative differences between default levels supportable by PMIs and those supported by FHA will not change as a result of increased emphasis on foreclosure alternatives. Thus we ignore this issue for the sake of this analysis.

environments: typically 12-25 percent.[27] FHA guarantees 100 percent of the loan balance -- that is, all cash flow tranches. Normal FHA loss rates per foreclosure are around 40 percent, but rise to 50 percent as claim rates rise, so FHA must price for an expected 3.6-12.5 percent loss on the pool. The range of expected losses on FHA loans clearly crosses the line into the "B" tranche and into the "A" tranche of conventional loan cash flows. Unlike PMIs, its catastrophic position is 100 percent of the pool balance at any point in time.

To tie the thoughts of the above paragraphs together, note that FHA claim rates are higher than conventional rates during "normal" or "base" economics: FHA may experience a 12 percent ultimate claim rate as a base, while conventional lenders experience only 8 percent. Furthermore, FHA claim rates rise above the base 12 percent rate much faster than PMI claims rise above the base 8 percent rate when economic conditions deteriorate.[28] This is because of the greater vulnerability of the FHA borrower population to job losses, and the higher concentration of FHA loans in lower house price quintiles where marketability is not as great as in the middle house price ranges. Therefore, the 12.5 percent maximum expected loss on an FHA pool (25 percent recession foreclosure rate with 50 percent loss rate) is more likely than is the 3.6 percent maximum expected loss (12 percent recession foreclosure rate with 30 percent loss exposure) on a conventional pool of the same LTV class.[29,30]

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[27]These claim rates are based on estimates performed by Price Waterhouse in its annual Actuarial Review of the Mutual Mortgage Insurance Fund. The 25% ultimate claim rate comes from 95% LTV loans in the 1981 book of business. That book experienced both the farm and industrial belt decline of 1981-83 and then the mineral extraction state contraction of 1986-88. While loans from particular origination years may be projected to have ultimate claim rates as low as 8%, the 12% figure used here is closer to the historical average.

[28]One could say that FHA claims exhibit more volatility or greater variance with respect to changes in economic conditions than do PMI claims. This issue was highlighted earlier by the size of changes in FHA and conventional market delinquency rates during the recession of 1991.

[29]"More likely" can mean reached sooner and continued for a longer period of time. Not only is the FHA population more vulnerable to economic downturns, but FHA will not pull out of markets once claim rates begin to rise. Its role as market stabilizer requires that it absorb larger short term losses for the sake of longer term market viability.

A.4 Private Premium and Capital Requirements

Were a PMI to attempt to compete for FHA level business, even without increasing its per loan coverage of 30 percent, it would require substantially higher premiums and loss reserves than would FHA.[31] Just to cover the 50 percent higher baseline default rate would require a comparable increase in premiums. Today, FHA charges 2.25 percent up front and 0.50 percent annual premium (charged monthly) on 95 percent LTV fixed rate loans. PMIs charge 0.78 percent per year on conventional loans of the same type.[32] Increasing the PMI premium by half would mean 1.17 percent per year.[33]

In addition to this, a private insurer could be required to increase capital reserves because of the greater potential claim rates during recessionary periods. If insurance regulators were

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[30]While the potential PMI loss exposure is 3.6 percent, the total private market loss potential is 6 percent (50% loss rate on 12% claims).

[31]To maintain its risk exposure at 30% per loan simply means that portfolio lenders and the GSEs would retain their roles with respect to these loans.

[32]This is for the monthly payment plan. This figure is from the January 1995 rate charts of the Mortgage Guaranty Insurance Corporation (MGIC). Other firms rates are comparable.

[33]It is not entirely accurate to multiply the current PMI premium by 1.5 if the expected, or "base", foreclosure rate increases by 50 percent. This is because the premium also includes administrative costs, which could remain fixed, as well as a risk charge, which also depends on factors other than the base foreclosure rate, including the sensitivity of the base foreclosure rate to changes in the economy, and changes in the average loss rates per case. As subsection A.5 will show, the risk component of the PMI premium is likely to increase if PMIs took on FHA business, but not necessarily by a factor of 1.5.

The above notwithstanding, the 1.17% minimum annual premium suggested in the text is also in line with the typical 2.0% increase in the effective interest rates charged by lenders on "B" and "C" grade loans which do not meet standard "A" grade underwriting criteria required by the PMIs and GSEs. The 2.0% interest rate increase would include coverage of all of the credit risk, which includes what would be the PMI portion as well as residual risk which is covered by GSEs or portfolio lenders. See David Stahl, "Going Against the Grain," Savings & Community Banker, February 1995, pp. 12-16.

to set capital requirements as they do with current conventional loans, the reserves would have to support the entire 25 percent recessionary claim potential, not just the additional 13 percent above the base level supported by premium income. With 30 percent insurance risk exposure per loan, this amounts to a capital requirement of 8.25 percent of the loan pool. Larger capital requirements, combined with the extra volatility of FHA claim rates in response to economic downturns, would substantially increase the required rate of return on stockholder equity, possibly driving premiums even higher than 1.17 percent per year.[34]

The conclusion is that the private market would find it difficult to price for FHA-level risk in an affordable manner. Even FHA does not price for the full risk, but rather covers it via cross subsidization from premiums of borrowers in lower LTV classes. Also FHA has no required return on capital to stockholders. Its risk-sharing across LTV classes, origination years, and other factors, along with its status as a public non-profit entity, allows FHA to use pricing formulas which keep homeownership affordable to a wide range of households without generating undue risk to the U.S. Treasury.

A.5 The Potential for Risk Sharing with PMIs

Some have suggested that PMIs could handle FHA's business and use FHA's current premium schedule if the Federal government acted as a reinsurer of these loans. This would entail some type of pool insurance whereby the Federal government reinsured the recessionary credit risk of the FHA pool, such as in Figure 6. Under such a scheme, the PMI might cover only the FHA base risk of an 12 percent claim rate, but with the PMI 30 percent loss exposure on each loan. The Federal government might then accept all residual losses on baseline claims plus the recessionary risk of higher claim rates and increased losses per claim. Under such an arrangement, the PMI could hold less capital and investors would require a smaller rate of return to reflect the elimination of downside risk.

Under such a scheme, there would have to be a substantial reduction of the PMI premium share -- from the 1.17 percent per year mentioned above as necessary for a PMI to cover a 12 percent claim rate -- before such a plan would be feasible. Otherwise

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[34]By multiplying the current PMI premium of 0.78% of the loan amount by a factor of 1.5 to obtain the 1.17% estimate, we have already assumed that the portion of the premium used to pay a return on capital would also be multiplied by the same factor. Premiums on FHA-type business might have to increase beyond the 1.17% level because of the higher rate of return required on the increased capital.

there would be substantial total premium increases paid by borrowers over current FHA levels.

Such premium reductions for the PMIs could require lower returns to capital, and lower claim costs. It is not clear that the PMIs could generate the required rates of return on equity at a premium lower than 1.17%. It is also doubtful that PMIs could substantially lower claim costs below those of FHA because FHA utilizes the same private market loan servicer network as they do. The one exceptional tool the PMIs currently use for lowering claim costs is deficiency collections from defaulted borrowers. FHA's clientele is much more resource constrained than its conventional market counterpart, which suggests that the same level of collections would not be possible from these borrowers.[35] Therefore, it is unlikely that a private insurer could lower premiums enough to be competitive with a government insurer for FHA-level credit risk.

Alternatively, a pool insurance scheme could have the PMI insuring the pool against a given dollar volume of credit losses, after which the Federal government would cover all risk. Because losses per claim rise with higher claim rates, the effective part of the claim covered by the PMI would shrink as the total claim rate rises.

Under either approach, the PMI's incentive to provide loss mitigation is exhausted once its loss level is reached. That is, if a deep recession begins and losses on the pool are expected to exceed the PMIs exposure limit, the PMI has little incentive to expend resources on loss mitigation techniques. Any return on them would accrue solely to the Federal reinsurer, and not to the PMI. During good times, when default rates are low, PMI loss mitigation activity does not effect the reinsurer, but only adds to the profitability of the PMI. So the reinsurer only benefits from PMI loss mitigation activities when expected losses are close to the PMI loss limit.

Therefore, risk sharing with PMIs on FHA loans may not be cost-saving to potential homeowners or lower risk to the Federal government. A PMI risk-sharing partner would have greater incentive to carefully guard the value of the entire loan pool if its exposure remains loan specific, as it is in the conventional market. Analysis shown above suggests that such an arrangement would be expensive for FHA loans because of the high cost of a

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[35]FHA policy on post-foreclosure deficiency judgments is to obtain these only for cases involving investors, repeat foreclosures, and property abandonments. The VA, which until 1991 had an aggressive deficiency collection effort, reported to HUD that its collection rate was much less than 5% of total post-foreclosure deficiencies.

private firm providing insurance coverage without cross-subsidization and because of the cost of attracting sufficient private equity capital.

However, risk sharing could be beneficial for demonstration projects where private investors are reluctant to take on the risk of untried and uncertain mortgage products, and where public policy goals suggests that it is in the public interest to see that, if these are successful, that they be adopted as quickly as possible by the private sector. Affordable lending based on untried underwriting criteria might be one such area in which risk-sharing would be a beneficial pump-priming function of FHA in conjunction with conventional market organizations.

VIII. FHA's Ability to Survive: Adverse Selection

The literature on credit rationing suggests that lenders keep mortgage interest rates "low" and select only loans they consider to be "better" risks rather than raising rates to levels that market demand will support.[1] They do this by setting threshold levels of credit quality which higher risk loans will not pass. Their intent is to avoid *adverse selection*. Adverse selection, which is described in more detail in subsection A below, is a process by which the amount of risk assumed by a lender on a typical loan is affected by the cost of the loan. Lenders who ration credit believe that the additional income they would receive from charging a higher interest rate on loans with lower underwriting thresholds would be smaller than the greater default and foreclosure losses they would incur due to adverse selection. Therefore, they conclude the lower interest rate combined with tighter underwriting thresholds will maximize their overall return.

The literature on insurance describes adverse selection as a problem that can ultimately cause a risk such as that of mortgage default to become *uninsurable*.[2] An uninsurable risk is one for which the market is unable to make reliable estimates of future losses. Adverse selection can make estimates of future losses unreliable due to the interaction of risk and pricing. Therefore, the market may be unable to price such a risk accurately, or else the actuarially fair premium is so high that the demand for the product dissipates. The concept of insurability is related to mortgage lending because lenders must deal with default risk in one of two ways: (1) they may self-insure the loan in which case the charge for default risk will be imbedded in the interest rate, or (2) they may require third-party mortgage insurance for which there is an explicit premium charge. All mortgage loans are either implicitly or explicitly insured.

Private market rationing of home mortgage credit because of the potential for adverse selection raises questions concerning FHA's ability to survive as an insurer when it exists primarily to assist borrowers who are underserved by the private market. One could reasonably ask whether FHA can simultaneously offer credit opportunities to those denied access in the private market due to rationing and successfully manage the overall risk of its portfolio to maintain insurability. That is, will adverse selection ultimately make FHA's default risk uninsurable, resulting in either

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[1] Stiglitz, Joseph E., and Andrew Weiss. 1981. "Credit Rationing in Markets with Imperfect Information," *American Economic Review*, Vol. 71, pp. 393-410.

[2] Borch, Karl. 1990. *The Economics of Insurance*. North-Holland.

FHA insolvency or a greatly reduced demand for FHA products? Will the private sector, under pressure to do more CRA lending to serve the underserved, be successful in capturing the lower risk portion of FHA's current market, leaving FHA with only the highest risk business? This section discusses these questions in more detail.

The remainder of this section is organized as follows. A summary of the main findings follows this introduction. Next, subsection A briefly defines the concept of adverse selection. The following subsection describes FHA's historical and current experiences with adverse selection with emphasis on the effects of FHA's high premiums and the refinance wave of 1992-1994. Subsection C discusses the decline in the relative incomes of typical FHA borrowers. A concluding subsection explains that FHA does not have a current problem with adverse selection, and outlines the steps that FHA should consider to avoid adverse selection in the future.

Main Findings

- FHA implemented a large premium increase in 1991 to build its reserves which were depleted by large losses in the 1980s. This offers a unique opportunity to observe the dynamic effects of adverse selection on FHA, and to assess its impact.

FHA operated for many years without losses in excess of revenues plus reserves. It charged a low premium by today's standards, and few would say that FHA had a problem with adverse selection prior to the 1980s. However, FHA gradually relaxed its underwriting criteria allowing it to write risky insurance business during the 1980s. A combination of factors produced massive insurance losses for FHA during that decade, threatening FHA's solvency if steps were not taken to return its insurance fund to actuarial soundness. The government's response included a significant premium increase in 1991 which effectively doubled the premium charge for new FHA borrowers. After the change, FHA's premiums were much higher than those charged by private insurers. E.g., the present value of FHA's premium for a 30-year loan with an LTV ratio between 90 and 95 percent exceeded the corresponding PMI premium by more than 2 percentage points of the loan balance (assuming prepayment after a typical holding period). The difference was more than 3 percentage points for loans with LTV ratios under 90 percent.[3] A major premium increase could have caused a further shift toward higher risk loans on FHA's books since 1991. If so, this would have been evidence of adverse selection and possible future uninsurability.

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[3] PMIs did not insure loans with LTVs over 95 percent until 1993 when special low downpayment programs were undertaken with the GSEs on a very limited basis.

- Some would argue that there is indeed evidence of a shift toward higher risk in FHA's business since the premium was raised well above PMI premiums:

  - There has been an upward shift in the LTV distribution of FHA's new business since 1991. Higher LTV loans are generally riskier loans.

  - The refinance wave of 1992-1994 resulted in an upward shift in the LTV distribution of old business remaining on FHA's books, as many lower LTV loans refinanced conventionally.

  - Since the late 1980s, incomes of typical FHA borrowers have fallen relative to the U.S. median family income. Lower income borrowers generally take out smaller loans, and smaller loans have higher risk.

- Despite the trends, none of the evidence makes a convincing case that FHA has been adversely selected since, and because of, the premium increase.

- What is often taken as evidence of post-1991 adverse selection may be shifts brought about by exogenous factors, like the drop in interest rates that occurred in 1992-1993.

For FHA's new business, an upward shift in LTV distribution can be explained, at least in part, by the low interest rates which brought more first time homebuyers into the market. PMIs have also experienced a shift toward higher LTV loans during this period, which supports the hypothesis that interest rates were a major contributing factor.

- The shift in LTV among older loans which did not refinance is indeed adverse selection -- but it was not the result of the FHA premium increase.

Of those who prepay when rates decline, the lowest risks are those who qualify for cheaper conventional financing. These lower risk loans will refinance with conventional loans, while the rest will refinance with new FHA loans. FHA can take steps to mitigate this adverse selection by offering a *streamline refinance* option to keep some of the lower credit risks who would otherwise refinance conventionally on the books. "Streamline" means the loan can be refinanced with minimal underwriting and Zlower transaction costs provided no cash is taken out. FHA does have a streamline refinance option, but this cannot totally prevent adverse selection from occurring when interest rates decline.

- The downward shift of the incomes of FHA borrowers relative to the incomes of all families can also be explained by the interest rate decline. Lower mortgage interest rates reduce payment burdens for any given loan size, thereby reducing the income needed to qualify for a mortgage.

- Because the big premium increase in 1991 cannot be associated with any significant change in FHA's risk profile, it suggests that there is currently not much overlap between FHA and PMI business.

Specifically, FHA has maintained over 40 percent of its post-1991 purchase loan business with LTV's below 95 percent despite the high premiums from 1991 to 1994. These "lower risk" FHA borrowers have been willing to pay the high premiums because there are probably other risk factors which disqualify them for PMI-insured conventional loans with corresponding LTVs.

- The low level of overlap and the apparent insensitivity of FHA's risk profile to sizeable price increases indicates that FHA mortgage insurance is not likely to become uninsurable due to adverse selection.

Unless the amount of overlap with the conventional market increases in the future, FHA will not be adversely selected to the point of serving only the highest risk borrowers. Such increases in overlap with the conventional market are not imminent, but possible due to advances in information, underwriting, and risk management technologies that can lower the costs of conventional financing. Also financial institution regulators are applying pressure on conventional lenders to increase CRA lending. Add the fact that FHA's current premium on loans with LTVs under 90 percent is high because it generates both cross-subsidies for higher LTV loans and capital for FHA's MMI fund. Section VII of this paper discusses in more detail the possibility of the conventional market making inroads into FHA's market.

- This section concludes that FHA has taken steps and should continue to take steps to keep its costs as low as possible -- not to compete for market share, but to benefit FHA's borrowers and promote homeownership.

A significant step that FHA has already taken is the premium reduction implemented in 1994. This closed some of the pricing difference between FHA and PMIs. The premium reduction made FHA "competitive" with PMIs for loans with LTVs over 90 percent; however, FHA's premium remains high at about 2.6 percentage points (present value) above typical PMI charges for loans with LTVs under 90 percent. Note, however, to be competitive, FHA premiums need not equal PMI premiums. FHA can be competitive at higher premiums

due to differences between FHA and PMI coverage.[4] Furthermore, the GSEs have recently raised risk coverage (from 25 to 30 percent for high LTV loans) and capital requirements (20-to-1 capital-to-risk ratio vs. 25-to-1) for PMIs with which they do business. Both GSE requirements may eventually put upward pressure on PMI premiums, possibly closing the gap even further in the future.

- The issue of high FHA premiums is more appropriately a question of fairness to borrowers who have little choice but to use FHA if they want to buy a home. Out of fairness, FHA should not charge these borrowers more than necessary to protect taxpayers, who are the ultimate backers of the FHA guaranty.

- This implies a future research agenda for FHA to (1) keep its premium at the lowest level that is actuarially fair, and (2) improve the efficiency of FHA's delivery system to keep down costs.

Once FHA meets its statutory capital target of 2 percent of insurance in force, it should review the current premium structure for actuarial fairness. Furthermore, FHA should continue its efforts to keep business costs low by improving its efficiency through greater product innovation and use of non-traditional partners.

A. Understanding Adverse Selection

Adverse selection is a process of consumer choice which occurs when it is prohibitively expensive for an insurer to rate and price every risk correctly. That is, risks are often priced on the average for a group, despite the fact that risk variations exist within members of that group. Adverse selection causes the risk profile of the insured group to differ from assumptions the insurer used to price the risk.

For example, the group of borrowers who meet the underwriting criteria of a lender may all be charged the same interest rate for a mortgage loan; yet, those borrowers in the group who come from regions with depressed economies and soft housing markets may have greater risk of default than those who come from regions with stronger economies and housing markets. If the lender finds the cost of differential pricing by geographic region prohibitive, it may base its pricing on the average risk for an expected group of

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[4] FHA insures higher risk loans in all LTV categories due to underwriting criteria that are easier for borrowers to meet. FHA also offers 100 percent insurance compared to a maximum of 30 percent for PMIs. Both differences put upward pressure on FHA's premium. An offsetting difference is FHA's government guaranty, which reduces FHA's cost of doing business.

borrowers. Some lower risk borrowers from the stronger economic region may believe the cost of the loan (including implicit or explicit default insurance) based on the average expected risk is too high, and they may choose to get their loan elsewhere. As a result, the insurer or lender is left with a different group of borrowers than anticipated -- a group whose average risk is higher than predicted.

The insurer or lender may not be able to correct this problem by subsequently raising prices for all members of the group, because the higher cost may drive away even more lower risk borrowers, further raising the average risk of the group. This process is what is called adverse selection, and, if severe, it could eventually cause the insurer or lender to become bankrupt.

B. Historical FHA Experience with Adverse Selection

There are potentially two different ways that adverse selection could be affecting FHA's business in the 1990s. The first is among new FHA borrowers who may be reacting to the high premiums FHA adopted in 1991. According to some, these premiums have caused adverse selection in FHA's new books of business -- that is, the risk profile of FHA's new business got worse than expected due to the premium changes. The second way adverse selection could be affecting FHA is among existing borrowers who took out FHA loans in previous years. That is, the large refinancing wave of 1992-1994 appears to have resulted in lower risk loans from FHA's older books of business leaving FHA to refinance conventionally, raising the average risk of FHA's remaining insurance in force.

B.1. FHA Premiums

Prior to 1984, FHA's mortgage insurance premium was relatively low. From its inception in 1934 through 1983, FHA charged its borrowers a mortgage insurance premium equal to 0.5 percent annually on the outstanding loan balance. By today's standards, this would be very competitive. In 1983 FHA switched to a roughly equivalent[5] one-time premium charge of 3.8 percent paid up-front and financable. The latter meant that the up-front premium could be borrowed at the same lending terms as the mortgage loan, which kept the monthly cost to the borrower about the same as before. However, the one-time premium was refundable, meaning that borrowers who prepaid their loans without a mortgage insurance

[5] On average, it produced roughly the same revenue for FHA.

claim were eligible for refunds of the unearned portion of the premium.[6]

Even though FHA charged all borrowers meeting its underwriting criteria the same premium regardless of the amount of risk they posed, adverse selection was not a problem during most of FHA's history. This is probably because PMI was not a viable alternative until the mid-1970s and because the cost of an FHA mortgage was not significantly higher than that of a conventional mortgage for borrowers who qualified.

However, as FHA entered the decade of the 1980s, it began to insure loans with higher risk than previously allowed. On several occasions during the 1970s and early 1980s, FHA reduced its minimum downpayment requirements. Since FHA allowed typical borrower-paid closing costs to be financed, mortgages on minimum downpayment FHA loans could exceed 100 percent of the actual property value.[7] FHA did not charge any additional premium for these very low equity loans, and they became relatively common during the 1980s as FHA began to do increasing amounts of business on minimum downpayment loans. FHA began to experience adverse selection both in terms of higher LTVs and geographically as FHA's business became overly concentrated in the oil patch during the mid-1980s when PMIs pulled out of these markets.

The decade of the 1980s ultimately proved to be a difficult one for FHA. A combination of factors, including the above mentioned insurance of higher risk loans, lax underwriting, inadequate fiscal controls to prevent fraud and abuse, and adverse economic conditions, all contributed to high insurance claim losses for FHA by the end of the decade. The major economic factors that contributed to these losses were the 1981-1982 national recession, the regional recession in the energy-producing states in the mid-1980s, and the sudden, sustained drop in house price appreciation after 1981. FHA's capital reserve, built up over the previous 45 years, had fallen from over 5 percent of insurance in force in 1980 to less than 1 percent by 1989.

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[6] The refund schedule for the one-time premium was devised to earn the premium faster in the early years of the loan, which in effect made the premium more expensive for borrowers who prepaid their mortgages after only a few years.

[7] Real LTVs over 100 percent of property value occurred primarily in high closing cost states. That is, LTVs over 100 percent required financed closing costs to exceed 4.2 percent of value for homes valued over $50,000, and 3.1 percent for homes valued under $50,000. Financed closing costs are under 3 percent on most FHA loans, although they do get as high as 6 percent in high cost states.

The 1990 Premium Increase. News about FHA's financial crisis came on the heels of the savings and loan debacle; hence, legislation enacted in 1990 to return FHA to financial health may have overreacted. Specifically, the 1990 National Affordable Housing Act (NAHA) mandated a major increase in FHA's premium. The law introduced differential premiums by LTV category for the first time at FHA, which was an established pricing policy of the PMIs. However, the 1990 law also set the new premiums above actuarially fair levels in order to generate profits for the financially troubled insurance fund.[8] The NAHA also placed more restrictive limits on the size of an FHA mortgage relative to property value.[9] The higher premium revenue, plus lower insurance claim losses due to the new mortgage limits were expected to enable FHA to meet newly enacted capital targets of 1.25 percent of insurance in force for 1992 and 2 percent for the year 2000 and beyond. The NAHA changes were implemented by FHA in 1991. The 1992 capital target was missed, in part because of the weak economy in the early 1990s, but current indications are that the 2000 target will be exceeded by a wide margin.[10]

The argument that the 1990 NAHA legislation was an overreaction deals with the size of the FHA premium increase in general, and with its failure to be effectively risk-based by loan-to-value risk category. Specifically, the statute kept the financeable one-time up-front charge of 3.8 percent, but it added a "risk based" annual charge of 0.5 percent of the mortgage balance which would be assessed to the borrower for a longer period of years for loans with higher loan-to-value ratios.[11] Since most FHA

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[8] "Actuarially fair" means a premium which compensates the insurer for expected losses, salaries and expenses, and a risk charge. The risk charge compensates the insurer for exposing its capital reserves to losses beyond those expected. For insurance that is backed by a government guaranty (i.e., FHA), the risk charge is the cost of borrowing from the U.S. Treasury for unexpected losses. The 1990 NAHA legislation clearly exceeded this definition by setting the premium high enough to generate profits which would be used to increase FHA's capital reserves.

[9] A 97.75 percent limit was placed on the LTV, which meant that some borrowers could no longer fully finance their closing costs, and all borrowers would start with at least 2.25 percent equity in their homes. For homes valued below $50,000, the limit was 98.75 percent, and 1.25 percent initial equity.

[10] Price Waterhouse, An Actuarial Review for Fiscal Year 1993 of FHA's Mutual Mortgage Insurance Fund, May 1994.

[11] The statute called for the up-front premium to be reduced to 3 percent in fiscal year 1993, and to 2.25 percent in fiscal 1995. The scheduled reductions in up-front premium were to be

loans prepay before maturity, the risk-based differentials in the statute were in effect very minor for typical mortgage holding periods of 7 to 10 years. Furthermore, the first year costs to FHA borrowers were identical for all LTV categories. The increase in first year costs was large -- they more than doubled by adding the 0.5 percent annual charge in 1991.

FHA and PMI Premiums Compared. The result of these changes is that FHA became much more expensive than conventional financing with private mortgage insurance in 1991, particularly for lower-risk loans with downpayments of 10 percent or more. Table 8.1 illustrates the present values of the FHA NAHA premiums[12] and typical PMI premiums[13] as percentages of the original mortgage amount. The premium estimates are broken out by LTV category for two mortgage holding periods: 30 years and 8 years. Note that the table does not show an over 95 percent premium for PMI because the "affordable" programs which PMIs are now doing with the GSEs at 95 to 97 percent LTV ratios were not available then.

The "diff" column in Table 8.1 shows the estimated additional cost of FHA relative to PMI insurance as a present value. The

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offset by increases in the number of years charged for the annual risk-based portion of the premium.

[12] FHA premiums illustrated in the table are those in effect during fiscal years 1993-94, just prior to FHA's 1994 administrative premium reduction. A comparison of FHA and PMI premiums after the 1994 FHA premium reduction is shown in Table 29 in this section. The FY 1993-94 FHA charges consisted of 3.0 percent collected up-front on all loans, plus an annual assessment of 0.50 percent (50 basis points) for 7 years if the LTV was under 90 percent, for 12 years if the LTV was 90 to 95 percent, and for 30 years if the LTV was over 95 percent. The NAHA premiums for FY 1991-92 had similar present values, and the NAHA premiums for FY 1995 and beyond were not implemented due to the 1994 administrative reduction.

[13] Borrowers generally have several options in structuring their PMI premiums. This table illustrates the monthly payment option which was introduced by PMIs in 1993 to keep upfront charges low. This option has quickly become very popular. The PMI premiums in the table represent actual quoted rates by a major PMI company and consist of the following charges: 0.39 percent annually of the outstanding loan balance for loans with LTV under 90 percent, and 0.67 percent for loans with LTV between 90 and 95. The renewal of the insurance is required until the outstanding loan balance falls below 75 or 72 percent, respectively, of the original property value for the two LTV categories. Under the assumptions given, this occurs after 11 or 15 years, respectively.

numbers also show that FHA premiums are risk-based by LTV category[14] if the loan is held the full 30 years, but not if the loan is repaid after 8 years. PMI premiums, in comparison, are risk-based by LTV for either holding period. The particularly large difference between FHA and PMI premiums for the under 90 percent LTV category has arguably caused a post-1991 adverse selection of FHA by higher risk, low-downpayment loans.

As previously noted, adverse selection in mortgage lending is not limited to any single risk factor like loan-to-value ratio. A lender or insurer can be adversely selected on the basis of other risk factors such as geographic locations, borrower debt-to-income ratios, etc. This paper focuses primarily on loan-to-value ratio because (1) LTV has been shown to be the most significant default risk factor, and (2) data are readily available on the LTV distribution of FHA loans.

Table 8.1

Present Values of FHA NAHA Premiums Compared with PMI Premiums by Selected Mortgage Holding Periods

LTV	30-Year Holding Pd.				8-Year Holding Pd.		
	FHA (1)	PMI (2)	Diff (1-2)		FHA (3)	PMI (4)	Diff (3-4)
Under 90	5.62[15]	3.22	2.40		5.62	2.24	3.38
90 to 95	6.69	5.51	1.18		5.88	3.85	2.03
Over 95	7.87	n/a	n/a		5.88	n/a	n/a

Source: PD&R Estimates

FHA's LTV Shift. Table 8.2 shows the LTV distribution of FHA's new business insured by year beginning in 1989 through 1994. Pre-1991 LTVs have been recomputed to reflect the 1991 change in the FHA definition of LTV to facilitate comparisons of LTV distributions before and after the change. The LTV categories correspond to FHA's premium categories established in

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[14] That is, they have present value price differentials by LTV category over some assumed holding period, despite the fact that the first-year premium charges are identical.

[15] Amounts in table are present values expressed as a percent of the original mortgage amount. The mortgage interest rate is assumed to be 8.75%, and the discount rate to be 8.0%.

the 1990 legislation. The data show all MMI Fund loans endorsed by FHA during the calendar year indicated, excluding refinance cases without appraisals.

Table 8.2 clearly shows a steady drop in the percentage of loans insured in the low-risk, under 90 percent LTV category since 1991 -- from 20.6 percent in 1991 down to 16.2 percent in 1994. With the exception of a one-year aberration in 1992, it also shows a steady increase in the percentage of loans in the high-risk over 95 percent LTV category during the same time period -- 56.0 percent to 60.9 percent. Some would claim this to be evidence of adverse selection occurring in FHA's new business.[16]

Table 8.2

LTV Distribution of New FHA MMI Fund Business[17]
(Excludes Refinances Without Appraisals)

Year	- - - - - - LTV Category - - - - - -		
	Under 90%	90 to 95%	Over 95%
1989	21.9%	19.8%	58.4%
1990	20.8	20.1	59.2
1991	20.6	23.4	56.0
1992	19.7	27.4	52.9
1993	17.2	24.4	58.4
1994	16.2	22.8	60.9

Source: HUD F-17 Database

Interest Rate Effects. It is important to note, however, that the LTV shift that has occurred may not be evidence of adverse selection at all. Endogenous factors, like recent low interest rates, may explain some or all of the shift. For example, the lower rates reduce borrowers' payment burdens on any given loan

[16] Note that adverse selection may simultaneously be occurring with regard to other risk factors. Further research would be needed to determine if that were the case.

[17] FHA's definition of LTV changed in February, 1991 in response to the NAHA legislation. Before the change, FHA's estimate of value for the LTV calculation included allowable closing costs. After the change, value excluded these costs. Table 8-2 recomputes LTVs for loans executed prior to the change to be consistent with the new definition.

size, which probably brought more first-time buyers with less than 5 percent to put down into the home purchase market. At the same time, lower rates reduce FHA's income qualifying advantage relative to PMIs, and as a result, fewer borrowers with downpayments of 5 percent or more would have needed FHA. This could have changed the FHA LTV distribution.

PMIs have also experienced a shift toward higher LTV loans recently. Part of the PMI trend toward higher LTVs may be due to "affordable" lending initiatives undertaken with the GSEs, but such initiatives are a very small portion of PMI business. Instead, the most of the PMI shift in LTVs can be attributed to lower interest rates, reduced payment burdens, and more first-time buyers served by the PMIs.[18]

In fact, the interest rate decline may help explain the aberration previously noted in the 1992 percentage decline in high LTV loans FHA insured. FHA insurance data are reported by date of FHA endorsement -- a date which often falls 2 to 4 months after the loan settlement. Given this lag in the data, it may be that the high NAHA premiums implemented by FHA in 1991 had a negative effect on the income qualifications of low downpayment borrowers in 1992, causing the percentage drop in the over 95 category. The interest rate decline would eventually restore the lost income qualifications but would not show up in FHA's endorsement figures until 1993.

Evidence of the Overlap Between FHA and PMIs? Another interesting, although somewhat speculative, interpretation of FHA's recent volume trends is the lack of overlap of FHA and PMI business. Specifically, except for a small falloff in 1992, FHA's purchase loan volume did not decline between 1991 and 1994. In fact it increased. This was shown in Figure 1 back in Section II. The increase in purchase volume at a time when the first year cost of FHA's premium doubled could be partly due to higher total demand at the lower interest rates. But then one asks why would a buyer who had 5 percent or more as a downpayment choose FHA after the premium increase? Shouldn't FHA have seen nearly all its business shift to the over 95 percent LTV category, which did not meet conventional market requirements?

The fact is that FHA didn't lose all the under 95 percent LTV business. Over 40 percent of FHA's purchase loans since 1991 have been to borrowers who put 5 percent or more down.[19] FHA's ability to maintain a significant share of this under 95 percent LTV business suggests that many of FHA's borrowers have other high risk characteristics other than the size of their downpayments. These

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[18] *Inside Mortgage Finance*, Issue 95:5.

[19] Data from HUD systems (F-42).

borrowers have nowhere else to go for financing. This suggests little or no overlap with PMIs.

Because borrowers were willing to pay FHA's high NAHA premiums, they generated profits for the insurance fund and allowed the NAHA changes to accomplish the objective of restoring the financial health of FHA. Now that the actuarial studies suggest that the fund will easily meet its capital targets for the year 2000, it may be time to return FHA to actuarial fair premiums not so much to make FHA competitive with PMIs, but to be fair to borrowers who have no choice but to use FHA.

B.2. Refinances

Adverse selection of mortgage insurers (both FHA and private insurers) also occurs when interest rates fall and borrowers refinance their loans either to lower their monthly payments or to shorten the term to maturity of their debt. When this happens, some borrowers will find that they no longer require mortgage insurance because their home equity has grown, or their personal credit worthiness has improved due to higher income, fewer personal debts, etc. These are the lower risks covered by the insurer's existing book of business. Other borrowers whose home equity or credit worthiness have not grown or improved may require a new mortgage insurance commitment to refinance. These are the higher risks among the insurer's existing business.

During a low interest rate environment, more of the lower risks will refinance out of the insured group, which will raise the average risk of the remaining group. The insurer loses premium revenues from the loans which refinance out, but will not experience a proportionate reduction in insurance claims because of the higher average risk of those remaining. The insurer cannot use pricing incentives to keep the low risks in the group either because they represent borrowers who can obtain financing without paying for insurance.

FHA-insured borrowers have additional choices. If their loan and credit qualities have improved over time, they may leave FHA to refinance conventionally without any insurance, as noted above, or they may also leave FHA to refinance conventionally with lower cost private mortgage insurance. Either way, the loss of these borrowers increases the average risk of the remaining group insured by FHA.

FHA borrowers also have the option of *streamline refinancing* -- a vehicle for minimizing the cost of refinancing for FHA borrowers who seek to reduce their monthly payments or shorten their loan maturity rather than to take out additional cash. FHA does not reexamine the credit of streamline refinance applicants, and in many cases does not even require a new appraisal -- the latter when no closing costs other than the mortgage insurance

premium are included in the new loan (i.e., the borrower pays the closing costs in cash or the lender pays the costs in return for charging a premium interest rate).

Streamline processing allows FHA's borrowers whose creditworthiness or home equity have declined a chance to reduce their payment burdens during low rate environments. Accordingly, FHA's streamline refinance borrowers often represent higher than average risks. However, during the 1992-1994 refinance wave, large interest rate declines made streamline refinancing attractive to many of FHA's average risk borrowers who merely sought to minimize the time and cost of underwriting a new loan. In either case, the risk remains on FHA's books, but it is a lower risk than before the refinance due to the reduction in the borrower's payment burden.

FHA can affect the amount of adverse selection it experiences from refinances through pricing policy-- that is, by adjusting the premium it charges on streamline refinances. When interest rate declines occur such as in 1992-1994, FHA borrowers whose home equity has risen or whose personal financial circumstances have improved will have a choice of refinancing conventionally, with or without PMI insurance, or refinancing with FHA using the streamline process. Those who qualify for conventional refinancing without mortgage insurance are not likely to refinance with FHA even under a streamline policy because an uninsured loan will be cheaper. However, FHA can price its streamline refinance premium to keep more of the borrowers who qualify for conventional refinancing, but who must purchase PMI to do so. Since these also represent better risks, FHA would benefit from keeping its streamline refinance premium relatively low to keep more of this business from exiting.

FHA did reduce the streamline refinance premium in 1992 for a subset of its borrowers. That is, any pre-1991 borrower was exempted from the high NAHA premiums if he or she streamline refinanced, but 1991 and later FHA borrowers were charged the NAHA premiums if they subsequently streamline refinanced.[20] Many FHA loans originated in 1991-1992 did refinance during 1992-1994. It is possible that FHA could have reduced adverse selection of its post-1991 books of business if it had reduced its current streamline refinance premium, but this is a speculative conclusion. It is suggested, however, that FHA should review this policy further once the experience of the 1992-1994 refinance wave is studied.

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[20] Although post-1991 FHA loans are now charged the high NAHA premium to streamline refinance, they are given the benefit of being charged the annual risk-based portion of the premium as if they were in the lowest risk category. For some of these loans, this policy does represent a premium reduction by shortening the term of the annual premium.

The evidence of adverse selection of FHA's old business due to refinancing comes from observed shifts in the loan-to-value ratio distribution of FHA's insurance in force. The data in Table 8.3 show distributions of the interest rate and the original LTV of FHA's insurance in force at two points in time -- the first at the end of fiscal year 1991 (9/30/91), and the second at the end of fiscal year 1993 (9/30/93).[21] This period spans much of the refinance wave experienced in 1992 through early 1994. The data are limited to FHA's fixed rate MMI fund program only, but this is the bulk of FHAs single family business. The interest rate distribution is based on all loans, but the LTV distribution is based on a subset which excludes cases with no recorded LTV -- that is, streamline refinances without appraisals or older cases with missing data.

Table 8.3 shows that the refinance wave reduced FHA's insurance in force from 6.4 million loans at the end of fiscal year 1991 to 5.7 million loans by the end of fiscal 1993. This decline is the result of the termination of about 2.0 million old loans (mostly due to refinances) over the two year period, and only 1.3 million new loans insured (refinances and purchases). The top section of the table shows the decline in interest rates of the insurance in force, as expected, with loans bearing interest rates of 10 percent or higher declining from 41 percent to 26 percent over the two year period. The bottom part shows the shift in LTV distribution toward high LTV loans after the refinance wave. Specifically, the percentage of loans with original LTV's in the 90 percent and lower category declined from 33.5 percent to 29.7 percent, and the percentage of loans in the 95 percent and over category increased from 35.6 percent to 41.0 percent.

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[21] There are two offsetting biases in the data shown in Table 8.3. First, original LTV ratios of pre-1991 originations are biased downward a little because they were calculated by FHA's old definition of LTV, which included closing costs in the value. Information needed to recompute old LTVs was not available for loans originated prior to 1989; hence all LTVs in the table are shown as originally recorded by FHA. Secondly, an offsetting bias exists in the 1991 LTV distribution in terms of depicting the actual risk of the loans on FHA's books at the time. There were a significant number of pre-1980 originations on FHA's books in 1991, for which the properties securing the loans had appreciated in value. Contemporaneous (1991) LTVs, if possible to construct, would have been much lower than the original LTVs because of this appreciation. For the first time since origination, interest rates fell sufficiently in 1992-1993 to make refinancing of pre-1980 loans feasible. Many of these older, well-seasoned, low-risk loans did just that and left FHA during this time.

Table 8.3

Change in Interest Rate and Original LTV Distributions of FHA Fixed Rate 203(b) Insurance in Force from 9/30/91 to 9/30/93

A. Interest Rates	Insurance in Force 9/30/91 (6.4 million loans)	Insurance in Force 9/30/93 (5.7 million loans)
Up to 7.75%	15.6%	22.0%
8.0 to 8.75%	16.7	27.2
9.0 to 9.75%	26.6	24.4
10.0% and over	41.1	26.4
All Rates	100.0	100.0

B. Loan-to-Value Ratios[22]	Insurance in Force 9/30/91 (6.4 million loans)	Insurance in Force 9/30/93 (5.7 million loans)
90% and lower	33.5%	29.7%
90 to 95%	30.9	29.3
95% and higher	35.6	41.0
All LTVs	100.0	100.0

Source: PD&R Analysis of HUD A-43 database

C. The Decline in FHA Borrower Incomes

FHA typically serves families whose incomes are lower than those served by the conventional market, but higher than the typical family income of the general population. It is reasonable to expect the income of homebuyers, including FHA homebuyers, to be higher than the median income of the general population, because the latter includes renter households.

A recent trend toward relatively lower incomes among FHA borrowers could be cited as additional evidence of adverse selection of FHA. Lower income borrowers take out smaller loans,

[22] Excludes refinance cases without appraisals, and cases with missing LTV data fields. Percentages based on subset of IIF with identifiable LTVs.

and Price Waterhouse's actuarial reviews of FHA's MMI Fund show that small loans have higher claim rates. However, as will be explained below, interest rate fluctuations and FHA's maximum loan limits may be the primary causes of this trend, and not adverse selection.

Figure 7 compares the median incomes of FHA borrowers over the past 15 years with the median incomes of all U.S. families. A trend worthy of note is that the FHA median peaked relative to the population median in 1982, and has declined steadily since then until actually falling behind the U.S. median in 1993. (1994 data are not yet available).This and the subsequent steady decline in FHA borrower incomes leading to the "crossover" in 1993, is probably the result of two factors.

The first is the decline in interest rates and increased affordability of homes which allows more relatively lower income borrowers to qualify for an FHA loan. The relationship of borrower incomes and interest rates is fairly obvious from Figure 7, which includes an interest rate series consisting of the average annual FHA 30-year fixed mortgage rate. From Figure 7 it is clear that when interest rates peaked in 1981 and 1982, the median income of FHA borrowers was greatest relative to the median income of all families. The high rates increased debt burdens for a given loan amount and caused borrowers of modest means to defer home purchases, leaving a higher concentration of relatively higher income buyers. When rates declined and bottomed in 1993, the FHA median income declined relative to the median for all families and by 1993 went below the median for all families.

The second factor often cited is the failure to index FHA's loan limits to inflation.[23] This second factor is probably of far less importance than the interest rate in explaining the trend in FHA borrower incomes and it requires further explanation which follows.

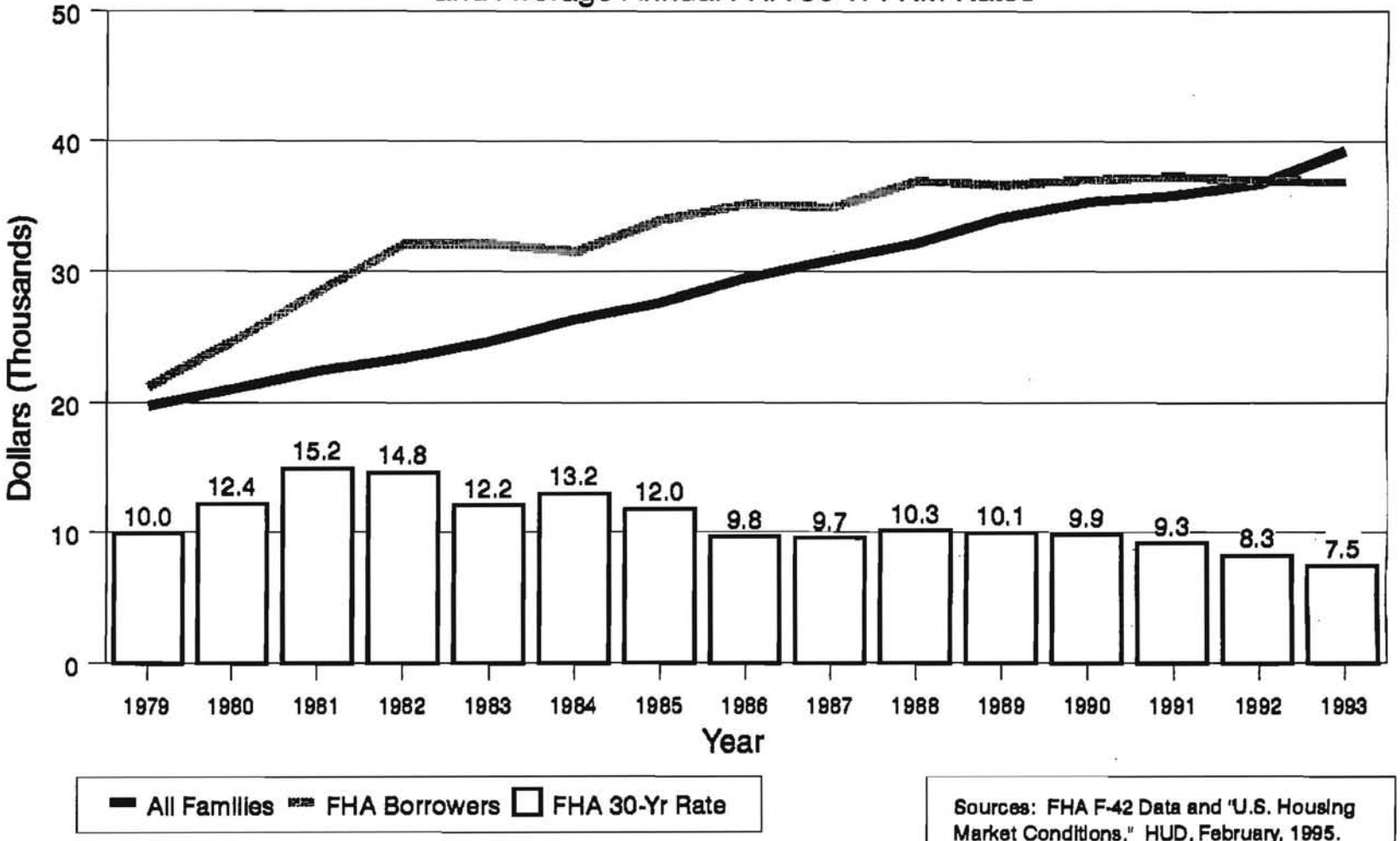
In 1980, the FHA loan limit was established at $67,500, although in high cost areas, FHA could raise the limit to 95 percent of the area median home sales price, up to a maximum of

[23] A third and probably minor factor in the relative decline in FHA borrower incomes is the decline in volume of originations from California due to the state's weak economy in the early 1990s.

Figure 7

Median Family Incomes

and Average Annual FHA 30-Yr FRM Rates



Sources: FHA F-42 Data and "U.S. Housing Market Conditions," HUD, February, 1995.

$90,000. At the same time, the GSE conforming loan limit was set at $93,750 and indexed for inflation in the future. For the period beginning in 1980 through 1994, FHA's base loan limit remained at $67,500, and the high cost maximum was raised on several occasions to $151,725, an increase of 69 percent over 14 years. The conforming loan limit, on the other hand, had grown to $203,150 in 1994, an increase of 117 percent.

Because FHA loan limits have not kept pace with inflation in home prices since 1980, there has been a compression in the market that FHA serves. That is, in some markets, relatively fewer homes in 1993 could be purchased with FHA financing than in 1980 -- these were homes with relatively lower values. Generally, buyers of lower valued homes will have lower incomes, and this coupled with the decline in interest rates is the most likely cause of the relative decline in income of the typical FHA borrower. It would be difficult to make a case for this trend being evidence of adverse selection.

D. Protection from Adverse Selection in the Future

Even if adverse selection has not been a problem for FHA in the current environment, the future for FHA's risk profile due to adverse selection is not immediately clear given technical advances and changes that have been occurring in the conventional market. The conventional market is making advances in information, underwriting, and risk management technologies which will enable it to price risks more accurately. It is reasonable to ask whether a combination of factors may eventually enable the conventional market to profitably serve some of FHA's lower risk borrowers. If so, the result could be adverse selection and an increasing risk profile for FHA in the future.

The factors that some cite as evidence that the conventional market will soon be able to serve FHA's lower risk market include increased pressure from financial institution regulators for more lending to underserved borrowers and areas, the introduction of private mortgage insurance for loans with less than 5 percent down payments, the increased efficiency of the primary and secondary conventional markets, and FHA's policy of cross-subsidizing, or "overcharging" its lower risk borrowers and using some of this revenue to keep costs down for higher risk borrowers.

The abovementioned factors notwithstanding, it would be difficult for the conventional market to penetrate profitably into the traditional FHA or "public" market -- even the "lower risk" portion of this market. A more focussed discussion of the feasibility of "privatization" or conventional market takeover of FHA's lower risk business is presented in Section IX of this paper. The remainder of this section will not repeat those arguments, but will focus on steps FHA has taken and can take in the future to deal with the possibility of increased competition with the private market and adverse selection.

D.1. Steps Already Taken

The major step that FHA has taken is an administrative reduction in the premium implemented in mid-1994, which reduced the up-front charge from 3.0 percent to 2.25 percent and left the number of years for the annual premium unchanged.[24] Table 8.4 illustrates.

Table 8.4

Revised FHA-PMI Comparison After 1994 FHA Premium Reduction

LTV	30-Year Holding Pd.				8-Year Holding Pd.		
	FHA (1)	PMI (2)	Diff (1-2)		FHA (3)	PMI (4)	Diff (3-4)
Under 90	4.87	3.22	1.65		4.87	2.24	2.63
90 to 95	5.94	5.51	0.43		5.13	3.85	1.28
Over 95	7.12	7.81[25]	-0.69		5.13	5.18	-0.05

Source: PD&R Estimates

The reduction applied to 30-year loans and it effectively lowered the present value of the FHA premium by 0.75 percent (75 basis points) across the board. The 1994 premium reduction makes FHA more competitive with PMI insurance in the 90 to 95 percent LTV category -- the PMI advantage, expressed as present value percentage of the mortgage, drops from about 2 percent to about 1.25 percent. However, FHA remains over 2.5 percent higher than PMIs in the low-risk under 90 LTV category.

Noteworthy from table 8-4 is the fact that current FHA and PMI premiums are roughly comparable for loans above 95 percent LTV. This is indicative of the FHA cross subsidy by LTV, which remains despite the NAHA introduction of "risk-based" premiums. The

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[24] FHA also reduced its premium on 15-year loans in 1992, because the 1990 NAHA legislation inadvertently did not distinguish between 30-year and lower-risk 15-year loans.

[25] The illustrated PMI premium for loans with LTVs between 95 and 97 percent is 0.9 percent annually, and the renewals are assumed to be charged until the loan falls below 68 percent of original value, which occurs after 17 years. Only a small number of these loans have been made.

availability of PMI loans with LTVs over 95 percent is still limited, so it may be too soon to tell if PMIs can operate a high LTV program profitably at this premium level.

GSEs have recently increased the amount of PMI risk coverage they require for low downpayment loan purchases from 25 percent of the loan balance to 30 percent. In comparison, FHA insures 100 percent of the loan. The GSEs along with some state regulators are requiring PMIs to maintain additional capital reserves as an added cushion. A minimum risk-to-capital ratio of 25:1 is required by state insurance laws. The cushion, in the form of a 20:1 risk-to-capital ratio, will give the companies protection from exceeding the 25:1 ceiling in the event of any adverse development. However, these higher risk and capital requirements imposed simultaneously may put upward pressure on PMI premiums that could further narrow the price differential between FHA and PMI in the future.

One other offsetting change is noteworthy with regard to FHA premiums. In early 1994, FHA effectively raised the present value of the premium by accelerating the rate at which the one-time up-front portion of the premium is to be earned.[26] Borrowers who hold their mortgages for 30 years are entirely unaffected by this change. Those who hold their mortgages for 12 years will forego what would have been a small refund of unearned premium amounting to 0.09 percent (9 basis points) in present value terms. However, those who hold their FHA mortgages for shorter periods could see higher increases -- e.g., 0.32 percent (32 basis points) for a 7 year holding period.

Finally, a change in FHA's loan limits has removed any argument that market compression of FHA will contribute to future adverse selection based on declining relative incomes of FHA borrowers. Specifically, the market compression caused by a failure in the past to index FHA's base loan limit and the high cost ceiling has been dealt with legislatively. The HUD Fiscal Year 1995 Appropriations Act set the base and high cost ceiling limits at 38 and 75 percent, respectively, of the GSE's conforming loan limit. By indexing these limits to the conforming loan limit, which is itself indexed to home price inflation, no market areas will experience further erosion of borrower access to FHA.

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[26] This action was known as the adoption of the "7-year refund schedule" because it eliminated refunds of unearned premiums for holding periods longer than 7 years. The intent of the 7-year refund schedule was to simplify the administrative process of issuing premium refunds, as well as to satisfy a previous independent audit finding that FHA was not earning its premium fast enough.

D.2. Steps to be Considered

Greater innovation is an important strategy for FHA to consider in dealing with the long-term issue of adverse selection. Innovation in product pricing is one example. Where all mortgage insurers may have previously found it prohibitively expensive to price some differential risks accurately -- such as pool insurance for non-standardized loans -- advances in computer and information technology are expected to make such pricing increasingly cost effective.

The immediate pricing question that should be on FHA's research agenda is the consideration of actuarially fair premiums by LTV category. Technically, actuarially fair premiums by LTV suggest the complete elimination of cross-subsidies of high LTV loans by low LTV loans, although cross subsidies would still occur for other risk factors such as properties in economically strong regions vs. economically declining ones. A possible compromise to implementing strict actuarial fairness by LTV is to make premiums partially risk-based while keeping some cross-subsidy of high LTV loans by low LTV loans. Under either alternative, the current high FHA premium for under 90 percent LTV loans could be reduced, making it easier for FHA to keep a full LTV range of business in its portfolio.

Another way that FHA can prevent future adverse selection is through initiatives that will improve FHAs operating efficiency. This could reduce FHA's costs of doing business including its administrative expense and average loss severity. Such cost savings could translate into future premium reductions for borrowers. Some items to consider are improvements in risk-management, product development, product delivery, and use of non-traditional partners in various capacities.

Conventional penetration into FHA's lower risk market is only possible if FHA lags far behind the conventional market in efficiency. The purpose in increasing FHA's efficiency is not to increase or maintain its market share, but to benefit borrowers and encourage homeownership.

IX. FHA'S CONTINUING ROLE AND WHAT'S LOST WITH PRIVATIZATION

The preceding sections of this paper have presented descriptive profiles of the FHA and conventional mortgage markets and borrowers for 1993 and addressed the specific issues of FHA's overlap with the conventional market, the potential for its obsolescence, and its susceptibility to adverse selection. This section draws from the earlier sections to bring into focus FHA's unique role in the mortgage market and to clarify exactly what would be lost to the nation were FHA to be further limited or privatized.

Subsection A briefly examines the major forms of Federal government support for the system of mortgage finance and the unique part FHA plays in that support. Subsection B examines the arguments for limiting access to FHA and finds that they depend crucially on the existence of broad overlap between FHA and private mortgage insurance. Subsection C synthesizes the findings from previous sections to summarize the unique contributions of FHA and why there is little overlap with private mortgage insurers. Subsection D explains why FHA can fill its unique role when private insurers cannot. Finally, Subsection E explains why FHA cannot be privatized without the loss or substantial delay of homeownership for most of the families currently served by FHA as well as higher costs for those now served by private insurers.

A. Government's Role In Expanding Homeownership

Since the advent of the Great Depression, government has been involved in fine tuning the balance between public and private support for the system of mortgage finance in the U.S. Today, government guaranties or support are in evidence at every important link between sources of capital and mortgage lending: Commercial bank and thrift mortgage lenders are linked with loanable funds through Federal deposit insurance. Other mortgage lenders, such as mortgage companies, are linked to capital markets with either Ginnie Mae's Federally guarantied securities or Fannie Mae and Freddie Mac's (GSE) agency status. FHA insurance, however, is the ***only*** generally accessible government guaranty linking mortgage borrowers with the lower-cost credit of mortgage lenders, who would otherwise bear the default losses beyond the limited amount covered by private mortgage insurers (PMIs).[1]

Prior to the government's involvement in the 1930s, financial markets were highly volatile with financial panics every 10 to 20

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[1]Other government-guarantied mortgage programs like those of the Department of Veterans' Affairs or the Farmers Home Administration are limited to veterans or households meeting specific income and geographic location criteria.

years and frequent depressions.[2] Mortgage loans were difficult to obtain, and homebuyers had to provide their own mortgage default insurance for lenders in the form of substantial down payments in the neighborhood of 50 percent. In addition, homebuyers had to bear most of the interest rate risk with short-term, high-interest balloon mortgages. Even with the limited development of private mortgage insurance, primarily in New York State, homebuyers were unable to reduce down payments below 33 percent and this insurance proved worthless when difficult economic times came.[3] The purely private system of mortgage finance, where lenders and investors bore the full weight of default losses and faced relatively variable economic conditions, was quite inhospitable to homeownership. Prior to 1930, the recorded homeownership rate was never higher than 48 percent.

The government's involvement inclusive of FHA brought a great deal more stability to mortgage markets and extended homeownership to a much broader segment of the population than was or would have been true in its absence. By 1960, the system of thrifts, commercial banks, FHA-insured lending, and Fannie Mae had helped to raise the homeownership rate from its post-Depression 44 percent to 62 percent.

B. Repeated Calls To Limit FHA

The private mortgage insurance industry was reborn in the late 1950s and has grown so that it, together with other conventional market institutions, now serves an annual volume of homeowners that is approximately equal to that served by FHA. However, as the PMI industry has grown in size and strength, so have efforts to legislatively bar access to FHA. Over the last 20 years, there have been no less than 5 major efforts to reassess FHA's role (and in some cases other government support) in the mortgage finance system, with a focus on the extent to which it could shift its business to private insurers.[4] Each effort was motivated with

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[2]See Figures 30-2 and 34-1 in Richard G. Lipsey and Peter O. Steiner, Economics (Fourth Edition, New York: Harper & Row, Publishers, 1975, pp. 586-587 and 662).

[3]See Chester Rapkin and others, The Private Insurance of Home Mortgages: A Study of Mortgage Guaranty Insurance Corporation (Philadelphia: University of Pennsylvania, December 1967, pp. 23-27).

[4]See Future Role of FHA (PD&R, 1977), The Report of the President's Commission on Housing (1982), President's Private Sector Survey on Cost Control: Report on Financial Asset Management (a.k.a. Grace Commission Report, Spring-Fall 1983), An Assessment of FHA's Section 203(b) Program: A Comparison with Private Mortgage Insurance (PD&R, 1986), and Privatization:

claims that FHA was serving borrowers that PMIs and other conventional-market providers could serve as well or better--that is, there was substantial overlap between PMIs and FHA. However, none of these efforts ever established the extent, if any, to which there was overlap; and, each concluded that there was a continuing role for FHA so long as it complemented rather than competed with PMIs.

Some are again calling for severe income eligibility limits on FHA, for replacing its full insurance coverage with partial or limited insurance, for removal of its full faith and credit backing of the United States' government, or for its privatization, which can be read as elimination. These calls are advanced with claims that FHA is an anachronism, incapable of keeping up with the technological changes in mortgage finance and efficiencies of private market delivery systems.

Some of these claims are indeed strange because FHA utilizes the same private lender and servicer delivery system that PMIs and GSEs utilize. FHA and/or GNMA have in many cases led the way in demonstrating the viability of new innovations. Early on FHA demonstrated the value of the long-term, fixed-rate, self-amortizing mortgage. Indeed, FHA demonstrated the viability of mortgage insurance itself. More recently, GNMA pioneered the use of mortgage backed securities, which were quickly adopted by the conventional market and FHA pioneered lower-down-payments, higher-payment-to-income ratios, graduated payment mortgages, the 1-5 adjustable rate mortgage, and Home Equity Conversion Mortgages (reverse mortgages) for the elderly. In addition, FHA continues to provide the only publically-available data upon which government, industry, and academe rely for analysis and understanding of mortgage credit markets inclusive of prepayment and default.

Proponents of FHA privatization further claim that the system of private insurers together with the GSEs is now fully capable of assuming FHA's role and delivering better service on at least the same scale. For the most part these claims have been blindly accepted and repeated as fact. But, these claims assume and, in fact, critically depend on the existence of near universal overlap between PMI- and FHA-insured products and borrowers. Analysis presented in Sections VI and VII above reveals that this is not the case; that there is, in fact, very little overlap between PMI and FHA products or borrowers.

C. FHA's Role And Why There Is Little Overlap With PMIs

To a large extent, FHA does not compete with conventional lenders. Instead, it serves a higher risk clientele than is served

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Toward More Effective Government (Report of the President's Commission on Privatization, 1988).

by conventional lenders; FHA's delinquency rates and rates of loans in foreclosure are typically 2 to 3 times higher than those of conventional borrowers.

The potential for overlap between FHA and the conventional market is small because market competition drives lenders to guide as many borrowers as possible to lower-cost, privately-insured conventional loans or risk losing business to their competitors. Indeed, there is no possibility of overlap where borrowers obtain FHA loans with higher LTVs or higher payment-to-income ratios than are available in the conventional market. As noted throughout this paper, FHA's home purchase business focuses on less-than-five-percent down payment loans while, as Section VII reported, conventional lenders and private mortgage insurers have only recently started insuring these loans. And, as was shown in Section VI, FHA and conventional borrowers who have similar LTV or payment ratios still differ with respect to type of housing market and neighborhood location, relative income status, relative loan size status, household demographics, or personal credit history. The preceding Sections of this paper revealed that FHA serves a much higher fraction of families who are first-time buyers, have lower incomes and/or minority status, or live in lower-income, minority, center-city, or underserved areas.

There is nothing preventing the conventional market from serving as many potential FHA borrowers with lower-cost, private mortgage insurance as is deemed prudent. FHA's borrowers differ from PMI borrowers because FHA's insurance products and underwriting are designed to accommodate higher risk borrowers where PMI products and underwriting are not. The range of service provided by FHA extends well beyond that available from private insurers: To begin with, FHA insures lenders against loss up to 100 percent, rather than the PMI's 30 percent, of the unpaid principal balance. This deeper coverage gives lenders the level of comfort they need to make loans to homebuyers in higher risk neighborhoods.

In addition, because FHA requires marginally lower down payments than private insurers and permits financing of closing costs up to a maximum loan-to-value (LTV) of 97.75 percent,[5] FHA homebuyers can (depending on price and closing costs) purchase a specific home with 17 to 40 percent less cash savings than is required with PMI. Thus, FHA provides a substantial qualifying advantage to low-wealth homebuyers who without FHA would face the

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[5]The required down payment and maximum LTV on loans of $50,000 or less are actually less onerous at 3 and 98.75 percent, respectively. The minimum FHA down payment for homes valued at more than $135,000 actually exceeds 5 percent, but up-front cash requirements remain below those for PMI because closing costs are financeable.

alternative of settling for a home substantially (17 to 40 percent) below the already limited quality available with FHA or deferring purchase for several years assuming they could save enough to stay ahead of home price appreciation and interest rates remained affordable.

FHA is also more generous than PMIs when it comes to allowing variances to its income-qualifying rules. Stretching the qualifying ratio from 28 to 33 percent is equivalent to reducing the income required to finance a home by 15 percent below what would be required with PMI at the standard 28 percent ratio.

Finally, FHA is substantially more tolerant of past borrower credit history problems or lack of established credit history. FHA is also more apt to insure mortgages in areas with greater uncertainty about the stability of borrower credit or collateral values.

Conventional mortgage lenders, together with private mortgage insurers, Fannie Mae, and Freddie Mac, provide excellent service for the majority of American homebuyers. However, as the data reported in this paper and experience shows, the conventional mortgage market cannot serve the significant number of Americans who, while capable of carrying the responsibilities of homeownership, lack the savings, income, or credit quality to meet conventional lending standards. Nor, are conventional lending institutions in a position to assume the higher risks of housing market stabilization in times of economic distress or demonstrating certain product innovations for which there is no experience.

For the last 60 years, FHA has assumed this higher risk role of (1) serving the nation's higher risk, credit-worthy borrowers, (2) stabilizing housing markets in times of higher interest rates or economic distress, and (3) demonstrating the viability of mortgage market innovations. It has performed this role without any taxpayer subsidies. The reason FHA can insure the higher risk loans at each and every LTV ratio without taxpayer subsidies when private insurers cannot is addressed in the next subsection.

D. Why FHA Can Serve Riskier Borrowers When PMIs Cannot

FHA's single-family insurance program is self-supporting; it is sustained fully by the insurance premiums it charges with no budget appropriations. FHA is required by statute to operate on an actuarially sound basis and it has for the last 60 years. FHA is able to serve its higher risk clientele without taxpayer subsidies because it charges higher premiums and realizes a cost advantage with its Federal guaranty. Because FHA charges its borrowers a higher premium than private insurers charge, lower risk borrowers who can will normally utilize PMI.

While this premium differential is an important source of revenue, FHA's Federal guaranty is the principal reason it can serve a more risky clientele. FHA's government guaranty lowers its costs by freeing FHA from having to attract sufficient capital to ensure lenders that it will be able to pay off its insurance claims.[6] Private insurers, on the other hand, must earn a profit which is sufficiently large to attract the capital necessary to assure lenders and to satisfy their stockholders.[7] Because serving riskier borrowers involves a greater risk of failure, private insurers would have to maintain both larger reserves of capital and a larger profit margin to secure the capital in that riskier use. The freedom from having to earn a private risk-adjusted profit is FHA's principal cost advantage over the PMIs in serving riskier borrowers. When this cost advantage is coupled with FHA's higher premiums, the resulting revenue can support a higher level of losses and riskier borrowers than PMIs could underwrite at each and every LTV ratio.

In addition, FHA can make mortgage finance available to some borrowers who are expected to generate losses (beyond what the higher premium and cost advantage would support) by cross-subsidizing their losses with surplus premium income from lower-risk borrowers, who are nonetheless too risky for PMIs. Because FHA is the only alternative for homebuyers who are too risky to be profitable for PMIs, FHA can charge the better risks in that group a premium in excess of that required to cover the risk they pose, thereby generating surplus income for cross-subsidization. In other words, FHA can use surplus income from its lower risk loans to pay for losses on its higher risk loans. This does not cause its relatively lower risk borrowers to leave FHA because these borrowers would find it difficult to get loans from private lenders. Private insurers, however, cannot cross-subsidize in this manner because they would lose surplus-income business to PMI competitors.

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[6]The National Affordable Housing Act of 1990 does require that FHA eventually maintain an economic net worth (accumulated capital plus the present value of expected cash flows from existing business) of 2 percent of insurance in force. This equity requirement is different from the hard currency capital reserve required of private insurers.

[7]The Secura Group reported that most PMI companies are currently earning a return on equity of at least 18 percent and maintain capital in the amount of 5 percent of their risk exposure. See The Secura Group, FHA Single-Family Mortgage Insurance: Its Relevance In Today's Market (Washington, D.C.: Mortgage Bankers Association of America, April 25, 1995), p. 58.

E. What Privatization Will Cost and Why It Will Not Work

Many of the proposals to limit or privatize FHA are based on the assumption that private insurers with the GSEs can take over most or all of FHA's role, continue the same level of service, and maintain present homeownership rates in the nation at no higher cost to the homebuying public. This paper demonstrates that such an assumption is patently absurd.

How would PMIs be able to do this without the cost advantage of FHA's Federal guaranty and ability to cross-subsidize? The risk profile of current FHA homebuyers will not magically diminish. If PMIs were to integrate FHA's highly skewed risk profile into their current, substantially-lower risk portfolio, lenders and or state regulators would insist on substantially higher capital reserves and on insurance coverage that exceeds the current 30 percent of the loan balance. And, PMI stockholders would insist on a much higher rate of return commensurate with the risk.[8] GSE stockholders would also insist on higher rates of return (profit) with the integration of FHA's risk into their portfolio. The combination of the PMI breakeven premium and the GSE guaranty fee necessary to accommodate the FHA's risk profile would at a minimum exceed FHA's current premium and Ginnie Mae's fee by the PMI profit requirements since the PMI does not have the benefit of the Federal guaranty or cross-subsidization. Practically speaking, it is likely that most of the loans now insured by FHA would not be made at all and the few that were made would have much higher fees and less desirable terms.[9] In short, a decision to privatize--that is, eliminate FHA--is a decision to reduce homeownership among middle-class Americans and sink back toward lower homeownership rates.

Moreover, elimination of FHA would also remove its stabilizing effect from local housing markets when interest rates rise or the economy falters. For example, during the 1980s in the oil-patch states, the percentage of loans insured by private mortgage

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[8]The Secura Group states (on page 58) that the regulatory capital reserve and the required return on equity would surely rise substantially beyond their current 5 and 18 percent levels were PMIs to augment their risk exposure by doubling the size of their portfolio and incorporating FHA's higher risk loans, most of which carry LTVs in excess of 95 percent. Standard and Poor's December 1994 Insurance Rating Focus reported that the above 90 percent loans which carry the highest risk exposure accounted for less than 34 percent of the PMI's current risk in force.

[9]In fact, with the removal of the FHA backstop alternative and its stabilizing influence in the market, conventional homebuyers using PMI could witness increases in PMI premiums and GSE guaranty fees.

insurers plummeted, exacerbating local economic problems. In contrast, FHA continued to make mortgage credit available, moderating the severity of the downturn. Had there been no FHA to continue providing a way for people to finance home purchase, the market for homes would have been left principally to speculators capable of making large down payments or cash purchases. Under these circumstances home prices could be expected to decline much further than otherwise and defaults and foreclosures would be substantially higher for both FHA and conventional lenders and PMIs.

Finally, the introduction of an income limit to explicitly target low- and moderate-income people would have a similar effect of removing FHA's cushioning effect (automatic stabilizer) from the market. The principal problem with any income limit, nationwide or area-specific, is that the income necessary for financing home purchase is tied directly to the level of interest rates, rising as interest rates rise. Hence, if access to FHA were to be restricted by an income limit, the number of homebuyers allowed to benefit from FHA would be substantially reduced during periods of higher interest rates, precisely the time when FHA is most needed to maintain effective demand and stabilize housing markets.

What is considered relatively high income for home purchase in a low interest rate environment can quickly become relatively low income in a higher interest rate environment. Because FHA payment-to-income and down payment requirements are less restrictive, borrowers can cushion the effect of higher interest rates and preserve purchasing power by shifting to FHA to remain in the market and/or avoid scaling back their purchase by as much as PMI underwriting would require.

FHA's loan limits already discourage higher income households who can in good times qualify for lower-cost private insurance to purchase higher-priced homes. Thus, an income limit is in many respects redundant.

It has been shown that FHA's single-family insurance program does not cost taxpayers any money; hence, there would be no budget savings realized from privatizing FHA.[10]

FHA with its Federal guaranty has been able to expand and keep homeownership well beyond what the conventional system with private mortgage insurance would support. In addition, it has improved

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[10]The cost of FHA's Federal guaranty, as is the case with the other Federal guaranties supporting housing and other commodities, is borne by people who pay a higher price than would otherwise be required for products that do not benefit from government support. However, many of these people are themselves beneficiaries of government support for housing.

housing market stability by cushioning the effects of higher interest rates and economic downturns. FHA has been able to do this because its Federal guaranty confers a cost advantage that, when coupled with its higher premiums, permits it to serve higher risk homebuyers, who would otherwise go unserved, at no cost to taxpayers. Thus, any move to limit or privatize FHA would simply serve to reduce homeownership among middle-class Americans, moving the nation back toward lower homeownership rates, with no accompanying gain in budget savings.

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